



Reimagining the New Density in Apartment Urbanism

The conflicted social and economic space
of apartment complexes in Seoul, Korea

Yeeun Boo

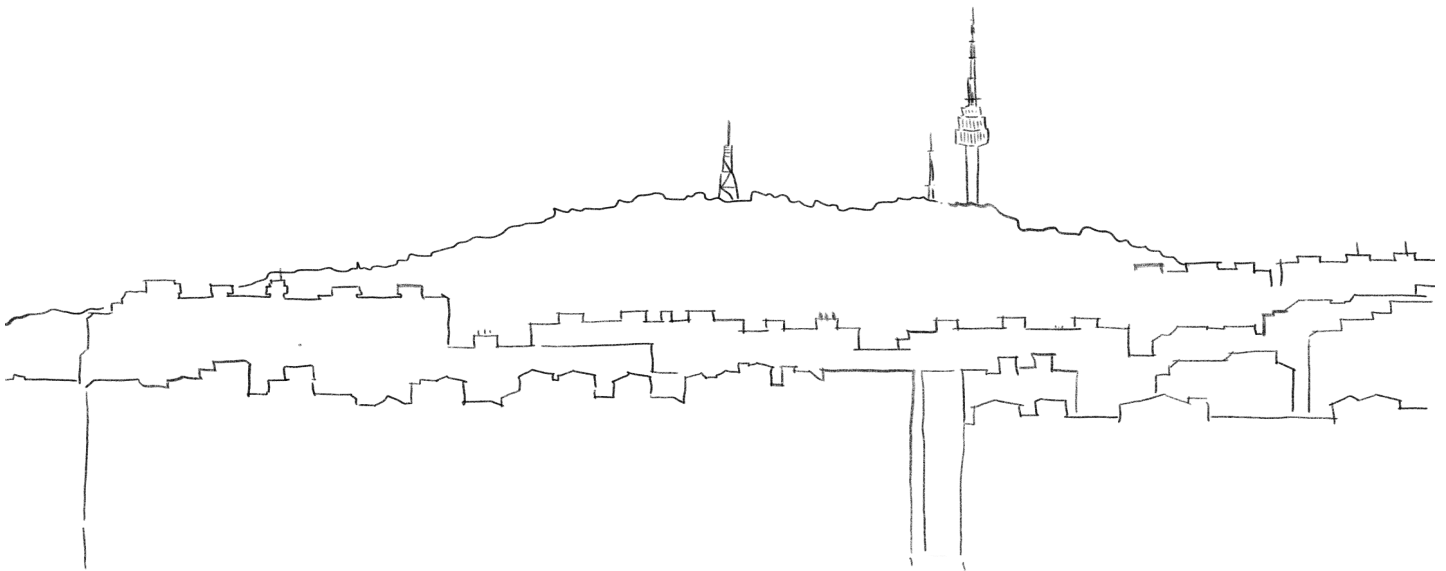
REIMAGINING THE NEW DENSITY IN APARTMENT URBANISM: The conflicted social and economic space of apartment complexes in Seoul | Yeeun Boo

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strategies and design for
cities and territories



 **TU Delft**

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Delft, October 2021



*On a glorious day in 2019 Fall,
When we were not close each other yet...*

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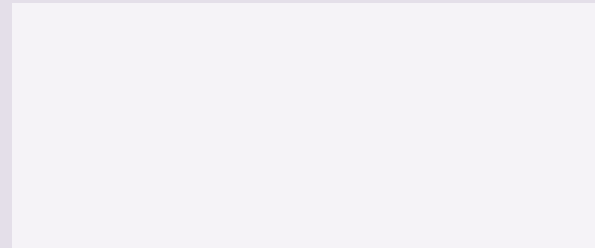
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The purple boxes are the supportive tool in this report to give a better understanding to the backgrounds and contexts of Seoul.



Preface

Densification is one of the “core” in contemporary society. It has been always the intriguing topic in urbanism which dominates and imposes the prevailing theories and manifests at that ages. Without density, there will be no urbanity. Urbanity is preconditioned on a densely developed city with a more efficient and varied functions and uses. In case of Seoul, the capital city of Republic Korea, it has grown in its size vertically to accommodate the massive influx of population after the liberation and the Korean War.

Nowadays, Seoul has evolved into one of biggest republic of apartment as what Valérie Gelézeau described her book. Although the critics for homogeneous and dull environment in apartment complexes have been discussed by many researchers with crises such as physical and social segregation, what is important is the ordering structure, not the density itself, which enables the richness of everyday life.

The experiences in Europe open my eye to question the quality of space that I have never pondered before. I myself have grown up as new generation who used to this type of apartment complex and therefore possess different perception from my parents' generation. Moreover, the unprecedented crisis, COVID-19, has aroused the question about how density matters in responding to external changes and adapting from the internal transformation. I believe that now is the moment to acknowledge that the density is not only a formula or form and to call for paradigm shift for the changes.

The Seoul city is such a place with diversity and heterogeneity where all the conflicting values of crosspoints are intersecting: the past heritage and contemporary modernity; the space above and underground; the nature and artificial; the traditional craft and new digital supply-chain; and more. This global metropolitan city has grown its size in depth and height to absorb people, good, and resources. The Seoul's rapid growth seems successful in quantitative perspective, yet the qualitative development beyond the growth places Seoul into new challenges such as social mix and new strategies for residential development.

This graduation project is the first phase of understanding the dynamics of Seoul, looking into the apartment urbanism where the density follows the logic of profit-oriented capitalism to pursue the highest number of floor areas without the consideration of cohesive vision or the overall public goods. Meanwhile, the other dichotomous housing typology, the single detached dwellings, has experiences challenges such as low accessibility, lack of parking lots and green space or deteriorated living environment due to aging. Therefore, this graduation project views the apartment complexes, especially the public rented apartment complexes as a new possibility to promote a qualitative urban development and societal change for synergetic co-existence.

PART 1

SEOUL, THE REPUBLIC OF APARTMENT COMPLEXES

UNDERSTANDING THE BACKGROUNDS AND THE CONTEXS



1 – Memories and Places Replaced by Apartment Complexes

How Did Apparently Western-style Housing Blocks Migrate to Korea on Such a Large Scale?

FIG. 1.1 Introduction of apartment complexes in apgujeong-dong during 1970s.

(source: From *Beyond the River: 'Youngdong' Development*, by Seoul Museum of History, n.d. (https://museum.seoul.go.kr/www/exh/NR_exhibitInfoView.do?sessionId=954A6B3A36D2831EAD54326661D58232?arcvNo=63979&arcvMetaSeq=20723&langGubun=01&arcvGroupNo=2180). Copyright 1978 by Jeon, Min-Ju.)

1.1 – Questioning the current logic of quantified density

Seoul, the capital city of Republic of Korea, has gone through the rapid growth since 1960s as a response to reconstructing the city after the devastating crisis of Korean War (1950-1953), often recalling its growth as ‘Miracle on the Han River’ or ‘Four Asian Tigers’. As one of instrument to facilitate the growth, the national government has actively adopted the form of apartment buildings¹⁾. It is regarded as an effective tool to deal with ultra-dense environment in Seoul where the skyrocketing population growth has challenged the demand of adequate living spaces (Kim, 2018). Due to its supportive national policies and planning instruments, nowadays the apartment buildings represent the most standard living environment in Korea.

Although the first apartment building, Chungjeong Apartment in 1937 resembled much of its appearance in block-type housings in Europe – the four story building with courtyard, Korea has evolved its own housing style of apartment building in accordance with Korean’s lifestyle – with the help of advanced construction technology, floor heating system, and luxurious amenities, positively framed by the media for its functional advantages such as convenience, accessibility, safety and more. Combined with the dominating western theories, from Garden City to Neighborhood Unit by Clarence Perry, the massive housing estates have evolved into larger and higher complex (danji), expanding its territory to the adjacent new-towns. The established new model of apartment complexes is now exporting to other developing countries such as Vietnam as a desirable housing model.

While the western perception towards the mass housing estate is the failed projects and the policies, it is clear that Korea has a different housing culture, where the apartment reflects not only the symbolic status of wealth, but also a profitable product to accumulate capital, especially in the redevelopment and reconstruction areas. The capitalistic driven production by private companies results in uniform and modular form in the view of real estate speculation. While the other Western countries dream of suburban life for more spacious and nicer house, Korea takes a different trajectory from the predominance of sprawling, low-density urban environment, dreaming urban life of the apartment buildings in Seoul.

With a production of massive apartment complexes, Korea is one of the biggest republic of apartment complexes within the world. In 2019, 58 percent of citizens in Seoul live in apartment while 11 percent live in detached housings, according to the Korean Statistical Information Service. The Gyeonggi Province, which surrounds Seoul comprising Seoul Metropolitan Area (SMA), shows similar trends: 69 percent of households live in apartment and 12 percent dwell in detached housings. Compared to 1980s when 19 percent of citizens in Seoul lived in apartment while 71 percent lived in detached housings, the reversing trends would continue. When categorized into the income groups in SMA, intangible social strata are revealed through their types of occupation: low-income groups equally live in both detached housings and apartments, 38% and 32% respectively. However, the gap becomes visible in high-income groups: only 10 percent live in detached housings and 77 percent live in apartments. This would result in segregated closed society for poor and marginalized people.

1) Although there are many ways to call this tower-type dwellings, for example villas or flats, here I typically specified as ‘apartment’ which is official legal term for collective housings with more than five-stories in Korea.

The critics for homogeneous and monotonous environment in apartment complexes have been discussed by many researchers such as Valérie Gelézeau who labelled Korea as the republic of apartment. Crises such as physical inactivity around the rigid boundary and social discrimination depending on the construction brands have raised questions about the current custom of producing apartment complexes. We can imagine following reactions to the current trends: either we live in mechanized products isolated from the outer context and privatized by modern lifestyles, or we reimagine the new urban intensity where the density, diversity and connectivity simultaneously function as urban setting (Rowe and Kan, 2014). The direction towards the latter would open up a new possibility, which in turn poses a fundamental question: how can we change the perspective of quantity-oriented production to the quality-oriented urban life?

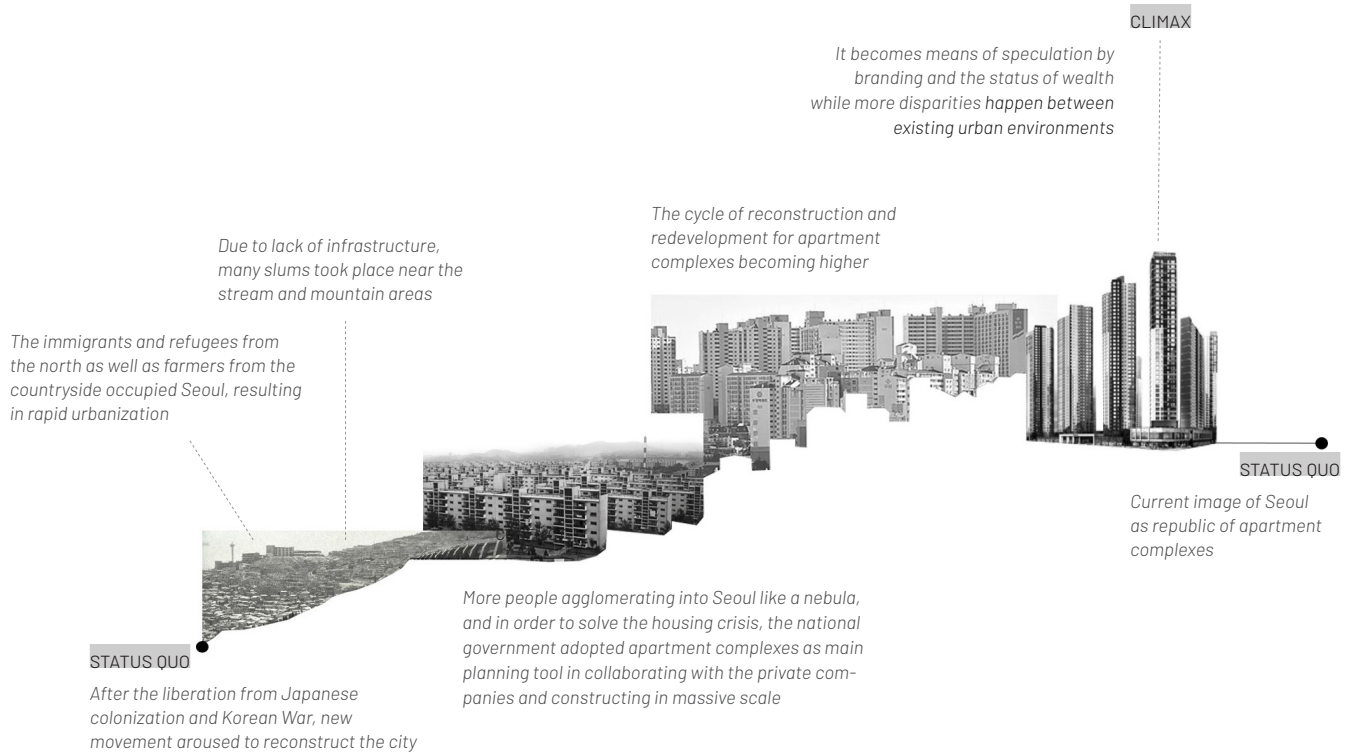


FIG. 1.2 The narrative of how Seoul became republic of apartment complexes.

(source: made by author)

1.2 – The interplay between rapid urbanization and scarcity in lands

The main driver for the current domain skyline found in most of the East Asia countries, including Korea, is definitely the outcome from the rapid urbanization in terms of both land and population. It has been materialized with the emergence of iconic towers, consumptive cultural landscape, as well as gated communities as the flooding global force dominates the urban terrain (Marshall, 2003). The widely adopted form of mega-plots is the hybrid product of modernist urban theories adopted from the West. *“The suddenness, strength and comprehensiveness of recent urban modernization in East Asia is such that the palpable results probably exceed Western experiences, even though the basic concepts were borrowed from the West, and will place the region, by and large, on a different path”*(Rowe, 2005, p.6).

Yet, it is the inevitable consequence of two confronting forces: the rapid urbanization and the scarcity in lands controlled by strict building regulatory system. The Seoul Metropolitan Area (SMA) is one big nebula which absorbs all resources: the half of total Korean population live within the Seoul Metropolitan Area, which represents only 12 percent of land mass. The urbanization process has been practiced in a relatively short period of time compared to the other western countries, where the urbanization usually took more than hundreds of years. The simultaneous problems such as implementation of basic infrastructures, foundation of economic growth and clearance of slums placed an urgent task for Korean National Government to make radical spatial transformation in Seoul, who did not have enough capacity to ponder and develop our own model for ideal living environment at that time. The scarcity of lands is then closely tied with soaring land prices, emphasizing the role of Floor Space Index (FSI) to pursue the maximum living spaces within a given plot. In addition, the strict land-use zoning makes difficult to accumulate the density within the existing single detached housing districts. Therefore, the large-scaled apartment complexes are the reasonable conclusion for the Korean National Government to solve the housing shortage crisis due to the skyrocketing population growth since 1960s.

The image in the next page illustrates how fast the population in Seoul has grown in the given period of time. The first official record of Seoul's population in 1915 stated it to be about 240,000 inhabitants. The number of population rose to 1 million in 1942 in accordance to the first massive expansion of administrative area in 1939. Although there was a great decrease in population due to Korean War (1950-53), the growing trend restored and continued to exceed its highest number. The rapid industrialization during 1960s and 1970s accelerated large land readjustment projects such as Gangnam district to reach the 10,000 population density with its largest administrative area of 627.06 km² in 1973. After its peak in both population number and density, which were 10.97 million inhabitants and 18,000 per square kilometres in 1992, SMA has expanded its territory to assign the density to suburban areas.

Currently, Seoul is noted for its population density of approximately 10 million inhabitants and 16,000 per square kilometres. It is the most populated metropolitan city among Asia regions in OECD nations (OECD, 2013). If the geographic condition such as mountains and the greenbelt around Seoul to limit the development are considered, the actual density that people perceive will be greater.

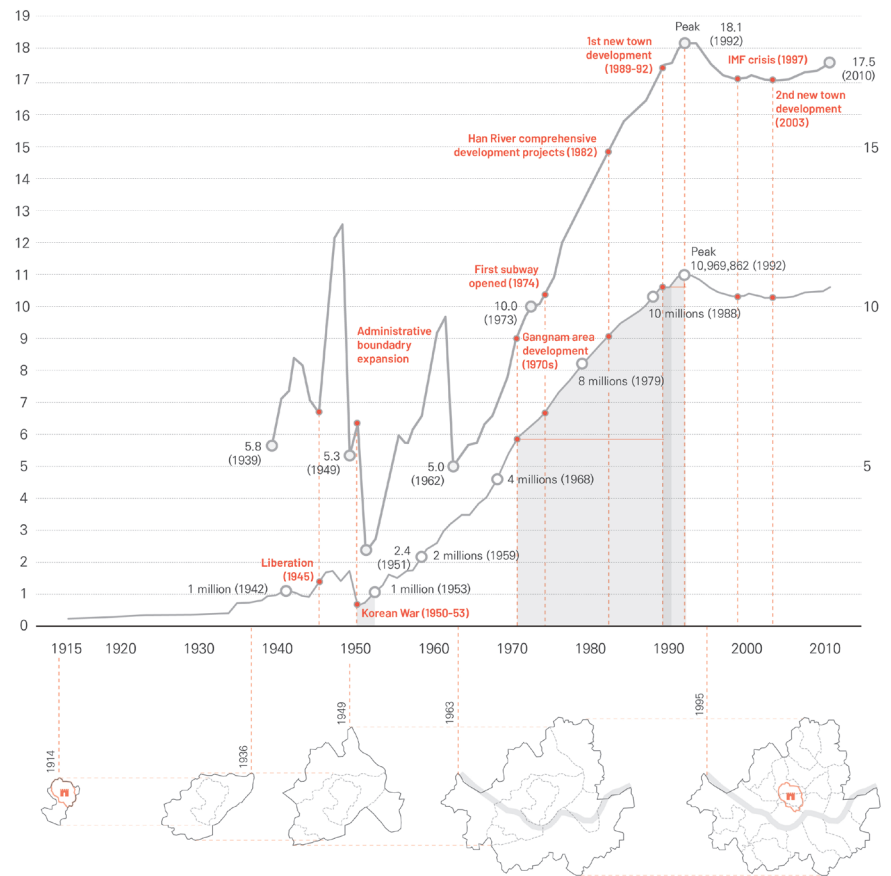


FIG. 1.3 The population growth and density, 1915-2010 in Seoul, Korea.

(source: From *Geographical Atlas of Seoul 2020*, by The Seoul Institute, n.d. The Seoul Research Data Service. (<https://data.si.re.kr/node/55631>).)

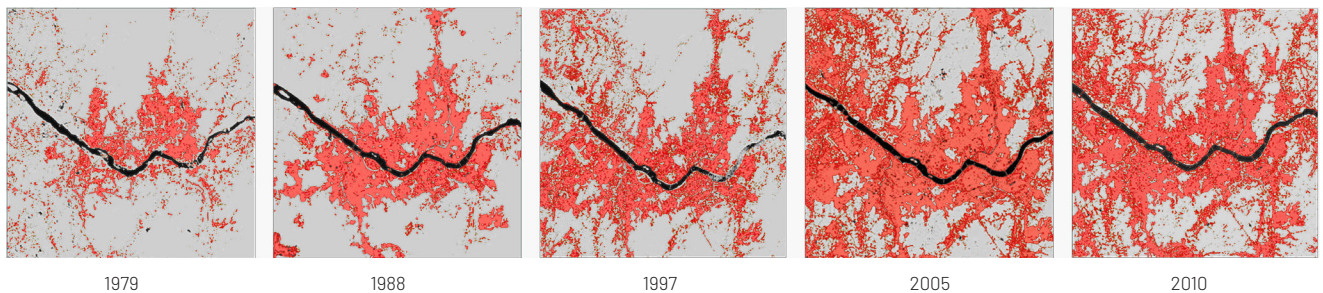


FIG. 1.4 The expansion of built-up areas in Seoul Metropolitan Area.

(source: From *Geographical Atlas of Seoul 2013*, by The Seoul Institute, 2013. The Seoul Research Data Service. (<http://data.si.re.kr/node/55513>).)

1.3 – The partnership between the government and the private sector

The distinctive urban phenomenon of apartment complex replacing the traditional single housings has been forced by the profit-gain alliance between the government and the private sector (Gelezeau, 2008). From the scratch, the government implemented the supporting policies to facilitate the private housing construction. As stated, Korea experienced compact and rapid economic development after 1960s. There were myriads of challenges to overcome such as housing shortage and lack of basic infrastructures, yet the financial resources were limited. Since it was impossible to have the best of both worlds, the Korean National Government took the strategy to rely on the private companies to supply massive housing quantity to achieve the national housing policy goal. Therefore, the massive housing estates were not the product from the modernization and industrialization, but the effective instrument in the process of achieving the modernization and industrialization.

As one of supportive incentives, the government introduced the 'pre-sale' system in 1977, which helps to directly deliver the housing construction finance from the possible tenants as pre-sale price without bank interest. In addition, the National Government monopolized the development of housing site and sold the lands to the private companies with reasonable price. The enactment of 'Housing Construction Promotion Act' in 1972 enabled the housing construction process more simple, while the National Housing Fund reinforced the large-scale of high-rise apartment complexes with less burden.

Again, the partnership between the government and the private sector was complementary to each other. The government was able to save the money and the labour as the private companies supplied the housing as well as amenities such as green, playground, or parking space inside of apartment complexes to make adequate living environment. On the other hands, the construction companies gained grand profits due to economies of scale coming from the massive quantities of supplement.

The private-dependent construction results in nowadays' product of the capitalistic urban development based on the market, and the capacity that private sectors occupy in the housing market becomes larger. Especially the dominant role of private sector is distinctive in the residential improvement program, the reconstruction project of aged apartment complexes. Calculated by the maximum profit to gain, the apartment complexes have to pursue a higher density than before to provide the extra units, which they are enable to sell to the future tenants.

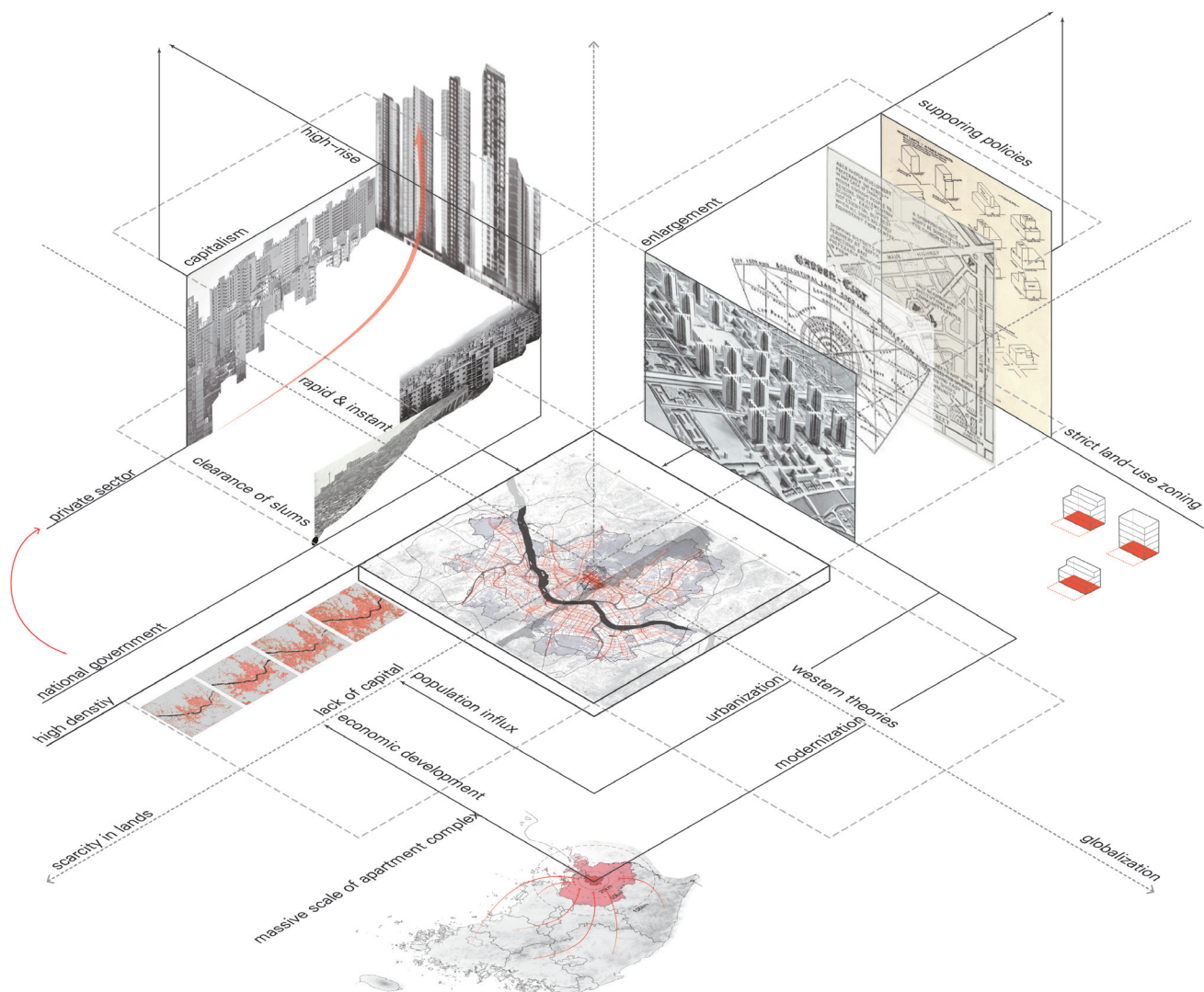
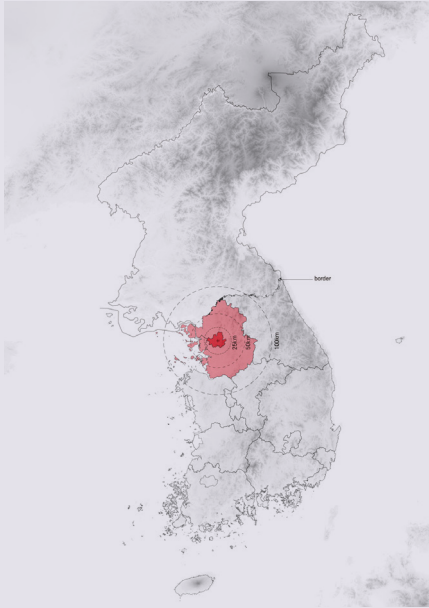


FIG. 1.5 The summary of mechanism in producing density in the form of apartment complexes.

(source: developed by author)

By reading the background and context, it is explicit that the emergence of large-scaled apartment complexes was the most efficient strategy for the national government to accomplish the task of compact and rapid development. It was also considered as the right answer to the simultaneous processes of modernization, urbanization, as well as the globalization where the interplay between the population growth and the scarce lands in Seoul produces the higher form of density. Yet, there are more complex and intangible reasons behind why apartment complexes are accepted as the most preferable and desirable housing types to Koreans as they are interlinked with living culture reflecting the Korean society. Therefore, it is important to understand the interrelationship of power game between land, buildings, and rules, as well as to read the social, cultural and political system embedded in the scape (Duncan, 1994). The more detailed description on relationship between the policies, regulation, and the form of apartment complexes will address in chapter 5.

Box 1.1 – The basic background of Capital City Seoul



Seoul has been the capital city of Korea officially since Joseon dynasty since 1300s. The location of former historic centre was decided followed by the rule of ‘fung shui’ where the mountains surround the back and stream runs on the front to serve as a strategic area for living and defence. It has been a heart of political, economic and cultural activities, protected by the 18 kilometres of fortress along the ridge. After the liberation from Japanese colonization in 1945 and following crisis of Korea war in 1950, Seoul restored its function as capital city of Republic of Korea. Nowadays, it is one of major global metropolitan combined with Seoul Metropolitan Area (SMA) which is defined by the areas of Seoul, Incheon, and Gyeonggi-do as legal boundary. Although it comprises only the 11.5 percent of land in South Korea, its influence beyond the boundaries are significant in that more than half of national population are living in SMA, agglomerating all the resources, goods, and people as one big nebula.

The total area of Seoul is 605.2 km² with approximately 10 million of living population. There are 25 self-governing districts or boroughs [gu] and 424 neighbourhood units [dong]. Placing the historic centre as a focal point, the city has a multi-centric structure which comprises three main cores, seven regional sub-cores, and 12 local centres in pursuing the balanced and mutual development.

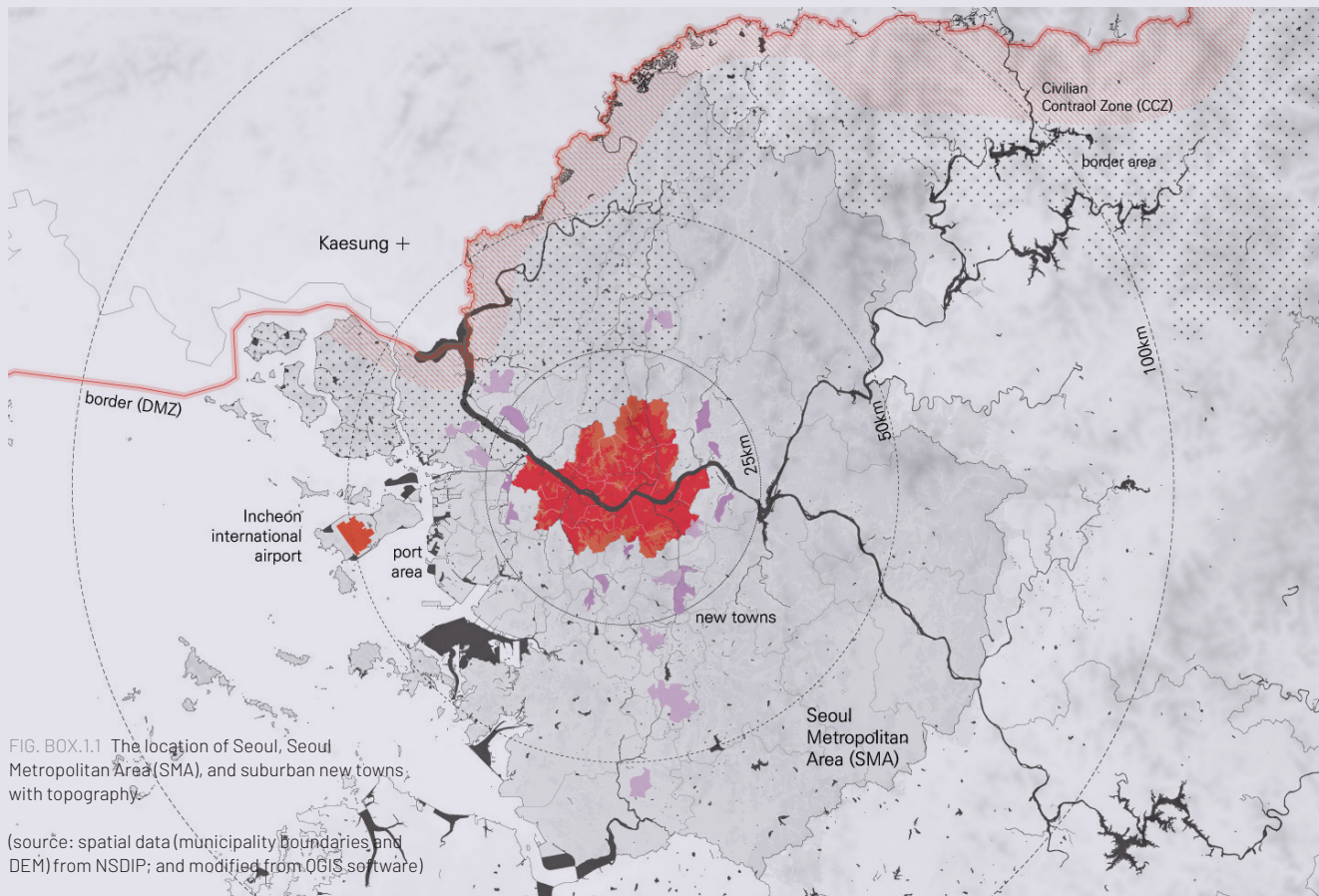


FIG. BOX.1.1 The location of Seoul, Seoul Metropolitan Area (SMA), and suburban new towns, with topography

(source: spatial data (municipality boundaries and DEM) from NSDIP; and modified from GIS software)

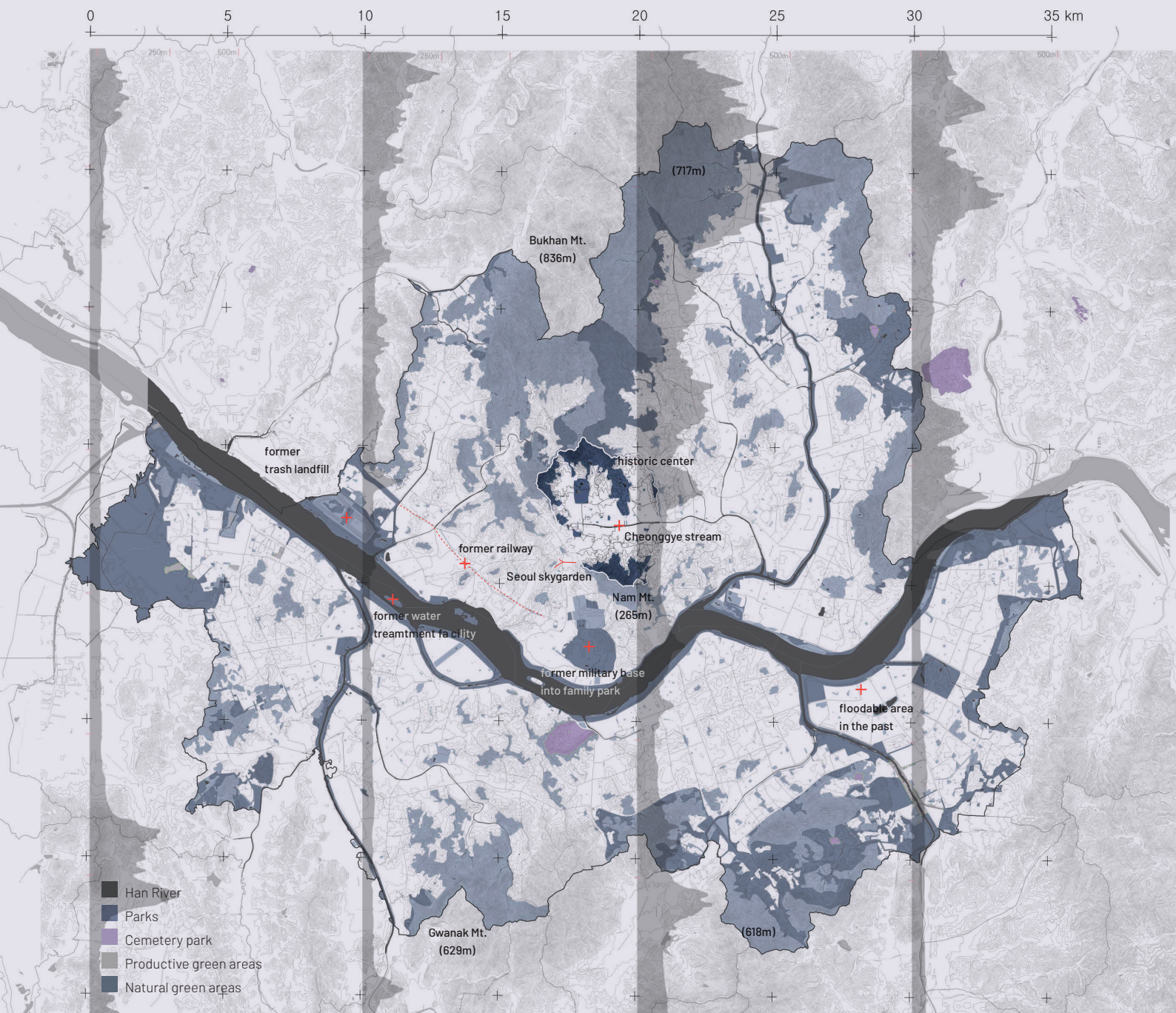


FIG. BOX.1.2 The landscape layer of Seoul with topography sections.

(source: statistic data from The Seoul Research Data Service; spatial data from Seoul Open Data Plaza; section data from Google Earth; and modified from QGIS)

Seoul has a rich characteristic of landscape. The western part of Seoul is an alluvial plain, while the north-eastern part features high mountains more than 1,000m above sea level. The Han River traverses the centre of Seoul from east to west, which used to function as the major transport route for exchanging goods. The total surface area of public parks in Seoul is about 170 km², which accounts to about 16.2m² per resident based on the year of 2012. Since 2000s, SMG has actively tried to provide more qualitative green areas to public initiating series of regenerative projects such as restoration of Cheonggye stream, Seoul Skygarden, railway linear forest park, and transformation of landfill into parks.



FIG. BOX.1.3 The infrastructure layer of Seoul, showing 500m buffer areas around subway stations.

(source: statistic data from The Seoul Research Data Service; spatial data from Seoul Open Data Plaza; and modified from QGIS)

Seoul is one of metropolitan cities that has well-distributed and efficient public transportation systems of subways and buses, supporting almost 32 million trips per day. The first subway line introduced in 1974, and nowadays, there are total nine subway lines operating throughout Seoul with 302 stations, which serve almost all territory of Seoul. In addition, the 351 bus networks connect not only areas within Seoul, but also the inter-city regions. Since 2000s, SMG has proposed a vision to provide pedestrian-friendly environment. Many vehicle-oriented spaces returned to citizens as public spaces such as plazas and parks. In 2017, the public sharing bicycle system was introduced to facilitate the green and active transportation.

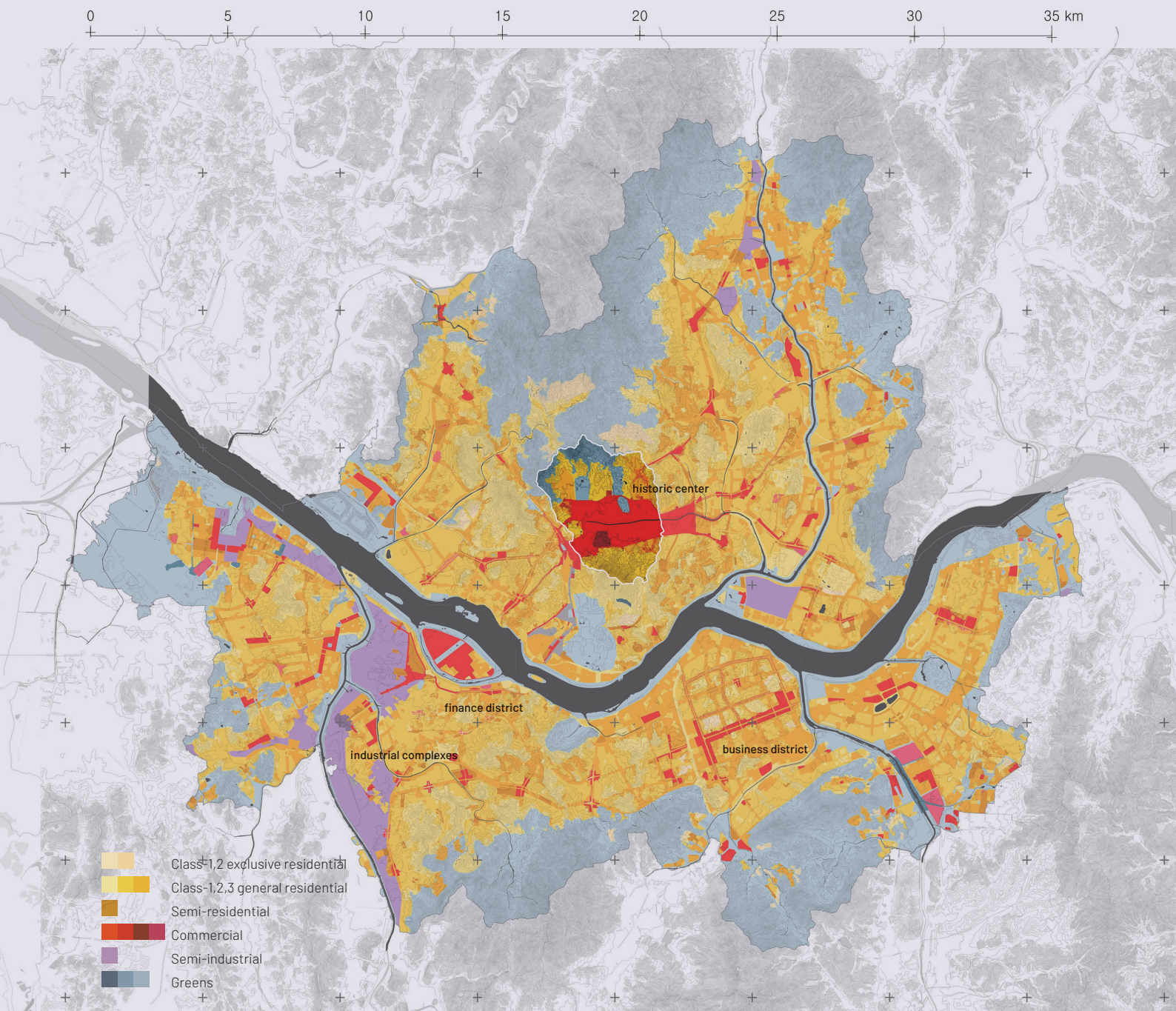


FIG. BOX.1.4 The occupation layer of Seoul illustrating land-use zoning system.

(source: statistic data from The Seoul Research Data Service; spatial data from Seoul Open Data Plaza; and modified from QGIS)

The land use planning is the zoning system to make an effective use of lands by controlling the function, density as well as height. Every parcel is allocated to certain zoning. In Seoul, almost half of the areas is designated as residential function, followed by green area (41.8%), semi-industrial area (4.8%), and commercial area (3.8%). Moreover, the 'District Units Plans' which is the detailed urban design plan specify not only the function and density, but also open space, set back line or even colour to manage the urban space in qualitative way.

Box 1.2 – How dense is Seoul?

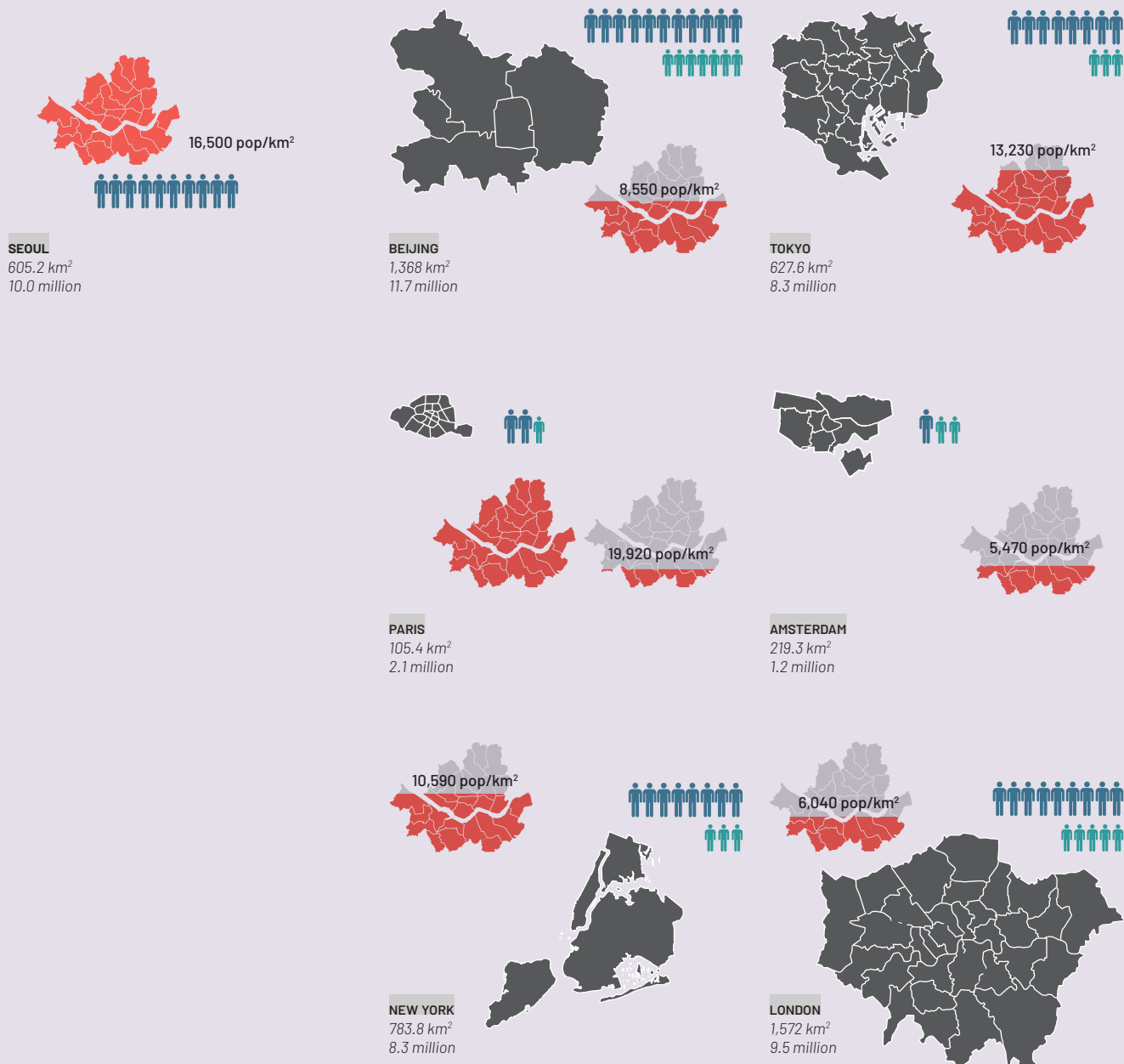


FIG. BOX.1.5 The comparison of population density among major metropolitan cities.

(source: Population Stat, 2017-2021. (n.d.). [Statistic information]. Retrieved from <https://populationstat.com/>)

The city area of global metropolitan cities follows London, Beijing, New York, Tokyo, Seoul, Amsterdam, and the Paris in highest order. However, Seoul ranks the second highest in terms of population density, followed by Paris. Although the simple calculation provides the numeric indicator for the density and rationalize the available space for development, it does not reflect the geographical condition of Seoul: the natural green areas occupies the one third of the total area, and most of the terrain is sloped. Therefore, it is expected that the perceived density in real live would be much greater in Seoul.

The other aspect in population density in Seoul is the speed. While the global metropolitan cities, especially the western cities, gradually have grown for almost 100 years of period, Seoul, including other Asian cities, shows the rapid growth in relatively short period - it took 46 years for Seoul's population to go from 1 million to 10 million. The fact that both industrialization and urbanization accompanying the economic growth occur simultaneously and within a very compressed time means that Seoul needs 'the other' approaches to accommodate the city's growing towards mega-city.

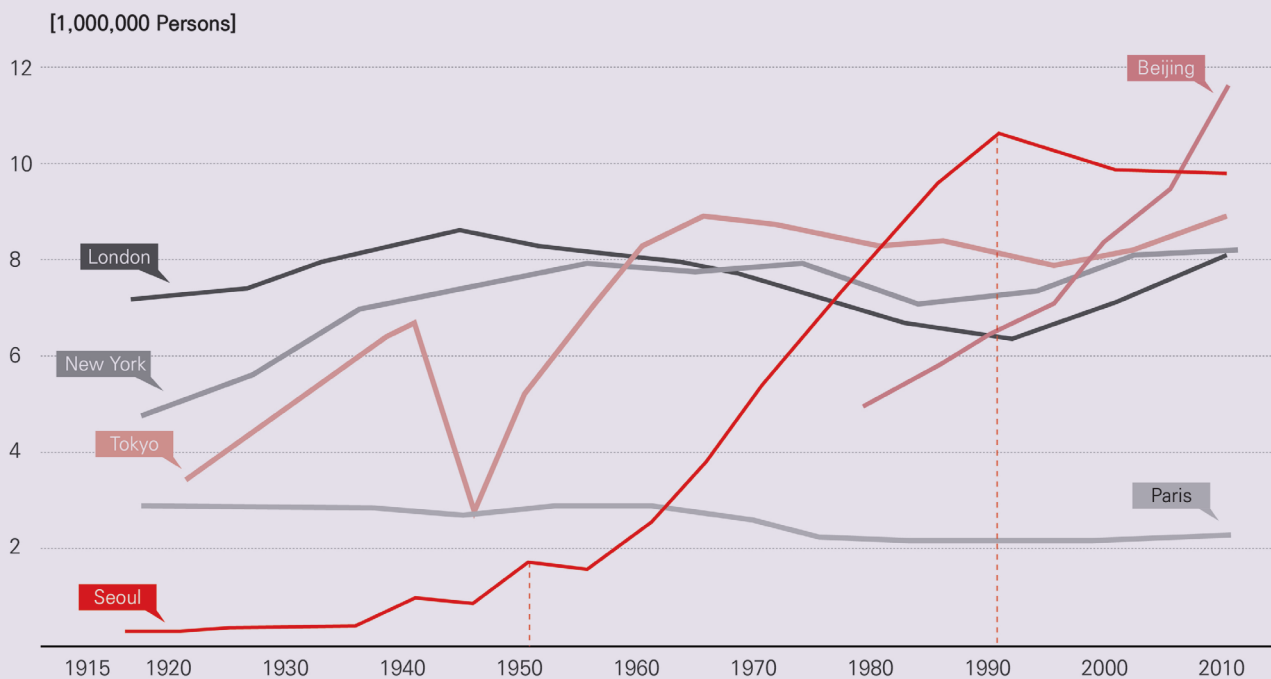


FIG. BOX.1.6 The comparison of population growth among major metropolitan cities.

(source: From *Seoul and Global Metropolitan Cities*, by The Seoul Institute, 2017, The Seoul Research Data Service. (<https://seoulsolution.kr/ko/seoul-and-world-cities>.)

Box 1.3 – Land-use zoning and the building regulation

The ‘Specific-Use Areas’ policy or land-use zoning policy defines the regulation related to function, GSI, FSI, and height. It is managed by higher hierarchy of ‘National Land Planning and Utilizing Act’ by Ministry of Land, Infrastructure and Transport. Mainly, the land use areas are categorized into four zonings: residential, commercial, industrial and green areas. The regulations vary in their specific limits and allow building types and functions based on the context of each cities and the municipalities.

Due to its rigid regulation, there is a clear division between the building typologies. For example, the single detached houses are mostly found in class-1 exclusive residential areas, while multi-family houses are suitable in class-1 and 2 general residential areas. Apartment buildings are mostly appeared in class-2 and 3 general residential areas.

TABLE BOX.1.1 The land-use zoning regulation by Seoul Metropolitan Government Ordinance on Urban Planning (source: SMG, .n.d.)

CLASSIFICATION	GSI	FSI	HEIGHT
class-1 exclusive residential	≤ 50%	≤ 100%	≤ 2 floors
class-2 exclusive residential	≤ 40%	≤ 120%	
class-1 general residential	≤ 60%	≤ 150%	≤ 4 floors
class-2 general residential	≤ 60%	≤ 200%	
class-3 general residential	≤ 50%	≤ 250%	
semi-residential	≤ 60%	≤ 400%	

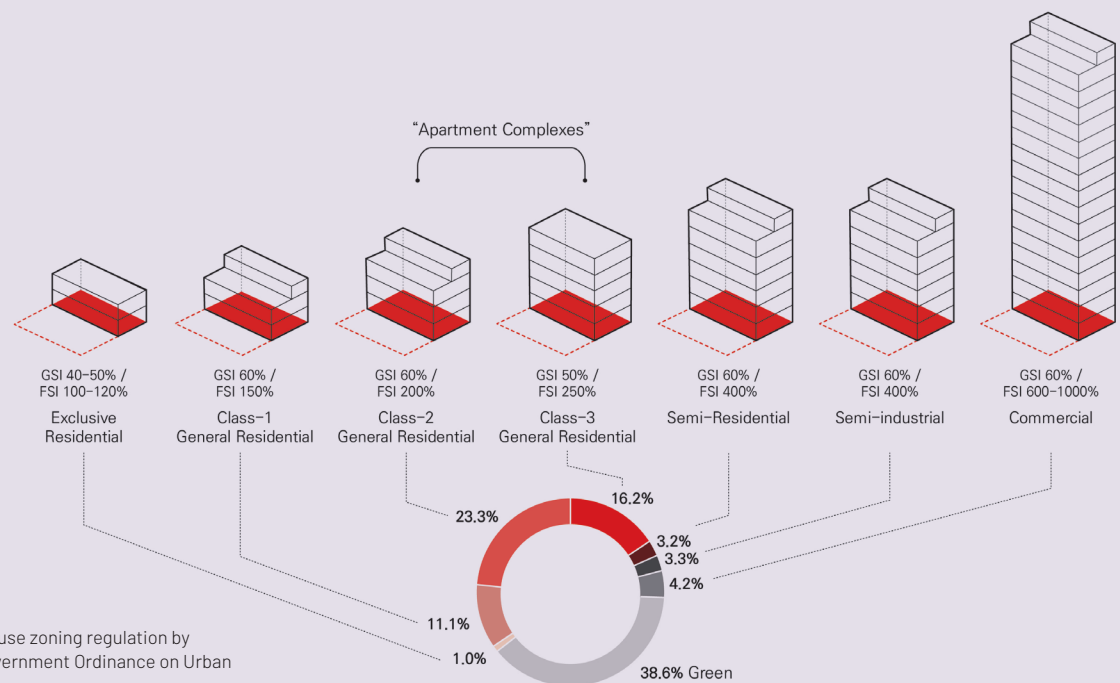
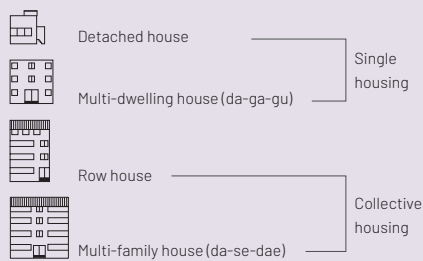


FIG. BOX.1.7 The land-use zoning regulation by Seoul Metropolitan Government Ordinance on Urban Planning in 2019.

(source: Seoul Open Data Plaza; and modified by author)



Box 1.4 – Terminology

- Housing types:
 - a Single house: detached houses and multi-dwelling houses
 - b Collective house: multi-family houses, row houses, and apartment buildings
 - c Multi-dwelling house (da-ga-gu): type of detached houses with single owner. The total floor areas should not exceed 660m² and the height should not exceed 3 floors.
 - d Multiplex / Multi-family houses (da-se-dae): type of collective houses with multiple owners. The total floor areas should not exceed 660m² and the height should not exceed 4 floors.
 - e Tenement / Row houses: type of collective houses which total floor areas exceed 660m² and the height is less than 5 floors.
 - f Apartment buildings: legally defined as a multi-family house more than 5 floors
 - g Apartment Complex (AC): the block(s) of apartment buildings surrounded by arterial roads
- Real-estate sales types:
 - h Pre-sale system or pre-construction sales: a real estate purchase transactions which commence prior to construction of housings. Possible tenants pay the 80% of price through the contract payment and progress payment based on the exemplified image of model houses before the construction.
 - i Lump-sum housing lease / long-term rent with lump-sum deposit (Jeonse): tenant pays a lump-sum deposit to homeowner, and the homeowner tries to gain profit from the interest accrued from the deposit
- Programs of 'Improvement of Urban Areas and Residential Environment':
 - j Redevelopment project (JGB): a public residential redevelopment program targeting the area to improve the substandard infrastructure and housnig. Mostly, the single housing blocks are applicable to this program.
 - k Reconstruction project (JGC): a residential renewal program by the private sector to rebuild the multi-family housing blocks which have good conditioned infrastructure. Mostly applied to replacing the existing apartments with new apartments.
- Organizations and policies:
 - l HSD: Housing Site Development Project
 - m LA: Land Adjustment Project
 - n LH: Korea Land and Housing Corporation
 - o SH: Seoul Housing and Communities Corporation
 - p SMG: Seoul Metropolitan Government



2 – The Challenges Inherent in the Enlargement and Internalization of Apartment Complexes

Apartment Complexes as Urban Island

“It is an extraordinary, though rarely noticed fact, that social differences play no role in the street. In this sense, streets do not reflect society, but act in a contrary sense by putting together in space what society divides”

(Hillier, 2009, p.19)

FIG. 2.1 The contrast landscape between two typical residential housing types in Korea: detached housings and apartment complexes.

(source: From [Public Official Property Disclosure Analysis | Real Estate (1)] High-ranking public officials' 'Gangnam invincible' that even the Moon government could not defeat, by The JoongAng Economist, 2021, JoongAng Sisa Magazine (<https://jmagazine.joins.com/economist/view/333598>). Copyright by Jeon, Min-Gyu.)

Before the stating the problems, I want to clarify that the critic is not about the high-rise apartment building itself, but the large-scaled high-rise complexes (blocks) that are conflicted spatially and socially. Following problem statements are the reflected challenges stemmed from the characteristics of apartment complexes in Korea, which are the enlargement and the internalization.

2.1 – The unintegrated and self-sufficient block

The emergence of large-scaled apartment complexes superimposed on the existing urban fabric changed how people move and use the street. Already lists of literature stated out the negative impact that apartment complex influences on the urban fabrics (Dogan et al., 2020; Hwang and Kim, 2020). Especially, the super block or mega-plot becomes a common problem in disconnecting the flows of urban movement with few accesses and in lowering the activities along the mono-functional edges and anti-street frontages (Kim, 2020).

Yet, this is not a distinctive problem in Korea or even Asia, rather, it is the new challenges in contemporary urban fabric, where the traditional system between the plot, street, constructed space and open space lost its linked relationship and became the open fragmented form with autonomous and atomized elements (Levy, 1999). The shifts in significant scale resulted in nowadays 'towers in the park'.

The dominant role of private companies in the housing markets is explicitly revealed in the process of developing large-scaled residential area, as they only have a responsibility for their privately owned lands. The design of inner roads places the flow of vehicles prior to the pedestrian network, which in turn has no cohesive connectivity to the outer networks since there is lack of consistent vision between public and private sector. It is also attributed to the zoning projects with different and separate plans. In acknowledging the problem, recently, SMG is proposing various planning instruments to make more porous boundaries using landscape elements or to split the mega-block into smaller scale. Yet, it is hard to jump to the conclusion whether those attempts are successful or not.

The challenge of apartment complexes as urban enclaves is not only encountered in the outer context, but also with the interior living environment as well. The mass housing supplement in large-scaled blocks is regarded as efficient method where the agglomeration economic effects bring benefits such as concentrated energy system, distribution of infrastructures (ex. playground, green, parking space) and saving management fees. Since the single-detached housing or the multi-family housing districts lack of amenities due to the limited available space, the planned apartment complexes with spacious parking lot and various facilities have appealed to middle income of people as alternatives. Therefore, it was no surprise when this self-sufficient living environment within the bounded apartment complexes become one small society, where the similar socio-economic status of people creates a segregated group.

2.2 – The homogeneous and polarized living environment

Until now, the Korea has followed the logic of market, where the size of area decides everything. Since the large construction companies have the ability and technology to procure the mass quantity of housing development, they monopolize the housing market, while the small and medium architect companies are dispossessed to designing small plots of single houses. Therefore, the same types of housing units, apartment buildings and structure of blocks are replicated under the control of few large private companies who seek the efficiency and the profit.

The lack of diversity and the large-scaled plot contribute to the vulnerable city function in terms of self-restoration and adaptation. In addition, the deficit in diverse alternatives in living environment is another underlying factor that leads to less diverse in group of residents. The demands for space in contemporary cities change endlessly as the demographic structure as well as economic activities rapidly alter. The self-regulated activities are actively taking place in the area of small plots by playing with the flexible space which does not count as taxable area or inviting non-residential function to the ground floor. On a contrary, the small transformations hardly occur in apartment complexes: either only the interior is renovated with fancy feature, or the whole apartment complex is completely upgraded into new buildings.

In addition, the luxurious brand apartment complexes provided by private companies intensify the social tension with the tenants of the public rented apartments. The 'social-mix' policy in Seoul, which intends to alleviate the conflicts between sales and lease tenants, is often abused as a tool to gain more density by private construction companies, while the intangible social stratification in the community triggers NIMBY phenomenon, in belief that public rented housing would affect the property values. The uneased discrimination is reflected in the arrangement or the appearance of social apartments as they either are located at the edge of the block with uncomfortable accessibility or have different construction style.



FIG. 2.2 The process in designing the apartment complexes.

(source: Lee and Park, 2017, p.95)

First, it starts with the division of neighbourhood units defined with certain parameters. This step is important in a way that it already define the main spatial structures and networks which in turn influences the size of the apartment complexes. After the structure of complexes and access of vehicles are determined, the decision for the location of buildings and community facilities are followed. The inner network, vehicle and pedestrian, is the last step to be decided.

2.3 – The aim of the project

Following graduation project starts with question upon the different phenomenon of housing culture in Korea and the European countries. Housing or living environment is not only the fundamental and essential space in sustaining human life, but also the cultural and psychological place that gives identity, satisfaction, and more. Yet, the current act of constructing and distributing the mass quantity of housings has produced highly dense, homogenous, and segregated spaces that are perceived only with the logic of quantified density and conceived merely as a production led by capitalism. The ongoing phenomenon of reconstructing apartment complex would continue to proliferate, as the desire to live in private and enclosed community will not disappear.

The main purpose of this graduation project is to explore the role of the apartment complex in relation to the urban fabric, and to open the discussion for envisioning integrated and dynamic living environment. Therefore, it aims to seek the new definition of 'Apartment Urbanism' in Seoul where the density is represented not only by the form, but also by its function and overarching relationships.

From the problem statement, the two main issues on stack are identified. The one of the chronic problem in apartment complexes is the exclusiveness. Perhaps this is more important than the appearance of apartment buildings or the cityscape they shape. exclusiveness separates the living environment from the urban space, distinguish the residents and citizens. Although some degree of closeness in living space provides the safety and comfort, the segregated island from the outer context is not the solution. Moreover, the urban space in future needs multiple alternatives to diverse demands due to paradigm shifts in demography, economy, technology and so on. Yet, there is limitation to provide a 'good' urban space with only the hands from the private sector. Therefore, the quality in urban space has to be managed in the level of public sector.

How to open and integrate the structure with the neighborhoods? (*physical*)

How to bring back the role of public sector? (*process*)

HOUSING AS PROPERTY:

[To sell]

- Exchange value
- Capital gain
- Possession

HOUSING AS LIVING:

[To live]

- Use value
- Income gain
- Dwelling

Current situation

CONFLICTS:

disconnected networks and flows

spatial polarization



A vision for integrated and synergetic apartment complex

NEEDED:

intermediate interface to bridge the urban fabric, functions, and interactions



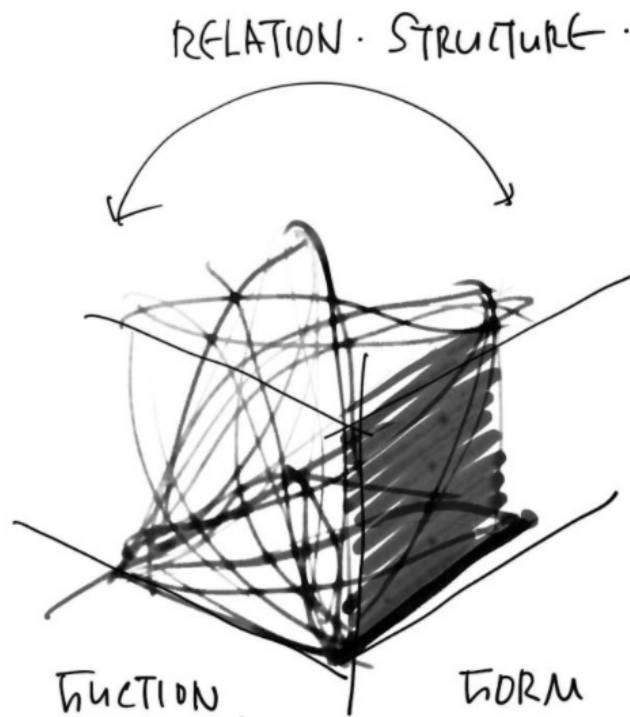
FIG. 2.3 The issues of on stake and the new vision for Apartment Urbanism in Seoul.

(source: made by author)

PART 2

FRAMEWORK FOR THE THEORETICAL BACKGROUNDS AND ANALYTICAL METHODOLOGY

RESEARCH DESIGN BASED ON TRIANGULATED APPROACH





3 – Methodology

Research Questions and Conceptual Framework

“Dull, inert cities, it’s true, do contain the seeds of their own destruction and little else. (...) Lively, diverse, intense cities contain the seeds of their own regeneration, with energy enough to carry over for problems and needs outside themselves.” (Jacobs, 1961, p.448)




FIG. 3.1 The layers of traditional houses, new civic apartment buildings, and informal settlement. Photo taken by Lee, Young June in March 26, 1969.

(source: From *Geum-hwa Civic Apartment*, by Seoul Photo Archives, n.d. (<http://photoarchives.seoul.go.kr/photo/view/124451>). Copyright 2016 by Seoul Metropolitan Government.)

This chapter provides the overall methods of inquiry and approaches in progressing this graduation project. First, the research questions are presented aligned with the problem statements in the previous chapter. Next, the different phases of framework are discussed as the general description for approaching project. The interrelations between the reviewed discourses, theories, and literatures show how the concept, method, and strategy are synthesized together. Furthermore, the methods used in the project are summarized the projecting the expected outcomes.

3.1 – Research question and sub-questions

The capital city of Seoul has struggled with difficulties to make consensus on the long-term socially and economically sustainable urban management. When it comes to current urban development trends, it would be hasty to conclude that whether they have positive impact on urban fabric as the government's urban management aims at.

The main research question is as following:

"What are the socio-spatial and functional interrelations between the apartment complexes and urban fabrics? How can we envision the diverse and synergetic spaces by shifting the role of apartment complexes in perspective of building depth structure?"

Followings are the sub-questions divided into each process in graduation project:

- *Conceptual background:*
 - a How to transfer the dynamicity in density to the urban life?
 - b What are the other practices of qualifying the density beyond the quantification?
- *Analysis:*
 - c How has the **spatial structure** of apartment complexes evolved in relation with its immediate urban fabrics as well as policy and the values of the time?
 - d What **persistence or convergence** is learnt in spatial intervention in apartment complexes? What can be **transferable** from these legacy of modernity? Do they inform a new definition of urban structure, reacting as patterns?
- *Design process:*
 - e How does **design with the patterns** inform new possibilities in designing apartment complexes apart from the traditional custom?
 - f In what extent, can we **adjust the patterns** to make transformation to integrate the apartment complexes into the city?

3.2 – Frameworks of triangulated approach: Form, function and overarching network

The triangulation is a common method in the area of social sciences which combines the different concepts, methods, theories, or agents to overcome the limitation of single approach. By converging the multiple information, it gives a comprehensive understanding of certain phenomena (Patton, 1999). Although there are well-known established types of triangulation such as method triangulation, investigator triangulation, theory triangulation, and data source triangulation, here, I demonstrate my own triangulated approach of three pillars: form, function, and overarching network to deliver the overall practices of 'apartment complex' into language.

3.2.1 – Conceptual framework for analysis: Morphology, agent, and scale

The **form** is grounded on the urban morphological studies to investigate the structure or the form constituting the overarching logic. Using the mapping as tool, the spatial system is layered into various levels such as plot, building, block, street network, and open space. The urban morphology is usually studied in diachronic and synchronic perspectives, revealing the morphological transformations (Moudon, 1986; Gaubatz, 1999; and Ryan, 2006). These studies commonly demonstrate the predictable patterns in the past and the random configurations in the present, usually through the large redevelopment and idea of modernity. It is expected that similar trend will be found in Seoul as well, since it has gone through the radical development according to political regime.

The urban morphology study is the knowledge on the spatial structure by reading its patterns and the formation. It needs a collective analysis of physical form on street, open street, building or plot in multi-scale. As one of tool to read the urban structures and the processes, the method of SpaceMatrix is adopted, which focuses on the urban density and the specific data such as FSI, GSI, and OSR. Depending on these formulations, the types of clustered fabric can be revealed through the position of SpaceMatrix. This matrix will be utilized as a comparison tool within the fabric in Seoul, but also between the outer context as well. The morphological approach is to understand the pattern of producing the apartment complexes in territory and their spatial (in)consistency.

The **function and the operational structure** are not separated index, rather they are integrated and linked elements in space and society (Hillier and Hanson 1984). It is performance-based descriptions, which explain the performance characteristics embedded in the form (hard performance) and hidden behind the function (soft performance). As one of main method, the technique of space syntax is utilized for analysing the spatial layouts and the potential of human activity patterns. The theory of space syntax is developed by Hillier based on the fundamental proposition that space is intrinsic to human activities. He, therefore, viewed the space as foremost configuration and the backgrounded structure. Elaborated from space syntax, the tool of Place Syntax, which applies to the geographical format, measures the relative depth of integration, choice and reachness with profound data set.

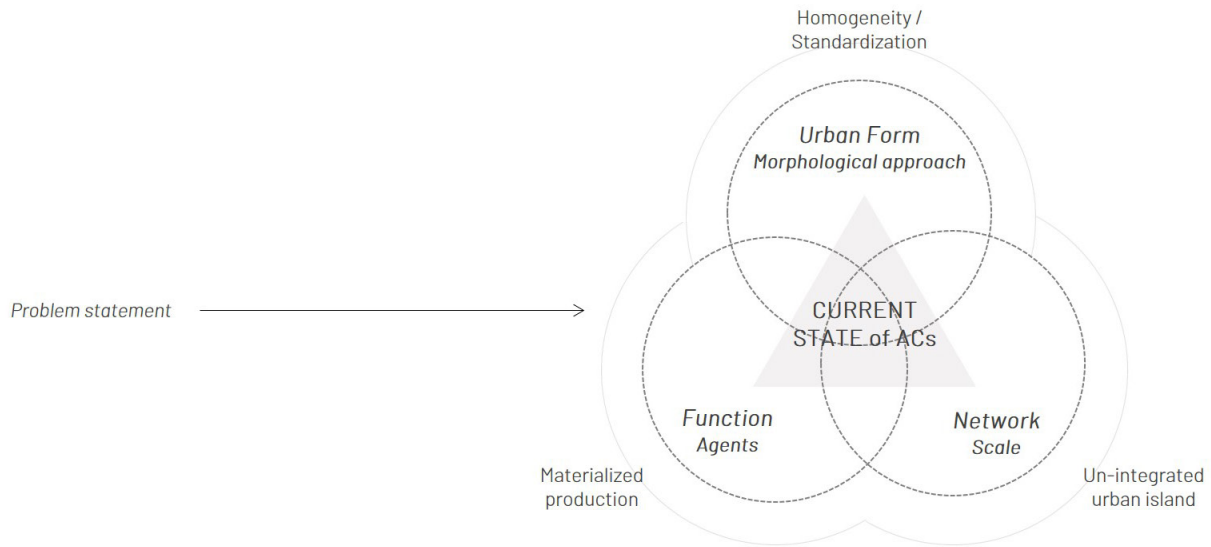


FIG. 3.2 The triangulated approach and conceptual framework.

(source: developed by author)

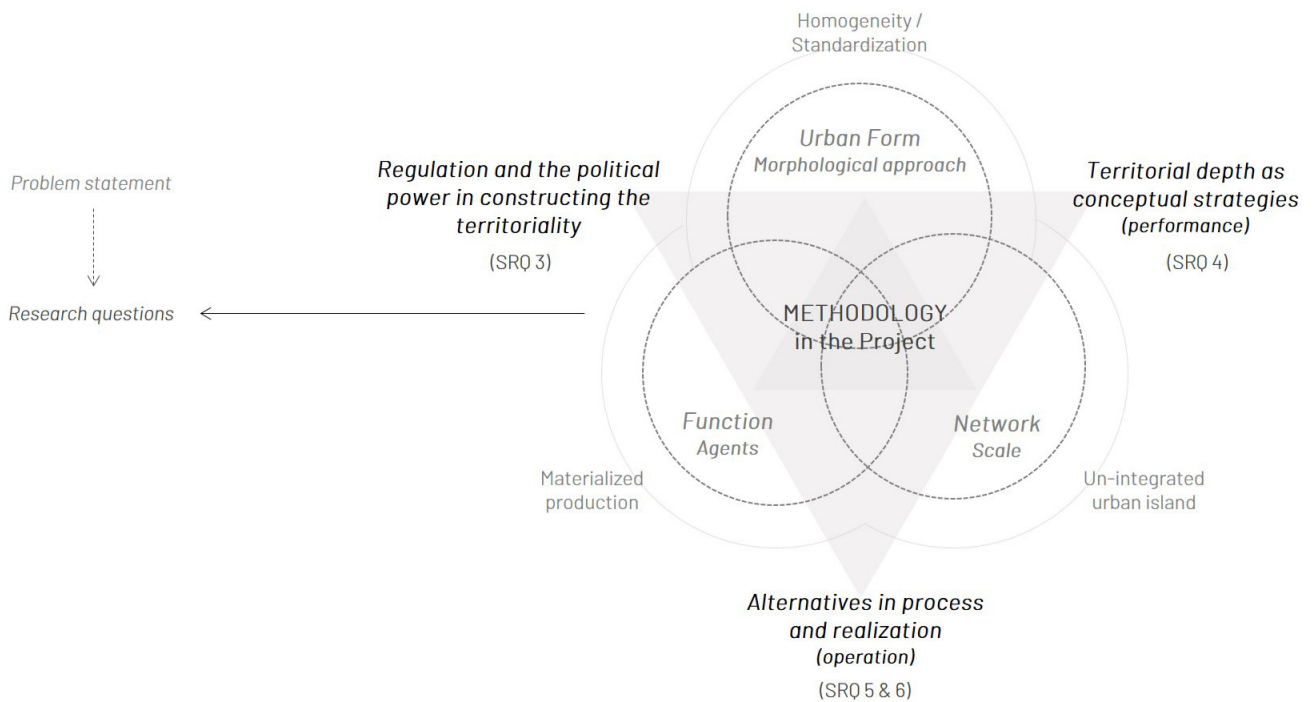


FIG. 3.3 The triangulated approach and analysis.

(source: developed by author)

When the apartment complex is understood as multivariable and multi-scalar phenomenon, translating into form, function, and network, it would propose the guidance in both quantitative and qualitative objectives in the design process. The multivariable approach views these factors as the composite of indicators, especially integrated with the networks. Meanwhile, the multi-scalar approach gives knowledge on how form and function behave through the scales.

3.2.2 – Strategic framework for design: Object, user, and relation

The three pillars of form, function and network transfer into the operation stage of design as object, user and relation. When the process and purpose of design is understood as a foreshadow of preferable future, the form refers to the object of physical materials and the function connects to the users who appropriate the space. Taking these together, the network is a relation of how to manipulate the relationships between the elements and to operate at variable scales.

Presented in the chapter 4, the idea of depth structure is placed at the core of design making. Derived from the framework, the three strategies of territorial depth, scalable depth, and institutional depth are suggested by expanding and linking the different domains.

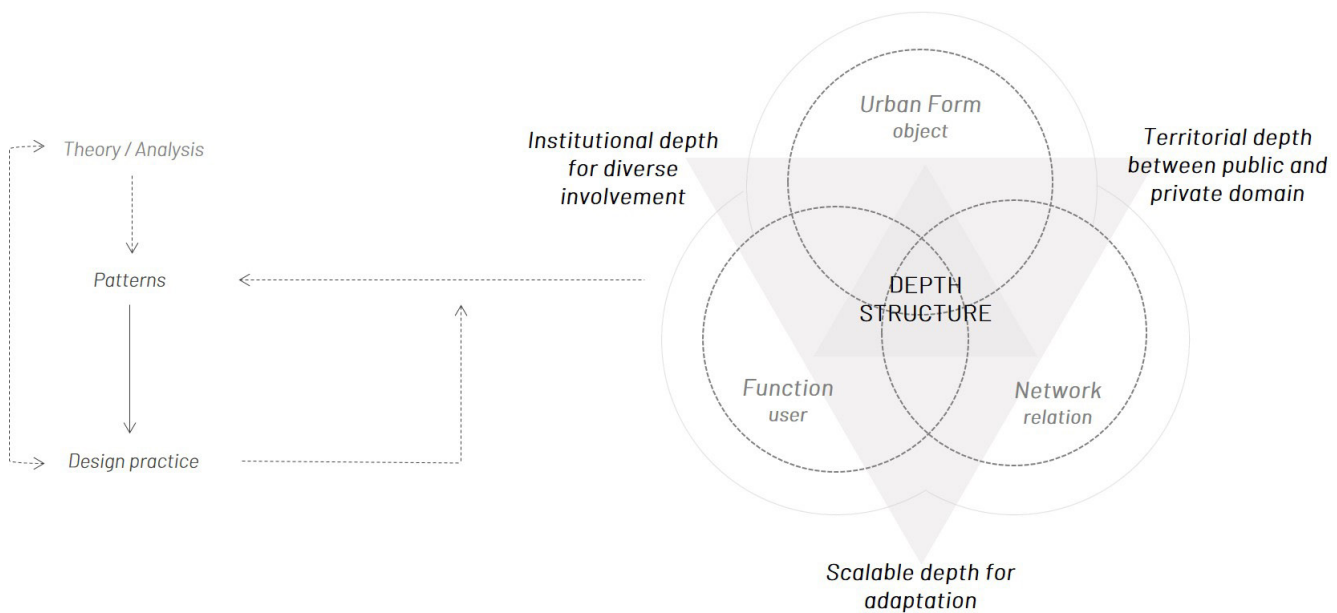


FIG. 3.4 The triangulated approach and design strategies.

(source: developed by author)

3.3 – From area-based to relation-based approach: patterns as language

3.3.1 – The role, rule, and application of pattern language

The concept of patterns was introduced by several scholars. The most seminal book is the 'A pattern Language' by Alexander et al. (1977), which describes the generic set of components in relation to built environment. Patterns as a language is the simple idea of ingredient, which reveals the system, yet being abstract and independent. It is applied in flexible manner; therefore, it is not the fixed rule or regulation (Alexander, 1964). Depending on the context, the multiple alternatives can evolve or accumulate to create a progressive form (Lehnerer, 2009).

Pattern as language is a deliberate act in broad sense to embrace all parts of the framework. It encapsulate the form, function, and overarching network that we discussed earlier. The form is the content, inquiring what the patterns does. At the same time, the form is the way the program is realized in practice since it is derived from the program. The process of creating space, therefore, is understood in comprising the form and its context to make a 'good fit'. Therefore, the pattern needs the requirement of what.

"... what demonstrates the patterns' inevitability is their connection to fundamental patterns of human behavior and movement. Many human functions and interactions are facilitated by the proposed urban geometry, and we could graphically link behavioral patterns to these architectural patterns directly." - (Salingaros, 2000, Validation of the Patterns section)

CONTENT OF PATTERNS:

Constructed as simple diagram, pattern language is the bridge between the problem and solution, as well as theory and the practice. The rationale in defining patterns implies in the processes of finding the solution upon the hypothesis grounded on the related theories and principles. It accompanies the series of iterations to test the relevancy of patterns for adaptation and replace the unnecessary patterns. Presented in the Chapter 9, each pattern is described with its explanation, scale, related strategy and empirical practice of examples if needed.

SYSTEM IN PATTERN LANGUAGE:

What is interesting in patterns is that they do not operate as alone; they interrelate each other and collectively assembled as a system, supporting the underlying fact that the city is a complex relational entity. In other word, the fragmented implementation of single pattern is avoided since it does not have power to solve the problem (Alexander et al., 1977; Salingaros & van Bilsen, 2005).

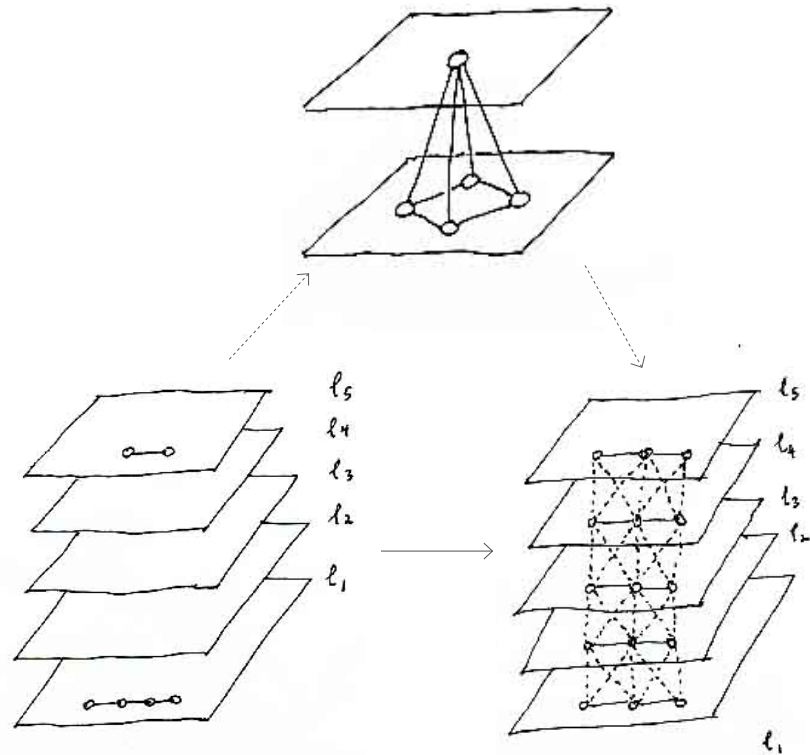


FIG. 3.5 The hierarchical connections in patterns.

(source: From *The Structure of Pattern Languages*, by N.A. Salingaros, 2000, (<https://applied.math.utsa.edu/~yxk833/StructurePattern.html>),.)

Since the harmony or the conflict between patterns varies on the context of different application, patterns inter-cross the different levels of scale as well. Since they are not the static answer, the freedom in application contribute to reach the complex challenges in solving the problem. Using pattern as language, the complexity in urban settings narrows down to simple reasoning to solve the problem: what are interconnected or what is missing.

In this sense, patterns are employed in hierarchical network: as primary or source patterns and secondary or supplementary patterns. How to prioritize and categorize the patterns by linking and combining sets of patterns reinforces the clarity and the cohesion in its language.

THE APPLYING MEDIUM OF PATTERN LANGUAGE:

As seen, these pattern languages are the bridge between the research and the design, developed by literature theories, analyses of case studies, and design explorations. Specifically, the patterns are elaborated using the concept of depth structure, which will be introduced in the following chapter. The cyclic processes of mapping on existing conditions, examining the conflicting forces, adding the new patterns, and applying to the design elaborate the collection of patterns as a cohesive language. These patterns are not confined to the context of apartment complexes and (expected to be) applied to the broader context of community housings in envisioning the integral and vibrant urban life.

3.3.2 – Discussion on the situation in Seoul

As seen, the planning in Seoul is rooted on the zoning of area-unit approach. The regulation through zoning to control the form and function was required in the past to protect the living environment from the unpleasant manufacture factories. Therefore, the assumption underlies in the zoning approach is the exclusivity (Hirt, 2010). In other words, the single activity of use is allocated to the certain type of land-use district. This results in separate and incoherent developments.

The urban space is not group of demarcated plots, rather it shares the common image and traits of environment: *"As such, it is created out of elements that exist at several overlapping and interrelated scales ... While these shared elements exist at different levels of scale, they are not organized hierarchically. Instead, they overlap to create a continuous fabric"* (Rofe, 1995, p.118).

The urban challenges in the future call for more systematic and interrelated land-use. Policies have evolved over time to codify and standardize the built environment, yet the increasingly complex and rapidly shifting challenges cannot be dealt only with the area-based approach. Although the existing performance and form-based approach can improve the zoning as additional tool, the relation-based approach can unravel the rigidity and incompatibility of weakness in zoning. In Seoul's fast-changing context, close diagnoses and diverse responses of stakeholders are required to fine the consensus for long-term management.

Although the local engagement was not possible in this project phase, the pattern language has an immense potential in local engagement as well. It is a user-based approach which operates as an effective tool not only for design but also for learning and communication. For example, the 'Cities of Making' project team²⁾ effectively utilized the patterns as decision-making aid for analysing, visioning, designing and even monitoring the project.

2) The Cities of Making project is the multi-disciplinary team from different location of Europe in searching the potentials in urban manufacturing. The website is as following: <https://citiesof-making.com/>.

3.4 – Summary of overall methods and processes

In summary, this gradation project is structured into four main folds with different methodologies. The first part is to build the knowledge on relevant theories, methods, and gaps in existing research which are applicable to the context of Seoul under deductive approach.

- **LITERATURE REVIEW:** the literature review provides a basis for the conceptual background and theoretical framework to understand the current condition, to guide the preferable future environment, and to set the standard for the proposed design. From the literature review, the definition of urban values, qualities, and physical indicators are elaborated into patterns.

In the second part, the general context of Seoul is analysed on its urban development process and the outcome of current condition in perspective of space, policy, time, and actor. Moreover, the in-depth case study is selected to observe how different configurations of depth structure results in diversity and public life. It is expected to learn related spatial strategies or design elements from the case study which can be transferable to the next stage as patterns with inductive reasoning. Along with the second part, the third part targets into specific scope of region and apartment complexes to perform the design research under the investigation on the current condition of Seoul with various lenses.

- **MULTI-SCALAR MAPPING:** the series of development processes are mapped in relation to national policies, development structure, configuration of referenced example, and involved stakeholders within each timeframe. The spatial configuration is scaled from city to neighbourhood, block and street section.
- **STAKEHOLDER ANALYSIS:** the stakeholder analysis shows the power-interest relation between different actors involved in the project. The analysis illustrates the current role of stakeholders while postulating the possible formulation of relationship in future design strategies.
- **STATISTICAL ANALYSIS:** the various data are quantified into the geographical space. This analysis uses the tool of QGIS software as well as diagrams to effectively visualize the socio-economic data such as population growth, density, land price, housing types, and so on.
- **MORPHOLOGICAL STUDY:** the morphology is the methods of investigating the structure or the form constituting the overall logic. The particular spatial elements are grouped into typologies to categorize the applicable logics. The main tool is the SpaceMatrix approach developed by Berghauser Pont and Haupt in measuring the density both quantities and qualitative perspectives.

- **LOGICAL SYSTEM ANALYSIS:** combined with the morphological study, the street networks of spatial configuration are described in defining the integration and accessibility and relationship between street segments and social activities. The Place Syntax Tool is used as main tool which is based on the theory of Space Syntax in geographical format.
- **COMPARATIVE STUDY:** The series of case of block and building scales are examined across different context of countries and cultures. The aim of comparative study is to determine the common patterns of design element appearing as repetitions.

Finally, the last part is the exploration through the design as a tool to test the findings and ideas from the previous parts. The expected product from this part is to provide the set of alternatives in envisioning the desirable future space reflected on the problem statement.

- **RESEARCH-BY-DESIGN:** the research-by-design is the method to produce the knowledge that occurs between the act of analysis, projection and synthesis in iteration of design process, therefore generating critical inquiry through the design work. The production of verbal and non-verbal outcomes are translated into disciplinary practice.

Although the initial explorative stage took consideration in constructing the scenario narratives, this method couldn't deliver to the final design stage due to the limited time capacity. Yet, the brief studies are illustrating as in-between step to give better understanding on the whole process of project delivery.

- **SCENARIO CONSTRUCTION:** scenarios represent a possible future as described narratives. Their powerful role is not at its prospective realization, rather at the possibilities drawing the robust discussion among actors. Here, the role of scenario is to bargain accommodating multiple preferences as there is lack of consensus on the long-term socially and economically sustainable management (Vigano, 2016). Also, it takes a form of back-casting in pursuing the desirable future and establishing a path to connect.

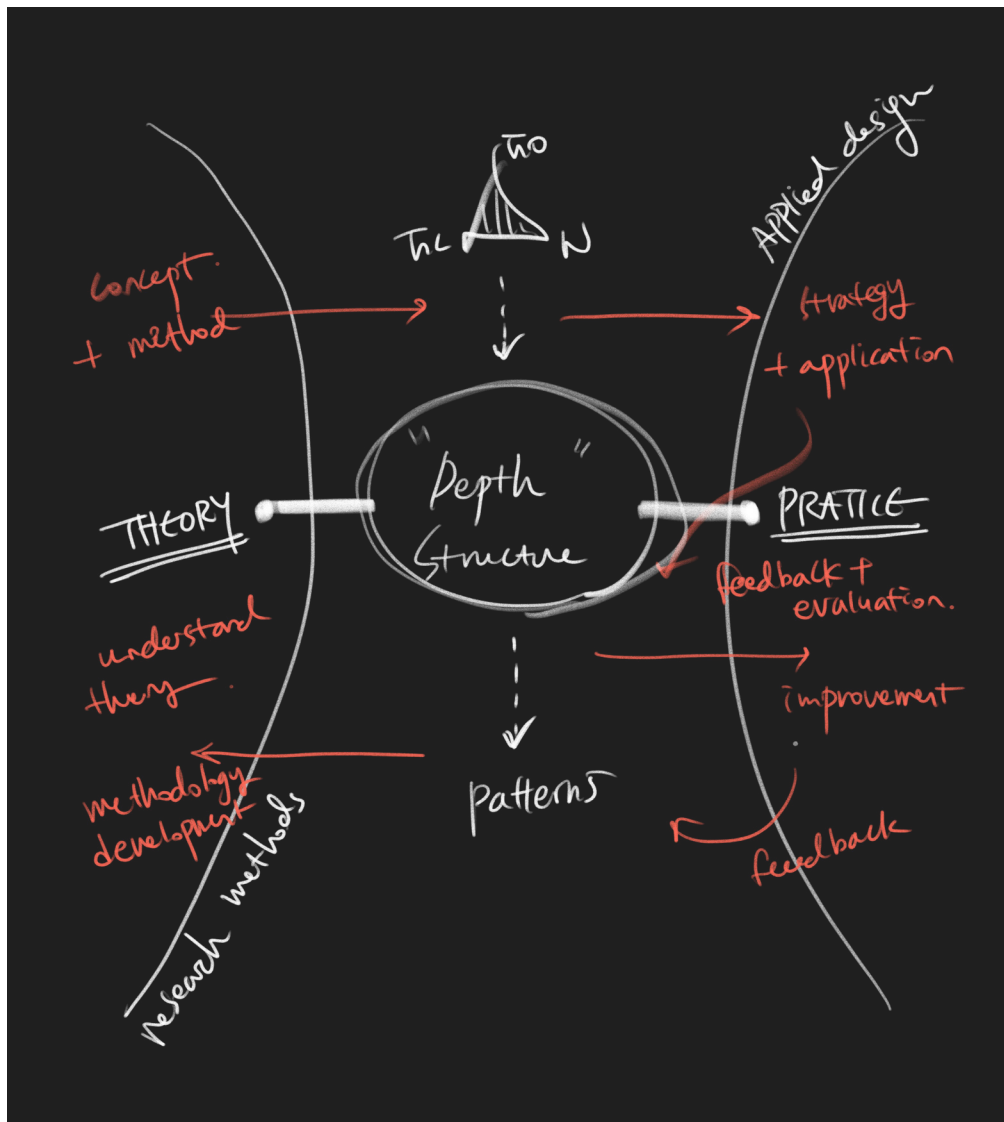


FIG. 3.6 The summary diagram from the note.

(source: developed by author)

MAIN RESEARCH QUESTION

What are the socio-spatial and functional interrelations between the apartment complexes and urban fabric / urban street? How can apartment complexes take the role in creating the synergetic living environment?

SUB-QUESTIONS

BACKGROUND:

- A. How to transfer the dynamicity in density to the urban life?
- B. What are the other practices of qualifying the density beyond the quantification?

ANALYSIS:

- C. How does the spatial structure of apartment complex evolve in relation with urban fabric as well as policy and the values of the time?
- D. What persistence or convergence is learnt in spatial intervention in apartment complexes? What can be transferable from these legacy of modernity?

EXPLORATION:

- E. How does design with the patterns inform new possibilities in designing apartment complexes apart from the traditional custom?
- F. In what extent, can we adjust the patterns to make transformation to integrate the apartment complexes into the city?

METHODS	INTENDED OUTCOMES
<i>BACKGROUND:</i>	<i>BACKGROUND:</i>
A. Literature review - relevant discourse, theories, trends, or paradigm	A. Analytical and conceptual framework with spatial components as patterns
<i>ANALYSIS:</i>	<i>ANALYSIS:</i>
B. Multi-scalr analysis, stakeholder power-interest analysis, chronological mapping	B & C. Timeline and stakeholder mapping, classification of built fabric, sets of maps and drawings
C. Morphological study, SPSS clustering analysis, comparative study	
<i>EXPLORATION:</i>	<i>EXPLORATION:</i>
E. Exploration through applying pattern language and scenario construction	E. Spatial strategies and different alternatives in design
F. The transferable methods in higher scale	F. Recommendations on the sets of strategies, preferable vision image and design recommendations



4 – Theory and Practice

Literature Reviews and Theoretical Underpinning

Literature review is an important first step to provide a basis for the conceptual framework and theoretical backgrounds to understand the current condition as well as to guide the preferable future environment. The bulk of theories and literatures are reviewed to build the bodies of knowledge by finding the gaps in existing research and searching new framework that can be applicable to context of Seoul. The literature review is specified into: 1) understand the act of housing production; 2) the composition that makes the dynamic in density; and 3) the relation between spatial structure (territorial depth) and public life.

First, the contemporary act of producing housing space is reflected with the perspectives of Turner & Fichter and Lefebvre; next, the content of urban density is reframed by qualitative factors; and finally, the reviewed theories come down to the concept of 'depth structure' which will be the main framework in guiding this graduation project. The reviewed literatures operationalize not only as theoretical background to have better understanding on current phenomenon and to propose the desirable qualities, but also as a transferable framework to access the final proposal of the graduation project.

The premise of this project first starts recognizing the urban space in perspectives of housing production. It is necessary to understand the processes of territorial production – how territory in Seoul is shaped and produced – in relation to the urban agencies. Next, the ambiguity in depth structure is suggested since previous researches exposed the confusion of these modern architecture type. Thirdly, this graduation project looks at the challenges in densification of existing urban fabric – where densification can be the opportunity to fix the current ambiguous territorial situation, yet it is difficult to shift the perception of the stakeholders.

FIG. 4.1 The lost landscape of small alleys in Seoul.

(source: From *A Retrospective: Kim Ki-Chan and the World of Alleys*, by Seoul Museum of History, 2010 (https://museum.seoul.go.kr/CHM_HOME/ebook/ecatalog.jsp?Dir=170&catimage=). Copyright by Kim, Ki-Chan.)

4.1 – Understanding the act of housing production

The rapid urbanization under continuous global process of globalization, modernization as well as capitalism has influenced the acceptance of housing as profitable material. According to James Turner & Fichter (1972) in the book of 'Freedom to Build³⁾, housing can be understood in two ways: one as a noun; and the other as a verb. The housing described as noun is the materialized commodity that is produced and consumed. On the other hand, the housing as verb is the process and the activity of users that correspond to the localized demand. Therefore, the housing itself is not a single entity, rather it is a composed fabric of living environment with adjacent context: *"The worth of the physical product cannot be assumed to lie in its physical qualities, but rather in the relationships between the object and the user"* (Turner & Fichter, 1972, p.159).

Meanwhile, Lefebvre explained in his discourse of space production and critics on everyday life that how abstract urban spaces have appeared as fragmented and hierarchical space through the processes of production and reproduction, and how they, in turn, accelerate the spatial alienation under invisible control of dominated power. Importantly, he proposed the structure of trialectics, which contains three types of spaces: perceived space as spatial practice, conceived space as representations of space, and the lived space or social space as space of representation.

3) Although the book is contextualized on the informal settlements in Latin America, the concept of "housing as verb" brings practical and theoretical framework as being re-contextualized in housing development practice in Seoul.

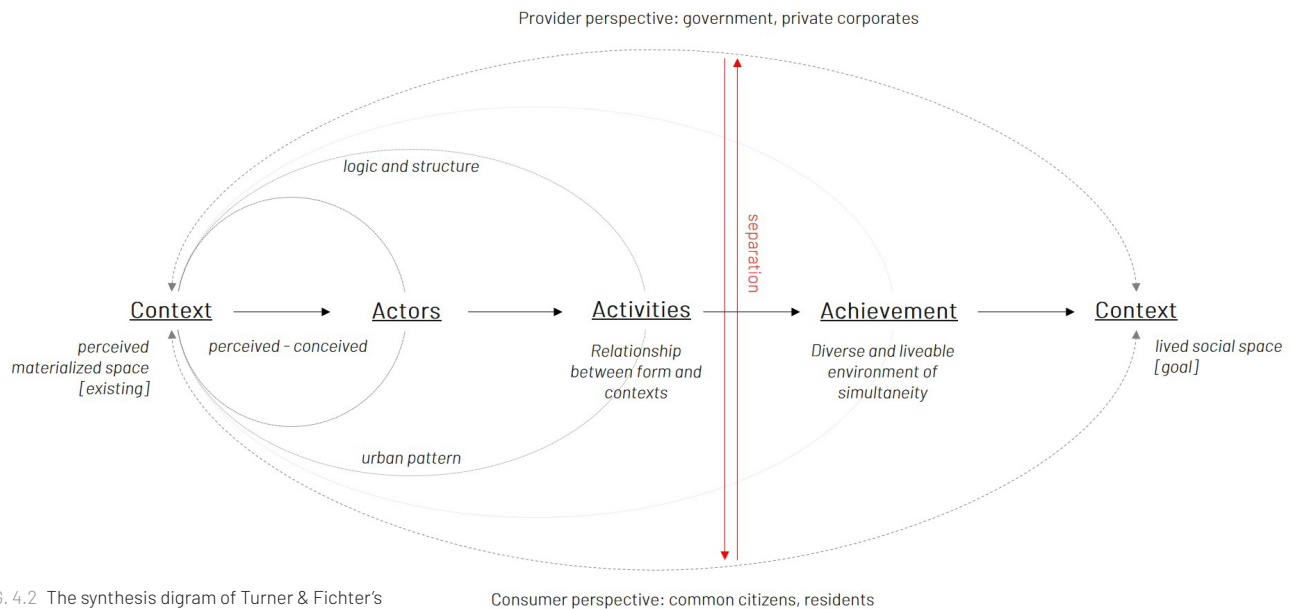


FIG. 4.2 The synthesis diagram of Turner & Fichter's and Lefebvre's discourses with own interpretation from author.

(source: Turner & Fichter, 1972; Lefebvre, 1991)

The first space of perceived space is the materialized space, which constitutes spatial practice of activities and networks, therefore, interpreted as urban form. The second space of conceived space is the conceptualized space over social and political power of agencies, translated into logic of designing space such as regulation or control. Finally, the third space of lived space where social relations take place and where we actively experience it in everyday life is the overarching space from the first and the second as desirable outcome in this project.

These two perspectives from eminent scholars imply the following crucial points. The problem of housing arose as there is separation happened between the provider and the consumer who have different approaches. In the past, the provider and the consumer used to be one agency who was able to adjust its own needs. Then the disparities between the institutions as well as urban function (living and manufacturing) confine the controlling power to limited hands within closed system. The language they provide and the interventions they design significantly influence the capacity of autonomy or the decision-making in appropriating the space, which is in line with the concept of 'right to the city'.

In addition, the housing as physical production is not only dependent on the physical qualities; rather the definition of housing as ongoing process and the role of housing within the context of broader livelihood would be the possible solution to current phenomenon of producing apartment complexes. In this sense, we always have to acknowledge that city is the place of interaction, and that the urban life cannot reduce to the distribution of form or function: the relational structure between them is the key. Same as the trialectic structure proposed by Lefebvre. It reveals the continual movement between three spaces as "it highlights the relationship between form and contents and dissolves stable morphologies" (Lefebvre, Kofman & Lebas, 1996, p.206).

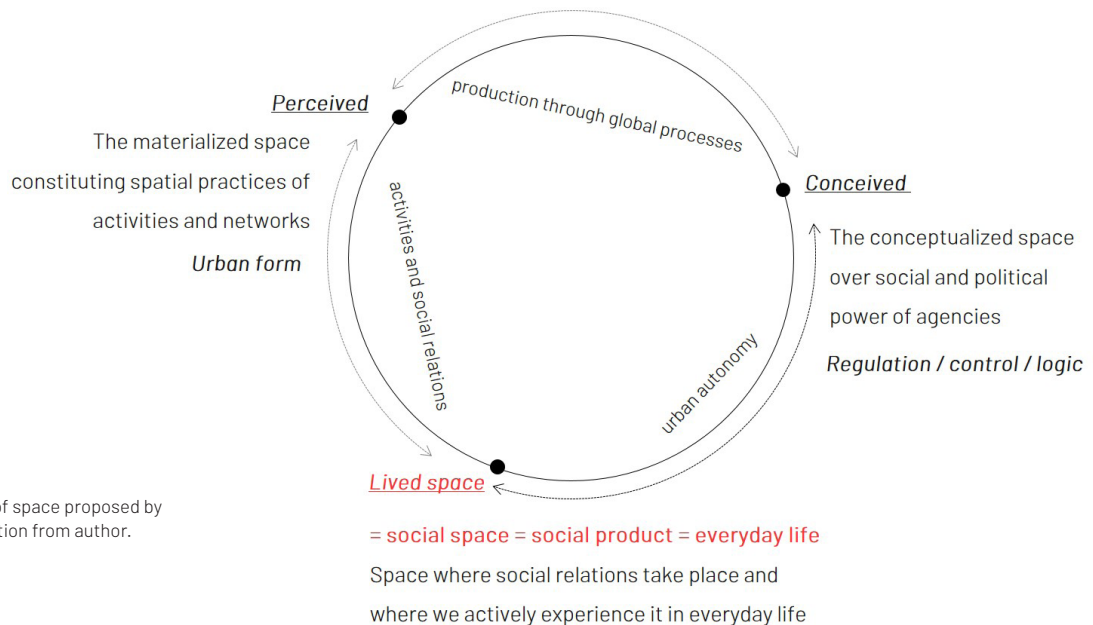


FIG. 4.3 The trialectics of space proposed by Lefebvre with interpretation from author.

(source: Lefebvre, 1991)

4.2 – Heterotopia in everyday life

It is evident that density is the core virtuous that consists the urbanity. Density has been accepted as generous condition for good urban performance and quality of life. The density has referred in terms of quantity such as housing density, however, it does not guarantee the adequate compact city nor the dynamic interaction. There is subtle difference existed between quantitative density and qualitative density. Therefore, the density in form, function, and the relating structure has to operate simultaneously. For example, the higher street density might contribute to more adjacency and proximity between people and occupiable space in-between buildings, yet the density of activities might be reinforced depending on the functions at ground floor which is the direct interface linking the inside and outside.

Heterotopia originated from the concept of Foucault meaning the 'other' space delivers collective a richness in everyday life. This section attempts to reconstruct what constitutes the qualitative dense environment in relation to the public life. The concept of heterotopia can transfer to other terms: Jacob (1991) emphasized the diverse and mixed-use development for a viable and safe place; Gehl (1987) placed the public life forward to provide people-oriented space; meanwhile, Rowe and Kan (2014) brought the concept 'urban intensity' in respect to functional simultaneity of density, diversity, and connectivity in urban settings.

Seoul has a rich variety of histories, landscapes, and cultures that are the products of mixture of persistence and transformation. They are habitats with different social and economic contexts. The central area in Seoul superimposed the grid layout into the historic urban fabric, creating diverse and hybrid environments. On the other hand, the newly modernized Gangnam area, using the Land Readjustment as planning tool, has a wide range of heterogeneous patches as the areas have kept redeveloped in cyclic way. However, this richness of dense and dynamic network is limited when people encounter the block of large apartment complexes.

In Korea, the high density means high-rise. Usually, this logic has been justified of high population density. Some people even justify that high-rise buildings secure the large amount of green space, therefore, it is environmentally friendly. However, this preferable solution translates into identical feature of apartment walls and mass production. They erase the layer of the sequence of time, leading to deficit in diversity and complexity. It is contrast to what Rowe and Koetter (1978) asserted in the book of 'Collage City' that the urban space is represented with the variety of urban elements and accumulation of them by progressive steps.

Through the juxtaposed solid and figure between the traditional city and the modern city, the fragmentation in apartment complexes seeks the way of appropriated form to bring back the preferable urban space. In that sense, the diagram in the next page illustrates the urban qualities.

The urban form is the basis to provide the urban texture. Intersected with the function and network, the form gives different quality in urban space by separating, bounding, transitioning through the functional medium. The synergy effect translates into the hierarchy of the urban space, followed by how people perceive the space in relation to arrangement and order.

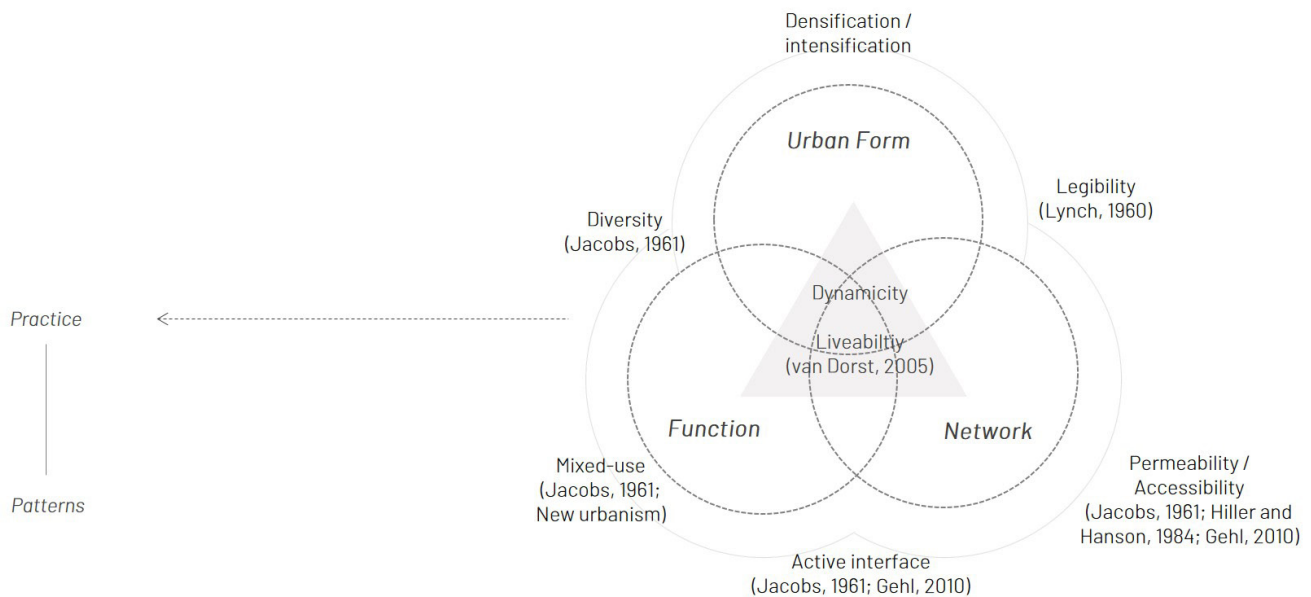


FIG. 4.4 The theoretical underpinning in relation to the triangulated approach.

(source: refer to the image)

4.3 – The depth structure and public life

The depth structure describes the ordering of space. It is organized or designed through the relationship between people and their environments, encompassing all components and scales of urban territory from building facade to street, block, neighbourhood, and more. The depth structure is not only a physical condition; it defines the human life with psycho-social ordering and economic activities at multiple levels. Therefore, it decides the richness and complexity in urban characteristics, which ultimately transfers to the capacity of autonomy where a person becomes the author of their own life and freely choose their actions within a given space (Clossick, 2017).

The depth structure is well defined in the study of Habraken (1998) in his book of *“Structure of the ordinary”*. Territorial depth, the concept used in the book, is the structure that reflects the patterns of control (Habraken, 1998). The dynamic in depth configuration, translated into the transitional boundaries between private and public is increased and decreased by the decision of urban agents. – proximity, permeability.

The large-scaled mega-plot apartment complexes result in flatness of depth structure. As stated earlier, the new type of urban morphologies controls the interaction between the blocks and the street through the closed boundaries at different scales and meanings. The shallow interconnectedness makes urban spaces more fragile to the radical changes and gradual transformation. As Turner & Fichter (1972) stated, housing has to be conceived as verb, where the interaction between object and user is pursued. Same as the concept of urban depth. Depth does not stand independently; it is always the degree of interrelation of elements where the interaction of properties of urbanity brings vitality and liveness.

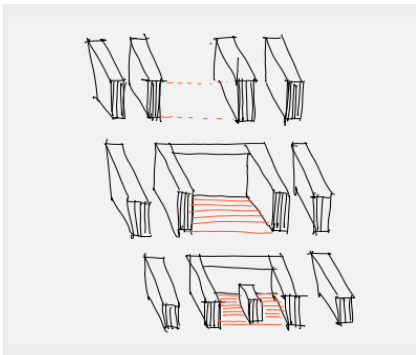
Again, the restructuring urban depth-order and its impact on autonomy in space can be expanded to the idea of ‘right to the city’ where the citizens have the right to appropriate and transform the urban space when they express their needs and potential in everyday life. These rights include the equal accessibility to urban services, the open accessibility to public space, and the free participation to the urban planning and design process.

The meaning and its implication of depth structure has been defined in many ways in several literatures. It proliferates the street life in relation to the mixed-use development as Jane Jacobs emphasizes, while the left-over spaces between urban depth have to redesign people-oriented spaces (Gehl, 1987). In addition, Hillier quantified the depth-order as a tool of space syntax which captures the probability of activities and liveliness of space.

The knowledge on the depth structure transfers to following strategies, which will be combined with the pattern language. Upon on literatures, following is the synthesis strategies that can be applied to research-by-design process. The different combination of strategies is possible deepening on its context with adjacent surroundings.

4.4 – Summary as synthesis strategies

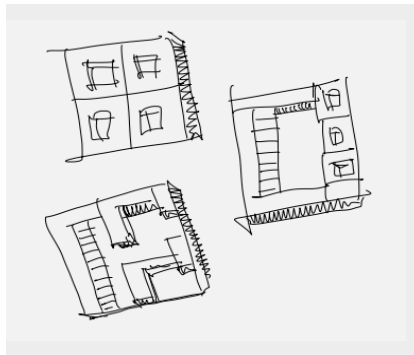
Upon on literatures, following is the synthesis strategies that can be applied to research-by-design process. The different combination of strategies is possible deepening on its context with adjacent surroundings.



TERRITORIAL DEPTH BETWEEN PUBLIC AND PRIVATE SPACE

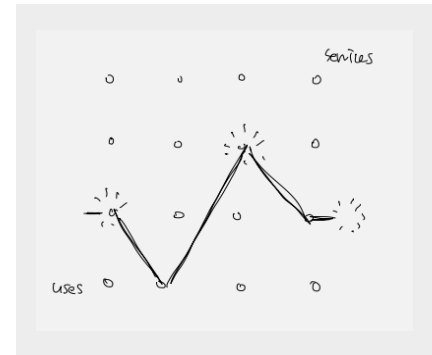
The public and private are not the conflicting realms. They are understood as a continual and gradual spectrum in its degree. The richness in semi-public and semi-private realms provide proper involvement of actors and control the co-presence. In order to build the depth structure, the continuity and discontinuity as well as openness and closeness have to be considered in careful manner. The various functions in ground floor would create and control the interfaces between the public and the private.

“Territorial depth is measured by the number of boundary crossings needed to move from the outer space to the innermost territory” (Habraken, 1998, p.137).



SCALABLE DEPTH AS INTERMEDIATION

The strict regulation results in clear division in urban fabric of detached houses, multi-household houses and the apartment complexes. The urban renewal projects take place in small-scaled plots approximately 90m², while the redevelopment projects occupy the large-scaled plots over 1,000m². This disparity makes the urban fabric more fragile to the sudden changes and separate the different groups of people, activities and functions. This disparity in scale consequently leads to vulnerable adaptation to future changes, such as change in population size or change in businesses. The diversity provides users various options in their decision-making, therefore contributing to the dynamic environment of mixture and bridging different people and functions.



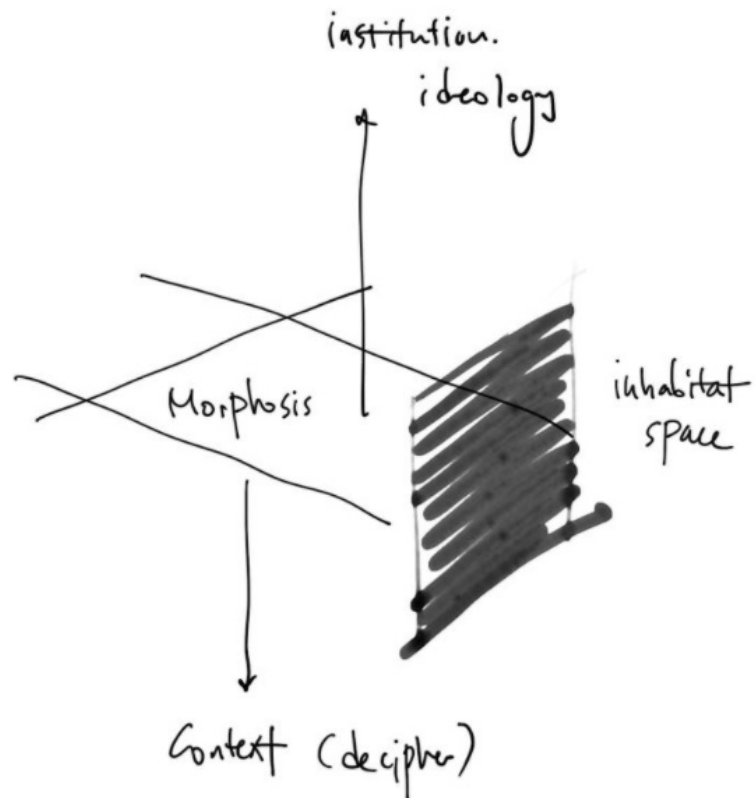
INSTITUTIONAL DEPTH IN CREATING URBAN LIFE

The current urban design and development process are bounded within the municipality borders and limited actors. The cross-bordering communication and open public engagement are needed in order to give the autonomy to the users.

PART 3

UNDERSTANDING THE SPATIAL CONFIGURATION OF APARTMENT COMPLEXES IN MULTI- SCALAR PERSPECTIVES

DIACHRONIC AND SYNCHRONIC DESCRIPTIONS





The first apartment complex was built in 1964 - the Mapo, which was comprised of 6 floors of 10 buildings - in total of 625 households. The project was the commemorative project led by the Korean National Housing Corporation (KNHC) which was established in 1962. The original construction plan illustrated 10 floors of 11 buildings with the installation of elevator, flushed toilet, and central heating system. However, these modern technologies were not able to be actualized due to critics and lack of funding. Still, it is recognized as symbolic project to propose the first 'modernization' as well as revolution in lifestyle by adopting the concept of tower in the park.

5 – The Evolution of Apartment Complexes in Seoul

National Development Policies, Projects of Apartment Complexes, and Resulting Territories

5.1 – The national urban development policies and the formation of Seoul's territory

This section introduces the series of policies, planning, and projects that have influenced the major spatial transition as well as the formation of apartment complexes in Seoul. Each timeframe is comprised of historic background in urban development, major policies and the responding projects in scale of Seoul City. Understanding the policies or planning regulation in relation to the political regime is essential as it describes the processes, bridging the existing situation and projective future (Lehnerer, 2009).

The timeline views the 1962 as the commencement of what is termed modern Seoul, when the foundation of basic urban planning ordinates systematized. Starting from 1962, 10-year intervals are enumerated with distinctive features: beginning of modernization (1962-1971); generalization of modernity (1972-1976); transition to private sector (1977-1986); consolidation of territory (1987-1991); satellite new towns (1992-1996); and urban renewal (1997-2008). Propelled by the major national framework, such as Five-Year Economic Development Plan and National Comprehensive Plan as well as presidency of Park with military dictatorship, the period between 1966 and 1980 gives importance to understand its background and context since the majority of spatial transformation in Seoul executed during these times.



1
FIG. 5.1 The first apartment complex in Seoul - Mapo apartment complex taken on March, 1965 [previous page image].

(source: From *Government Record Photo Collection*, by Korea Government, n.d., e-Video History Museum (http://www.ehistory.go.kr/page/view/photo.jsp?photo_PhotoSrcGBN=BK&photo_PhotoID=12&detL_PhotoDTL=1840&gbn=BK). Copyright by e-Video History Museum.)

FIG. 5.2 The plan showing the contrast between detached houses and Mapo apartment complex indicates the efficiency of the high-rise and large-scaled complex in terms of land, amenities and open spaces.

(source: From *Park Chul-Soo's residence and Memory series 8*, by C.S. Park, 2016, Kyunghyang Shinmum (http://news.khan.co.kr/kh_news/khan_art_view.html?art_id=201608012131005). Copyright 1966 by LHI Journal of Land, Housing and Urban Affairs.)

1962 – 1971 | The start of modernization and urbanization with the foundation of urban planning policy

BACKGROUND & CONTEXT:

The birth of Seoul as metropolitan was when it gained its official name of “Seoul Special City” in 1949 right after the establishment of the autonomous Korean government from the Japanese colonization. However, it was not until the 1960s that the real transition⁴⁾ towards the metropolis had started from scratch, since Seoul had to experience the devastated crisis of Korean War (1950–1953).

Seoul in 1960s, therefore, held several urgent assignments of reconstruction in every aspect – spatial, economic, political, industrial, and etc. Already, the housing crisis was one of the serious issues due to the drastic influx of migrants from the rural areas and the refugees from the north: the population in Seoul increased more than double between 1961 to 1970 from 2.68 million to 5.54 million. The rapid urbanization and industrialization accelerated through the ‘Five-year Economic Development Plan’ entailed more urban problems such as overcrowding, housing shortage, unregulated slums, traffic congestion, water shortage, air pollution and more. Therefore, the comprehensive urban planning was necessary to efficiently distribute⁵⁾ and accommodate the population at the same time.

SOLUTION & TERRITORY: FROM SOLO CENTER TO THREE CORE STRUCTURE

Since the existing urbanized area were confined to the historic centre and the part of south-eastern areas, Seoul expanded its administrative territory to double size (596.5 km²) in 1963 by absorbing the northern east and the southern areas of Han River, which was almost equal to the current condition (605.2 km²). Series of spatial structure plans, although some of them were not actualized, proposed the decentralization of the population and functions to the South. For example, the first Seoul City Master Plan in 1966, aiming to accommodate 5 millions of people until 1985, structured the nuclei of 1 core-centre and 6 sub-centres connected by the 3 ring and 14 radial roads.

4) During the colonization period under the Japan's rules and control, the spatial planning was grounded on the ‘Joseon Town Planning Ordinance’. Therefore, it was 1962 that the Korean National Government enabled to legislate its first autonomous urban planning policies: Land Expropriation Act, Building Act, and Urban Planning Act.

5) It was also unstable period externally in that Seoul faced off against the constant threats from the North Korea. The concentration of population and functions in existing urban centre indicated a higher risk. With the same reason, the underlying purpose in building the highway was to provide the escape route and to give the room for the military tanks.

6) ‘Land Readjustment Program’ is the planning tool to replot the lands by subdividing or combining while sustaining the original rights. In Seoul, 139 square kilometres (35%) of lands implemented the LRP (Seoul Solution, 2017.). The program was actively practiced until 1984 when the expropriation method shifted towards ‘Housing Site Development Program’.

The previous empty fields on the southern area, almost 59 km² in scale, became high-interest place as the first national high-speed highway (1968–1970) connected capital city Seoul and the second-tier city Busan, while the third Han River bridge (1966–1969) provided the anchor between the northern and southern regions. Here, the ‘Land Readjustment Program⁶⁾ enacted in 1966 played a key role in materializing the southern territory by enabling government to supply the basic infrastructures and public services such as roads, parks, water system while minimizing the financial burden on the government (UN-Habitat, 2019). In favour of Land Readjustment programs, the southern areas were prepared to be developed as one of new central districts.



a FIG. 5.3 The empty fields of Gangnam before the development in 1973.

(source: From *Reminiscence III: Nomura Motoyuki*, by N. Motoyuki, 1973, Cheonggyecheon Museum (https://museum.seoul.go.kr/exh2/foreigners/html/content/con_sub06_20.html). Copyright 2013 by Seoul Museum of History.)

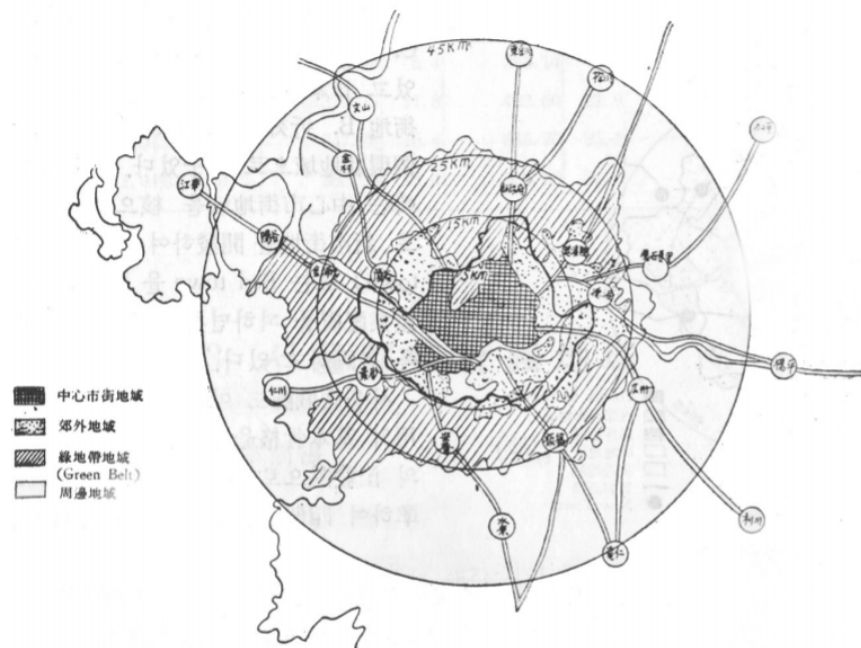


FIG. 5.4 The Greater Seoul structure plan which referenced the Greater London Plan.

(source: Kwon, 2012, p.109; originated from Seoul City Master Plan, 1965, p.108.)

7) The waterfront of Han River transformed dramatically depending on the period, when the width of river used to be 1800-2000m during the flooding season while in contrast, 50-100m during the dry season.


Meanwhile, another territory along the Han River was reclaimed through the construction of embankment in 1967. Until the late 1960s, the space along Han River was occupied with railway and underutilized due to the lack of management and frequent flooding events⁷⁾. In order to facilitate the development in South, the lands along the river were necessary to be connected and arranged the usable lands. The newly gained lands, in turn, compensated financial resources to government by selling the new housing sites.



FIG. 5.5 The people playing in the Han River and the sandy shore in 1964.

(source: From *Seoul, from ruins to Regeneration II: 1963-1966*, by Seoul Museum of History, 2011, Seoul History Archives, p.82. Copyright 2011 by Seoul Museum of History.)



 FIG. 5.6 The flooding from Han River in 1964.

(source: From *Seoul, from ruins to Regeneration II: 1963-1966*, by Seoul Museum of History, 2011, Seoul History Archives, p.86. Copyright 2011 by Seoul Museum of History.)

Grounded on the 'Public Waters Reclamation Act' in 1962, the Korea Water Resources Corporation executed the first reclamation project on the area of 'Dongbu Ichon-dong'. The ready-made sites for urban development, over 40 ha, were sold to the Korea National Housing Corporation with the commission from the Government Employee Pension Service to construct the apartments. It was when the first form of apartment complexes was born – 34 apartment blocks and 1,3113 households. Followed by success in first project, Hangang Mansion Apartments (23 blocks & 700 households) and Foreigners' Apartments (18 blocks & 500 households) were erected by the Korea National Housing Corporation. These apartment complexes were the first trial in performing the concept of neighbourhood unit – the district becomes self-contained area comprehensively serviced by communal facilities, schools, banks, commercial street and more, and the preferable model of succeeding apartment complexes introduced in late 1970s.

The land reclamation projects until 1971 along the Han River greatly contributed to the current landscape of Seoul, becoming the opportunistic site for apartment complexes including Apgujeong, Banpo, and Jamsil districts. However, the most significant project in this period was the development of Yeouido. Yeouido, a small island located in the middle of Han River, is the core of international financial centre where the Congress, major broadcast centres and stock exchanges are located. However, it used to be the airport site and the floodable sandy island until 1968 when the area was embanked with the ring levee and the massive amount of sands – approximately 114,000 tons. Align with the development of Gangnam to functionalize as cores, the masterplan towards Yeouido aimed to build the futuristic modern city⁸⁾.

Although the Seoul Metropolitan Government intended to cover the cost of the development through sales of the housing sites, it did not appeal either private companies or the citizens in the earlier stage since even the basic infrastructures were not provided. The Yeouido Demonstration Apartment Complex opened in 1971 was one of the strategies that Seoul practiced to promote the development by the private sector. As a modelled showcase⁹⁾, it targeted the middle-income people specifically since the collapse disaster of Wau civic apartment stigmatized negative and untrustworthy image to people. Composed of 24 buildings of 1,584 households, it was the first high-rise apartments, 12-13 floors, with the installation of elevators and luxurious amenities.

8) Influenced by Kenzo Tange, the original master-plan from prominent architect Swoo Geun Kim illustrated the linear and grid structure of mage structures and the elevated loop decks that separates the pedestrian from the vehicles. Unfortunately, the plan did not achieve due to the force from the military dictatorship of President Park. Instead the massive scale of plaza was designer in the centre of island.

9) First applied in Hangang Mansion Apartments and adopted as legal policy in 1977, it is the most common method in Korea when providing the massive quantity of housings.

FIG. 5.7 The aerial image of Han River before the reclamation in 1960s. The black patches are the military facilities.

(source: <http://vworld.kr>)

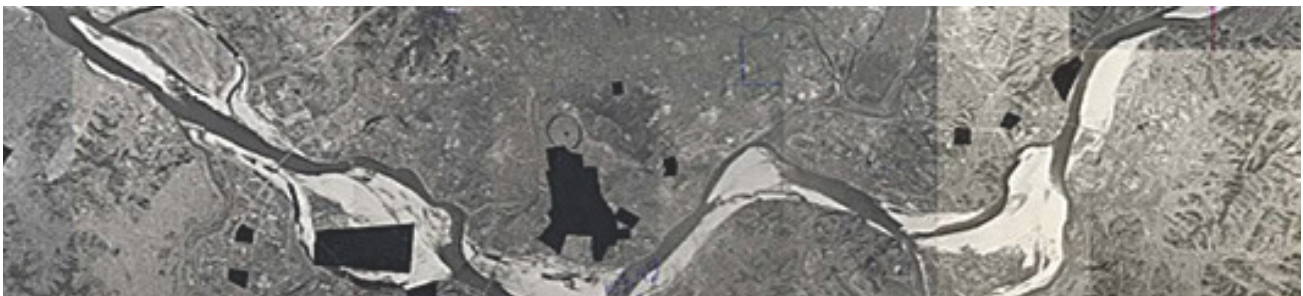




FIG. 5.8 The image of embarkment around Yeouido.

(source: From *Build assault! Mayor Hyun-ok Kim's Seoul 2: 1968-1970*, by Seoul Museum of History, 2013, Seoul History Archives, p.84 (<http://museum.seoul.go.kr/archive/archiveView.do?currentPage=4&type=B&type2=&arvcGroupNo=2817&lowerArcvGroupNo=3155&arvcMetaSeq=24143&arvcNo=71978&realArcvGroupNo=3155&searchVal=>). Copyright 2011 by Seoul Museum of History.)



FIG. 5.9 The image of remnant airport in Yeouido from 1916 to 1958. The picture was taken in 1969.

(source: From *Aerial photography of Gyeonggi-do (Seoul, Han River, Yeouido) #2*, by Gyeonggi Province, n.d., Gyeonggi Multimedia (https://exciting.gg.go.kr/board/inquire.do?bbsId=BB-SMSTR_000000000223&nttlId=16885&bbsTyCode=&bbsAttrbCode=BBSA01&authFlag=Y&pageIndex=3621&menu_id=3). Copyright by Gyeonggi Province.)

FIG. 5.10 The image of Yeouido Demonstrative apartment complex in 1973 solely standing on the empty field.

(source: From *Mole Mayor Taeksik Yang 2: 1973-1974*, by Seoul Museum of History, 2015, Seoul History Archives, p.71 (https://museum.seoul.go.kr/archive/archiveView.do?type=B&arvcGroupNo=2819&lowerArcvGroupNo=3168&arvcMetaSeq=29915&arvcNo=81087#layer_exhibit). Copyright 2011 by Seoul Museum of History.)



CONSEQUENCES: THE ALIENATED OF LOW-INCOME CLASS

10) Some of the forcement of the migration and the deteriorated living environment threatening the lives led to the riots.

The large scale of land readjustment programs at the peripheries and the infrastructure projects structured the basis of today's spatial form. Since these were the major priority tasks that the government had to focus, no thorough approach to the poor and illegal slums were neglected. Only the temporary measures were taken at the outskirts of the city. The migration settlement villages¹⁰⁾ were regarded as failure policy since the government had no capacity to provide the basic infrastructures such as water system. Comprised of excessive small plots, the self-sufficient approach to build their own house lacked the proper public supports. These areas became ghetto, expanding all over the territory of Seoul, which later designated as Defective Housing Redevelopment Districts in 1970s.

Meanwhile, the national government proposed to build the amount of civic apartments to accommodate the low-income people in process of clearing the slums. Most of the civic apartments were located on the sloped areas near the mountains more than 40 meters above the sea level. These civic apartments were notorious for shoddy construction, corruptive monitoring and lack of basic infrastructures. It was no surprise when Wau civic apartment collapsed in 1970, resulting in more than 70 casualties. Due to this accident, remaining civic apartments were demolished step by step, only leaving one civic apartment in Seoul, and the negative impression towards the civic apartments has taken place in the perception of Koreans.

STANDARDIZATION IN CONSTRUCTION AND DESIGN MODEL

Therefore, the provision of apartment complexes naturally targeted the middle and high-income classes. At that time, the government introduced the method of pre-sale, which supplement the part of construction expenses through the down payment or advanced payment before the completion of development. Therefore, housing showcase models played important role in illustrating idealized imaginary interior. Codified into few types, it also contributed to the efficiency in construction through the homogeneous design. It is assumed that this interior-oriented housing perspective affects people to perceive the housing unit as only appropriation, neglecting the importance of outside space.



2 FIG. 5.11 The large-scaled migration settlement villages in Gwangju region.

(source: From *Do you know about the 'Gwangju Great Complex Incident'?* Seongnam City Reillumination Startup, by W. S. Lee, 25 August 2015, Yonhapnews (<http://yna.co.kr/view/AKR20180824103800061>). Copyright by Seongnam City.)

3 FIG. 5.12 The collapse disaster of Wau apartment buildings.

(source: From *Seoul in Pictures*, by Seoul Historiography Institute, 2016, Seoul History of 2000 years (http://seoul.go.kr/nuri/bbs/bbs.php?sub_type=view&bs_idx=182&pidx=&didx=115&bs_idx=115&s_where=&s_text=&search_status=all&s_cate=&s_recom=&s_year=&s_month=&s_day=&page_num=1). Copyright by Seoul Historiography Institute.)



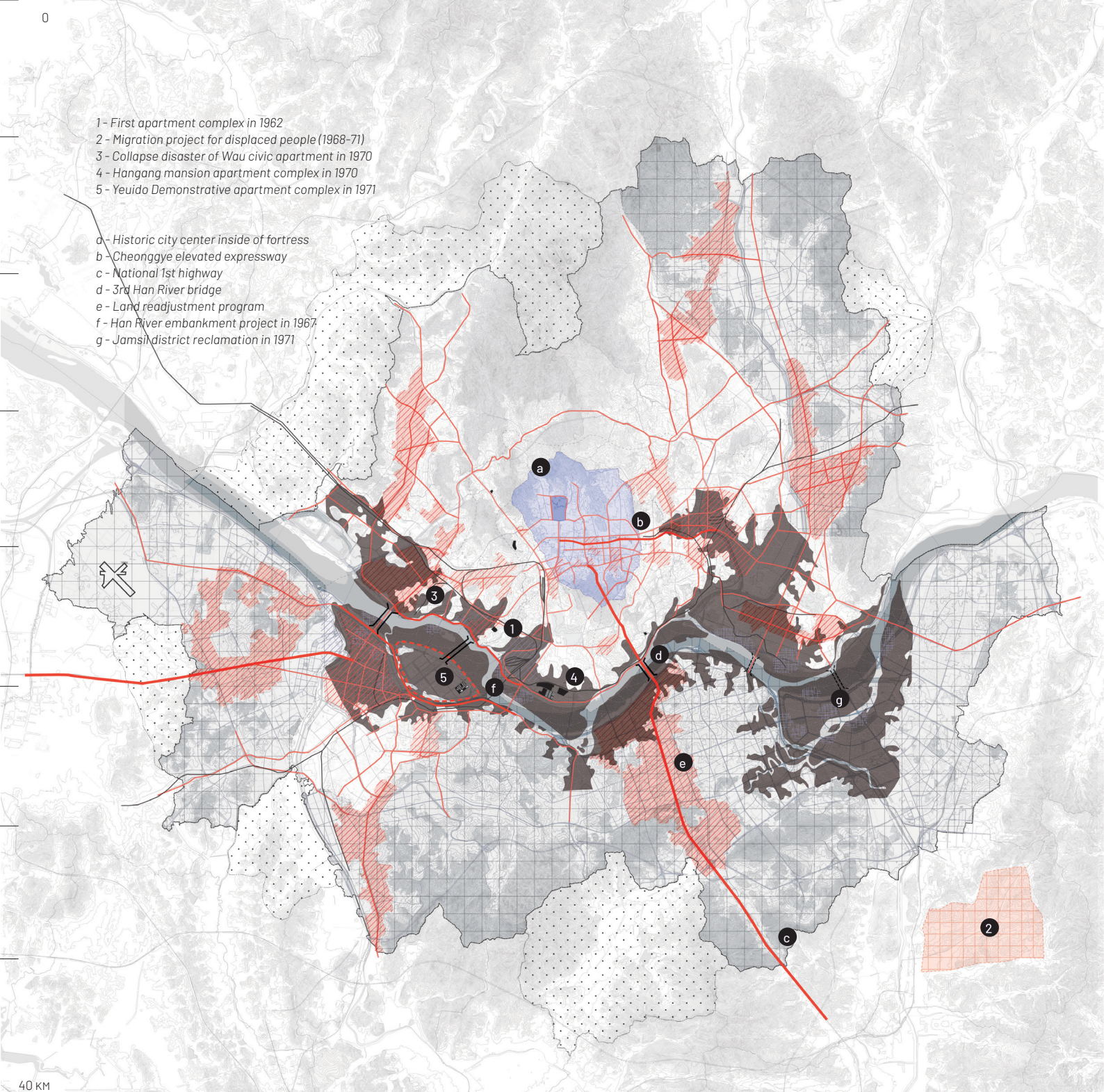


FIG. 5.13 Territory of Seoul during 1962-1971.

(source: Seoul City Master Plan, 1965; Urban Planning History Book, 1977; Seoul Museum of History, n.d.; reorganized by author)

- | | | | |
|---|-----------------------------|---|---------------------------|
|  | Expanded territory in 1963 |  | Land readjustment program |
|  | Decreased territory |  | Major road networks |
|  | Flooding risk area |  | Railway |
|  | Waterbody before embankment | | |

e



4



5



FIG. 5.14 The South Seoul City Planning in 1963 to create ideal Garden City which did not actualize [top left].

(source: From *Permanent exhibition of 600 years of Seoul* by Seoul Museum of History, 2013. Copyright by Seoul Museum of History; originated from *Urban Planning Business Plan* by Park, Heung-Shik, 1963.)

FIG. 5.15 The image of Hangang Mansion Apartment Complex [top right].

(source: *Housing Complex Overview, 1978-1980* by KNHC, 1981. Copyright by KNHC.)

FIG. 5.16 Masterplan in 1968 designed by Su-geun Kim and others, which did not realize [bottom left].

(source: From *Spectres of the State Avant-Garde*, by The Korean Pavilion, 2018. 16th International Architecture Exhibition La Biennale di Venezia (<http://www.korean-pavilion.or.kr/18pavilion/ko/kecc/3.html>). Copyright by KTV.)

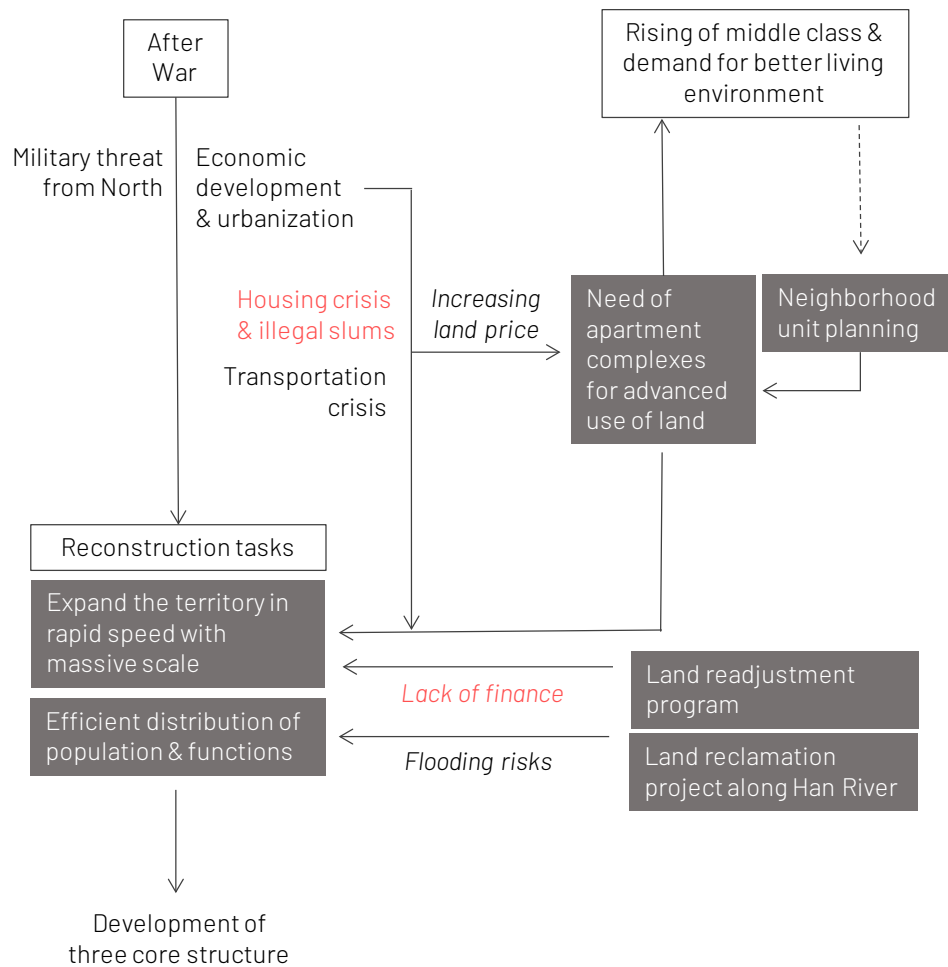


FIG. 5.17 The summary of the period 1962-1971.

(source: developed by author)

BACKGROUND & CONTEXT:

The period of 1970s was unstable in terms of politics, economics and international relations, which was known for military government led by Yusin dictatorship and President Park Chung Hee's strong willingness to renew the urban poor and slums. In 1972, the government announced to build 2.5 million housings based on the '10-year *National Comprehensive Planning*'. The policy of '*Development Restricted Area*', designated in 1971 for creating the greenbelt to protect Seoul from the bombing attack, made the available lands less and it was the significant moment towards the high-density and large-scaled development.

As explained earlier, Seoul aimed to restructure the territory into three main cores: historic center, Gangnam (southern area), and Yeouido districts. Starting from 1960s, this period was when the Land Readjustment program was employed in earnest. Based on this program, the amalgamated and civilized grid structures were imposed on the empty field and existing urban fabric. The grand plan aimed to accommodate 6 million on 59 km² new area. Land Readjustment program can be practiced as a bottom-up tool, yet the large-scale projects were promoted during this period with the top-down practices by the government, as the cost saving effects were expected on the massive-scale of facilities. Since the previous method of Land Readjustment program caused issues of small parcels that could not utilize, the government banned the land division that are less than 165 m² in size. Moreover, the regulation was adopted in 1972 to not exceed the 0.4 GSI, maximum building size of 66m². In supporting various measurements, the design of southern areas prioritized the public space such as roads, schools, and parks.

As the first time, the population in Seoul exceeded the 5 million in 1970, which was unexpectedly faster than what government projected. Yet, most of the population, around 76%, still concentrated in existing urban area located norther part of Han River. In order to accelerate the relocation of function and population in the South, the government took various measures.

POLICY & INSTRUMENT:

First of all, the government attempted to sell both developed land and buildings as a package in selling the substitute lands¹¹⁾. Since the government lacked the financial means, the sales of substitute lands were the important tool in delivering the projects. The 'Housing Construction Promotion Act' and 'Provisional Law on the Development of Special Regions' in 1972 decoyed the participation of private sector providing exceptional conditions. The government eased the tax regulations for the next six years across the board including real estate speculation tax, business tax, registration tax, acquisition tax, property tax, and etc. At the same time, the idle land tax imposed on the unutilized lands to prevent the desuetude.

11) The substitute land is the land secured by the authorities in recompense of development outlay when executing the land readjustment.

In 1975, the government even compelled the regulation to ban the housing site development in the northern area of Han River. This regulation not only prohibited the construction of new housings, but also restricted the amenities, large department stores, markets, or universities which can trigger the population inflow. The next year, in 1976, the major prestigious schools were replaced from north to south, which led to the today's unique school district culture. The infrastructure projects such as express bus terminal and 2nd subway line ensured rich accessibility and connection.

The enactment of 'Apartment District' in 1976, followed by the alleviation in height restriction in apartment buildings in 1977 allowed massive apartment construction projects active in newly developed area. It comprised of 11 districts, yet being account for almost 4.4% of total residential areas (12,000 ha), placed on the reclaimed lands from the embankment construction.

CONSEQUENCE: THE PRIVATE-DEPENDENT PROVISION AND THE ENLARGEMENT OF SCALE

12) 'Jugong apartment' complexes refer to the properties which were constructed by the 'Korea Land and Housing Corporation (KLHC)' to stabilize the housing market. The properties were distributed to the citizens through both public rent and public lease contracts. Due to aging problem, most of them were reconstructed by the private companies and remaining complexes are waiting for reconstruction approval from the local government.

Altogether, they opened the era of Gangnam as today's image. However, it was the three major housing projects that proliferate Gangnam. Banpo Jugong apartment complexes were the first project of Jugong¹²⁾ constructed by Korean National Housing Corporation (KNHC). They are memorable in that they became a model for large-scale of complexes: total area of 55ha, a single complex is comprised of four neighbourhoods (99 buildings & 3,590 households).

Meanwhile, the Apgujeong apartment complexes are the first apartment complexes erected by private corporate, Hyundai. Starting with Hyundai, the big private corporates jumped into the housing market to name luxurious and premium apartment complexes, which ties with the desire of middle and high-income classes. The government even designated the major big private companies as fixed contractor to deliver the amount of quantity. The private-led housing provision and the consolidation of large-scale of apartment complexes appearing from middle 1970s, has led to the view towards housing as profit-gain and monotonous practices of structuring the complexes.

The final significant project is Jamsil Jugong apartment complexes, which were also located on the reclaimed land of Han River. As the name implies, they were the second project of KNHC. Comprised of five complexes of 364 buildings (in total 10,918 households), these Jugong apartment complexes contributed to solve the housing shortage for the middle-income class. These blocks were noteworthy that the concept of neighbourhood unit was fully equipped in the complexes: the five blocks are divided with the arterial roads; the school and commercial functions are located in the centre of the block; and the greens and the fences perform as the buffer boundary.

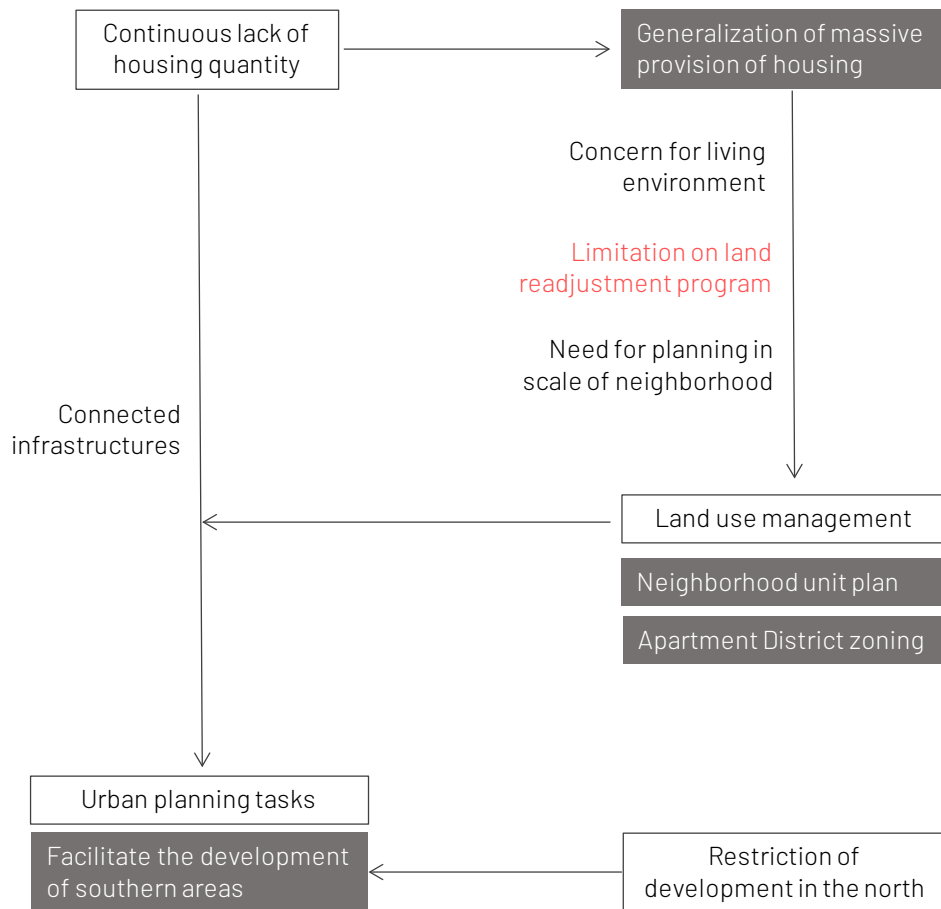


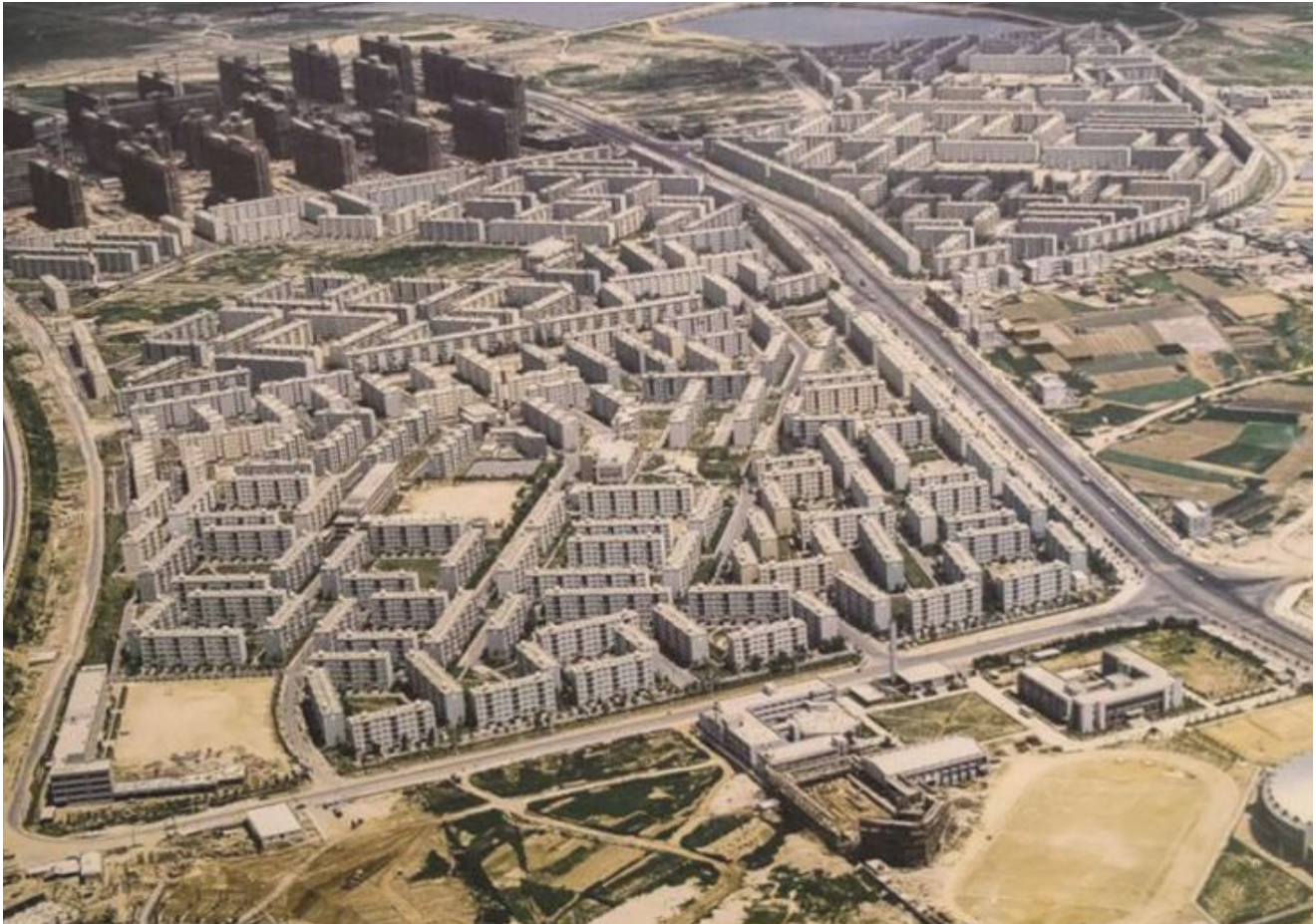
FIG. 5.18 The summary of the period 1972-1981.

(source: developed by author)



6 FIG. 5.19 The image of Banpol Jugong apartment complexes in 1973.

(source: From *Banpobon-dong: South Seoul to Old Banpo*, by Seoul Museum of History, 2019, Seoul History Archives, p.11 (<https://museum.seoul.go.kr/archive/archiveView.do?currentPage=4&type=A&-type2=area&arcvGroupNo=4230&lowerArcvGroupNo=4231&arcvMetaSeq=36305&arcvNo=98591&realArcvGroupNo=4231&searchVal=>). Copyright 2011 by Seoul Museum of History.)



7 FIG. 5.20 The image of Jamsil Jugong apartment complexes.

(source: @salguajc. (2020, July 09). An aerial photo of the construction of Complex 5 in full swing after the completion of Complex 1-4. Source/Seoul Museum of History. [Twitter post]. Retrieved from twitter.com/salguajc/status/1281060639834660864/photo/1. Copyright by Seoul Museum of History)

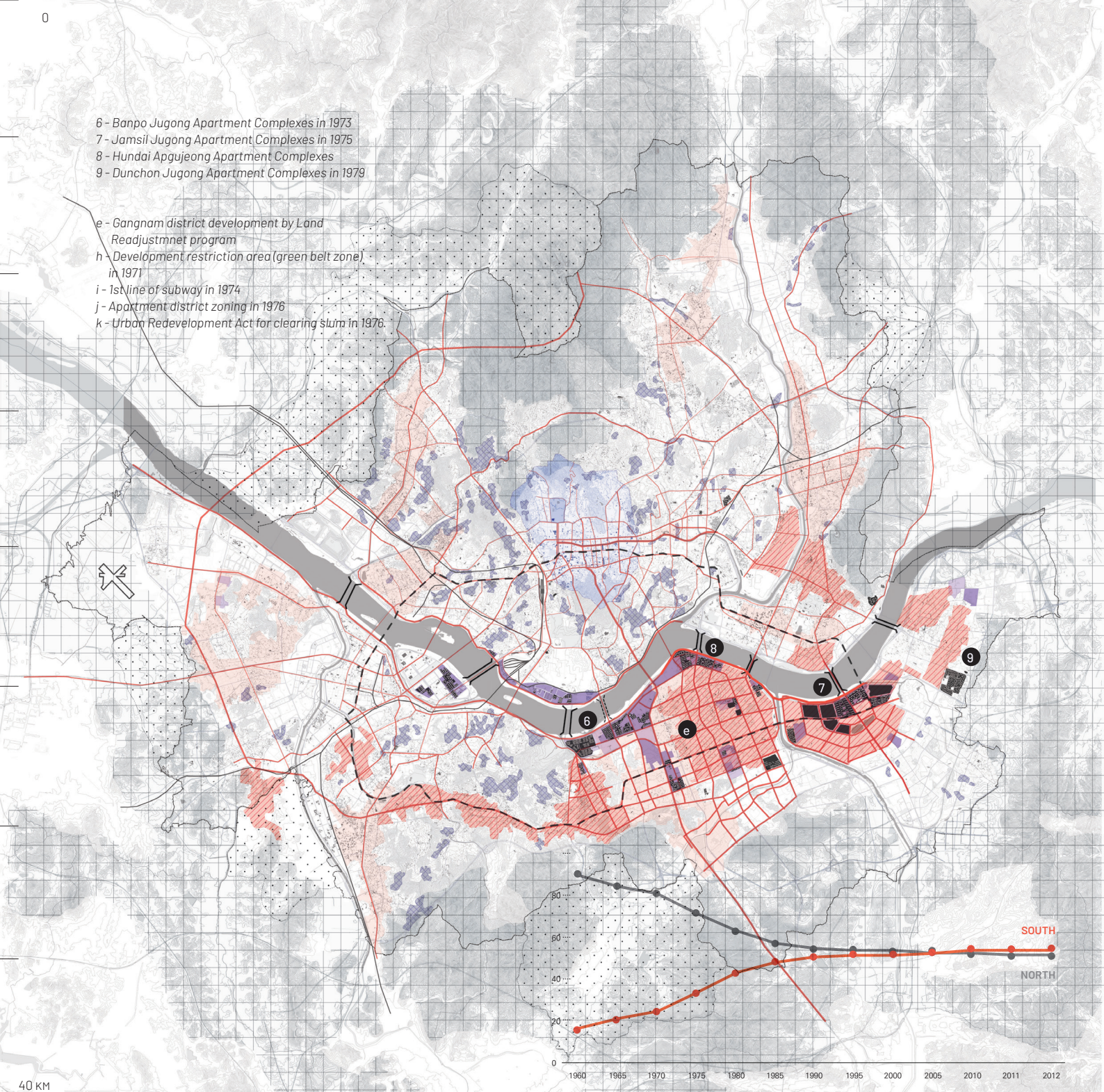
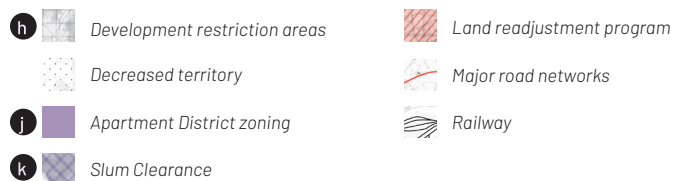


FIG. 5.21 Territory of Seoul during 1972-1981.

(source: Seoul City Master Plan, 1965; Urban Planning History Book, 1997; Seoul Museum of History, n.d.; reorganized by author)



1982 - 1991 | 5 million housing project and massive housing development at peripheries

The 1980s and 1990s witnessed a construction boom of unprecedented proportions due to the explosive population growth. Although the National Government announced the '5 million housing construction' planning, the available lands were already depleted in 1980s except the natural green areas which was restricted for development. To achieve the housing goal, the massive apartment complexes were constructed by allowing the development on the natural green areas: Sanggye (northern-east), Mokdong (southern-west), Gaepo (south), and Goduck (southern-east). It was facilitated under the 'Housing Site Development Promotion Act'. The Housing Site Development policy was more effective than the previous Land adjustment program in that larger scale of lands was possible to purchase in relatively low price and also the development process was promoted in shorter duration. The regulations on apartment complexes were alleviated to place more density. In 1985, the height over 16-stories was legalized, and in 1990, the limit of FSI increased from 2.0 to 3.0.

Meanwhile, selected as host country, the Asian game in 1986 and the Olympic in 1988 triggered the urban redevelopment projects in order to beautify the cityscape. The deteriorated districts were removed through the joint redevelopment process between the private sector and the land owners. New approach towards the apartment complexes was attempted, for example through the International Design Competitions.

In 1984, the 'Rental Housing Construction Promotion Act' were practiced to diverse the housing supplement type, public rent for 5 years. In 1989 along with 2 million housing project, the planning for permanent public rent housings were initiated. This plan contained the specific percentages of public rent housings in the housing development, which is more than 30% of total areas of housing construction site.

1992-1996 | 2 million Housing Project and start of suburbanization

In the late 1980s, the National government proposed another '2 million housing construction' planning as well as first new town projects in 1988. These new towns were settled in adjacent regions, 15-25 km away from Seoul and planned to absorb the 1.1. millions of new populations. In the first time, the population in Seoul dramatically decreased.

Since the 1990s, luxurious branding apartment complexes have emerged, reflecting the *"deregulation and neo-liberal logic structuring the Korean housing production system"* (Gelezeau, 2008, p.317). In addition, the partnership redevelopment projects between the resident community and the private company were contracted actively due to the mitigation in restriction. Mostly taken place on the sloped mountain areas, the massive high-rise and high-density projects were criticized for damaging the urban landscape and natural topography, neglecting the context of area. It also became problematic that only few original residents were able to afford to resettle the area again. Therefore, several movements such as 'restoration of Namsan' and 'demolition of foreign apartment complexes' were enforced.

FIG. 5.22 The population changes between northern and southern territories [diagram on previous page].

(source: From *Geographical Atlas of Seoul 2013*, by The Seoul Institute, 2013, The Seoul Research Data Service (<http://data.si.re.kr/node/55513>).)

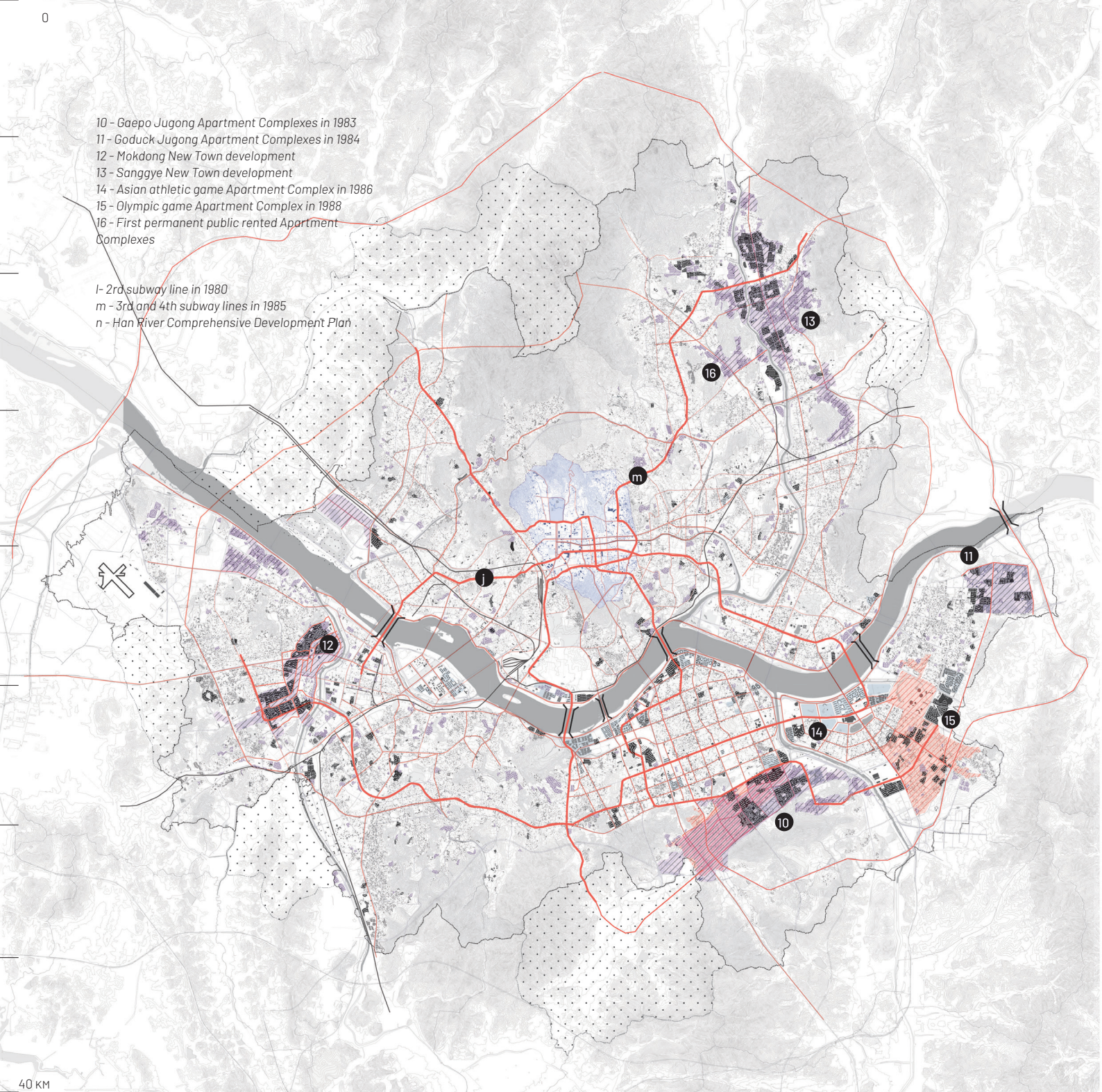


FIG. 5.23 Territory of Seoul during 1982-1992.

(source: Seoul City Master Plan, 1965; Urban Planning History Book, 1997; Seoul Museum of History, n.d.; reorganized by author)

- | | | | |
|--|-------------------------------|--|------------------------------------|
| | Development restriction areas | | Land readjustment program |
| | Decreased territory | | Housing Site Development program |
| | Subway system | | Apartment complexes built in 1980s |
| | Railway | | Apartment complexes built in 1990s |



FIG. 5.24 Olympic village in 1988.

(source: From *Seoul Olympic Villate 1988* by Ilkun Architects, n.d., Residential & Hospitality (<http://www.ilkun.com/bbs/board.php?tbl=residential&mode=VIEW&num=1>). Copyright 2016 by Ilkun Architects.)

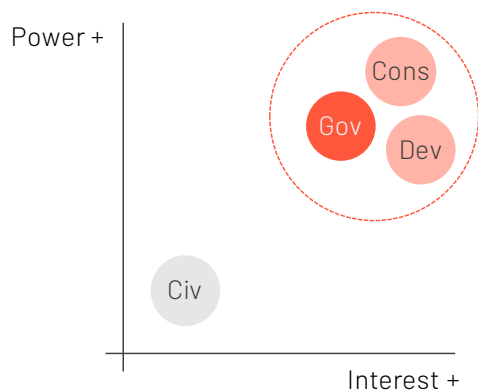
5.2 – Imposed policies and stakeholder relationship

The initial stage of implemented policies and tools support the construction of apartment complexes in efficient and fast manner, since the solving the housing shortage was the urgent task for the government. Since the newly gainable lands were sufficient through the land reclamation and improvement along the river and plain, the massive scale of development took place on the artificial lands of *tablua rasa*. Especially, The two major interpolating policies, LR and HSD enabled the government to take the large amount of lands with relatively reasonable prices.

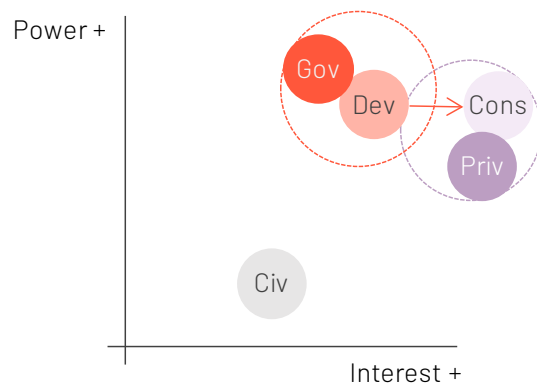
The earlier policy of Land Readjustment (LR) program during 1960 and 1970s enabled the national government to minimize the financial burden in providing the efficient lands for urban development, who did not have enough capacity to accommodate their finances to industrial parks, infrastructure, or land development. It was possible since the LR placed the responsibility to the land owners. However, the multiple land owners made the procedure complicated in managing and making consensus. Moreover, it lacked in taking lands in massive scale. Finally, the profits from the development in turn returned to the land owners, which led to the privatization of the profits.

Therefore, the new program was initiative by the government – Housing Site Development (HSD) program during 1980s. Unlike the LR, HSD was based on the public-led development, where the government or the Korea Land and Housing Corporation (KLHC) actively expropriated the quantities of land from the land owner and developed them into the urbanized lands. The public sector absorbed the lands in relatively cheap price and simplified procedures. It was the major tool during the last 30 years in responding to the new town development. However, due to the lack of finance, KLHC had to transfer the role of construction power to the private sectors. In addition, the original concern for the privatization of the profits did not solve completely as the profits returned to the public sector (KLHC) or the private construction companies, who acquired the available land in affordable price. It consequences the other meaning of privatization through the reverted development profit.

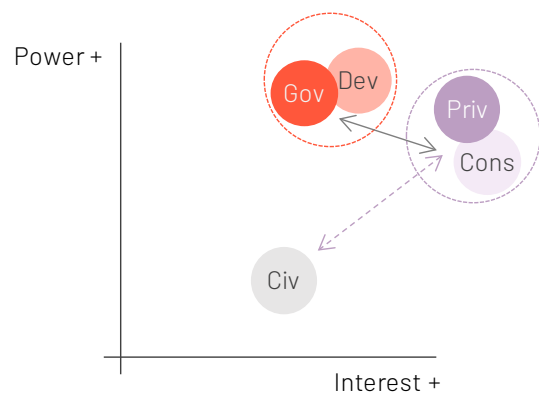
Since 1990s, with the rising needs for the residential renewal, new social contract has formulated between the government, private corporations, and the interest citizens. These new relationship is evident in the residential renewal projects in both urban redevelopment and reconstruction program. The joint partnership between the property owners who have a right to the lands and the development company who execute the construction is firmly formed in seeking the short-term profit-gain. Recently, the government attempts to bring the public role in construing the apartment complexes by adopting the Master Architect or Master Planner policy, yet the conflict between the private ownership and the civic value hamper the effectiveness of implementation.



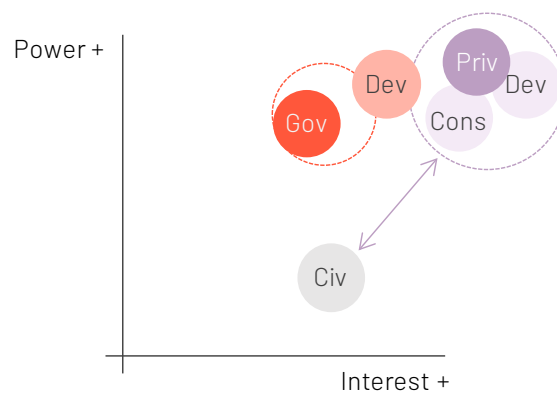
1962 - 1972 | GOVERNMENT AS SINGLE PROVIDER



1972 - 1982 | AUTHORIZE THE PRIVATE SECTOR TO SHARE THE TASKS



1982 - 1992 | ENGAGEMENT OF CITIZENS TO THE PROCESS IN ARGUING THE RIGHT TO THE PROPERTY



1992 - CURRENT | BONDING RELATIONSHIP BETWEEN PRIVATE SECTOR AND RESIDENTIAL UNDER CAPITALISM

FIG. 5.25 The changes in the power-interest relationship between the stakeholders.

(source: developed by author)

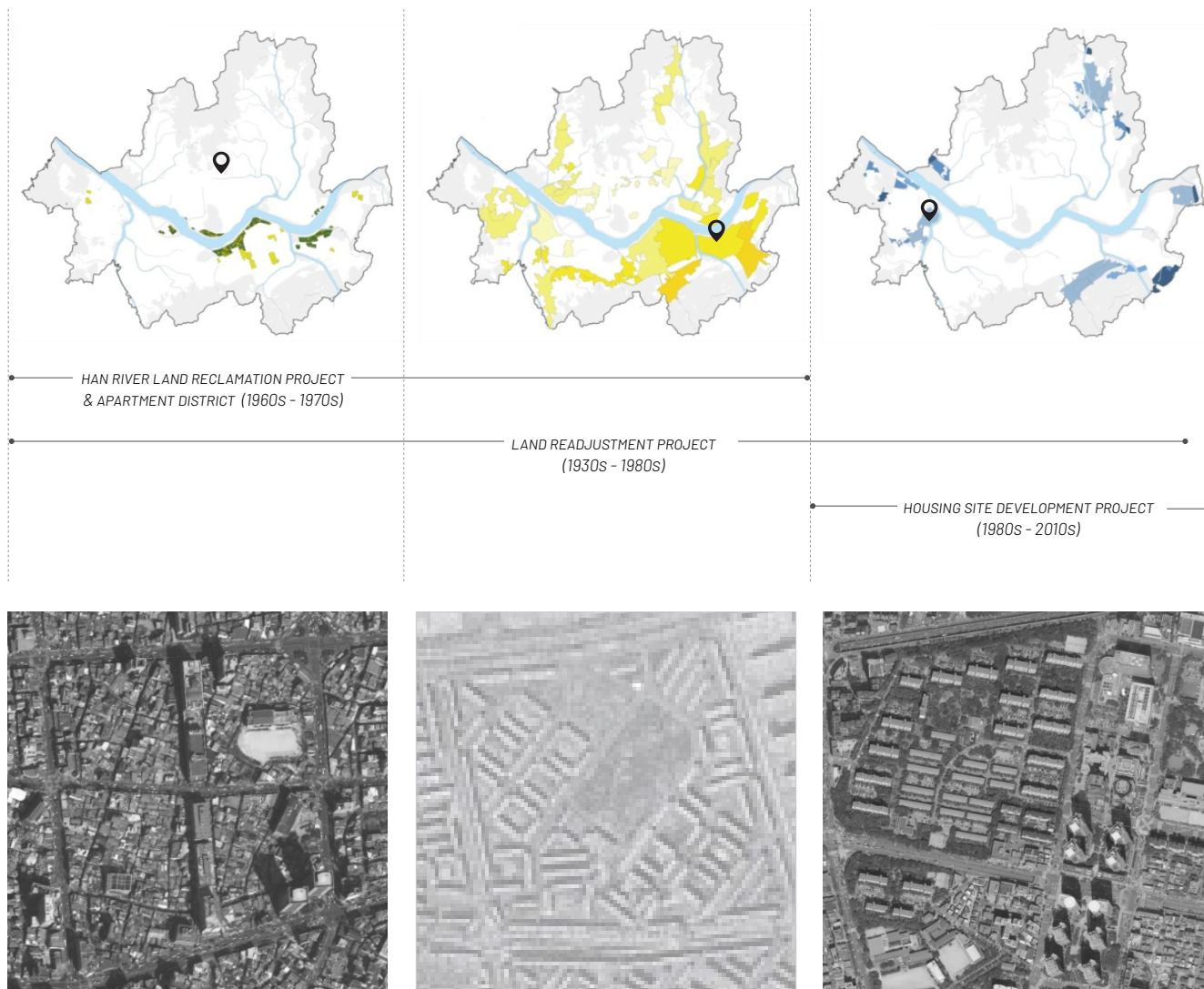
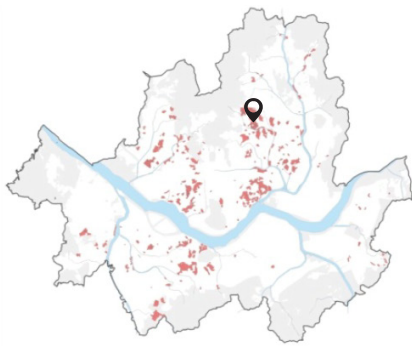


FIG. 5.26 The various supporting policies resulting in large heterogeneous patches in Seoul.

(source: Hwang, 2018, p.2)

Different degree of depth-order in represented three types of urban fabric in Seoul.

(source: aerial image from Kakao Map & vworld.kr; modified by the author)



HOUSING REDEVELOPMENT PROJECT
(1970s - PRESENT)



HOUSING RECONSTRUCTION PROJECT
(1970s - PRESENT)



URBAN DEVELOPMENT PROJECT & NEW TOWN
(2002 - PRESENT)



The redevelopment on existing urban fabric disrupt the original movement and continuity.



In early 2000s, the Jamsil area experienced urban reconstruction project to build more higher buildings.



The recent project of new town tried different way of constructing the apartment blocks to overcome the previous challenges.

5.3 – Reflection upon the role of the public

From the beginning, the central government expressed the strong willingness in implementing the large scaled apartment complexes. They solved the urgent housing problems facing at one hand, but they were also abused as tool to cover the expenses of other parts of development. Public sector was the one who has the responsibility to provide the basic living infrastructures, what we call the amenities – the park, library, nursery, elderly centre, and etc. Yet, the government passed the responsibility to the private sector by handing over the part of the control power. In other word, the public sector lost the part of right in decision-making. Therefore, the nature in the packaged complexes, built by the public sector, is a private space. Therefore, the penetrating road, which is a public space, cannot be accepted by the residents since the distinction between public and private becomes blur. Moreover, it is the residents who pay the money for these amenities. It is understandable that the apartment complexes have become a walled fortress since the residents are just asserting their right of the payment.

Box 5.1 – Graph of housing construction

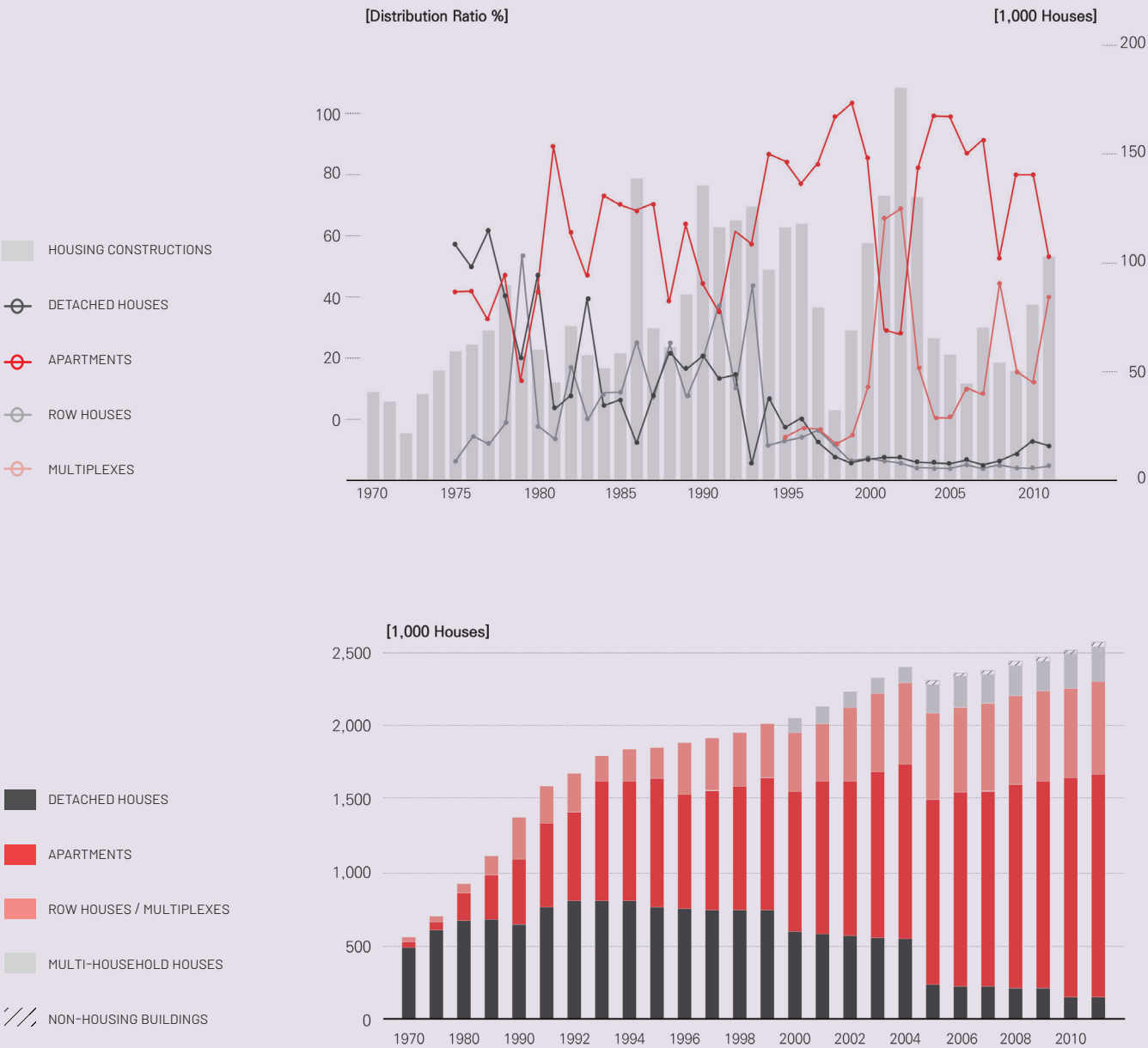
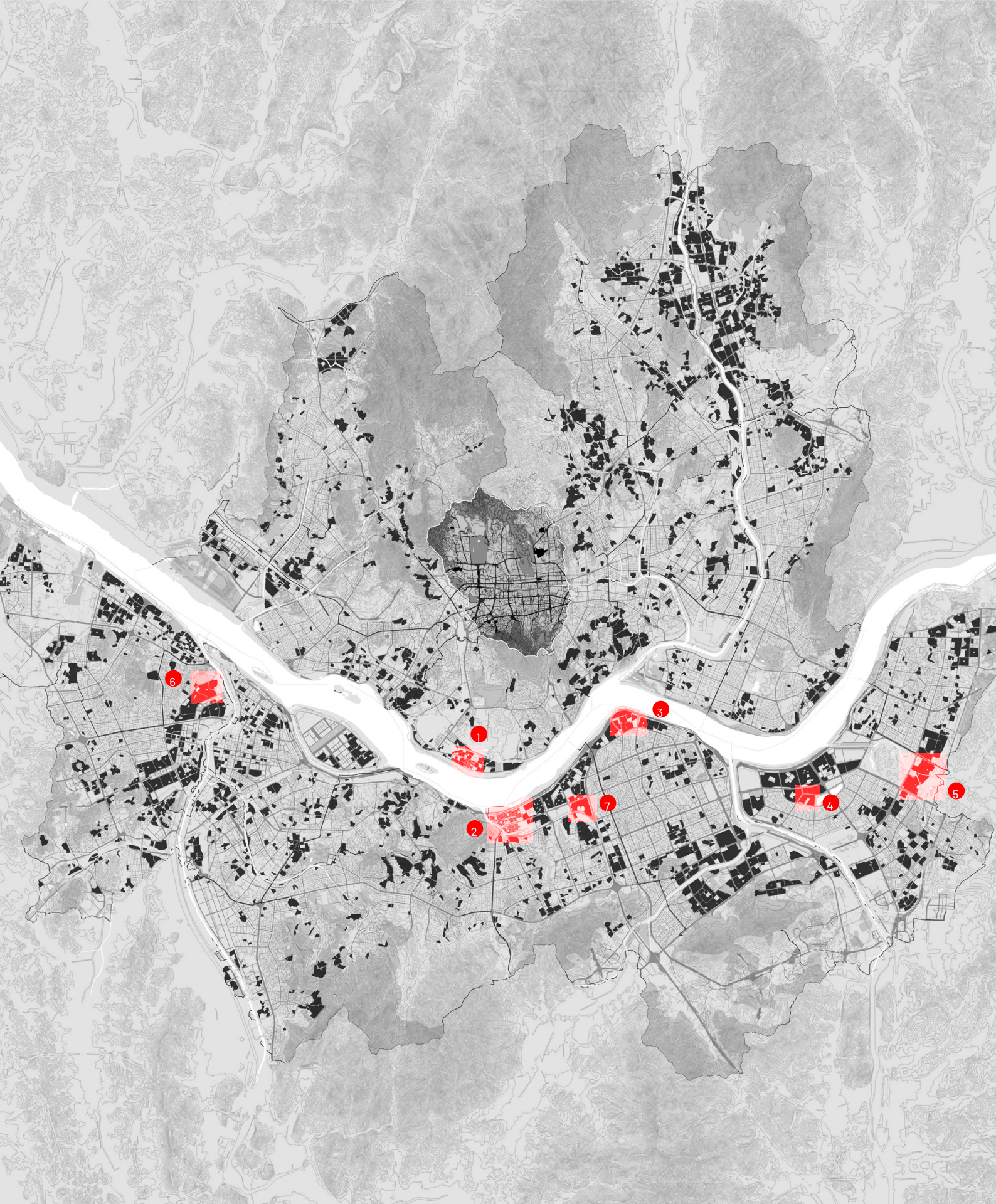


FIG.BOX.5.1 The housing stock and construction in Seoul, 1970-2011.

(source: From *Seoul on the map 2013 - Housing* by The Seoul Institute, n.d., The Seoul Resesarch Data Service. (<https://data.si.re.kr/node/55513>). Copyright 2015 by The Seoul Institute.)



6 – Metamorphosis of Apartment Complexes

Case studies on Representative Apartment Complexes
and Reconstruction Project in Jamsil Jugong ACs

- 
- 1 - HANGANG MANSION (1971)
 - 2 - BANPO JUGONG 1 (1973)
 - 3 - APGUJEONG HYUNDAI (1975)
 - 4 - JAMSIL JUGONG 4 (1975)
 - 5 - OLYMPIC VILLAGE (1988)
 - 6 - MOKDONG (1991)
 - 7 - BANPO XI (2009)

FIG. 6.1 The distribution of apartment complexes in Seoul and case blocks.

(source: Seoul open data platform; modified using QGIS by author)

This chapter brings the specific case blocks of apartment complex to find the diachronic language in dictating the mechanisms of evolution and transformation of urban forms: How they have been changed; the role of constants which have been persistent; or the relationship between the building type and the urban fabric over time.

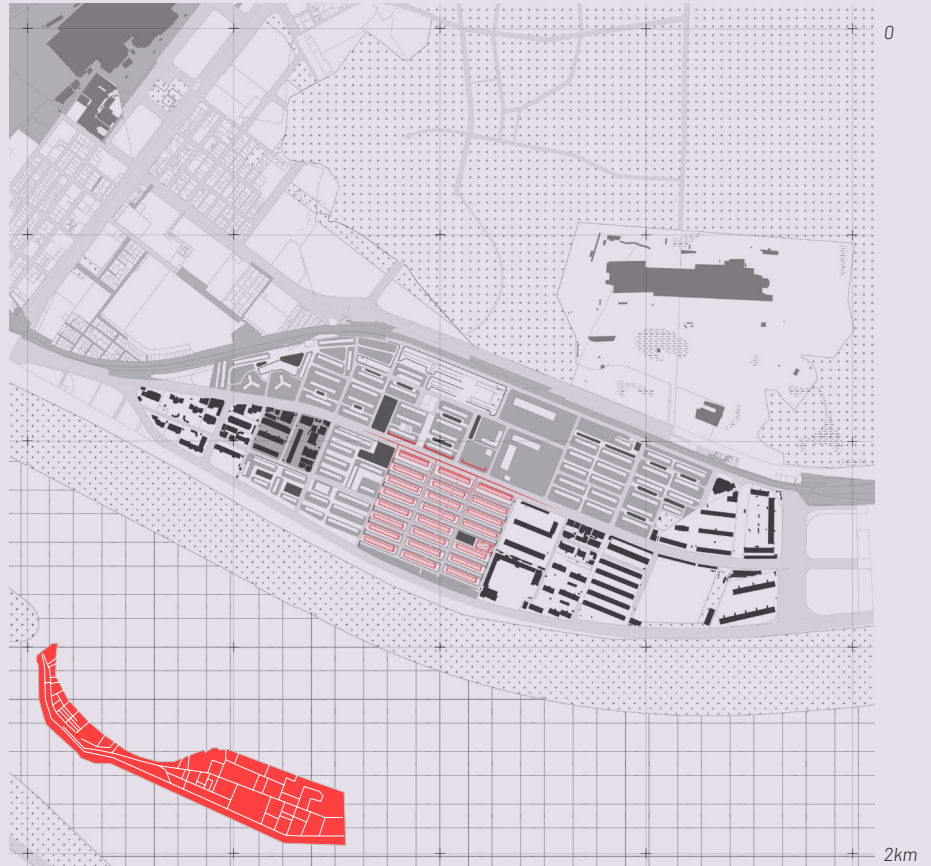
In addition, the in-depth study on the Jamsil apartment complexes is showed in this chapter, which have gone through the second generative transformation through the housing reconstruction project. The layering of fabric, either superimposition on the existing one or juxtaposition on different fabric over time gives different patterns of relation.

Box 6.1 – Example of representative apartment blocks

Hangang Mansion AC (1971) - KNHC

The Hangang Mansion apartment complex is the first apartment complex targeting the middle-income class to shift the negative perception towards the mass housing estates triggered by the collapse accident of Wau civic apartment. In order to attract the high classes such as government officials or expats, the unit was expanded up to 180 square metres and the central heating system was introduced. Diverse amenities were considered from the start of designing process to contribute to the residents' convenience upon the neighbourhood unit concept. One of distinctive feature is the two-stories of retail street along the main centrality.

It is also known for the first trial adopting the model house for marketing and pre-sale system for delivering the finance.



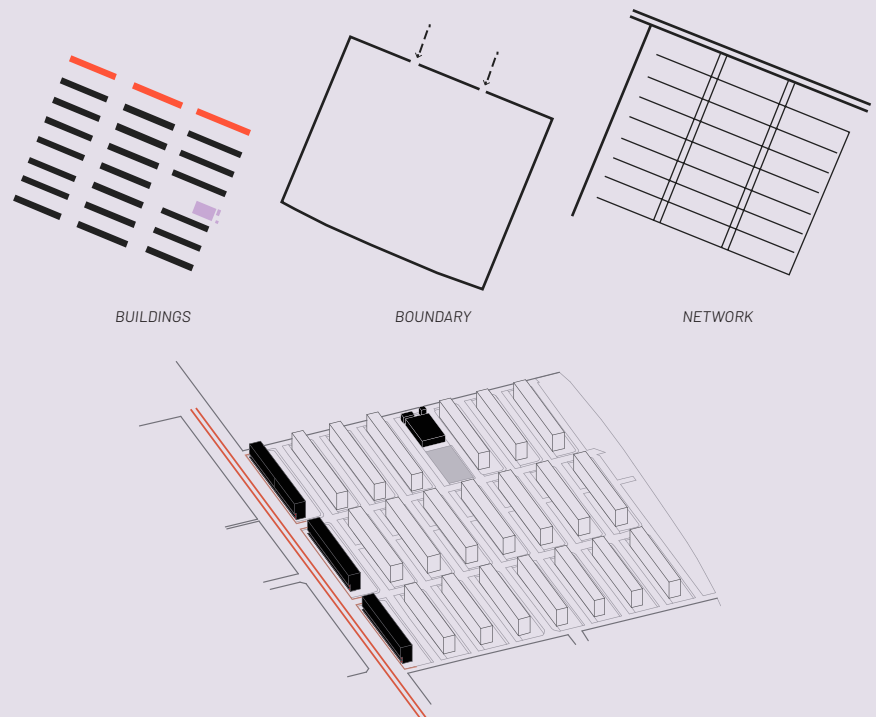
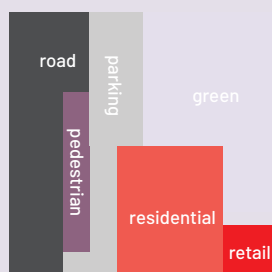
PROJECT: HAN RIVER EMBANKMENT

79 UNITS / HA

- Scale: 23 buildings (660 HH)
- Height: 5F
- Unit size: 89.26, 105.79, 122.31, 168.60, 181.82 m²

1.10 FAR • 0.22 BCR

PROPORTION OF FUNCTIONS



LINEAR RETAIL STREET

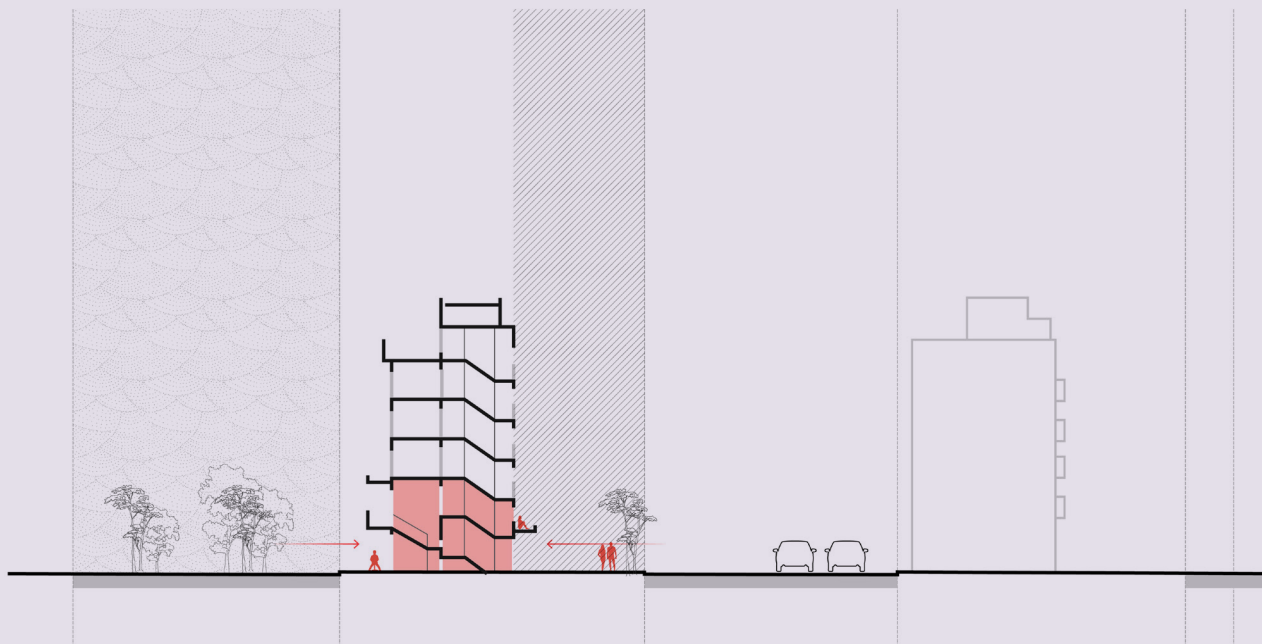


FIG.BOX.6.1 The characteristics of block and the section in Hangang Mansion AC [previous page].

(source: Seoul open data platform & Kakao street map; modified using by author)

FIG.BOX.6.2 The image of retail street in Hangang Mansion apartment complex.

(source: From *Banpobon-dong* by Seoul Museum of History, 2019, Seoul History Archives (<https://museum.seoul.go.kr/archive/archiveView.do?currentPage=3&type=A&type2=area&arvcGroupNo=4230&lowerArcvGroupNo=4232&arvcMetaSeq=36061&arvcNo=98835&realArcvGroupNo=4232&searchVal=>). Copyright 2011 by Seoul Museum of History; originated from National Archives)



Banpo Jugong ACs #1(1972) - KNHC

Banpo apartment complexes are the first project led by KNHC and the first attempt in its massive scale. One of the distinctive characteristic is the linear retail functions along the main street. It was intended to link the core activities with the public space as well as the residential area and the urban space. Each block has a parallel structure with the small pocket parks inside of block.

PROGRAM: APARTMENT DISTRICT ZONING

PROJECT: HAN RIVER EMBANKMENT

42 UNITS / HA

- Scale: 103 buildings (2,117 HH)
- Height: 5F
- Unit size: 72.73, 135.54, 201.54 m²

0.98 FAR • 0.26 BCR

PROPORTION OF FUNCTIONS

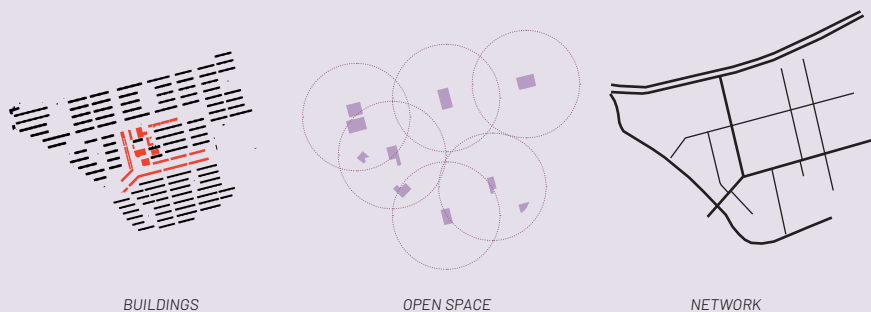
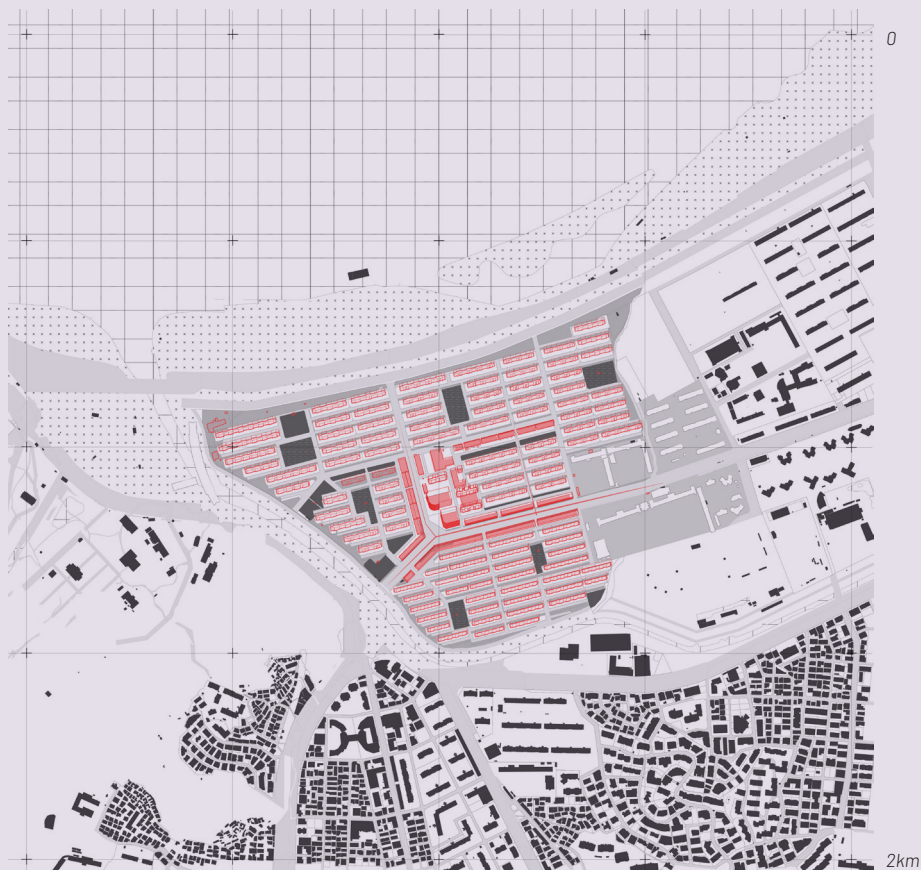
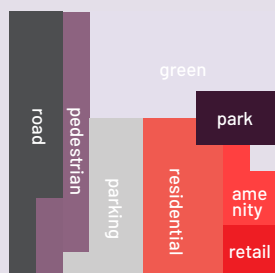
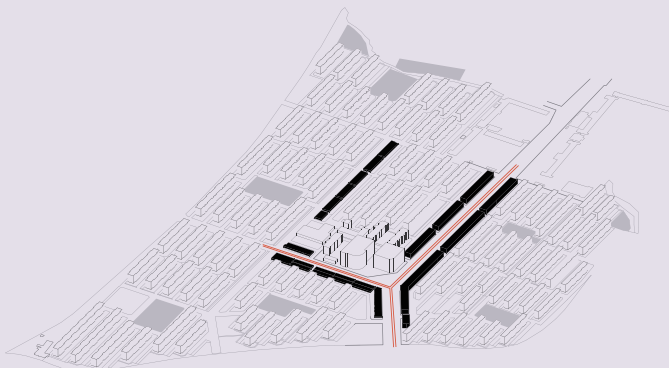


FIG.BOX.6.3 The characteristics of block and the section in Banpo AC #1.

(source: Seoul open data platform & Kakao street map; modified using by author)



LINEAR RETAIL STREET

FIG.BOX.6.4 The image of retail street in Banpo apartment complex.

(source: From *Banpobon-dong: South Seoul to Old Banpo* by Seoul Museum of History, 2019, Seoul History Archives (<https://museum.seoul.go.kr/archive/archiveView.do?currentPage=1&type=A&type2=area&arvcGroupNo=4230&lowerArcvGroupNo=4233&arvcMetaSeq=36528&arvcNo=100280&realArcvGroupNo=4233&searchVal=>). Copyright 2011 by Seoul Museum of History.)



6.1 – The representative projects in time

1960s ~ HOUSING STANDARDS AND HEIGHT CONTROLS

There are strict regulations regarding the protection of privacy, sunlight and the view. The distance between the buildings has to be 0.8 of the height of the buildings, based on the sunlightable building face. It guarantees a minimum of 2 hours of sunlight between 9 to 15 during the winter period.

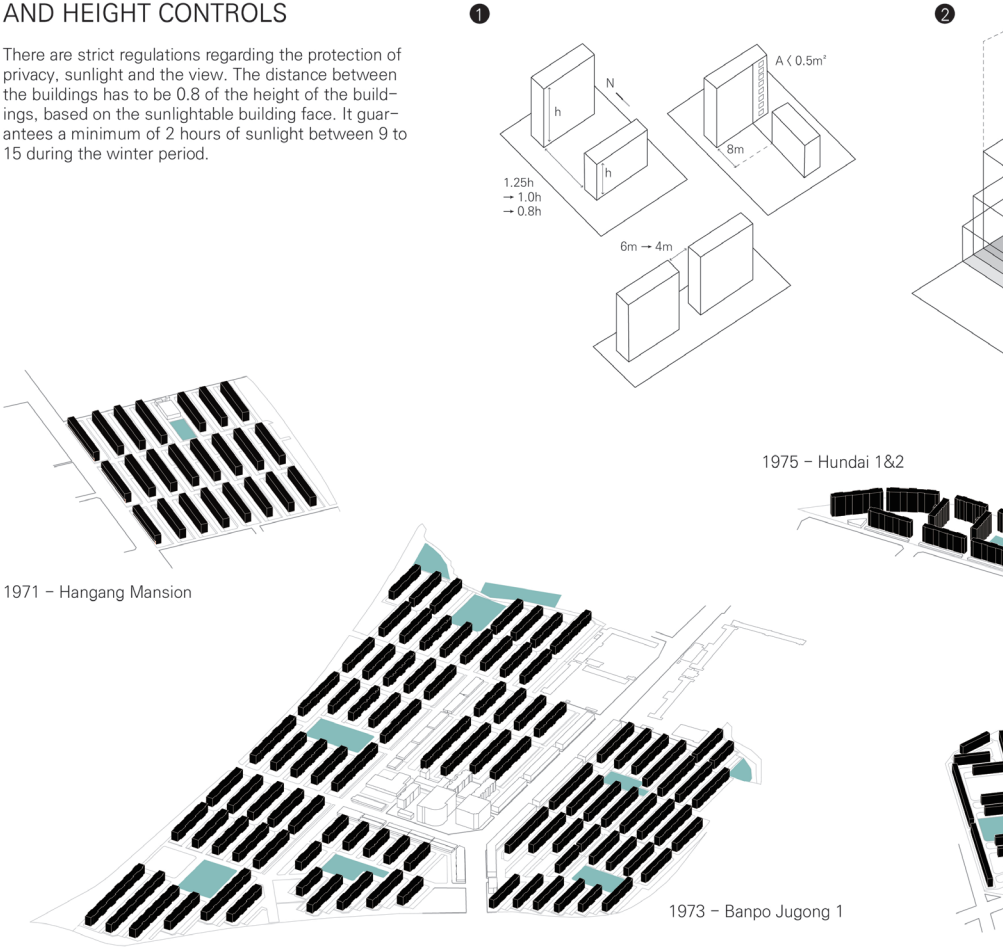


FIG. 6.2 The summary of the representative apartment complexes with timeline.

(source: developed by author)



1980 Housing Site Development Projects
5 million housings project

1984 Housing Reconstruction Act

1989 1st suburban New City planning
Seoul Housing & Communities Corporation established
1990 TOD concept introduced

2000 Seoul local self-government bylaw (restriction)
Apartment District commissioned to Seoul

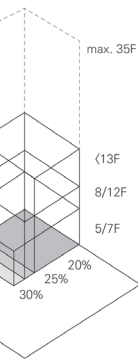
2002 Urban and Residential Environmental Improvement
New Town Development Project
2003 Apartment District Abolished
Public housing provision plan

2005 Balcony extension legalized

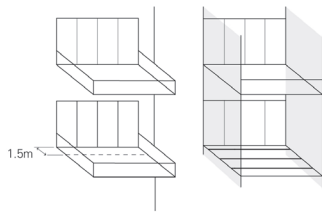
TIMELINE

EVOLUTION OF URBAN FORM / TRANSFORMATIVE PROJECTS

DESIGN TOOLS

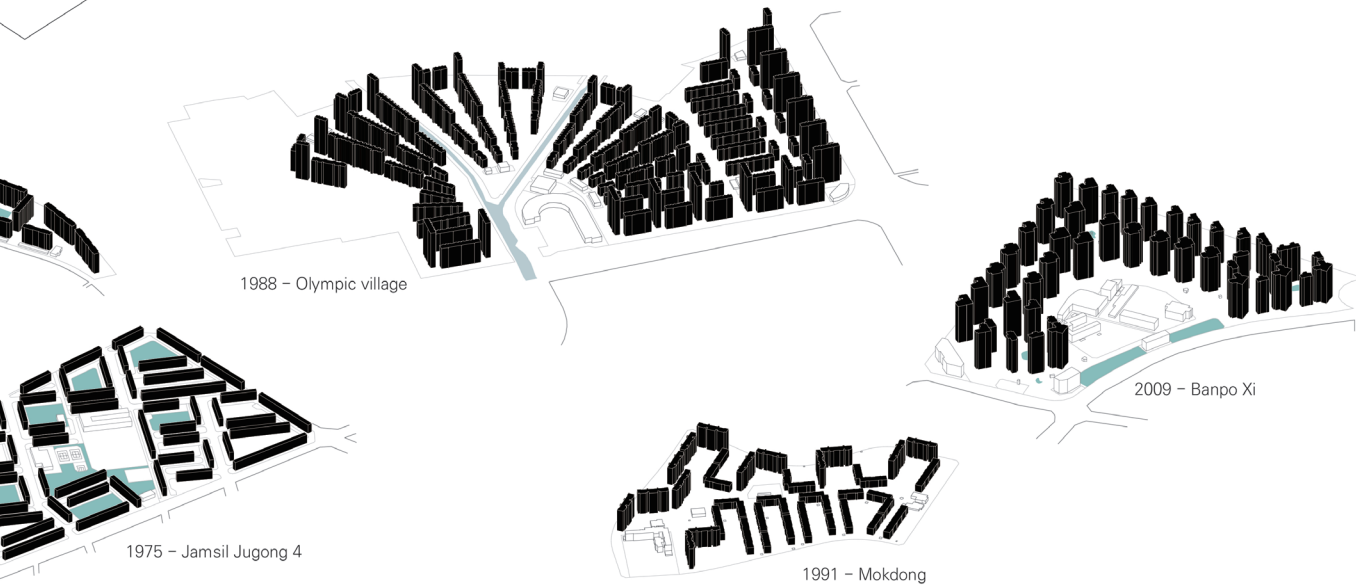
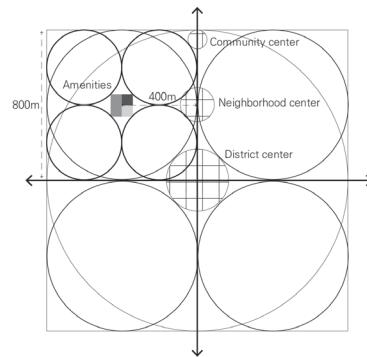


3



1976 ~ NEIGHBORHOOD UNIT CONCEPT, TOD AND APARTMENT DISTRICT

The Seoul local self-government laws proposed that the apartment district development is based on neighborhood unit planning. It contains fundamental principles such as elementary central neighborhood and separate network of vehicles and pedestrians. Meanwhile, the Transit-Oriented Development by Calthorpe in 1990s introduced to promote the high-density mixed development around the subway stations.



Form

Plot:

The initial project in early 1970s illustrated the small-size of plots, divided with the serving streets. However, as the 'Housing Site Development Act' were facilitated by the government to provide the massive quantity of housing units, the plot is agglomerated into current mega-size.

Building:

The early stage of buildings had a uniform form of 5 floors regulated by the zoning of housing district. As the regulation on density was alleviated, the building height has become higher, almost reach 30 floors today.

Alignment:

The alignment of buildings has transformed from linear to cluster. The cluster alignment has advantage compared to the linear one in that it provides the territoriality and facilitates community activities in communal domain. However, the most recent apartment complexes show no pattern in alignment, freely standing as 'towers in the park'.

(Note that Korea has a distinctive living culture to prefer the east-west arrangement of buildings)

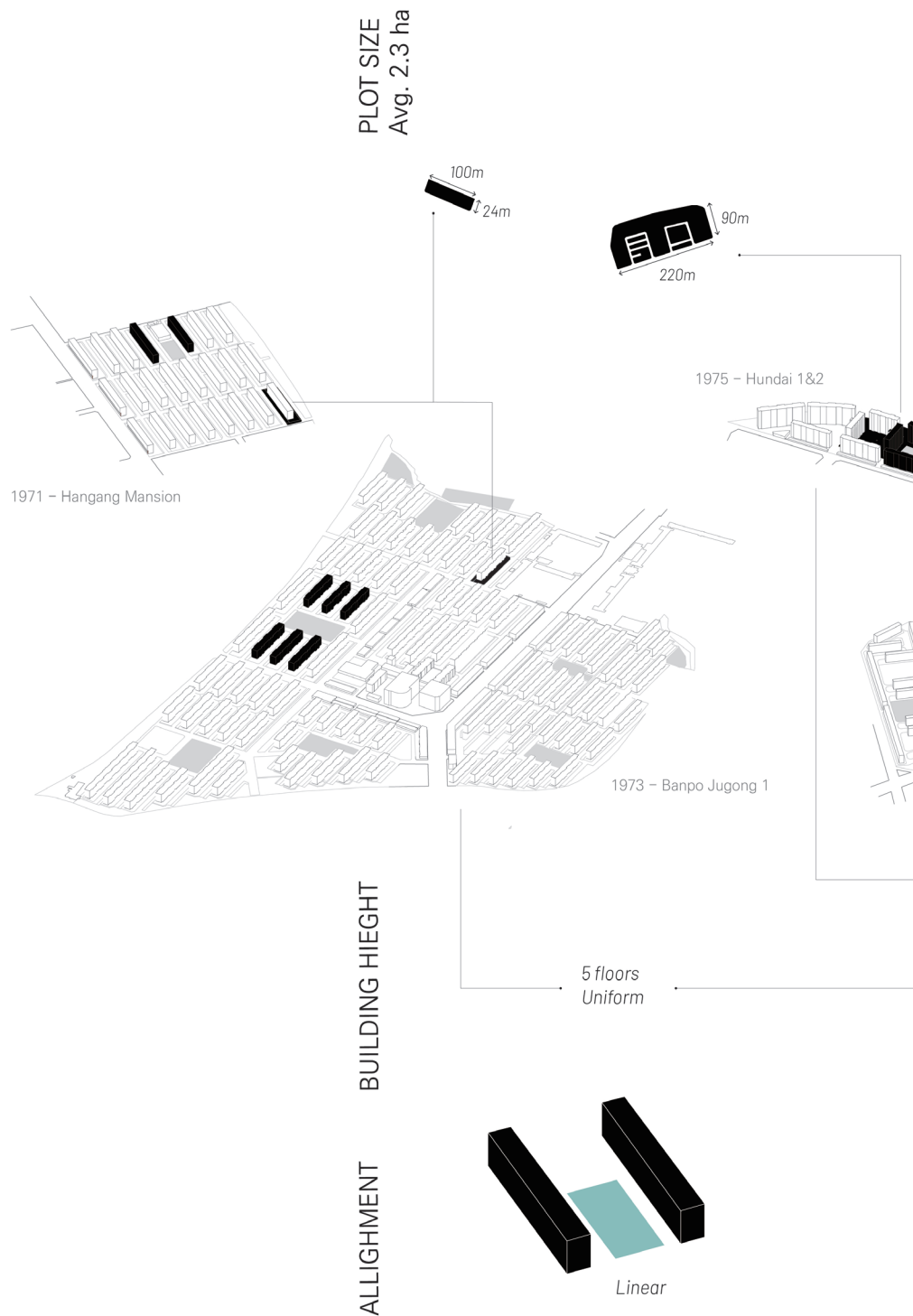
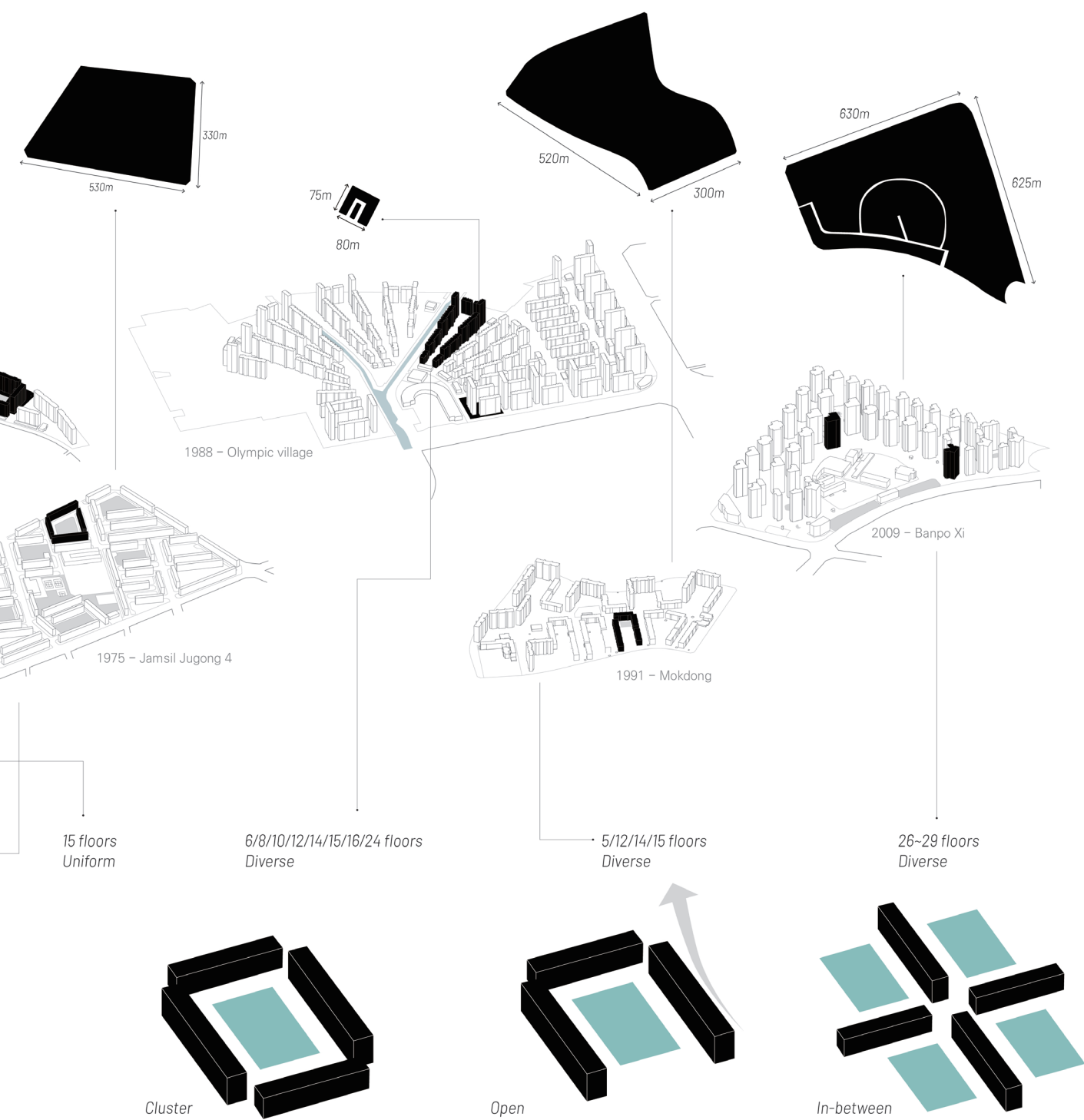


FIG. 6.3 The summary of the representative apartment complexes in perspective of form.

(source: developed by author)



Function and Network

Non-residential function:

One of distinctive functional distribution in early stage of apartment complexes is the linear street retails. Located along the main street, the most hierarchical network, the retails in ground and second floors gives the diverse experience at human-scale. However, as the concept of neighbourhood unit was actively adopted as planning tool, the location of retails moved towards the edge or the centre of the block. With the TOD development, nowadays, it is recommended to provide the core functions adjacent to the subway station, which not only serve the neighbourhood unit, but also higher ranked community.

Network:

Aligned with the street linear retail, the streets in early form had a grid network with open structure: there were no fences to control the flow. However, since the large plot emerged due to the Housing Site Development program, the network - the public road- do not penetrate into the plot, since it is the private land. The designed inner roads in apartment complexes take a form of radiant, linear, or loop network, however, they do not intertwine with the public road, only serving the automobile in inside.

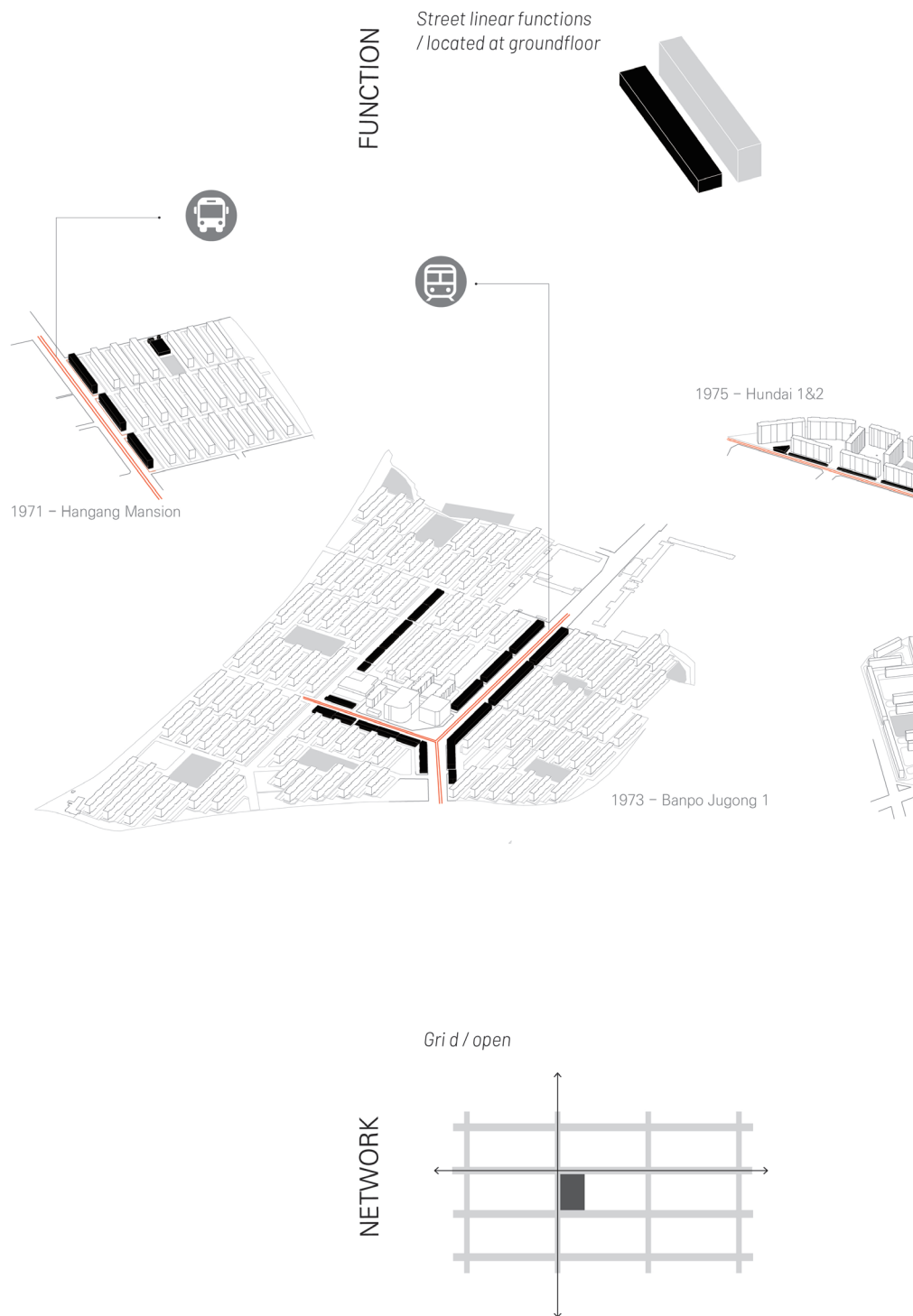
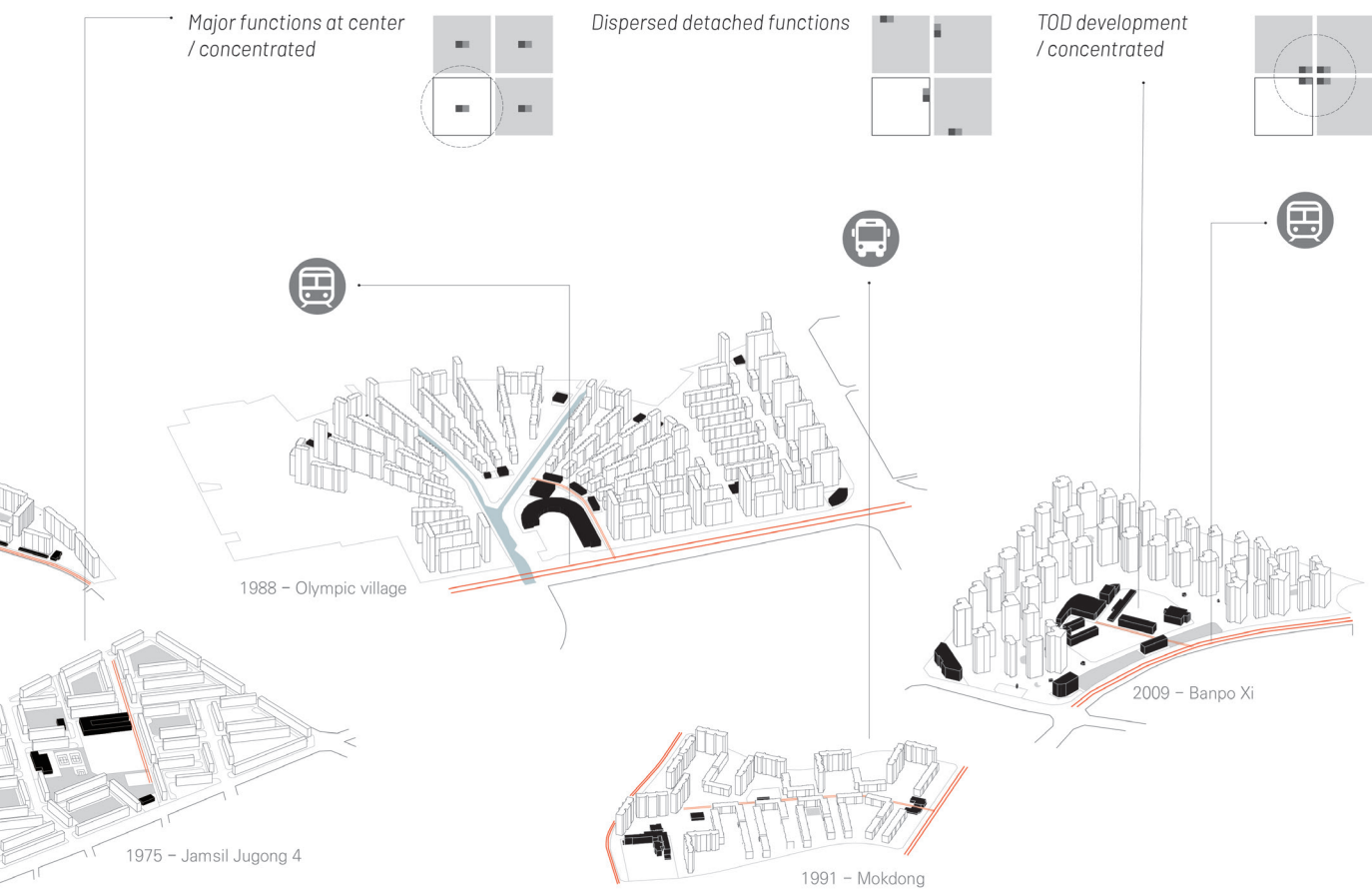
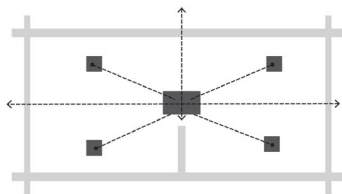


FIG. 6.4 The summary of the representative apartment complexes in perspective of function and network.

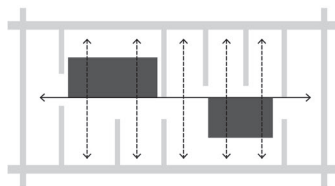
(source: developed by author)



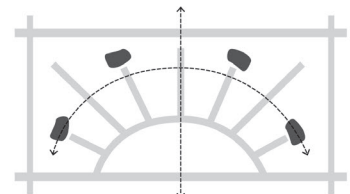
Radiant / bounded



Linear / bounded



Loop / bounded



6.1.1 – Reflection on the validity of neighbourhood unit in the future

Apart from the administrative boundaries, neighbourhood is a geographical and social unit of how residents use the places – commute, buy, play, and etc. It is related with the quality of life in supporting the basic lifestyle. In this sense, defining the neighbourhood unit is entailed with thorough diagnosis on the local capacity: what extend can we call as neighbourhood?

It is very controversial to make a remark whether this concept has articulated positive or negative impact on planning. However, it is clear that the concept provides an idea for suitable block size and standardization for subdividing the lands. When the characteristics of packaged commodity inside of apartment complexes and the bounding arterial roads outside are combined with the concept, each apartment complex becomes inevitably an independent entity without interaction. It reflects the criticisms from the scholars warning the self-sufficient community and social homogeneity (undermining the diversity, transience, etc.) (Rohe, 2009; and Mehaffy et al., 2015).

The observation of how this prevalent theory has acted as a strong paradigm in designing apartment complexes in Korea provides an interesting perspective in its adaptation. From the representative apartment complexes, we can see how the principles from Perry has transcended into the actual practices in the context of Seoul. Although, the initial practices were expressed in accordance with the human-scale where the linear retail streets constructed the public life, the elaboration in practiced transformed into more self-sufficient and household based neighbourhood unit where the essential functions are concentrated in the centre of the block surrounded by the arterial roads. In acknowledging the limitation in neighbourhood units for its self-contained and enclosure characteristics, the recent block reveals some of attempts to overcome by adopting the soft green network or overlapping neighbourhood units. Moreover, the hierarchical order from community to neighbourhood and district expands and strengthens the urban functions by layer.

The contemporary society demands more hyper-connections, relationships and overlapped activities beyond the traditional planning action. This can be facilitated through the right application of technology. It would be a right moment to ponder the meaning of the neighbourhood unit theory in prospecting the future urban space in Seoul.

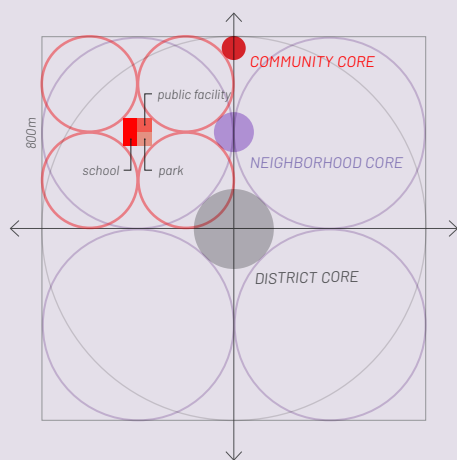


FIG.BOX.6.1 The concept of neighbourhood unit.

(source: SMG, 2017; adapted by author)

The image shows the hierarchical order of unit ranging from community (red) to neighbourhood (purple) and district (black).

Box 6.1 – Apartment District zoning based on the concept of Neighbourhood Unit

The zoning of 'Apartment District' was first introduced in 1976 as a part of Building Ordinance, which initially regulated only the essential aspects in architectural scale such as plot size, GSI and FSI, and revised to control the distance between buildings, building scale, and the relation with roads. Then the basic planning in developing apartment district in 1979 detailed the regulation in block (or complex) scale, under the provision of Housing Construction Promotion Act. Influenced by the concept of 'Neighbourhood Unit', it structured the range of neighbourhood, size of community unit for different density, functional centres in hierarchical order as well as the boundaries of block perimeters.

The 11 districts were designated as apartment district in 1979 and expanded to 15 districts in 1983. Since 2000, the zoning has been managed by the self-governing law of Seoul Metropolitan Government. The policy was abolished in 2013 as the original purpose of zoning was overshadowed, and the remaining districts are integrated into the special zoning of 'District Unit Plan'. Currently, there are 18 apartment districts of 221 complexes in Seoul, which is about 11,267,000 m².

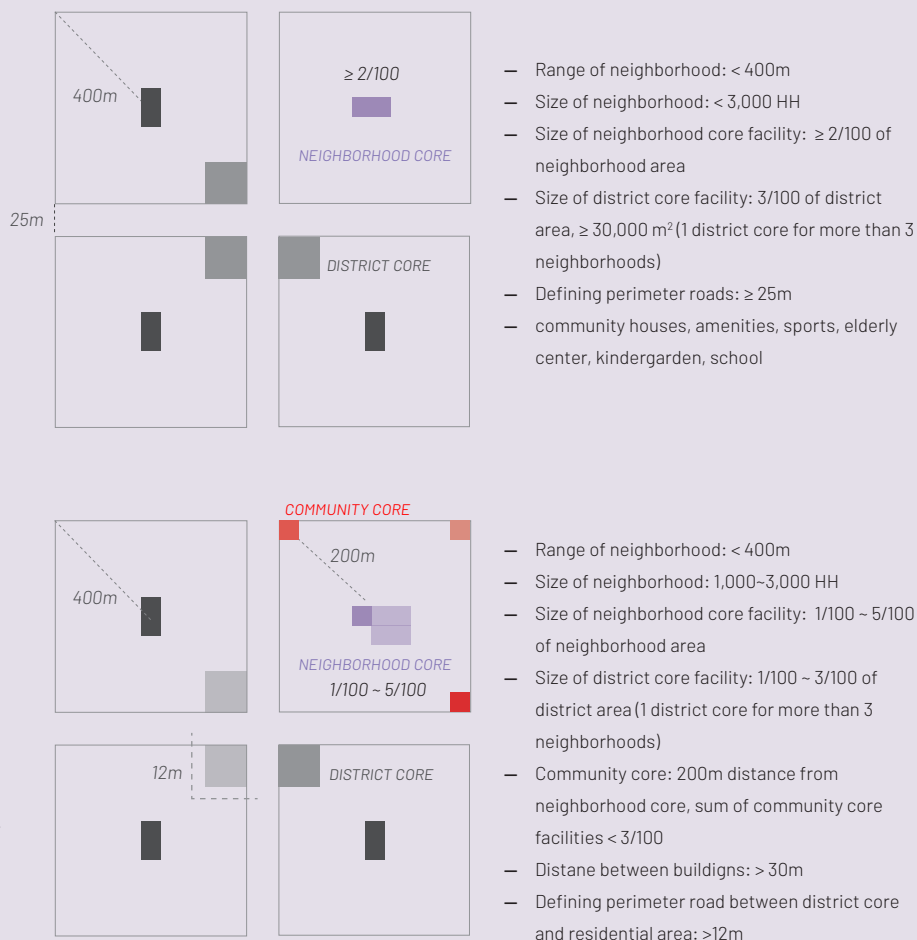


FIG.BOX.6.2 The changes in regulation of Apartment Districts [top: 1979; and bottom: after 2000].

(source: SMG, 2017; adapted by author)

6.2 – Density profile of Seoul

The spacematrix in below mapped the representative apartment complexes, examined in previous chapter as well as their internal transformation through the reconstruction projects. The density presented as GSI and FSI is strictly regulated by the government - GSI under 0.5 and FSI under 3.0. While the allowable GSI is spacious, the trends in the density of apartment complexes in Seoul clearly demonstrate the importance in FSI. This pattern is even more visible in reconstruction projects where all the density reaches to the maximum FSI, or the maximum building height in other words.

The reversing trends in Korea - the losing role of GSI - raise a question for the human-scale and the relationship with the street and ground. The diagram on the next page positions the different doctrines in relation to density (Bergphuser Pont & Per Haupt, 2021, p.210). Through many scholars, the concepts from Jacobs (direction to 5) or the compact city (direction to 7) have been accepted to create the preferable urban environment. However, Korea stays in doctrine of what le Corbusier proposed - the tower in the park.

However, the density can be constructed in different form. The case block in Massena in Paris rive Gauche has a similar FIS, yet more GSI. The concept of open block form gives alternative approach - not the traditional closed form nor the towers in modernism - in achieving both qualities: density and the variation.

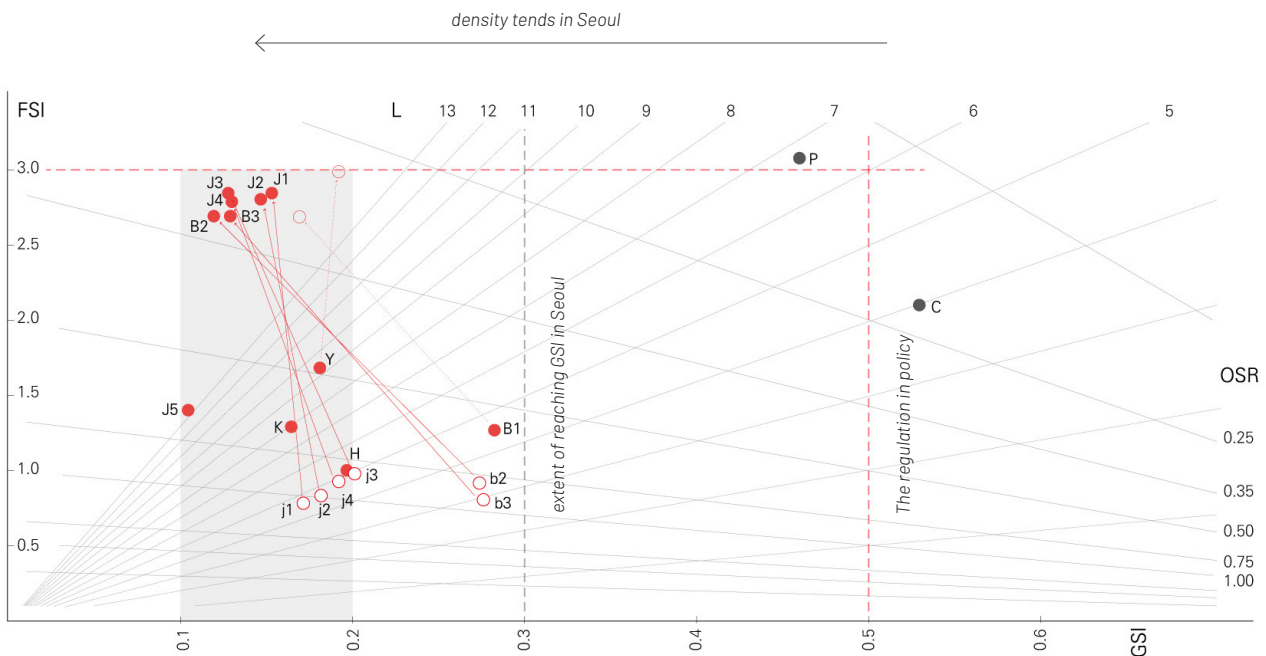


FIG. 6.5 The spacematrix in case of Seoul.

(source: developed by author)

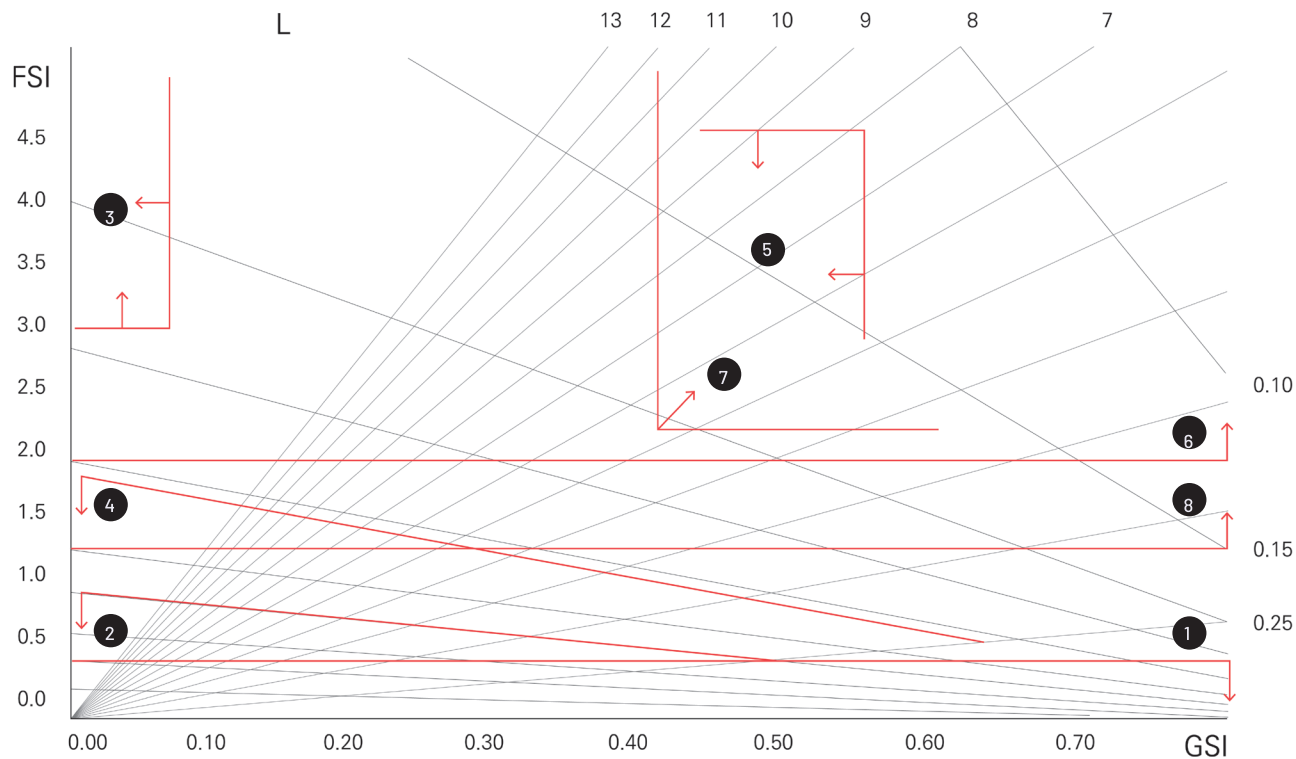


FIG. 6.6 The doctrines in density.

(source: Bergphuser Pont & Per Haupt, 2021, p.210)

1. UNWIN (1912)
2. HOENING (1920's)
3. LE CORBUSIER (1920's)
4. GROPIUS (1930)
5. JACOBS (1961)
6. LOZANO (1990)
7. COMPACT (1990)
8. UN HABITAT (2015)

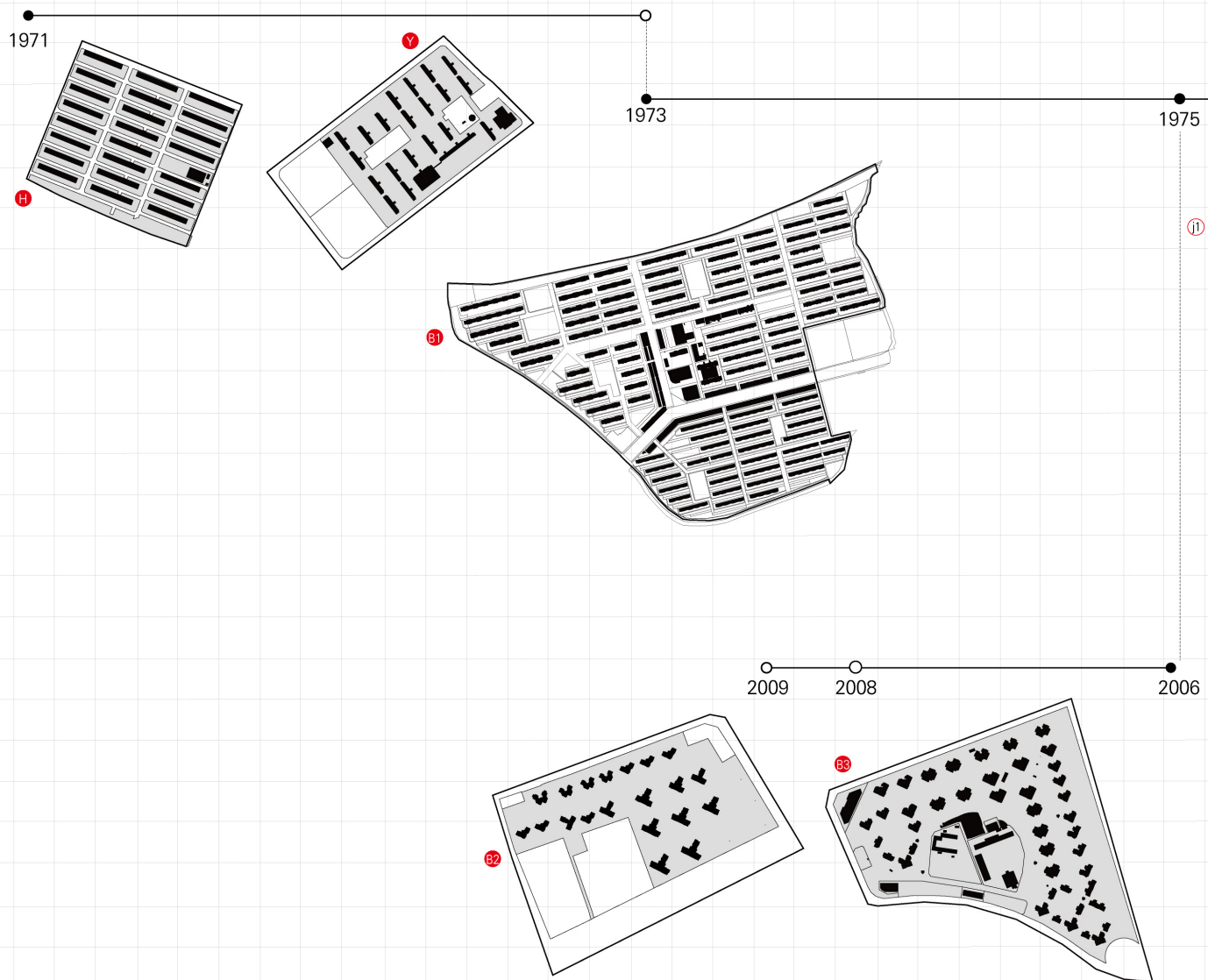
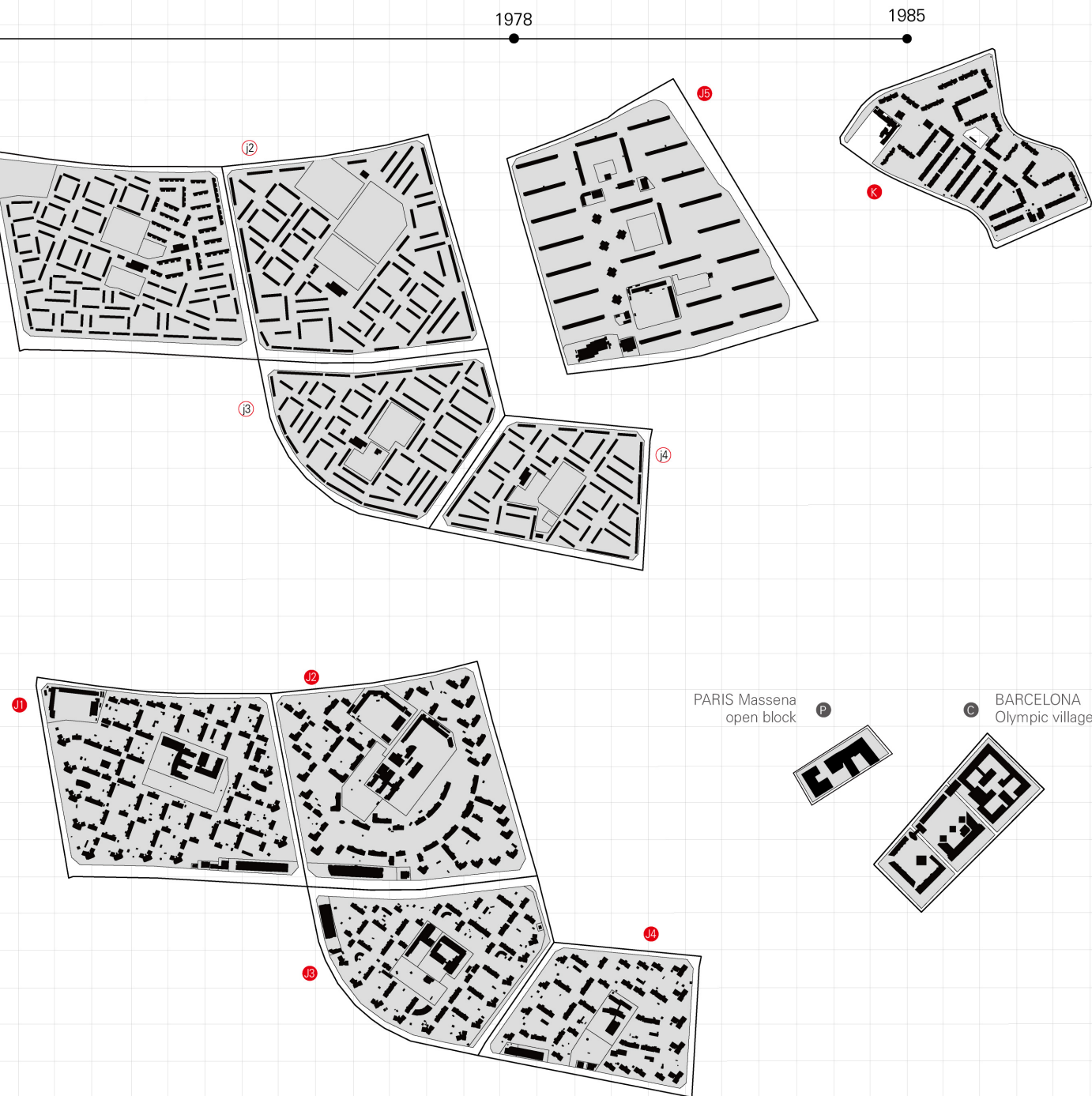
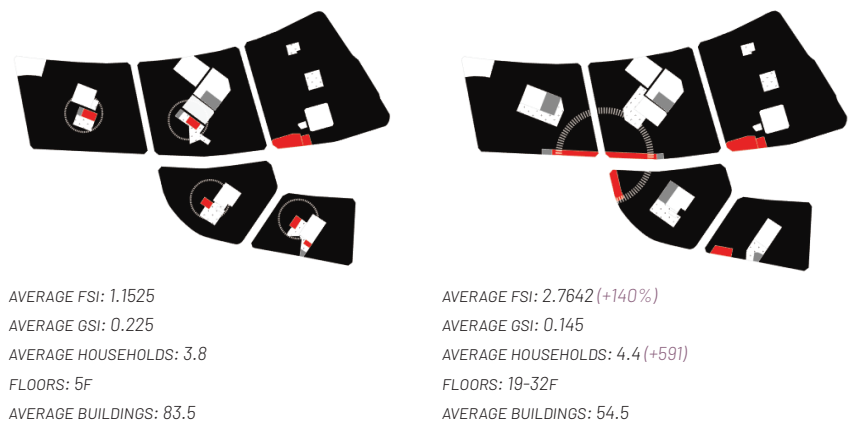


FIG. 6.7 The delineation of case blocks.

(source: developed by author)



6.3 – Case study: the reconstruction process of Jamsil Jugong ACs



Form

PLOT:

Since it is the internal transformation, the size and the division of plot does not transform.

BUILDINGS:

The initial arrangement of buildings has a form of clustering. This gave a shared communal space such as playground in between the buildings. After the reconstruction, the small scattered playground disappeared, becoming general green space covering all the blocks.

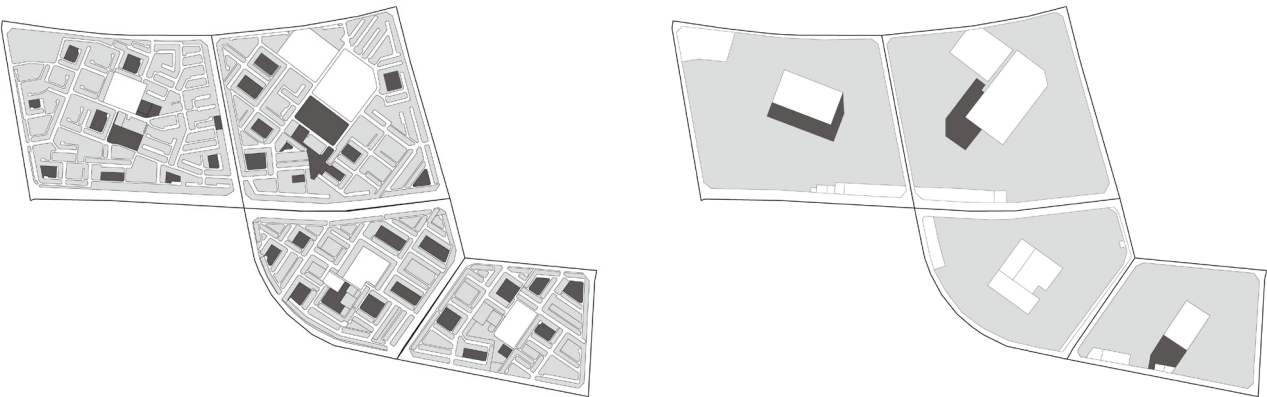


FIG. 6.8 The concept and the layers of Jamsil Jugong blocks in comparison before and after the reconstruction.

(source: past aerial images from www.vworld.kr; adapted by the author)

Functions

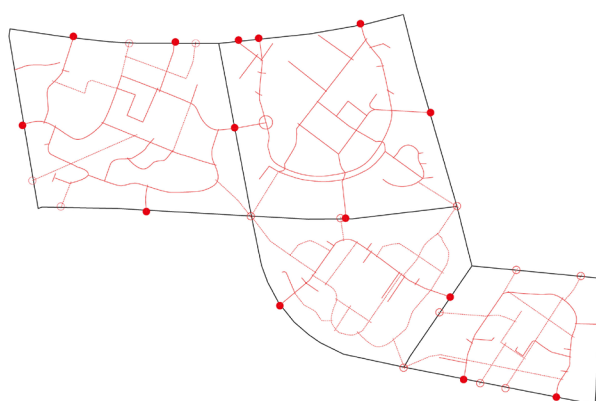
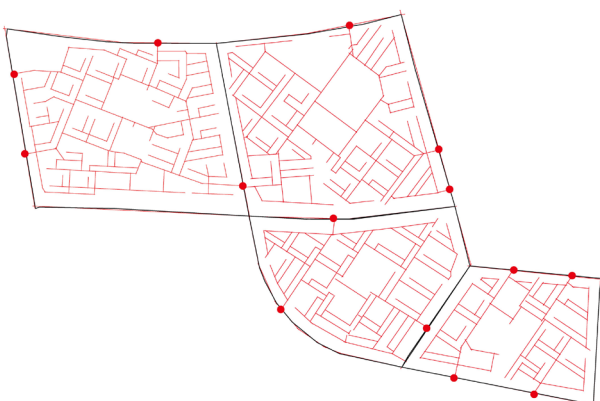
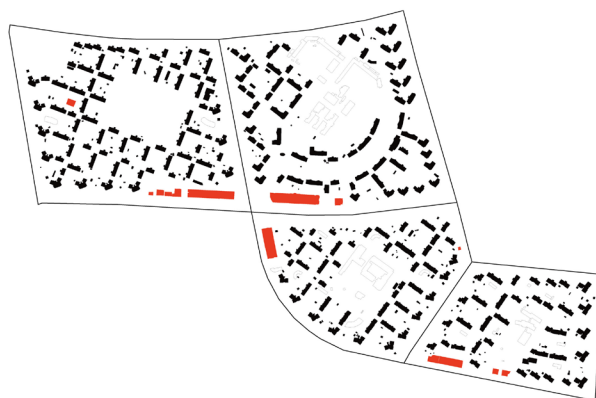
SCHOOL:

One of significant planning tool is the neighbourhood unit concept to place the school in the centre of the block. As the plot division does not change, the location of the elementary schools stays identical.



RETAILS:

The major change is detective in location of retails. The retails used to locate in the centre of the block following the logic of neighbourhood unit like the elementary school to serve the residents inside of the blocks. However, as the concept of TOD is adopted, the retails move to the corner of the blocks, accumulated around the subway station. The retails not only serve the residents living in the blocks, but also the community as more hierarchical functional core.



Network

Movement:

After the reconstruction project, the network between the pedestrian and the vehicle completely become separate. The accesses for the vehicles ensure the smooth movement between the blocks while controlled by the underground parking lot. The hierarchical structure in network disappeared, becoming organic and random path. of the blocks, accumulated around the subway station. The retails not only serve the residents living in the blocks, but also the community as more hierarchical functional core.

Integration:

The both results from the space syntax show the strong integration at between the first, second and third complexes, which support the TOD concept and the location of regional function. Meanwhile, the blocks before the reconstruction project have more discrete hierarchical structure due to the cul-de-sac network. Especially the communal spaces internally located between the clustered buildings give privacy. While the blocks after the reconstruction project have more continual flow of networks, with the strong integration in the centre of the blocks. This integrational networks support the concept of neighbourhood unit.

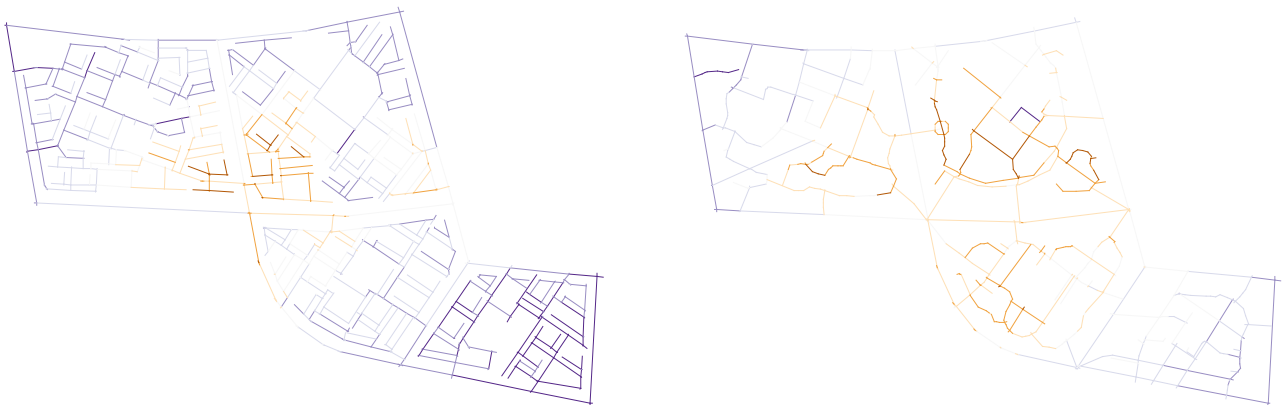


FIG. 6.9 The space syntax analysis of 500m local scale in Jamsil Jugong blocks in comparison before and after the reconstruction.

(source: street data from Seoul Open Data Plaza; developed by the author using depthmap)

Box 6.2 – The convergences and consistencies in other reconstruction projects

“High-rise living, it appears, has a terrible tendency to leave people alone, stranded, in their apartments. Home life is split away from casual street life by elevators, hallways, and stairs. The decision to go out for some public life becomes formal and awkward; and unless there is some specific task which brings people out in the world, the tendency is to stay home, alone”
(Alexander et al, 1977, p.210).

B2



BANPO JUGONG 2ND AC



RAEMIAN FIRSTSTAGE (2009)

B3



BANPO JUGONG 3RD AC



BANPO XI (2009)

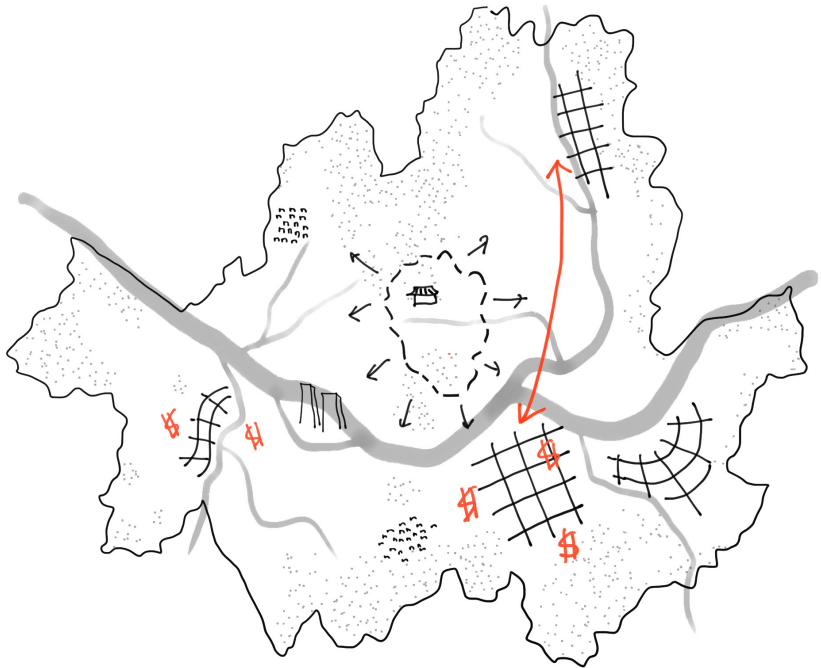
FIG.BOX.6.3 The other morphology transformation of apartment complexes. The past aerial images are based year of 1978.

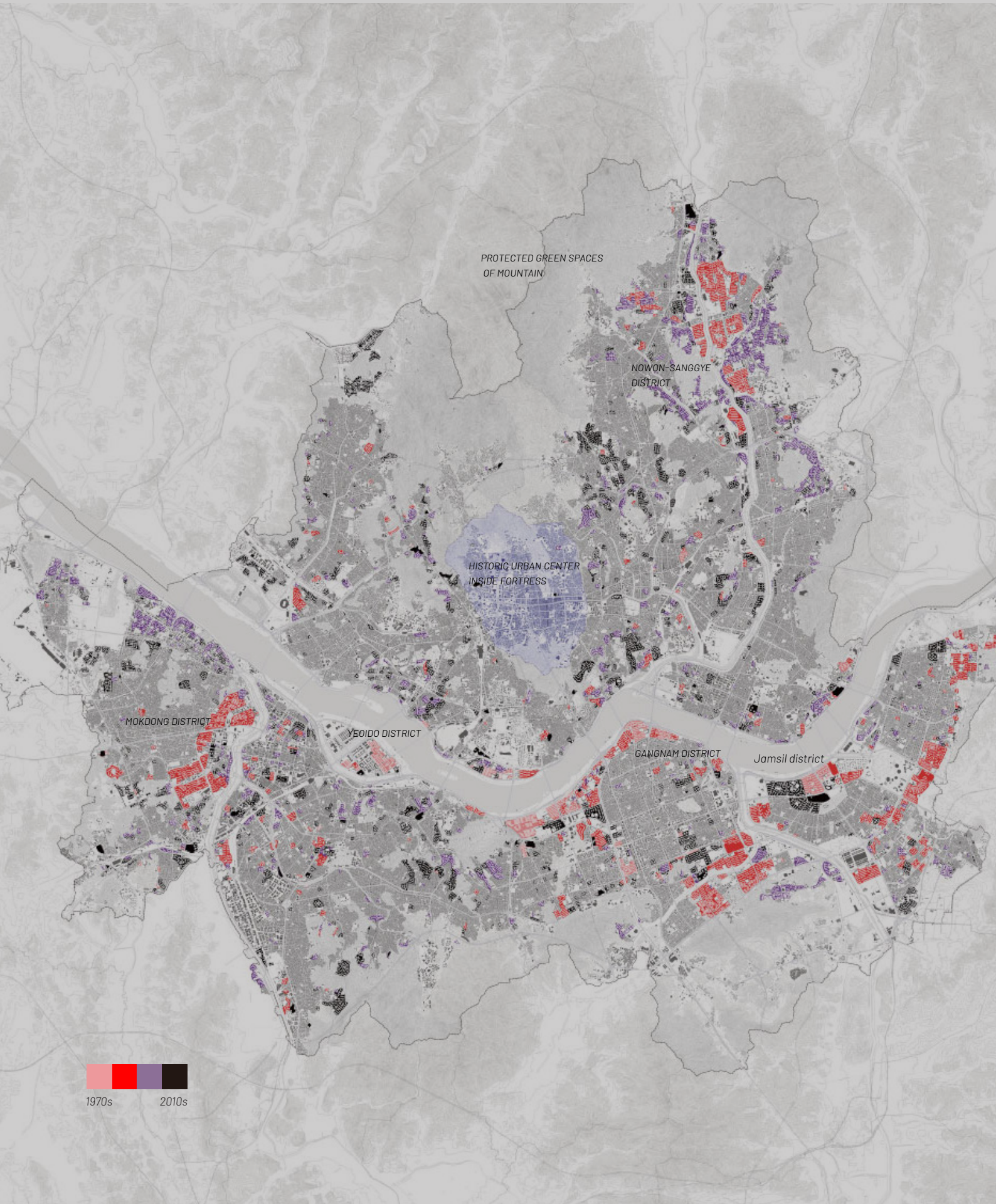
(source: past aerial images from www.vworld.kr)

PART 4

DIAGNOSE THE CURRENT PROFILE OF SEOUL

URGENCY AND OPPORTUNITY





PROTECTED GREEN SPACES
OF MOUNTAIN

NOWON-SANGGYE
DISTRICT

HISTORIC URBAN CENTER
INSIDE FORTRESS

MOKDONG DISTRICT

YEIDO DISTRICT

GANGNAM DISTRICT

Jamsil district



7 – The Polarized Geographical Landscape and the Built Environment

General Profile of Seoul



FIG. 7.1 The distribution of apartment complexes in Seoul, classified into construction year.

(source: Seoul Open Data Platform, modified using QGIS by author)

The description of policies and the major projects in Seoul throughout the series of timeframe helps to understand the current state of Seoul on its socio-economic characteristics. This chapter introduces the general profile of Seoul, especially focused on the housing types and their geographical distribution.

Seoul Open Data Plaza is the public digital platform which provides the data to the public and facilitate the extensive utilization of data. The most recent and the smallest unit of data sets are utilized to illustrate the distribution of housing types, population density and the annual changes in land price. The maps in following pages illustrate the profile of general socio-economic information applied on the QGIS and GeoDa software program.

7.1 – Socio-economic profile

Population density

The population density is the basic indicator which shows the degree of accumulation of inhabitants. It is also the common measurement to refer the density. Since housing supplement has always related to the population incensement, the relationship between the population density and the housing types has to be reflected.

The number of legally registered inhabitants is divided into the actual area of administrative units, which does not take account of non-built areas such as natural greens. The densely highlighted districts tend to be located at the peripheries of Seoul. On the other hands, the historic centre has relatively low population density as the land and property prices are high. It is visible that the western regions have clustered pattern of concentration in population density compared to the eastern regions.

FIG. 7.2 Population density by neighborhood [dong], in base year of 2020.

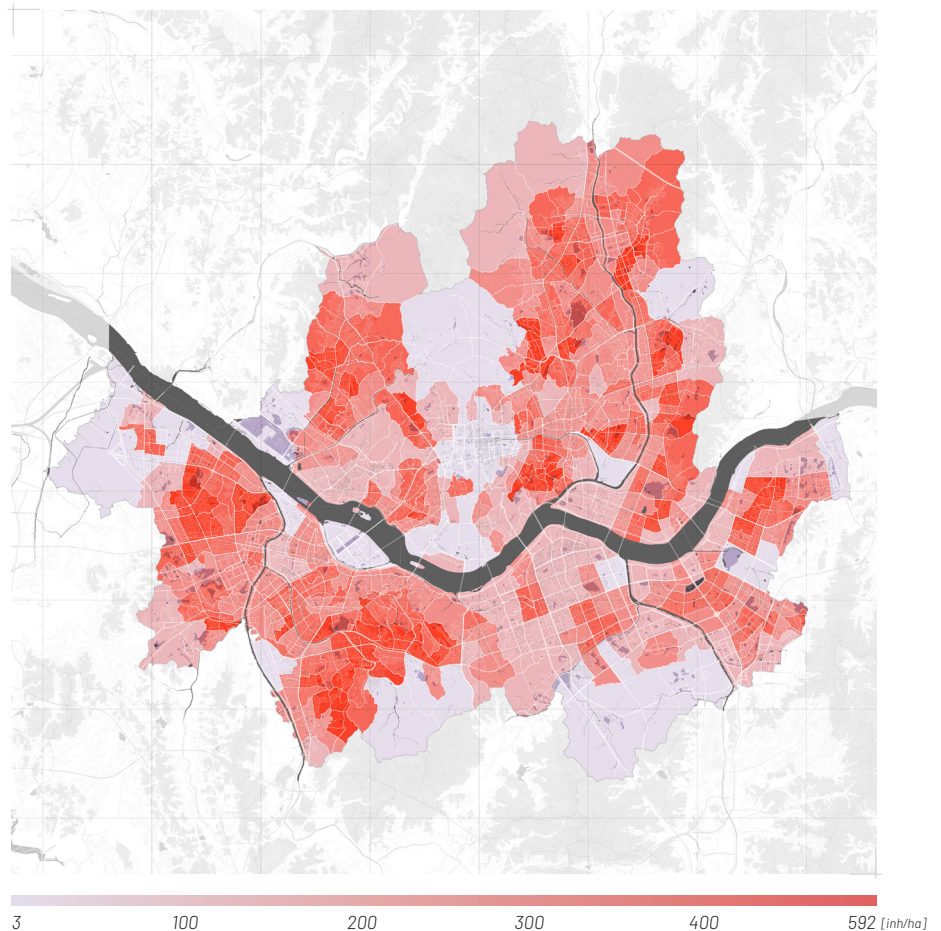
(source: Seoul Open Data Platform; modified by the author using QGIS)

FIG. 7.3 The distribution of each household type in Seoul (the base year of 2020)[top row in next page].

(source: Seoul Open Data Platform; modified by the author using QGIS)

FIG. 7.4 The distribution of each age group in Seoul (the base year of first quarter in 2020)[bottom row in next page].

(source: Seoul Open Data Platform; modified by the author using QGIS)



Population structure

The population structure is specified into household types and age groups. The maps on the right illustrate the distribution of one-person households and two-person households. These small size of households are one of shifting trends appeared after 2000.

It is noticeable that the concentration of single-person households overlap with the location of universities and the adjacent area of major workplaces, for example Gangnam districts. Meanwhile, the two-person households tend to locate at the peripheries where the houses are relatively affordable and the hinterland of the centres in order to ensure the proximity to the work places.

The children group, age between 0 to 14 is distributed mostly on the southern areas where the government implemented the project of apartment complexes. This is regarded that the young parents, mostly in their 30s, demand the well-established infrastructures of living environment as well as education institutions. On the other hand, the elderly groups more than age of 65, are highly concentrated on the northern areas including historic centre. Han and Lee (2015) explained that the accessibility to the traditional markets, parks, hospitals, and elderly facilities are the main elements that influenced the living environment of elderly people. Lastly, the pattern of working group, which is age between 15 to 64, coincides with the pattern of single-person households.

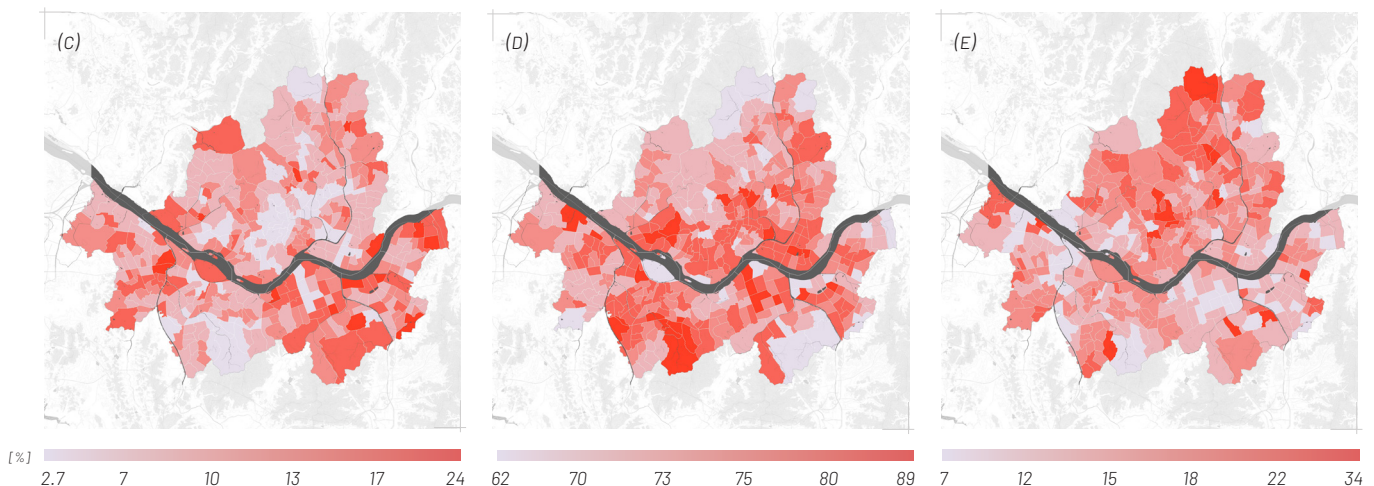
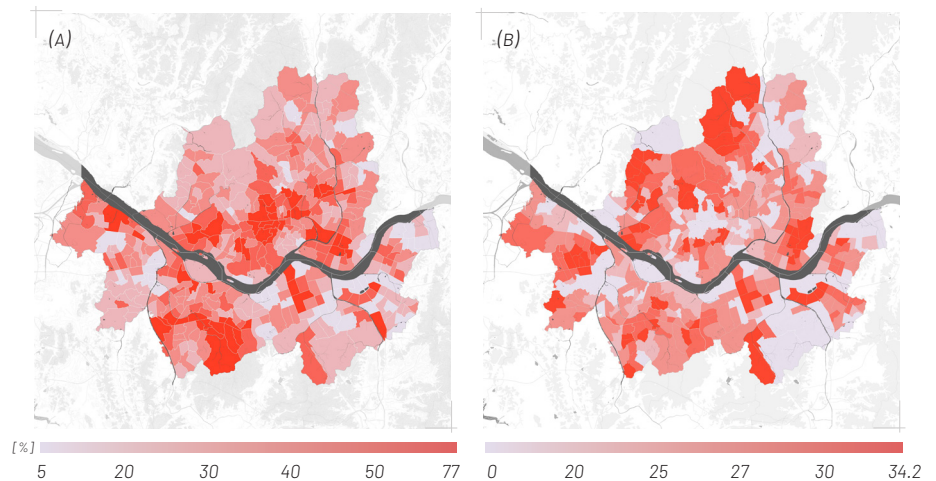
(A) % OF SINGLE-PERSON HOUSEHOLDS

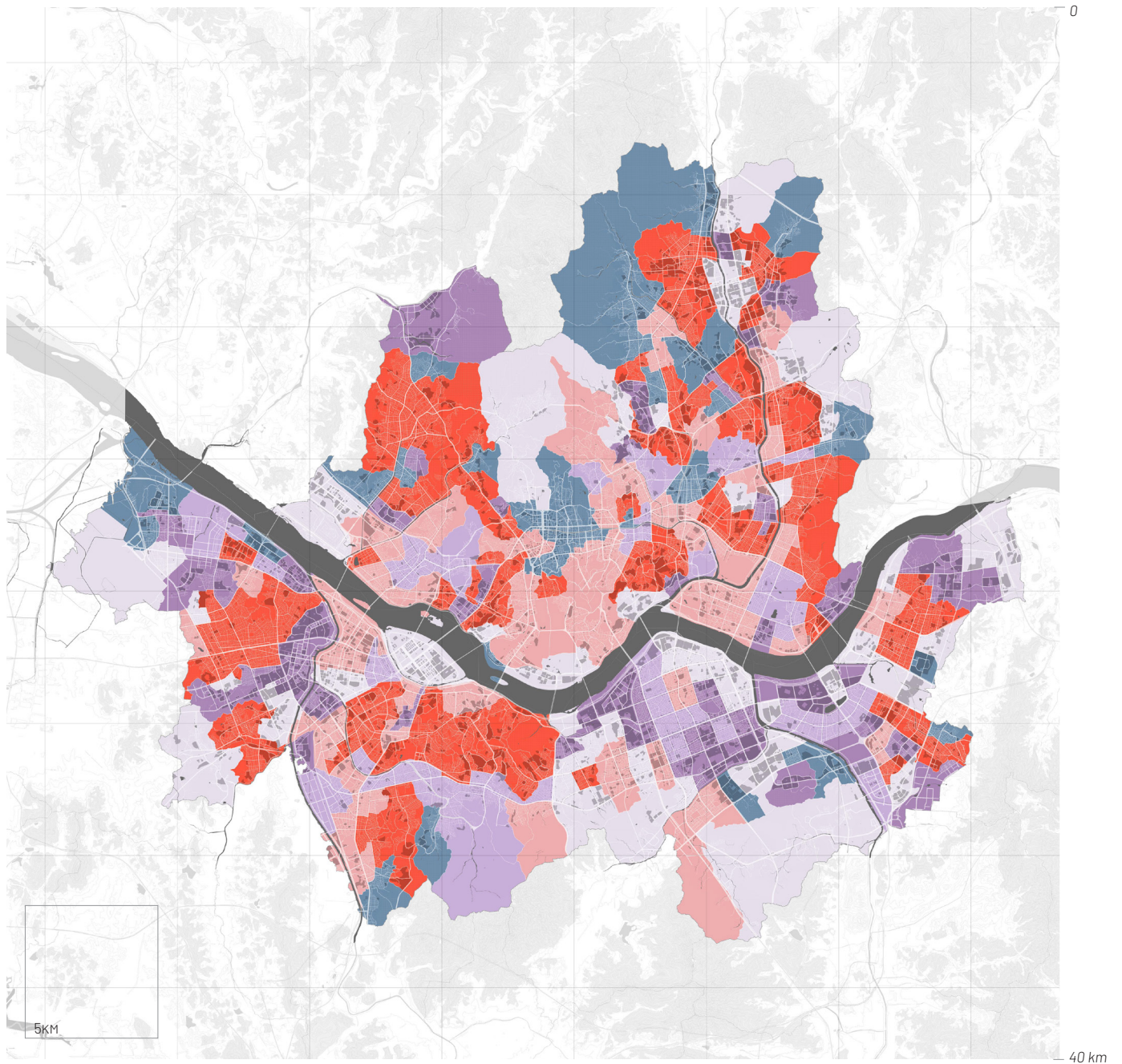
(B) % OF TWO-PERSON HOUSEHOLDS

(C) % OF CHILDREN AGE GROUP (0 ~ 14)

(D) % OF WORKING AGE GROUP (15 ~ 64)

(E) % OF ELDERLY AGE GROUP (65 ~)





Cluster 1 Cluster 2 Cluster 3 Cluster 4 Cluster 5 Cluster 6

# OF NEIGHBORHOOD	152 units	73 units	57 units	52 units	48 units	42 units
POPULATION DENSITY (/HA)	377	198	303	150	275	195
% OF SINGLE-PERSON HH	31.63	43.74	18.00	23.90	57.13	36.82
% OF CHILDREN	9.77	8.08	15.80	12.37	6.17	7.58
% OF WORKING	73.87	76.47	72.31	72.39	81.12	70.76
% OF ELDERLY	16.36	15.45	11.89	15.24	12.70	21.66

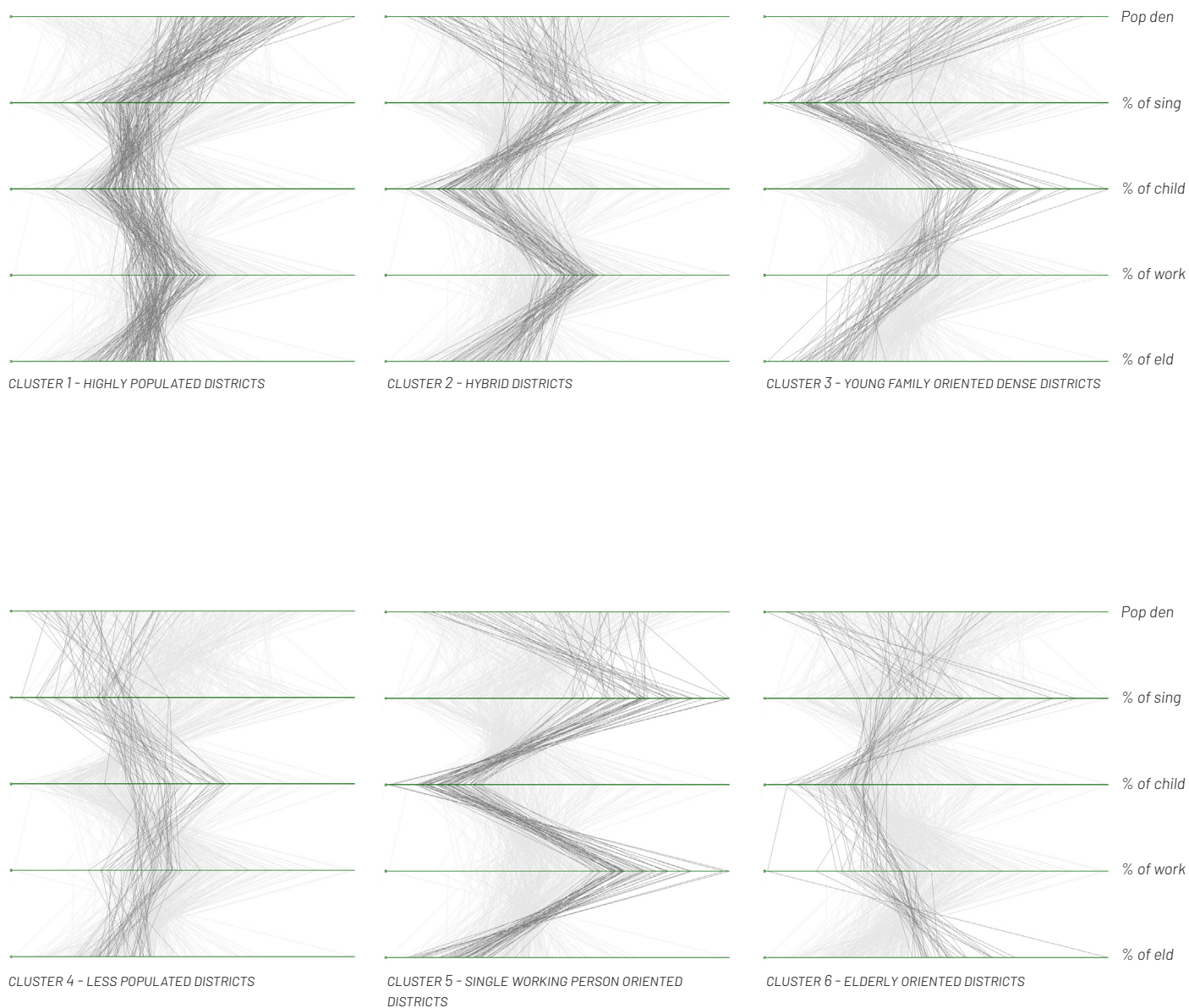


FIG. 7.5 The result of K-mean clustering analysis and the characteristics of population profile composition.

(source: Seoul Open Data Platform; modified by the author using GeoDa)

The geographical patterns of each data set are described through the simple and intrinsic ways, yet it lacks the overall synthesis conclusion. The clustering analysis is one of the effective methods to define the groups based on their similar characteristics.

Thereby, the information on demographic profile are synthesized into the six clusters using the K-mean cluster method on GeoDa software. Cluster 1 and the cluster 3 highlight the districts where the population density is comparably high. The cluster 1 has a possibility to have a physically compact living environment, while cluster 3 tends to be characterized of family group with children. Cluster 2 and 5 are the regions where the single-person household are concentrated. Mostly located adjacent to the working environment, these clusters also show the high percentage of working class people. Cluster 4 illustrates the least dense population number. Surrounded by the natural elements, these districts have advantage to alleviate the perceived density. Lastly, cluster 6 represents the area where the elderly population live.

Average housing price

The aggressive support from government during the 1970s to raise the South-eastern districts (known as Gangnam) as one of major core has resulted nowadays deepening gap between the north and the south. This is visible through the average sale price of apartment buildings from the image on the next page. The major three districts (gu) in southern area - Seocho, Gangnam, and Jamsil - correspond with the high value of sale price. On the contrary, the representative three districts on norther area - Nowon, Dobong, and Gangbuk - illustrate the low market price of apartment buildings. These areas tend to be more vulnerable in that the low-income people, the recipient of national basic livelihood guarantees, are concentrated. The top concentration neighbourhoods for the low-income group are highlighted in the map.

One of the issue in housing price is that the gap between the north and south areas are widening. Although the government executes the strict real-estate regulation, it consequences the more soaring housing price in southern areas. The similar patterns are appeared in other types of dwellings for the sale price.

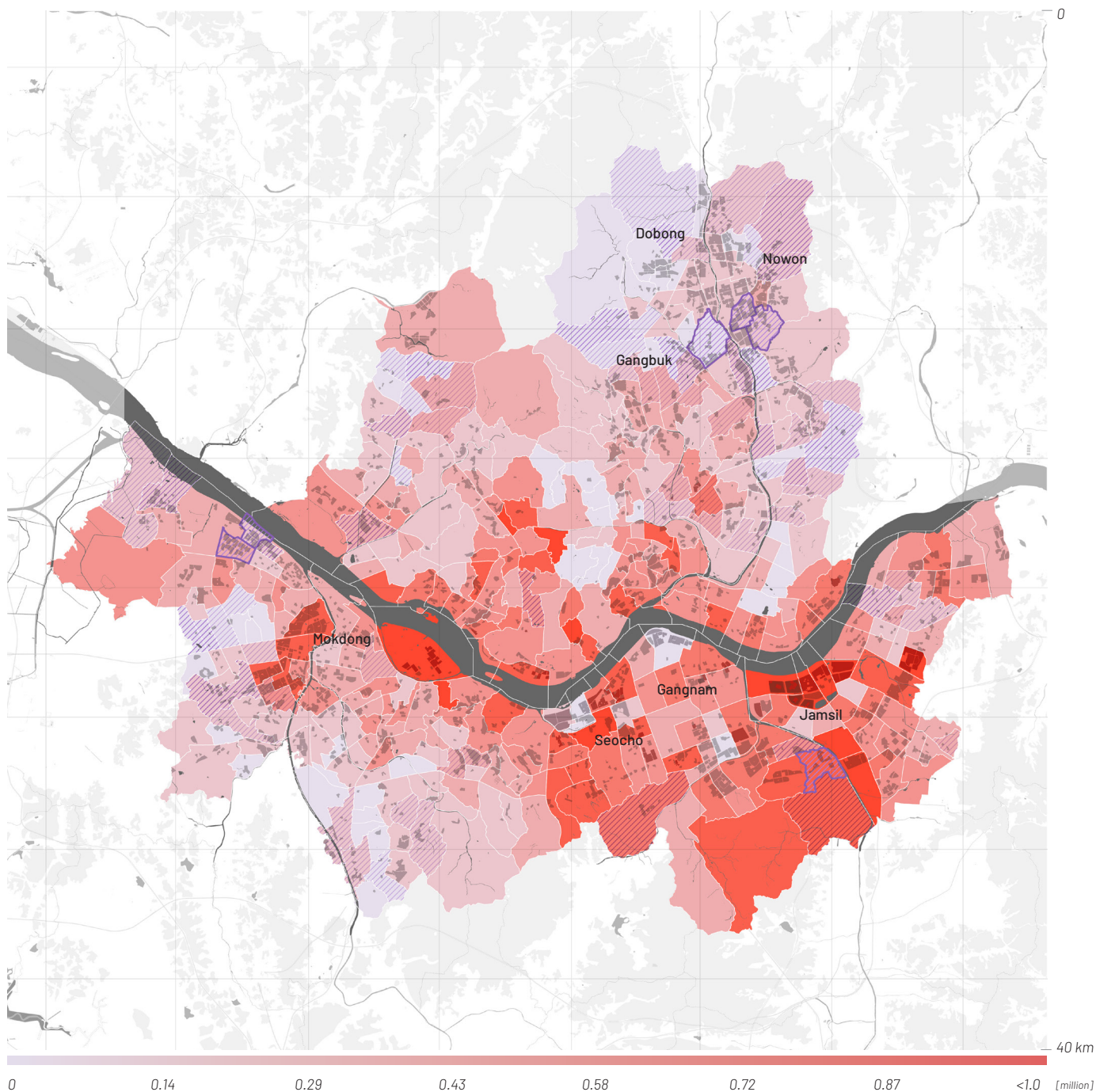


FIG. 7.6 The average sale price in apartment buildings (the base year of 2020). The hatches illustrate the low-income districts.

(source: From *Analysis of real estate trends in Seoul*, by SMG, n.d., Policy map (https://map.seoul.go.kr/spm/gly/policy/view.do?POLICY_NO=110). Copyright 2018 by Seoul Metropolitan Government.; modified by the author)

7.2 – Housing type profile

The housings in Seoul are generally classified into three types: detached houses, multi-household houses, and the apartment buildings. The observation time point is based on 2020, which is the most recent data set. Each housing type is characterized through the geographical pattern using a spatial autocorrelation analysis, specifically the method of univariate local Moran's I^{13} .

The large residential projects since the 1990s have transformed the detached housing districts into multi-household houses or the apartment complexes. The remaining single detached houses are concentrated mostly around the historic centre, and some are located near the industrial parks. The former regions have issues such as gentrification and heavy tourism, while the latter ones have challenges of poor maintenance. The multi-household houses are the new type of housing introduced in 1984 to restrict the illegal alteration of detached houses and to increase the number of housing supply. The large agglomerated patterns are discovered at some parts of northern west and southern west areas, which were planned according to the Land Adjustment programs. Meanwhile, the map illustrating the distribution of apartment building type clearly demonstrates the result of imposed government policies in constructing the massive housings at the periphery areas – Gangnam district, Mokdong district, northern east areas, and new town project areas. Overall, there are some counterparts among these three housing types for their dominancy and hybridity.

Likewise, the housing types are classified into six groups by applying K-mean clustering: Cluster 1 and 2 are the areas where the apartment type is dominant. Specifically, the geographical pattern of cluster 1 coincides with the major government projects such as Land Readjustment programs in 1970s and the Housing Site Development programs in 1980s. On the other hands, cluster 6 is the area which is occupied mostly with detached houses, while cluster 3 is the multi-household housing districts. The other cluster 4 and 5 are the hybrid areas where the different housing types are scattered, yet the compositions between the types vary. These groups, especially cluster 2 and 4, are important in a way that they are under transitional process towards the apartment-oriented groups.

13) Anselin (1995) proposed the methodology of Local Indicator of Spatial Association (LISA), which detects the significant spatial concentration, yet does not distinguish the hot spots and cold spots. The result of LISA is classified into four types: HH cluster (High values are adjacent to other High values), LL cluster (Low values are adjacent to other Low values), LH outlier (Low values are adjacent to High values), and HL outlier (High values are adjacent to Low values).

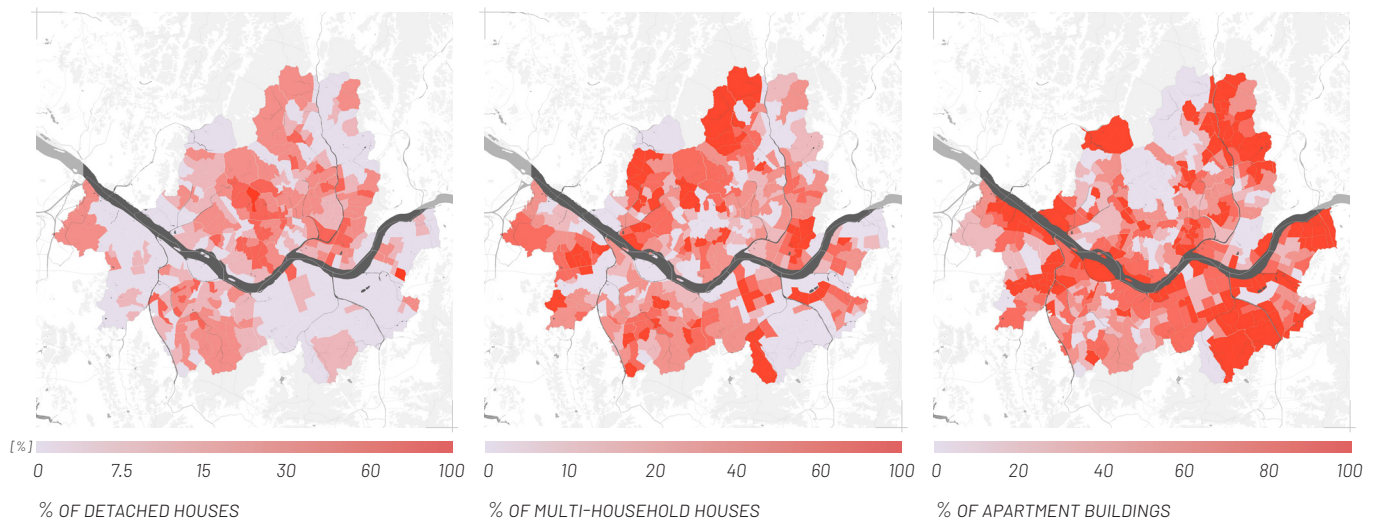


FIG. 7.7 The distribution of each housing type in Seoul (the base year of 2020).

(source: Seoul Open Data Platform; modified by the author using QGIS)

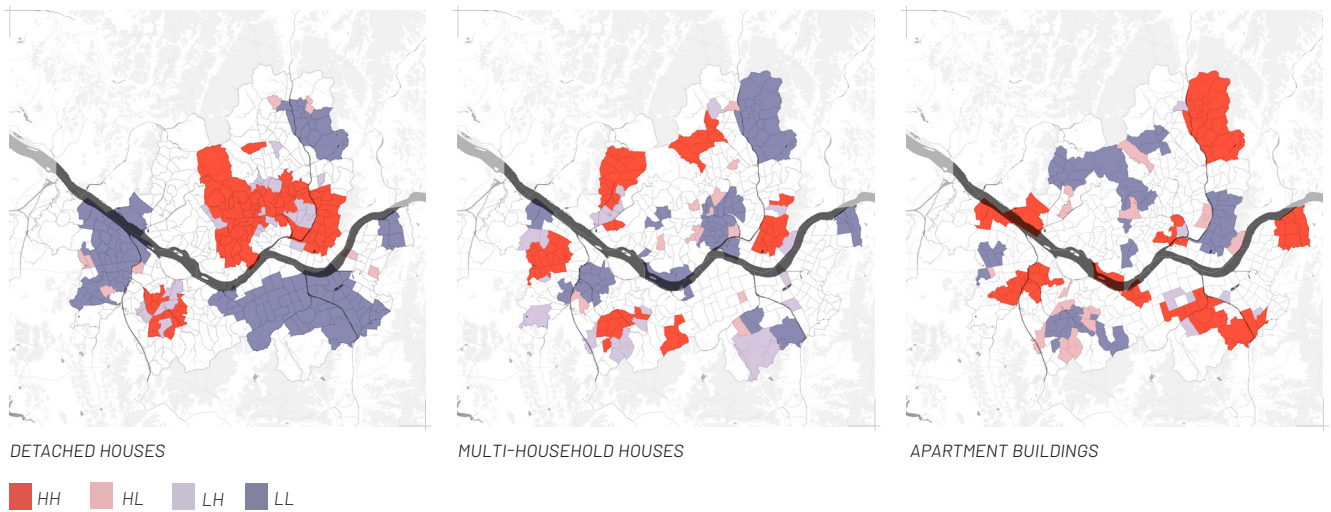
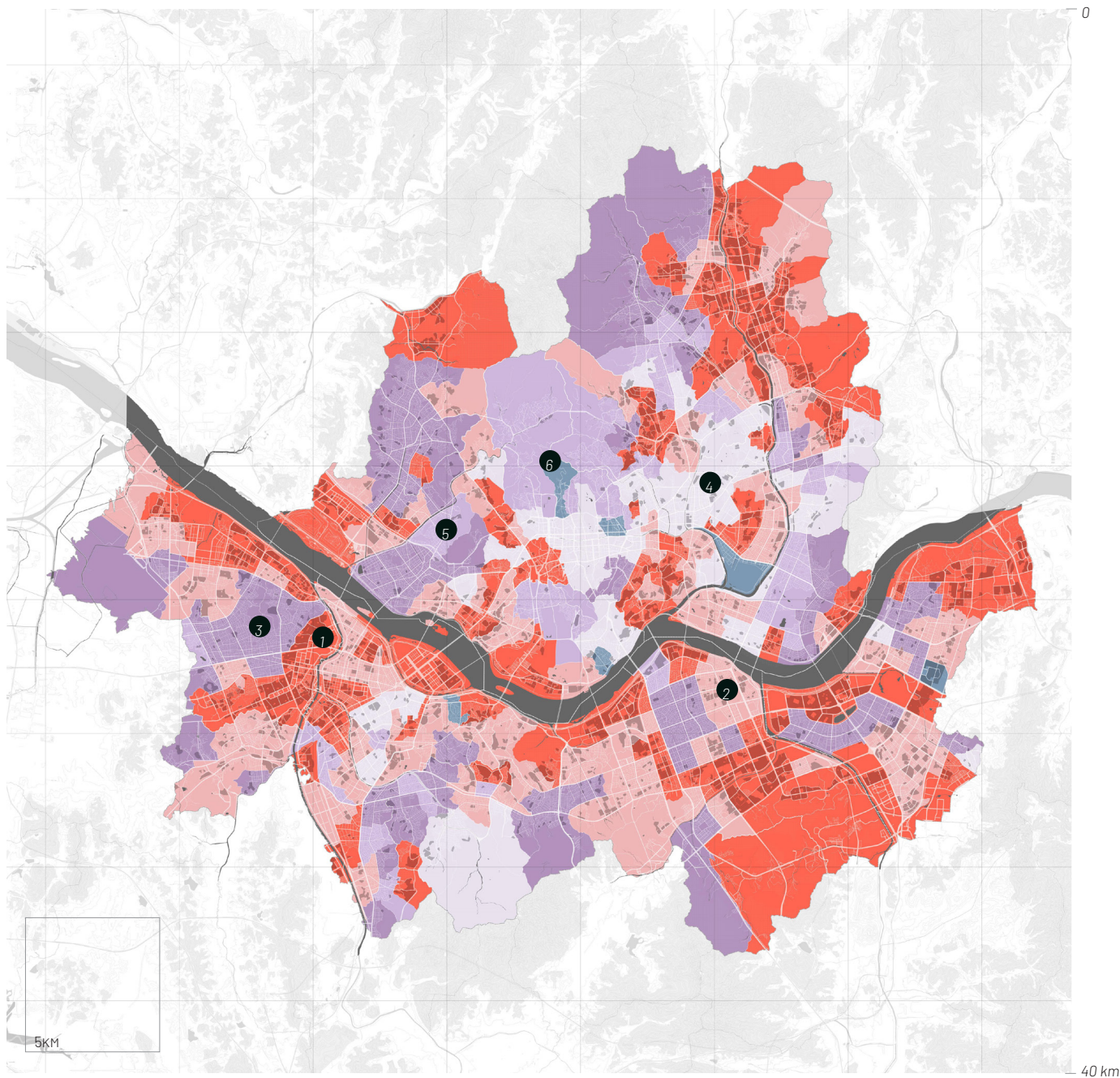


FIG. 7.8 The Local Moran's I (LISA) analysis at significant 0.05 level.

(source: Seoul Open Data Platform; modified by the author using GeoDa)



 Cluster 1	 Cluster 2	 Cluster 3	 Cluster 4	 Cluster 5	 Cluster 6
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# OF NEIGHBORHOOD	126 units	107 units	91 units	49 units	45 units	6 units
% OF APARTMENT	90.59	62.79	23.94	46.00	13.78	10.10
% OF MULTI-HOUSEHOLD	5.73	27.15	62.44	24.97	53.04	17.06
% OF DETACHED	3.27	9.03	12.25	26.58	31.40	69.10

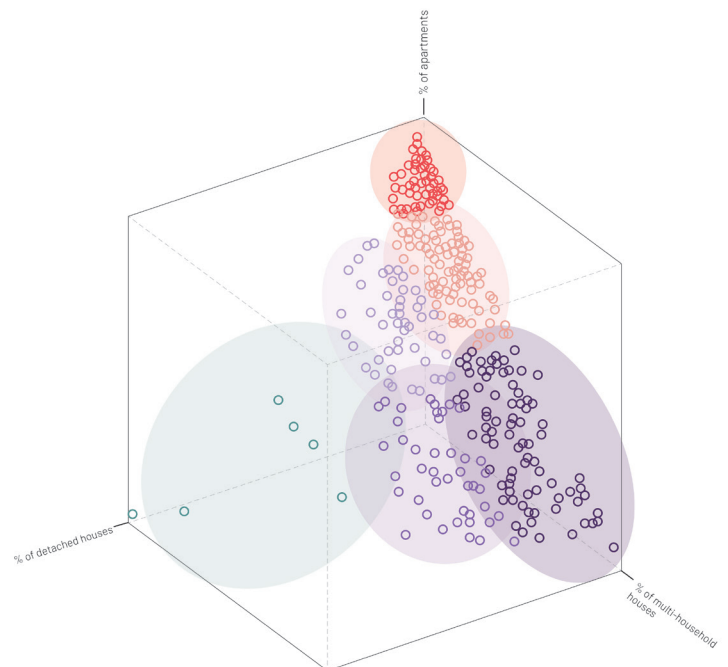


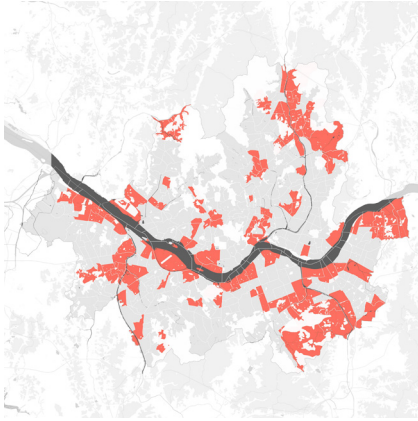
FIG. 7.9 The result of K-mean clustering analysis and the characteristics of housing type composition [previous page].

(source: Seoul Open Data Platform; modified by the author using GeoDa)

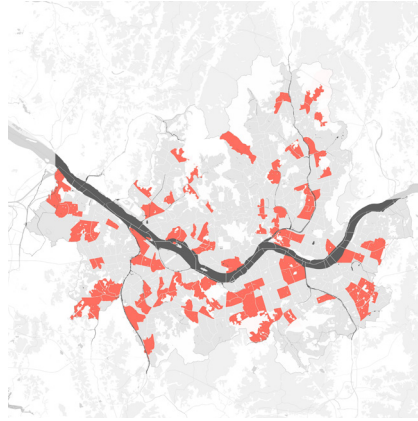
FIG. 7.10 The fabrics of each cluster where the red indicates the apartment building type.

(source: Seoul Open Data Platform; modified by the author using QGIS)

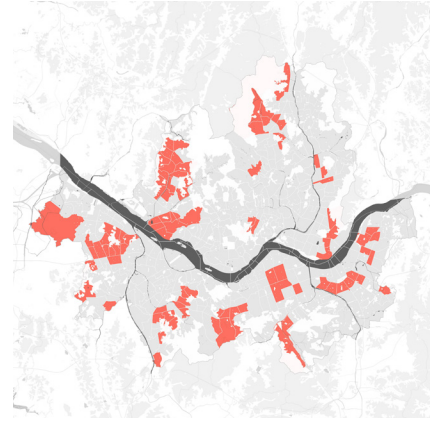




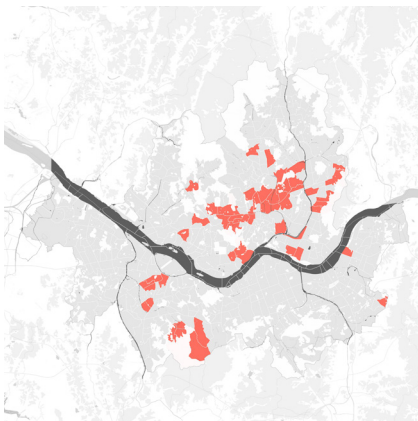
CLUSTER 1 - APARTMENT DOMINANT DISTRICTS



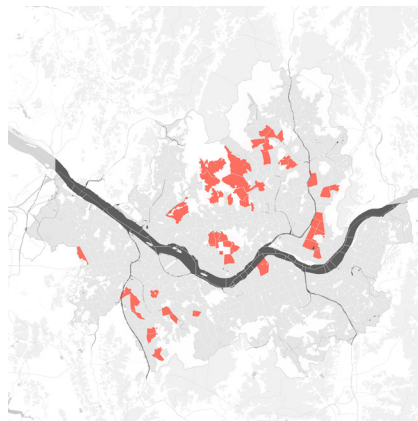
CLUSTER 2 - APARTMENT ORIENTED DISTRICTS



CLUSTER 3 - MULTI-HOUSEHOLDS HOUSING DOMINANT DISTRICTS



CLUSTER 4 - HYBRID DISTRICTS



CLUSTER 5 - MIXTURE OF DETACHED AND MULTI-HOUSEHOLD HOUSING DISTRICTS



CLUSTER 6 - DETACHED HOUSING DOMINANT DISTRICTS

FIG. 7.11 The distribution of each cluster layer.

(source: Seoul Open Data Platform; modified by the author using Geoda)



FIG. 7.12 The characteristic in composition of housing types for each cluster layer.

(source: Seoul Open Data Platform; modified by the author using Geoda)

7.3 – Street activity profile

The street activity profile investigates the typical characteristics of streetscape in Seoul. Thus, it helps to understand the local culture of everydayness that how diverse public activities are invited in related to what type of elements. In fact, the street activities are connected with depth structure where the physical order decides the richness in urban life. Depending on the depth order, the frequency and the speed of encounter with surroundings are controlled.

The analysis focuses on the transitional zones to inquire how public or private realms are connected with the street. Rediscovery of qualities in local culture than transfers to the patterns and design strategies to stimulate the vitality.

Although there are myriads of streetscapes with their own identities, they can be narrowed down into three types depending on their function: the retail, office, and residential¹⁴⁾. The first type is the streets that are gaining popularity as hotspot. Mostly these streets used to be the mundane residential area, yet the inducing unique cafes and restaurants triggered the creative atmosphere. Being commercially gentrified, these streets have become the destinations for the young generation. The second type of streetscape is located on the core business districts, the historic center and the Gangnam. These cases are selected as a comparison to the first type since the conditions greatly differ, for example scale of the building or width of the road. The urban vibrancy is found in both cases, yet, the way they assist are represented in different quality of space. Finally, the particular streetscape in apartment district is illustrated as a control case.

14) The selection of case streets are based on personal perception and experiences in Seoul for the past five years. Therefore, it is more heuristic approach rather than statistically logical approach.

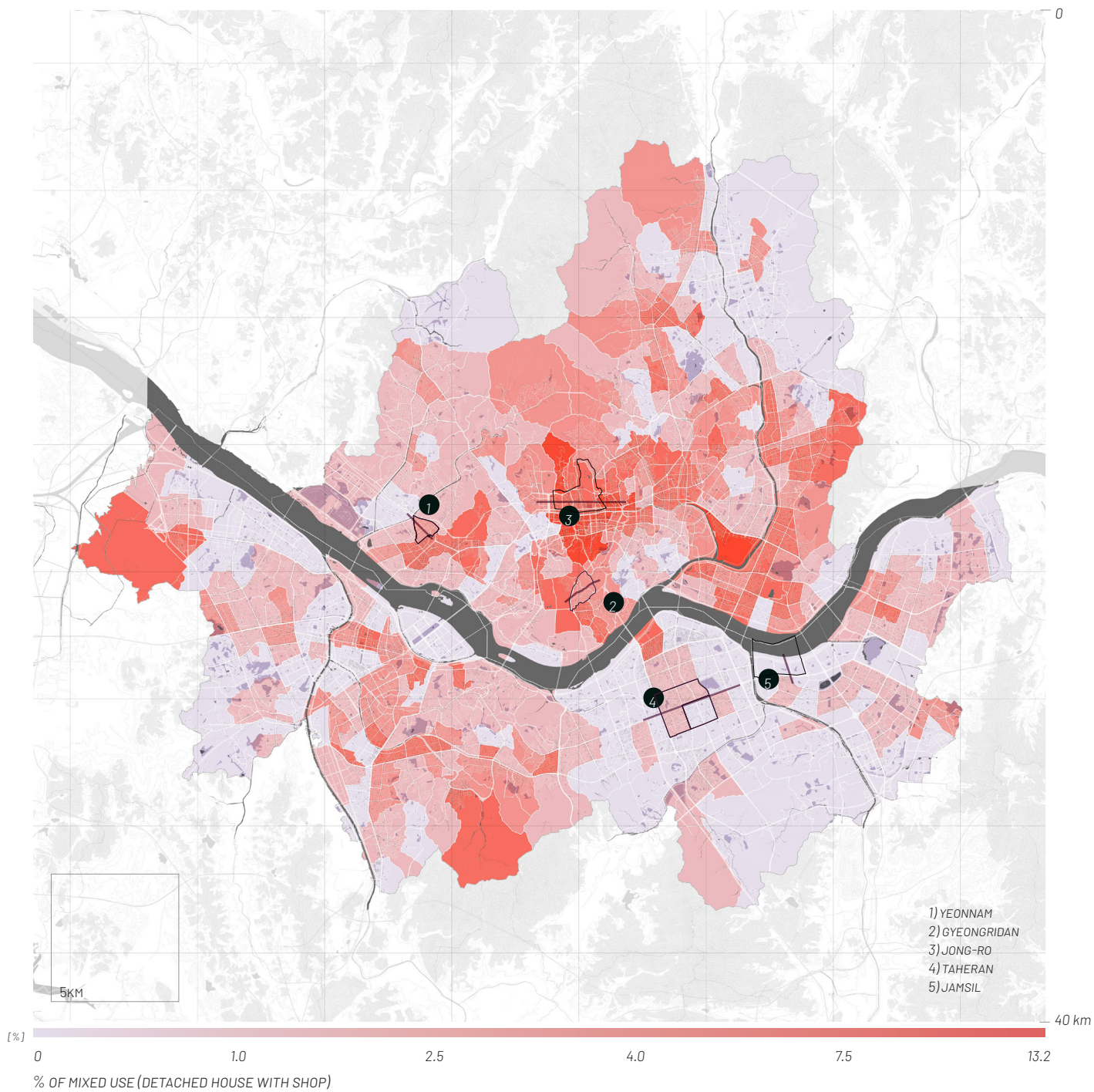


FIG. 7.13 The location of selective streets as case study.

(source: Seoul Open Data Platform; modified by the author using QGIS; and developed by the author)

1) Active streetscape in Yeonnam

- Former railway transformed into park
- Originally detached housing district
- Inducing commercial function
- Gentrification ongoing

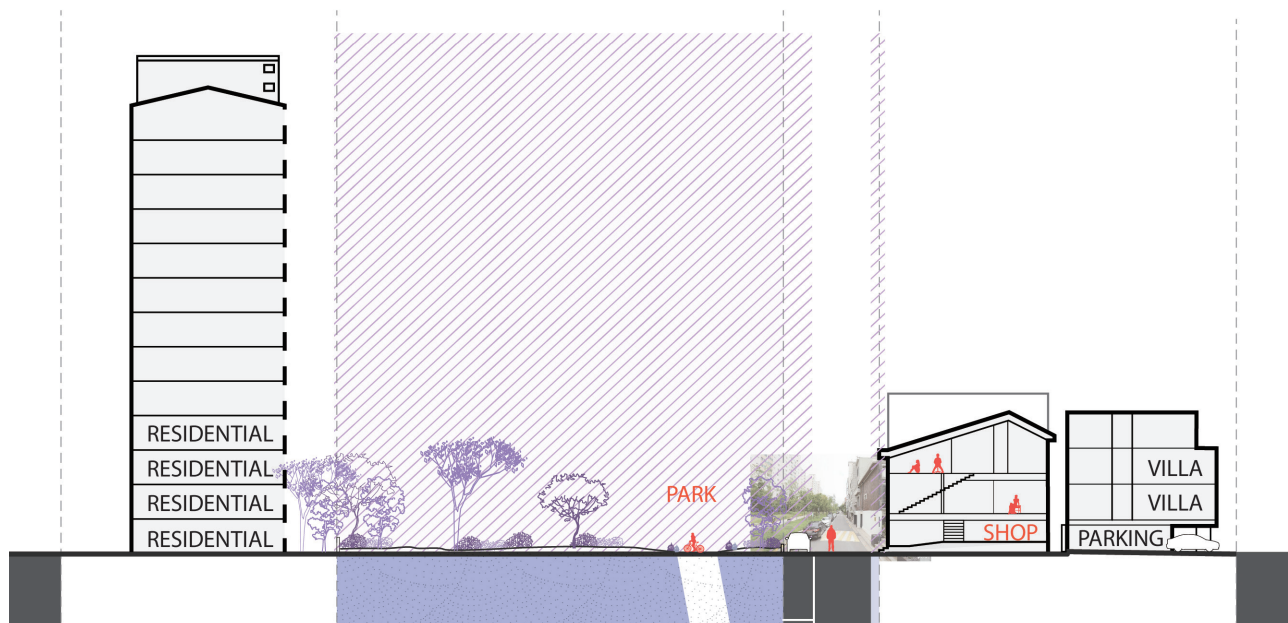


FIG. 7.14 The map of Yeonnam neighbourhood and the case section of street activity.

(source: map.kakao.com; developed by the author)



2) Active streetscape in Gyeongridan

- Sloped area
- Originally detached housing district
- Inducing commercial function
- Gentrification ongoing

- active use of roof
- semi-direct to the building using terrace (narrow pedestrian street)
- non-residential functions on groundfloor

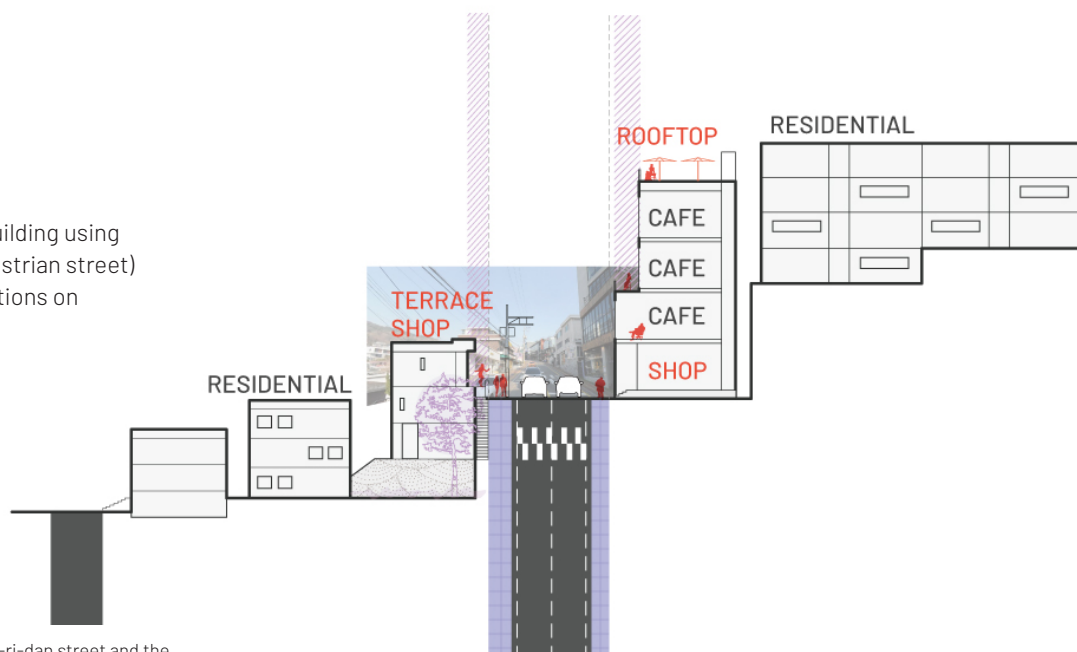


FIG. 7.15 The map of Gyeong-ri-dan street and the case section of street activity.

(source: map.kakao.com; developed by the author)

3) Office district streetscape in historic center

- Setback for POP
- Bicycle network
- Porous network (attached retail building)

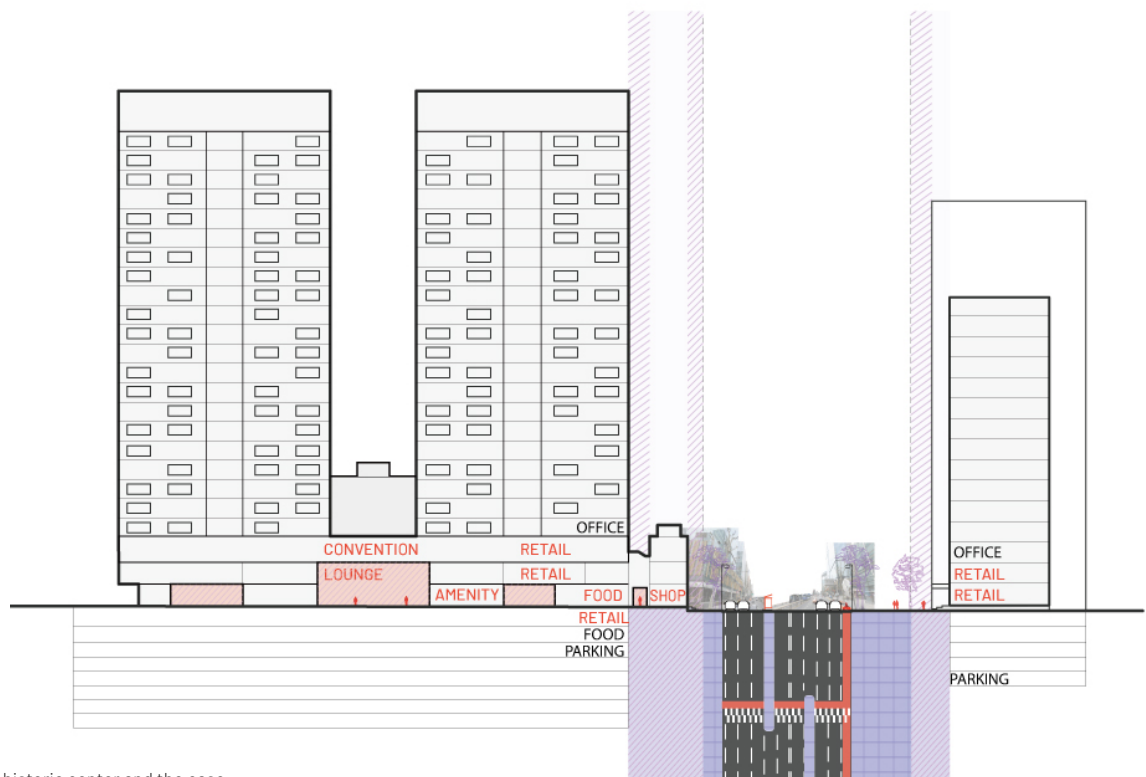


FIG. 7.16 The map of historic center and the case section of streetscape.

(source: map.kakao.com; developed by the author)

4) Office district streetscape in Gangnam

- Setback for POP
- Lack of space to stay compared to the width of the road
- Non-residential functions on groundfloor (usually for public usage)

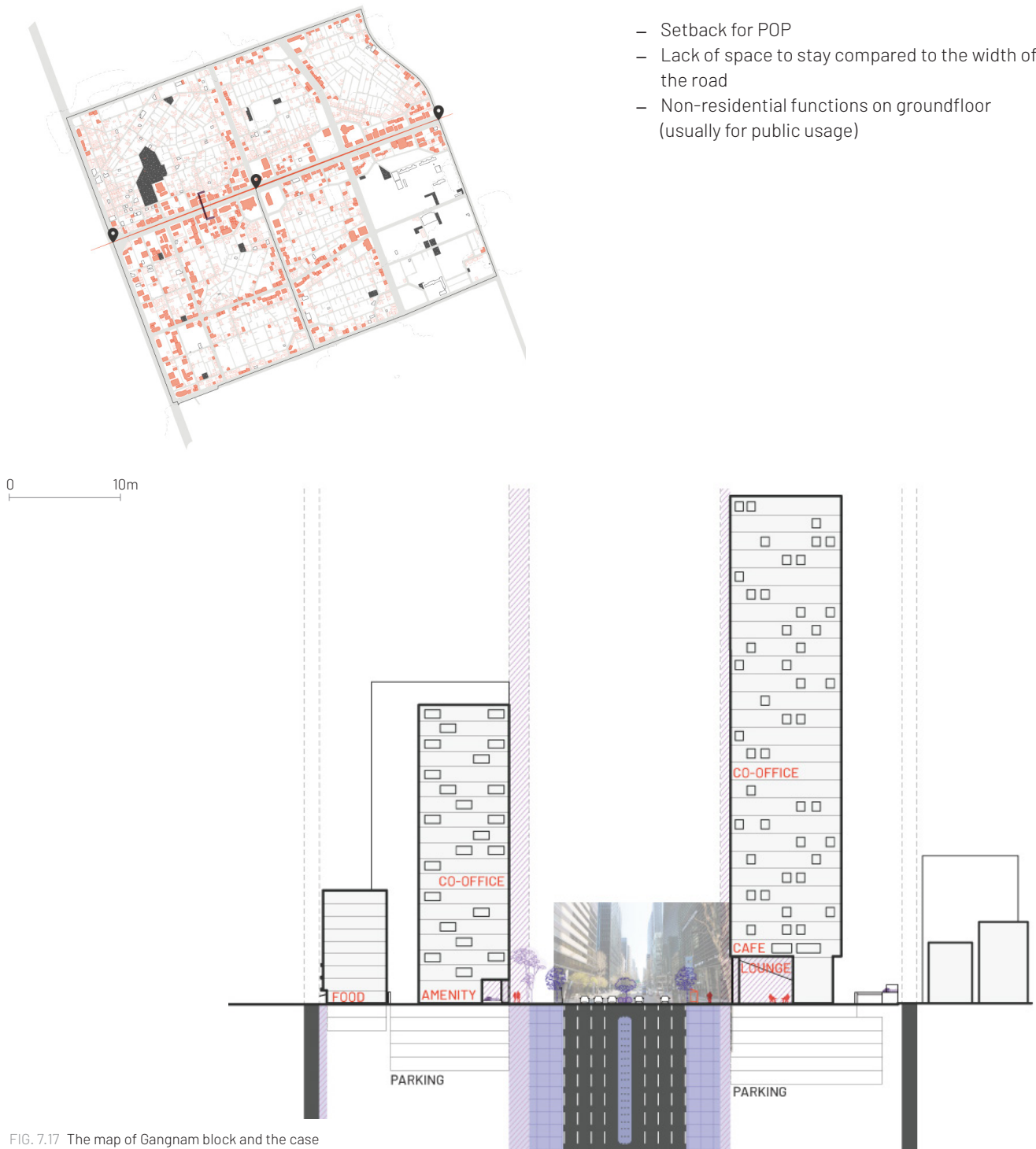


FIG. 7.17 The map of Gangnam block and the case section of streetscape.

(source: map.kakao.com; developed by the author)

5) Residential streetscape in Jamsil

- Street between two apartment complexes in Jamsil district
- Wide road for vehicle
- Elevated wall as buffer (not accessible)
- Groundfloor as piloti structure

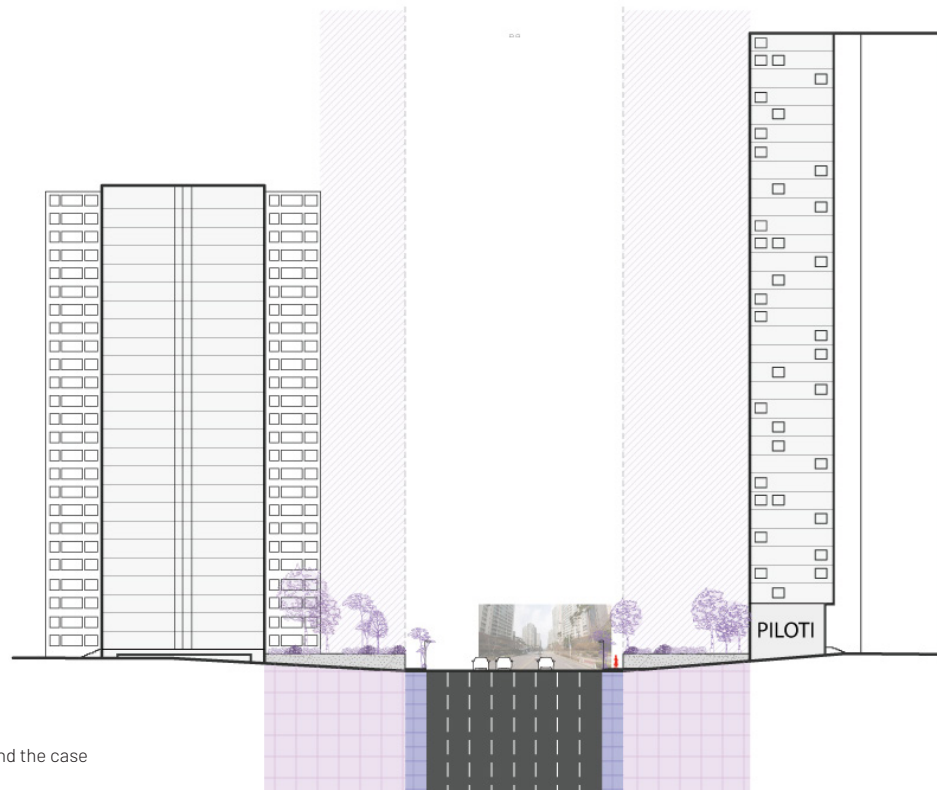


FIG. 7.18 The map of Jamsil district and the case section of streetscape.

(source: map.kakao.com; developed by the author)

7.4 – Implied geographical pattern in Seoul

There are invisible disparities existed in geographical scale. Although the north part of Han River used to be the settlement, due to the development restriction in North and the new development in south area, the Gangnam district, the socio-economic status between the north and the south greatly reversed. The map of land price reveals the gap between the north and the south. The Southern districts become one of the expensive preferable area to live for the citizens due to well-distributed infrastructures and job markets.

It was no surprise that this area has undergone the rapid transformation. The first generational apartment complexes were reconstructed due to the aging problem, transforming into higher buildings. Some aging apartment complexes are remained, waiting for the reconstruction project to be new branded apartment complexes in the expectation of speculation.

On the other hand, the north area has experienced relatively slow progress in its transformation, yet, it will face the same pressure and adopt the same strategies of southern districts sooner or later. The previous maps depict the different socio-economic as well as housing profile across the regions. Since the Northern regions are distinctively characterized by high concentration of population, elderly, low-income class and homogeneous housing type, the identical approach of previous practices would not reflect the diverse demands.

In acknowledging the past practices and the present urgency, I want to propose the different approach towards the northern region of Seoul. Through the learning how the previous apartment complexes have transformed their spatial form, function, and network, the both positive and negative influences can be readable, which will be reflected on the design application site in the north.



8 – The North-Eastern Seoul: From Empty Fields to Apartment Forest

The Target Area for Design Exploration

Synthesizing all the knowledge and the analysis from the previous processes, this chapter introduces the target area for specific design intervention in searching out the alternatives in apartment complexes. The implied geographical landscape from the previous chapter already give impression that the northern-east regions will face urgencies in the future.

Northern-east Seoul has transformed from the secluded crop fields to the temporary settlements where the low-income people were relocated, to industrial areas and to finally the periphery residential areas through the land readjustment and housing site development projects. Far away from the city centre, this area is preparing another transformation into new business and economic core.

In order to make a concrete argument, the Seoul Plan 2030, the highest legal plan in Seoul, is delineated. The purpose of looking at Seoul Plan 2030 is to be in accord with the overall vision and to examine the current development direction with the proposed design. Along with the 2030 Seoul Plan, the major trends and forces are introduced in prospecting the future urban space and the responses of the living environment. It helps to examine whether the current housing types are adaptable to the future changes.

FIG. 8.1 The aerial images of northern Seoul in 1978 and 1996 overlapped.

(source: www.vworld.kr)

8.1 – The 2030 Seoul Plan

The '2030 Seoul Plan' is the City Master Plan of Seoul which presents the long-term framework of the sustainable management in using, developing, and conserving the lands, and directs the related sub-plans as legally high-rank planning. It has a significance in its open process of establishment, where various actors such as citizens, experts, and administrators participate from the scratch.

The 2030 Seoul Plan envisions the *"Happy city of citizens with communication and consideration"* (SMG, 2014, p.29) with 17 goals and 58 implementation strategies, which are allocated into five major issues on stake including welfare, industry, culture, environment, and transportation. In order to direct the spatial unit-based management, the overall spatial structure is proposed which specified into five regional planning.

STRUCTURAL FRAMEWORK:

The 1-main centre, 5-sub centre and 11-local centre system of Seoul had been implemented since the basic urban planning in 1990s. However, the newly established master plan proposes more localized spatial hierarchy with multi-core functional system, which is 3-main centres, 7-regional centres, and 12-local centres. The main-centres are the core international

functional areas in cultural, financial, and business sectors respectively. The seven regional centres support the main-centres with specialized industries such as business, commercial, tourism, high-tech to create the job market and balance the territorial development. The local-centres take the role of reinforcing the self-sufficient function of neighbourhood and improve the quality of life.

NORTH-EAST REGIONAL PLAN: REINFORCE SELF-SUFFICIENT FUNCTION AND CREATE JOB MARKET

The northeast region is the cluster which has the largest areas and the high number of living population. It has a lot of potential as the most of universities are located within this area and the natural environment is rich. However, this region has served the main central areas as bed town since its first formation of "New Town" in 1980s. Now the existing infrastructures are gradually aging. The labour inducement is weak to hold the young generation. The lack of transport infrastructure even makes hard to get the interest of development. However, the new opportunity is arising as the metro depot will become the new regional centre as the structural plan proposed. Therefore, the strong spatial strategies are needed in supporting the strengthening the core functions, base labour and the balanced development.

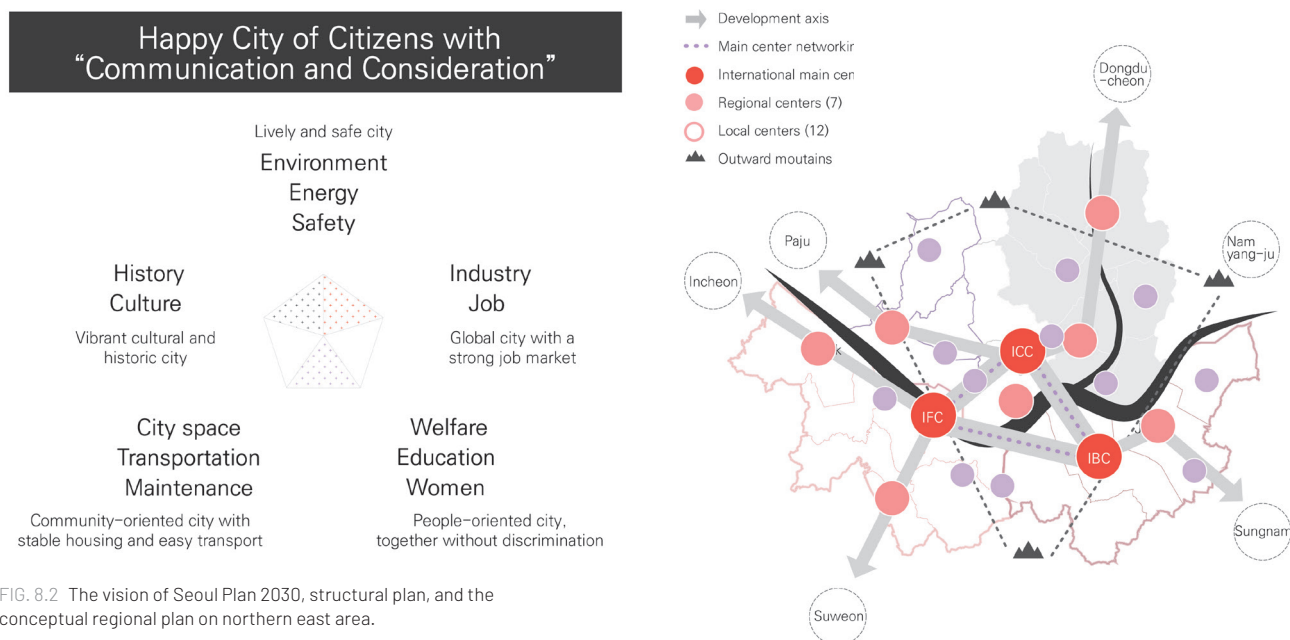
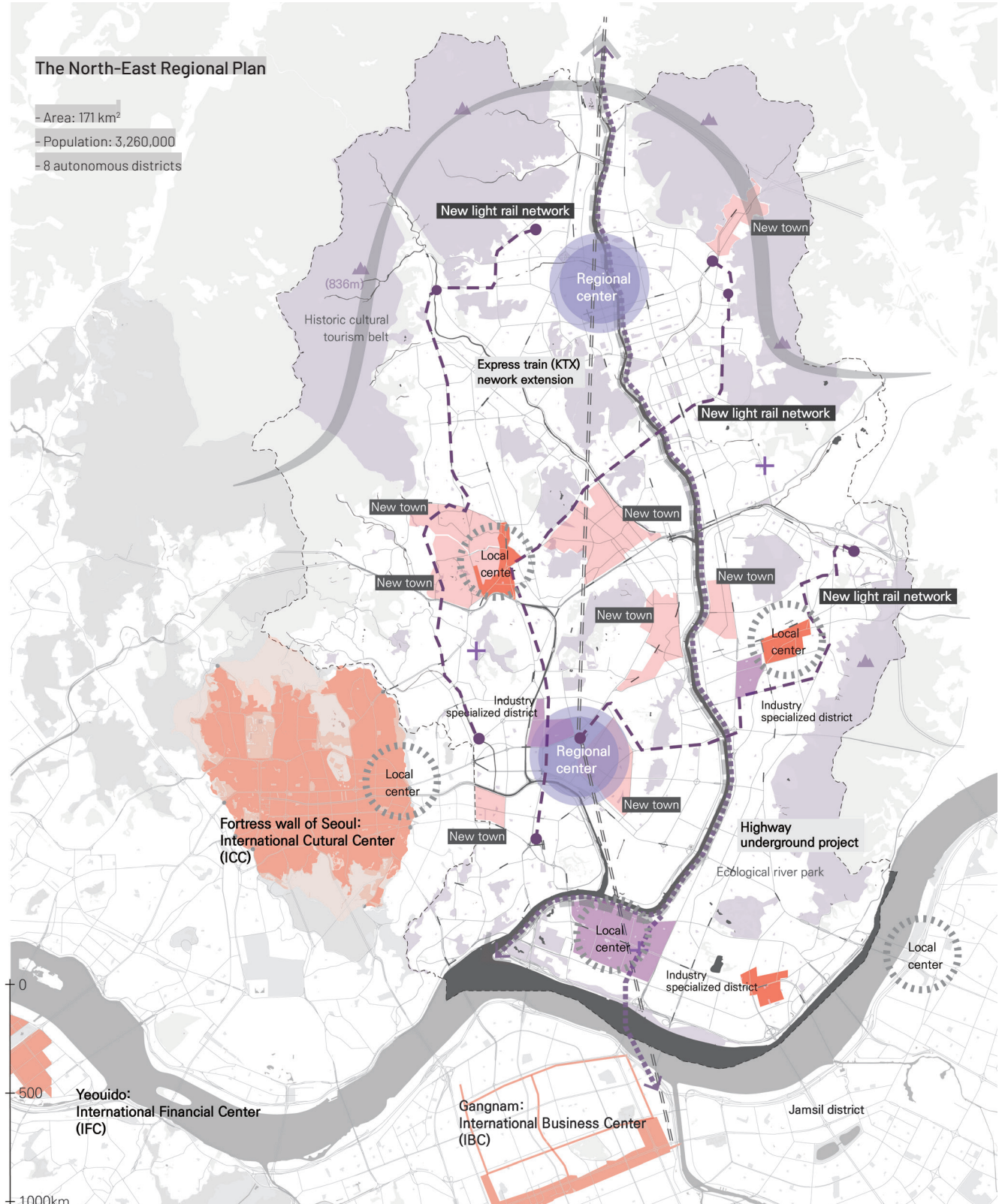


FIG. 8.2 The vision of Seoul Plan 2030, structural plan, and the conceptual regional plan on northern east area.

(source: SMG, 2014)

The North-East Regional Plan

- Area: 171 km²
- Population: 3,260,000
- 8 autonomous districts



8.2 – The shifting trends and driving forces

The future of urban space in Seoul will not be same as the current situation: the shifts in socio-economic structure, for example, the population decline, aging society, or the low birth rate, have pushed the existing planning and policy practices out of executive force in the future urban space. The structural shift in trends is already reflected at the current spatial management policies in Seoul, where the new values such as inclusive society or the environmental sustainability are emphasized over the previous quantity-oriented development.

The question for the evolution of future living environment is grounded on the core question that “*who will live where for what reason?*” Since 1970s, when the rapid development accelerated, the living environment in Seoul have explained with high housing demands, high development profit, and the supportive policies. However, the complex driving forces in the contemporary society place the great uncertainties whether these are still applicable to the future living environment in Seoul. In addition, the innovation in technology – for example, the self-driving vehicles – provides more possibilities in transforming the space. Therefore, understanding the driving forces and the resulting mega-trends help to detect the challenges and to prospect the spatial transition in Seoul.

In turn, the four housing types are described in relation with following topics: who, where, and why. The ‘who’ question identifies the socio-economic shifts in structure and distinguishes the different user groups with their variate needs. Second, the ‘where’ question diagnoses the movement of people in relation to the live-work proximity and the transport infrastructures. Finally, the ‘why’ question points out the realm of the daily activities. Integrated as whole, the urban topology, the relationship between the plot, buildings, street, and open space, is reorganized in response to these prospects.

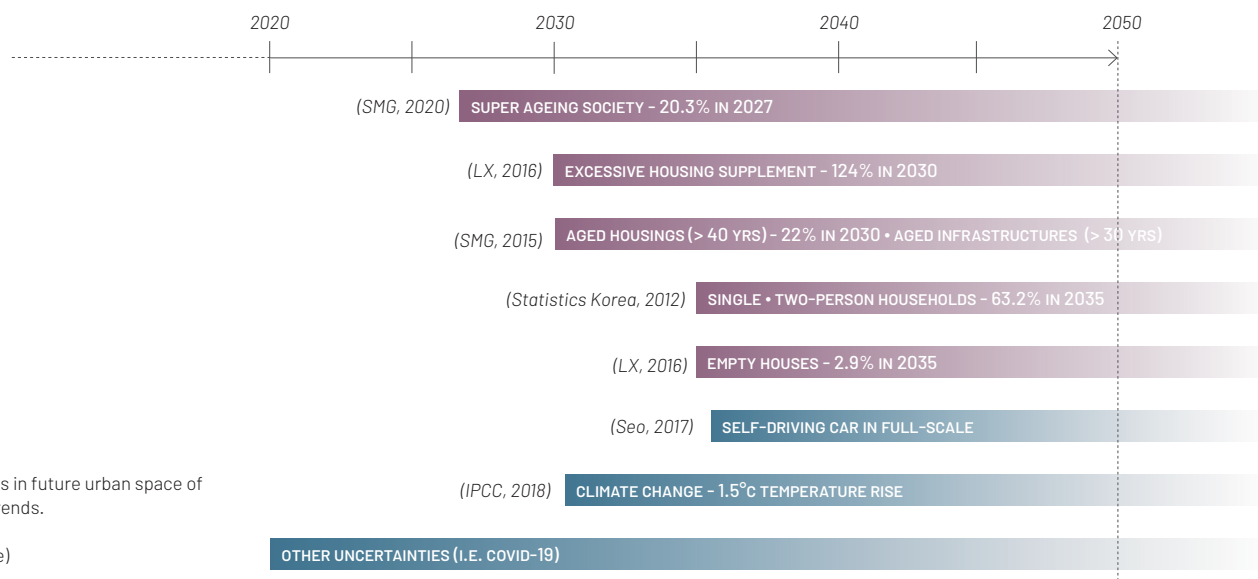


FIG. 8.3 The challenges in future urban space of Seoul due to shifting trends.

(source: refer to image)

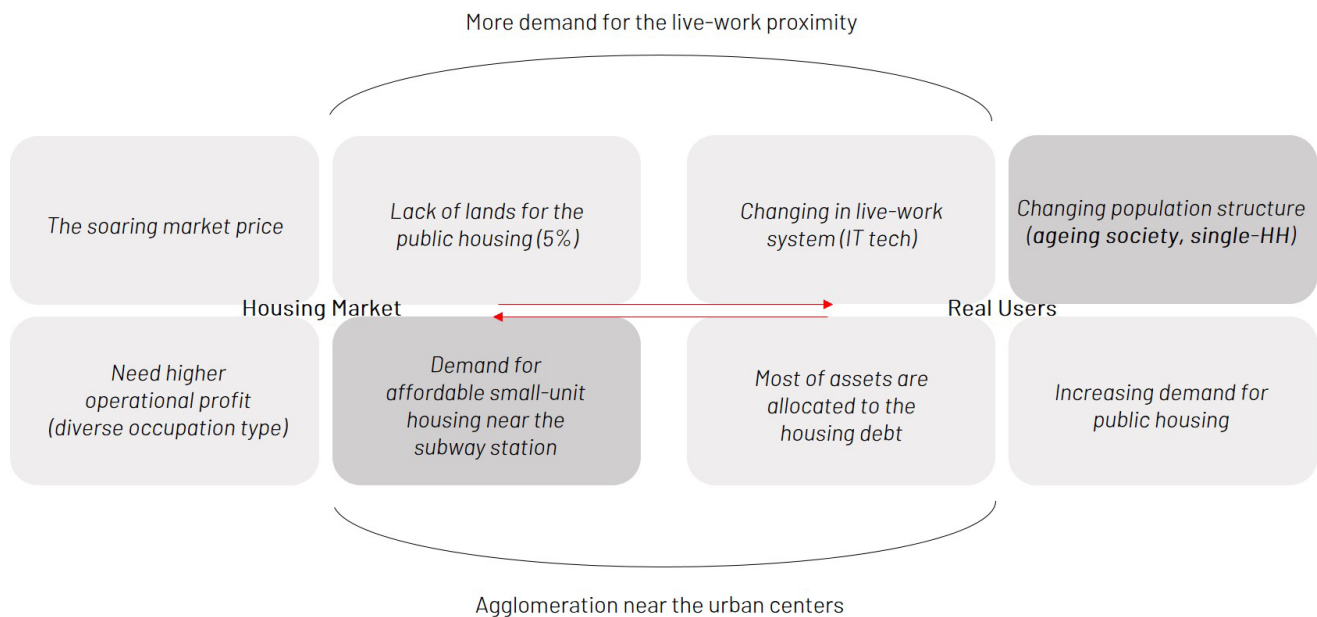


FIG. 8.4 The summary of the mega-trends.

(source: Jung, Kim & Lee, 2012, p.55; adapted by author)

Detached houses:

The detached houses used to be the dominant housing type in Seoul, however, they have been demolished in a rapid speed during the last decades, redeveloped into other housing types. The remaining houses demand the maintenance of the basic infrastructures due to the aging issue - built more than 30 years. It is expected that the proper maintenance would be impossible without the support from the public sector, since the characteristics of plot size and the street network make the project difficult to be processed.

Apartment buildings:

The preference towards the apartment buildings will not weaken and also the construction numbers. The low-dense apartment districts will be lucrative with the reconstruction projects - yet, the process might be slow due to the regulation. The high-dense apartment districts will adapt to the changes since most of them are located on the good accessible lands. On contrary, the low-accessible apartment districts have a possibility to be slummed due to the low development profit.

Multi-household houses:

The multi-household houses are the new emerging housing type replacing the single-detached houses. Located on similar context with single-detached houses, they require the maintenance in a block-scale or even the higher ranked neighbourhood planning as the supplement of basic infrastructures in a block-scale is demanding, especially in terms of cost management. Meanwhile, the relatively low-cost housing properties have a potential to accommodate the low-income class or the foreign people who are the end users.

Public-rented houses:

New demands for public-rented houses will arise as the polarized housing environment becomes the issue on stack.

HOUSING TYPES:



SINGLE-DETACHED HOUSE



APARTMENT BUILDING



MULTI-HOUSEHOLDS HOUSE



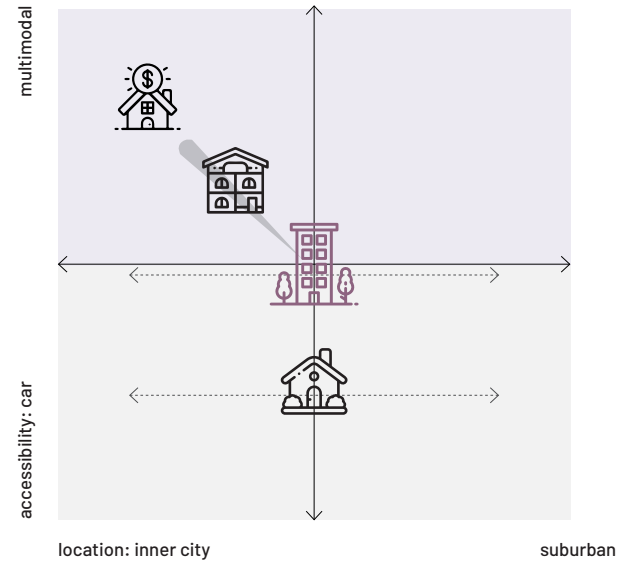
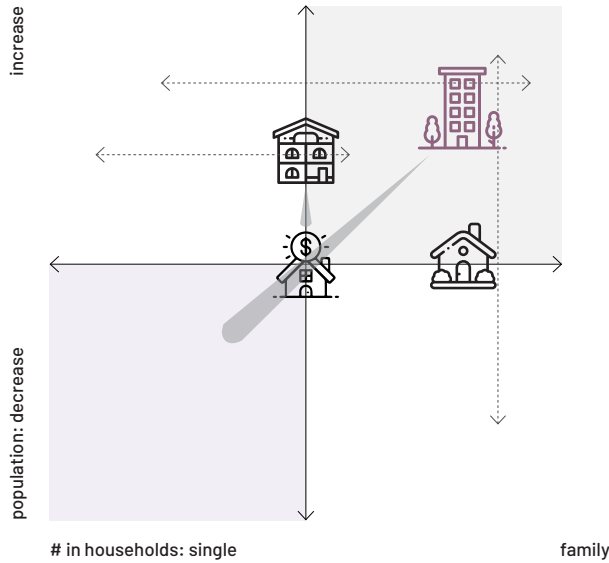
PUBLIC RENTED HOUSE



CHANGE DUE TO TREND



RANGE OF ADAPTABILITY



WHO?

POPULATION PROJECTION: DECREASE VERSUS INCREASE

NUMBER OF HOUSEHOLDS: SINGLE VERSUS FAMILY

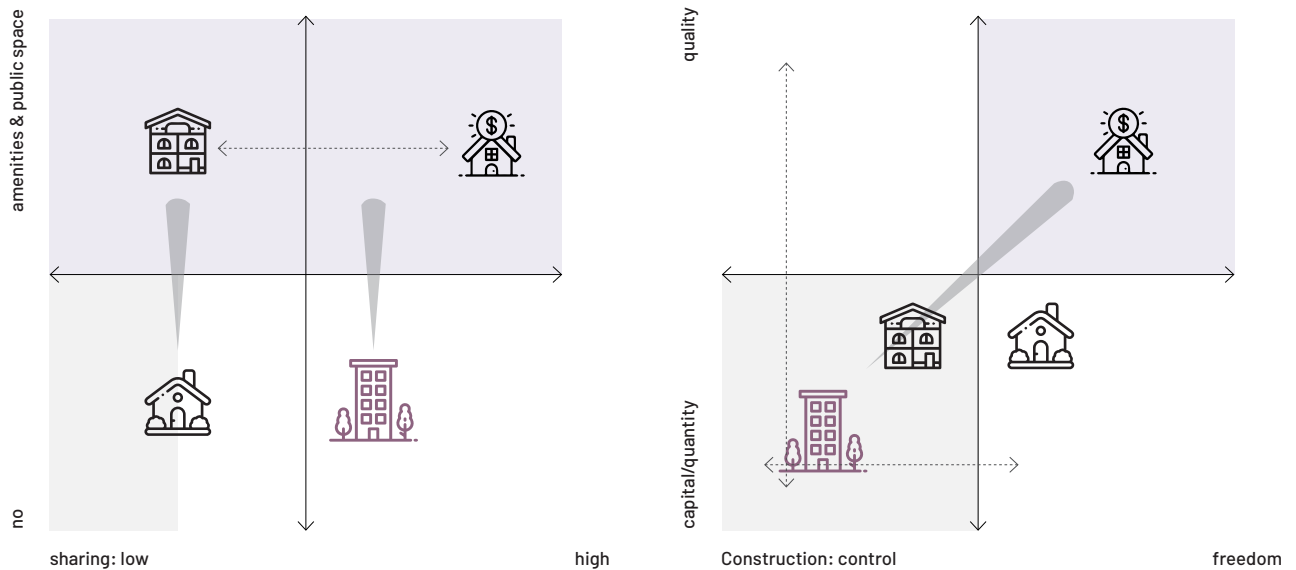
Seoul has experienced explosive population growth since the end of the Korean War. However, it is expected that the overall population will decrease in 2040 after the peak year of 2020. Although the Seoul Metropolitan Area (SMA) will keep having the increasing demand for living, the population decline is expected in the city of Seoul. Still, the number of households will continue to increase due to the expansion of nuclear family – the average number of households was 2.24 in 2020. Especially, the single-person households become the fastest-growing type, which is projected to reach almost one fourth in 2030 (Seoul Institute, 2012). These socio-economic transition indicates the increasing demands for small-sized unit in all types of housing. Until now, the housing unit size of 84 square meters has been preferred by the Koreans, which is the standard size for four-persons of family. Free from the same unified production, the diversity in housing size and types are required to adapt in shifting structural change.

WHERE?

ACCESSIBILITY: CAR VERSUS MULTI-MODALITY

PREFERENCE FOR LIVING INSIDE THE CITY OF SEOUL VERSUS SUBURBAN

The new town development in 1990s facilitated the suburbanization around Seoul to distribute the population. The pattern in residential mobility between Seoul and Seoul Metropolitan Area (SMA) is hard to clarify, but there is a trend that the one-person households and the young generation tend to move to the city of Seoul, while the households of 3-4 persons move out to the suburban. Since the majority of economic activities are agglomerated in Seoul, people living in suburban rely on the vehicles and endure the long-commuting hours. On the other hand, the people living inside Seoul prefer good accessibility to the public transportation with the commuting hours less than 40 minutes.



WHY?

SHARING: LOW VERSUS HIGH

DEMAND FOR AMENITIES AND PUBLIC SPACE NEARBY

The sharing economy is one of the new trends aroused in the late 2000s. By sharing the limited resources with multiple actors, it is expected to save the resource efficiently, including the lands. Due to the one-person households or the ageing society, the accessibility to the amenities greatly becomes important. It comprises the users' life and decides how they move the space. At the same time, the polarization has deepened between the strata where the privatization and segregation proliferate. It is matter of distributing the resources or amenities to the hands of people who urgently need and clustered strategies are required as smart management.

HOW?

VALUE: QUANTITY AND PROFIT-ORIENTED VERSUS QUALITY ORIENTED

REGULATION: CONTROL VERSUS FREEDOM

During the past 30 years, the government had focused on the quantity perspective - the speed and the amount, neglecting to ask what kind of urban space do we want to live. However, since 2000s, the need to create a qualitative urban space has been emphasized. In order to make a diverse and inclusive living environment as the government aimed, the previous method of top-down controlling would not be worked. Already many people are adjusted to the convenience life in Seoul, yet, more alternatives in participating the process open the uncertain possibilities and bring back the autonomy.

FIG. 8.5 The four different settings that can be projective in the future and the level of adaptiveness for each housing types.

(source: developed by author)

8.3 – Nowon district: the last territory of Jugong apartment complexes

The specific case study targets the Nowon district, located at the northern outskirts of Seoul where it attached to the slope mountains and streamlines of river. This planned district developed in 1980s when the National Government removed the informal settlement and constructed the sixteen *Jugong* apartment complexes using the Housing Site Development policy tool. These large range of apartment complexes nearly covers the three subway station catchment areas. Nowadays, the forest of alignment apartment complexes is regarded as core identity of this district.

While the Gangnam district already has undergone the cyclic redevelopment apartment complex, the Nowon district faces a similar situation as the existing buildings are aged and needed to be reconstructed. Under the pressure of capitalistic profit-oriented construction, we can ask question what will be the new image of this district, and what image do we want as future living environment. The precedent cases in Gangnam district implies the possibility that the social apartment complexes can be utilized in the hand of public investors, transforming into luxurious commodity.

The Nowon district has a lot of potential in its diverse urban settings. The housing distribution rate both private and public takes first place in Seoul, which is 110.47%, comprising dense environment. The number of preschools, elementary schools, and high schools are also the first rank in Seoul. Due to good accessibility of amenities and relatively affordable housings, the young-aged people, such as newly married couple or the families with young children move to this district, however, only for the short period of times. Meanwhile, the number of single elderly households topped the list as well. The trends of depopulation and super aging society would accelerate as the birth rate keeps decreasing. Moreover, the district is one of the top area where disable people are concentrated. Therefore, the re-interpretation in consideration of various groups of people will adapt to new transformation, introduce new mixture of functions, and explore new spatial configuration of depth-order.

Nowon district envisions to evolve into the self-sufficient city based on the industry and economic foundation. It sets the goal to be a healing health-welfare city using the abundant natural and cultural resources. In addition, the higher hierarchy planning, 2030 Seoul Plan, proposes Nowon district as one of seven metropolitan centres to facilitate the centrality as the residential functions are the strong distinct elements. The future image of Nowon district must not follow the same path as Gangnam district. Even if, in the future, the reconstruction of areas will come to realize, Nowon district will play an important role emphasizing the locality. The new spatial structure of depth-order will be integrated with the public life in order to restore and develop their interconnected social values, but also to facilitate the improved distribution of present and future amenities and services with merging various functions. The old periphery stigmatized with certain image already transformed into the new periphery as a way of living (Foot, 2000), however, how to change the nature of periphery?

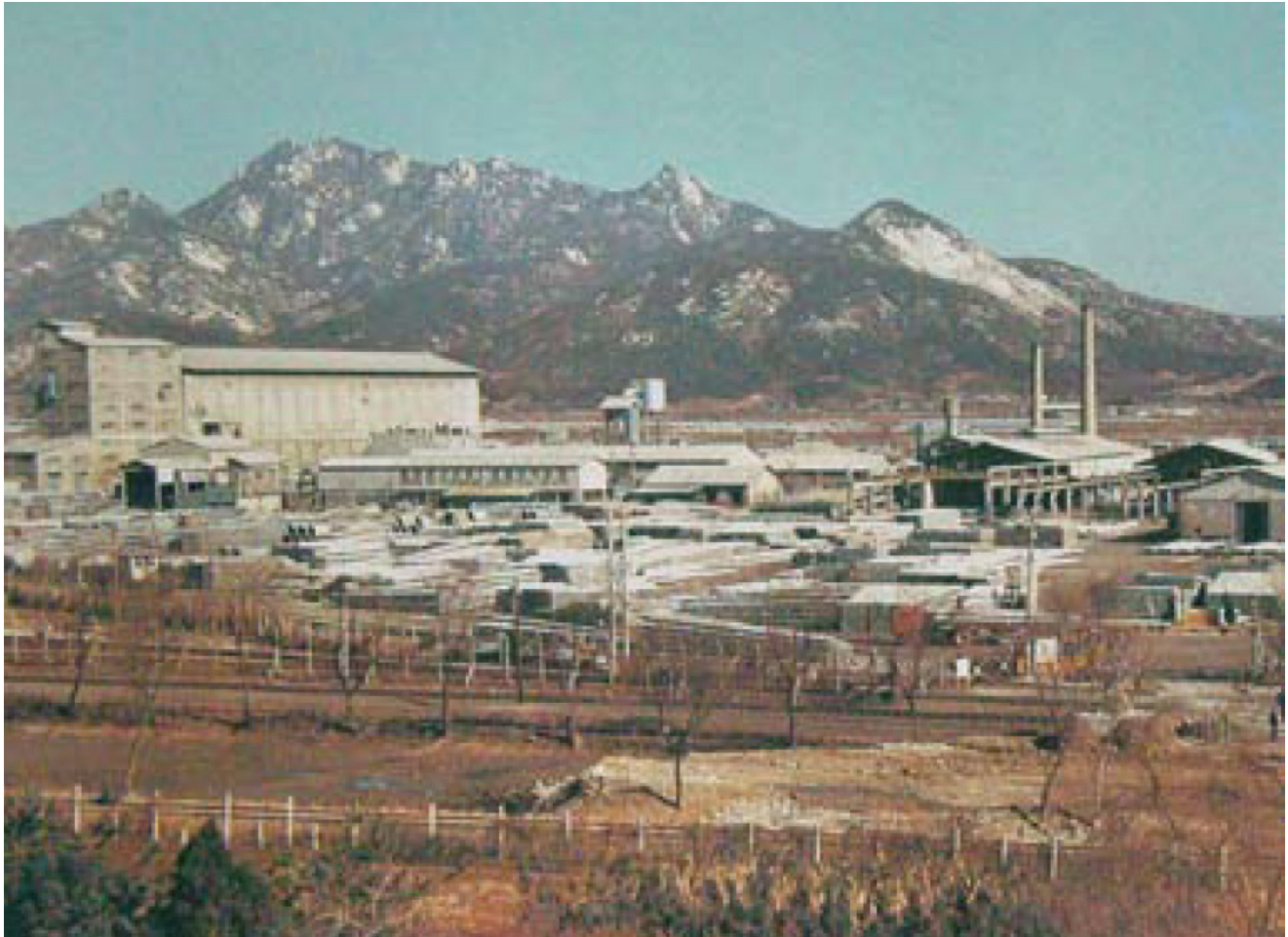
Upon on current development trends in Seoul, I assume that SMA would reach its maximum capacity in urban development: remaining redevelopment and reconstruction projects would take place on the deteriorated detached housing districts as well as the existing aging apartment complexes, transformed into high-rise mega-plot apartment complexes in pursuing more profit and combating for more spaces.

The Jugong apartment complexes are the heritage of urbanism from the 1980s that were placed on the territory of 'Housing Site Development District' driven by the public sector, the Korean National Housing Corporation (KNHC). Its role as catalyst influenced the overall urban territory by facilitating the adjacent developments and distributing the urban functions. Although the direct controlling power of public sector in housing market passed to the hand of private sectors and the most of Jugong apartment complexes have reconstructed into new branding apartment complexes, the left Jugong apartment complexes have immense potential in various ways: first, they are comprised of large scale of blocks, which have more room for diverse trials. Moreover, it is much easier to get the funding as well due to the agglomeration effect. The area also has many number of public rented housing properties. How to upgrade the living environment, yet without segregation or discrimination is required in further development direction.



FIG. 8.6 The view of past plain and the current apartment landscape.

(source: From the exhibition of Northern Seoul becomes an apartment forest extended by Seoul Museum of History. n.d., Newsletter (https://museum.seoul.go.kr/www/board/NR_boardView.do?bbsCd=1032&seq=20170316140809698&sso=ok). Copyright by Seoul Museum of History.)



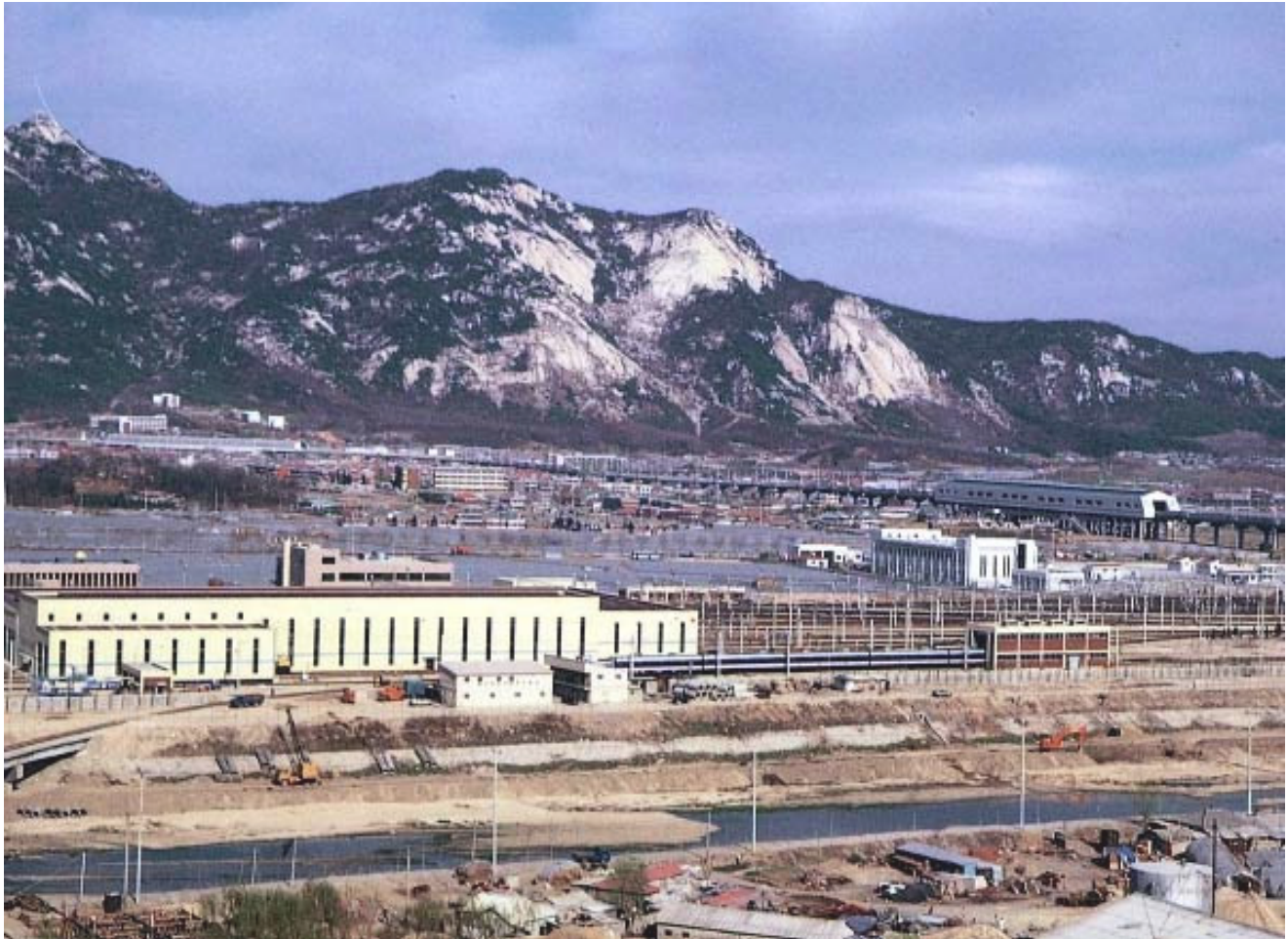
AGRICULTURAL LAND

**TEMPORARY SETTLEMENTS AND
RELOCATION OF LOW-INCOME GROUP**

SEMI-INDUSTRIAL AREAS WITH FACTORIES

FIG. 8.7 From secluded area to suburban residential area, the north-east Seoul is the key middle-income residential areas. The image shows the paper factories in 1958.

(source: From the exhibition of *Northeastern Seoul: From Crop Fields To Forest of Apartment* by Seoul Museum of History, 2016, p.69. Copyright 2016 by Seoul Museum of History.)



LAND READJUSTMENT

SUBWAY STATION AND
EXPANSION OF SEOUL

LARGE-SCALED HOUSING COMPLEX
DEVELOPMENT PROJECTS

FIG. 8.8 From secluded area to suburban residential area, the north-east Seoul is the key middle-income residential areas. The 4th subway line completion in 1985.

(source: From *Tag photo #subway* by Ohmy News, 2014, Ohmy Photo (http://www.ohmynews.com/NWS_Web/View/img_pg.aspx?CNTN_CD=IE001761773&tag=%EC%A7%80%ED%95%98%EC%B2%A0&gb=tag). Copyright by SeoulMetro.)

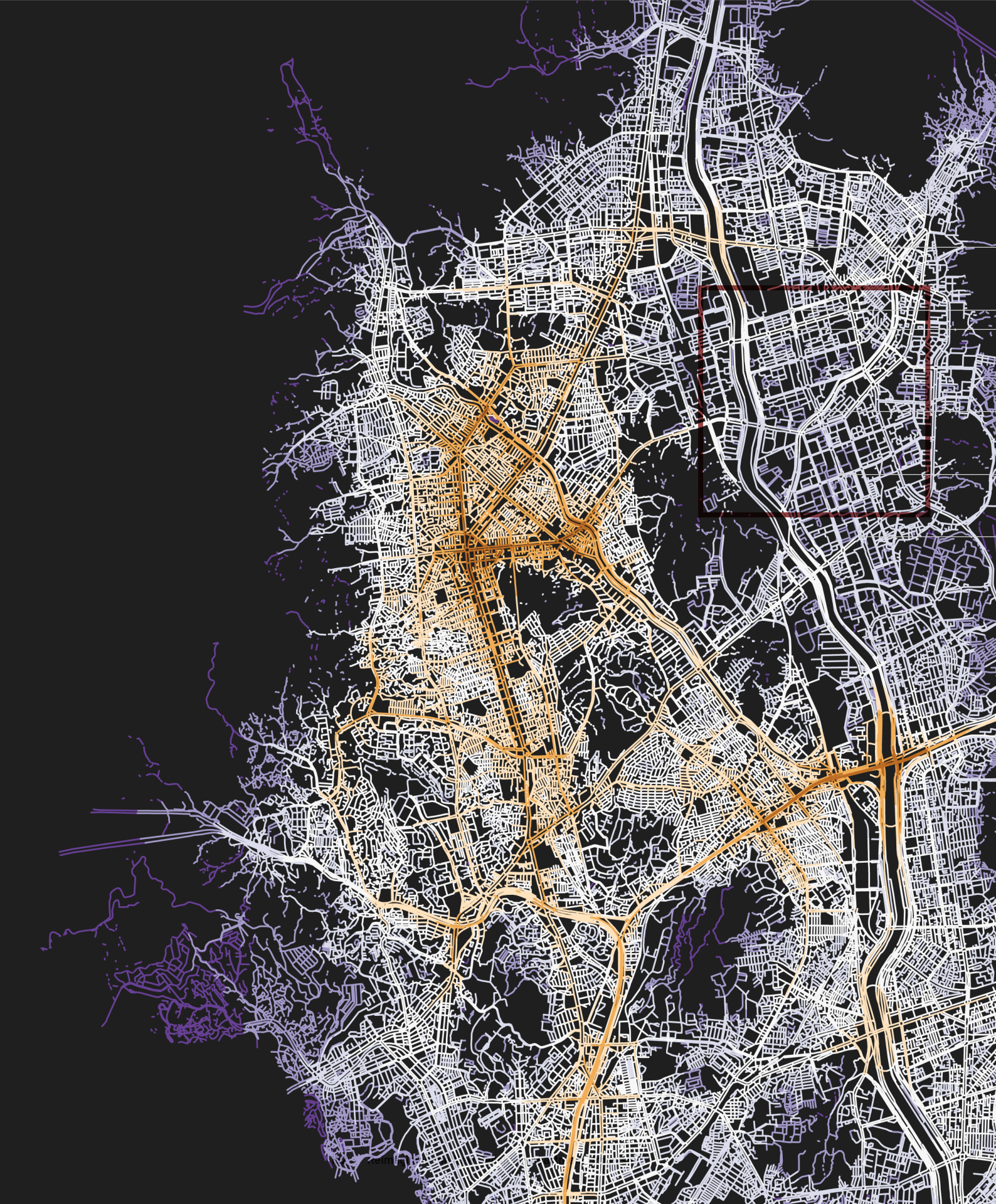




FIG. 8.9 The space syntax analysis of integration in global scale of 2500m.

(source: street data from Seoul Open Data Plaza; developed by author using depthmap)

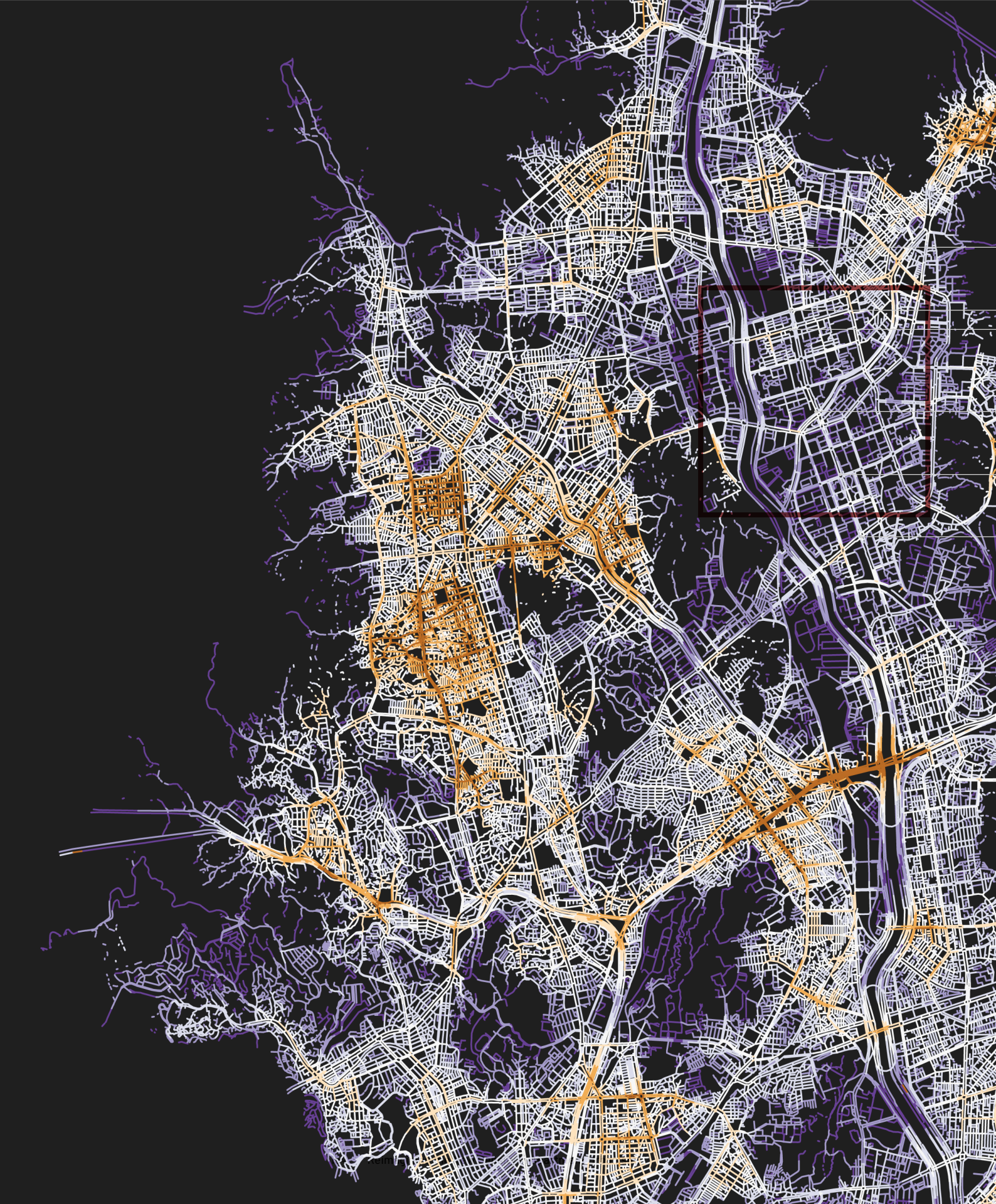




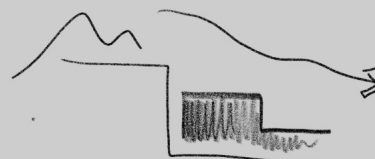
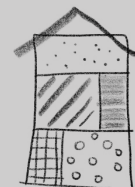
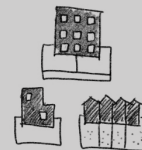
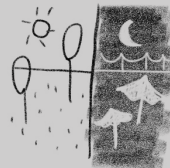
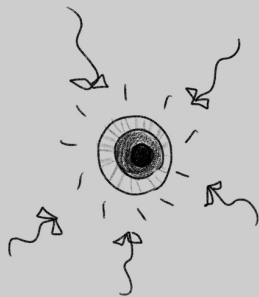
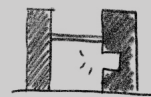
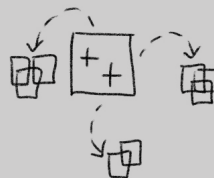
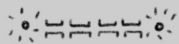
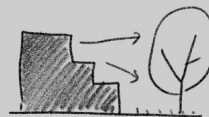
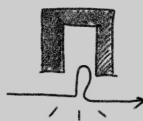
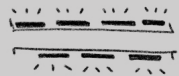
FIG. 8.10 The space syntax analysis of integration in local scale of 500m.

(source: street data from Seoul Open Data Plaza; developed by author using depthmap)

PART 5

DESIGN EXPLORATION IN SEARCHING ALTERNATIVES FOR APARTMENT COMPLEXES

RESEARCH-BY-DESIGN THROUGH PATTERNS



9 – Preliminary Design Exploration

Application of Patterns in Nowon District

9.1 – Iterative process in developing patterns

This section introduces the set of patterns as an explorative way, which is the iterative process in research-by-design. The initial patterns are derived from the theoretical reviews and the case studies, which are applied to the target area to test their interacting and conflicting forces as well as transferability to the local context. The new patterns carried from the local culture are added to finalize the set of patterns.

The set of patterns are produced in relation to the depth structure strategies proposed in chapter 4: territorial depth, scalable depth, and institutional depth. The territorial depth related patterns proposes the strategies to build the rich transition between public and private realm. The literatures from Habraken (1998) and Clossick (2017) as well as local case studies provide the basis of how different configurations of depth-order result in reciprocities and urban life. The scalable depth patterns, ranging from global to local, are linked with diversification not only in physical form, but also the experience of people. Aligned with territorial depth, the theories and the local cases become the foundation for creating the patterns. Lastly, the institutional depth patterns expand the role of public sector (as well as citizens) in the process of development, reflected on Turner & Fichter's literature of 'Housing as verb', which implies the separation between the provider and the consumer as embedded problem in current housing market. The initial patterns follow as:

T.1. – GENERATIVE EDGE / STREET INTERFACES / ACTIVE FAÇADE

T.2. – CONTINUITY BETWEEN THE NODES

T.3. – ENSURE THE PEDESTRIAN PERMEABILITY

T.4. – OPEN TO THE STREET OR ADJACENT SURROUNDINGS

T.5. – OPEN TO THE GREEN / VIEW TOWARDS THE GREEN

T.6. – CREATE POSITIVE SPACES / SHARED COMMUNAL SPACE

T.7. – CONNECTED AND POROUS BUILDING

S.1. – DIVERSE PLOT SIZE AND VOLUMES

S.2. – STRATEGIC INFILL NEAR THE MULTIMODAL MOBILITY

S.3. – STRONG CENTRAL ANCHOR / COMMUNITY FACILITIES

S.4. – MULTIPLE USE / MIXED-USE

S.5. – FLEXIBLE USE

I.1. – PARTNERSHIP BETWEEN THE PUBLIC AND PRIVATE

I.2. – INTERMEDIATE (PUBLIC) ARCHITECT

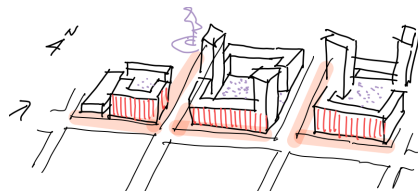
I.3. – DIVERSE TENURE MODELS

I.4. – SPECIAL DISTRICT

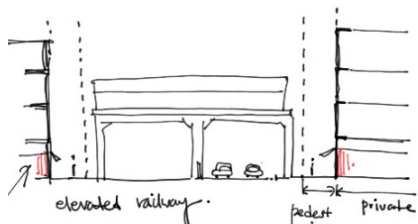
9.1.1 – Testing transferability on local context: interacting and conflicting forces

Current state

The mapping illustrates the existing condition, including the proposal from the government to implement the project. The site is located on the strategic core centre and the intersecting two subway lines. There are important anchors placed on both north (new CBD) and the south (public park). Along the vertical main street, the commercial functions are aligned to make the continuity - this quality has to be kept even after the new development. The apartment complexes have several streets for the permeable pedestrian movement - mostly vertical direction.



THE SPECIAL DISTRICTS



THE COMMERCIAL DISTRICT



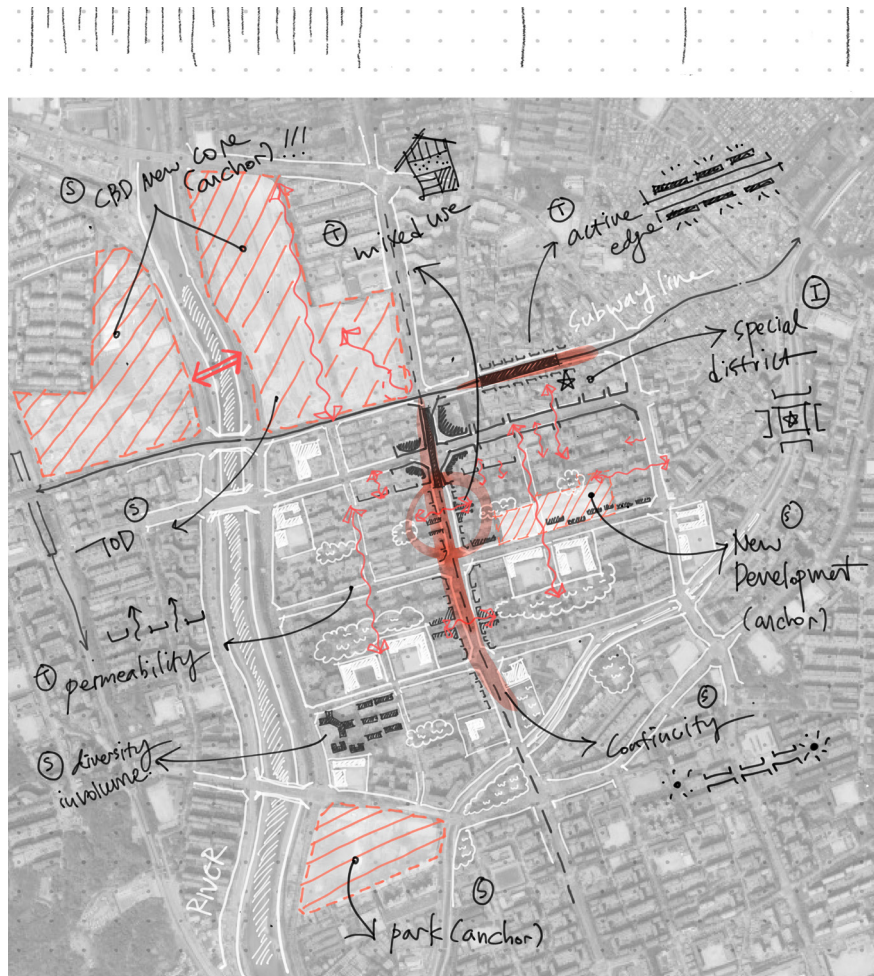
MIXED-USE BUILDING

The diagnosis of patterns for current condition.

(source: aerial image from Kakao map; developed by author)

The conflicting patterns and interventional patterns

The conflicted patterns are shown in the map. The spaces in between the buildings are occupied with the vehicles, giving less feeling of safety. This needs to be transform into active space for usage. Moreover, although the site has a rich natural environment, for example the river, the accessibility is hampered by the highway. The government proposed to connect the new CBD with the river, yet the continuity does not ensure to the residential areas.



Meanwhile, openness to neighbourhood has to be intensified since the district has an importance to not only residents but also to the visitors. The structure can be linked with strong community facilities as an anchor. The diversity in building types also required to accommodate various groups and demands in future change. The experimental building types using the porous structure or the connection between them can be applied to give a range of varieties.

The additional patterns

The site has a historic landmark of water tank. Sometimes, keeping this historic landmark give an identity and the cultural value to the site, as exemplified in the case of GWL in Amsterdam, the Netherlands. Moreover, since some edges of apartment complexes are attached with the commercial zoning district, possible structure of front and back logic can be added as pattern.

Other than those, following are the patterns that can be added: terraced housing, roof-top garden, soft-edge to make transitional realm. These new patterns have to be tested again in implementing other context to see whether they work or not.



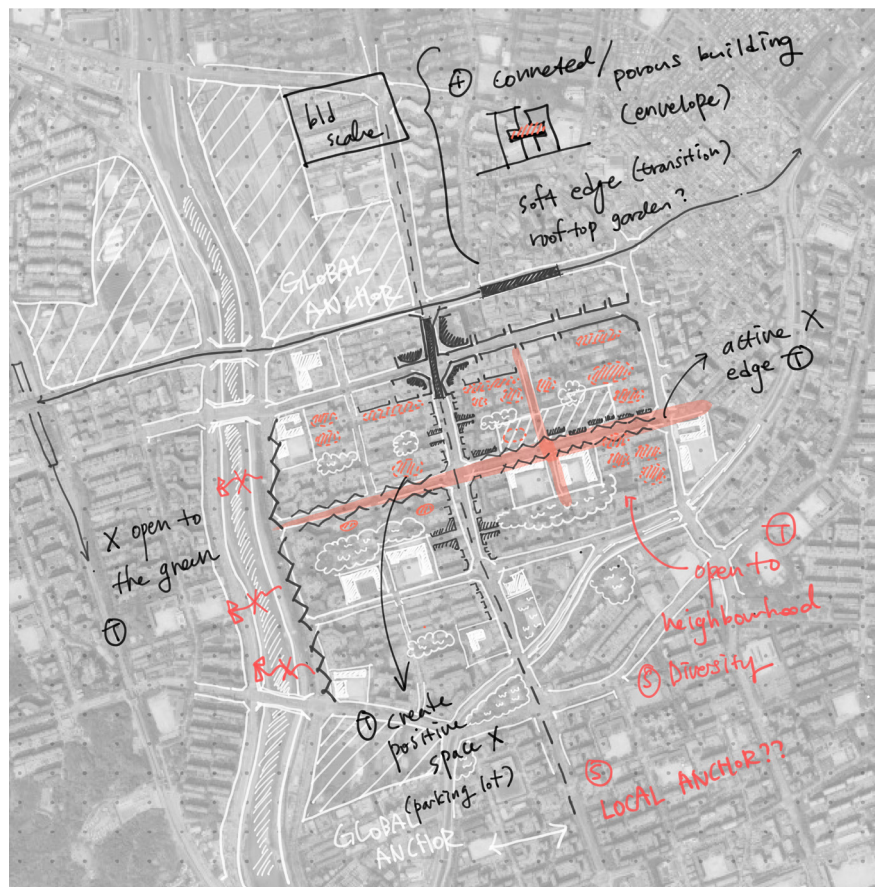
THE HIGHWAY AS BARRIER TO THE WATERFRONT



THE PARKING AND THE DEAD SPACE

The diagnosis of patterns for conflicting forces.

(source: aerial and street images from Kakao map; developed by author)



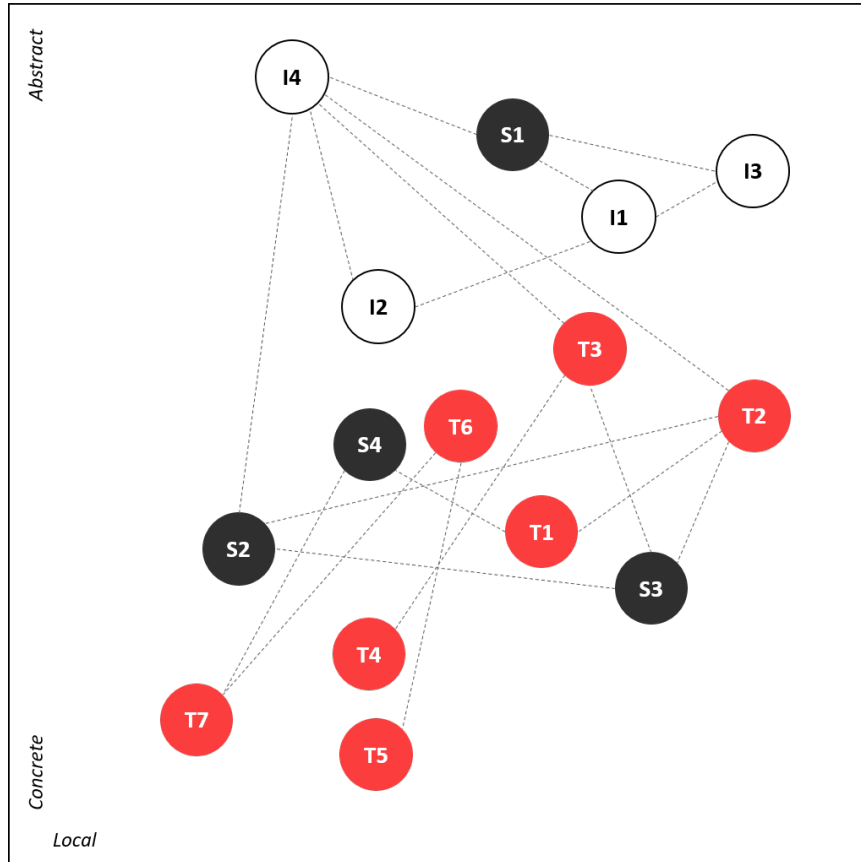


FIG. 9.1 The mutual relationship between the initial patterns.

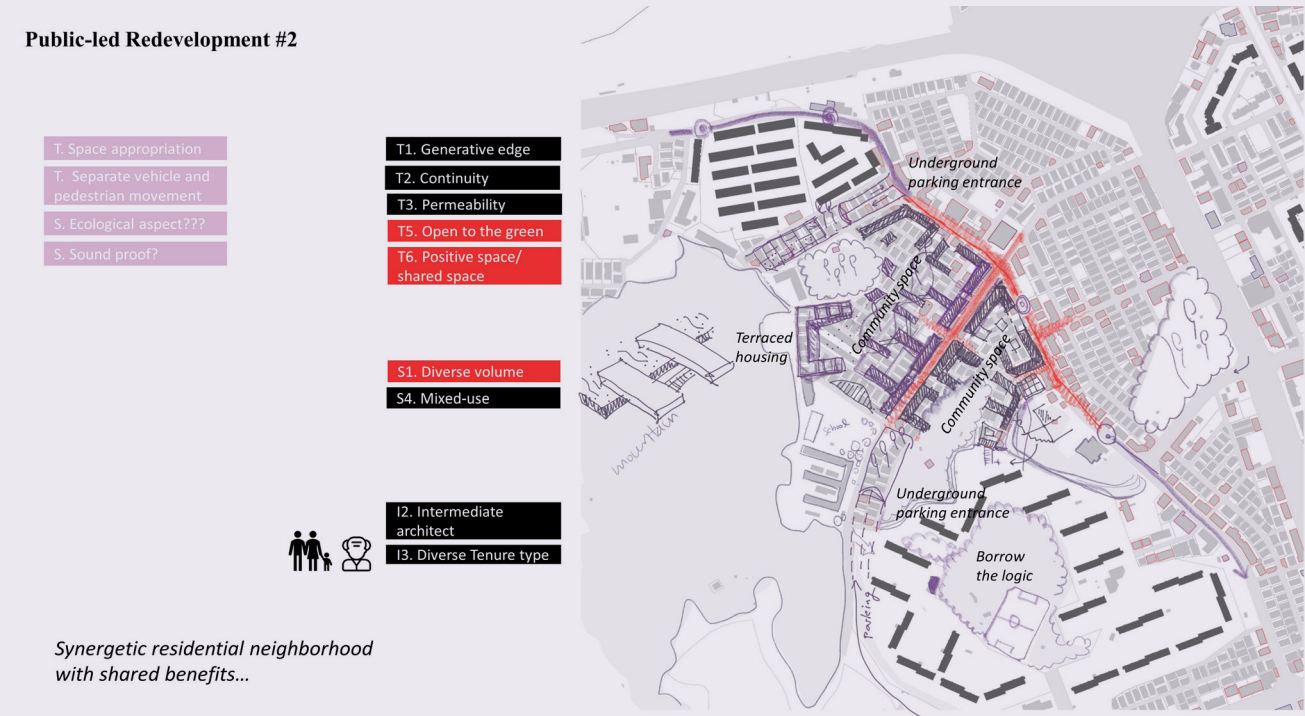
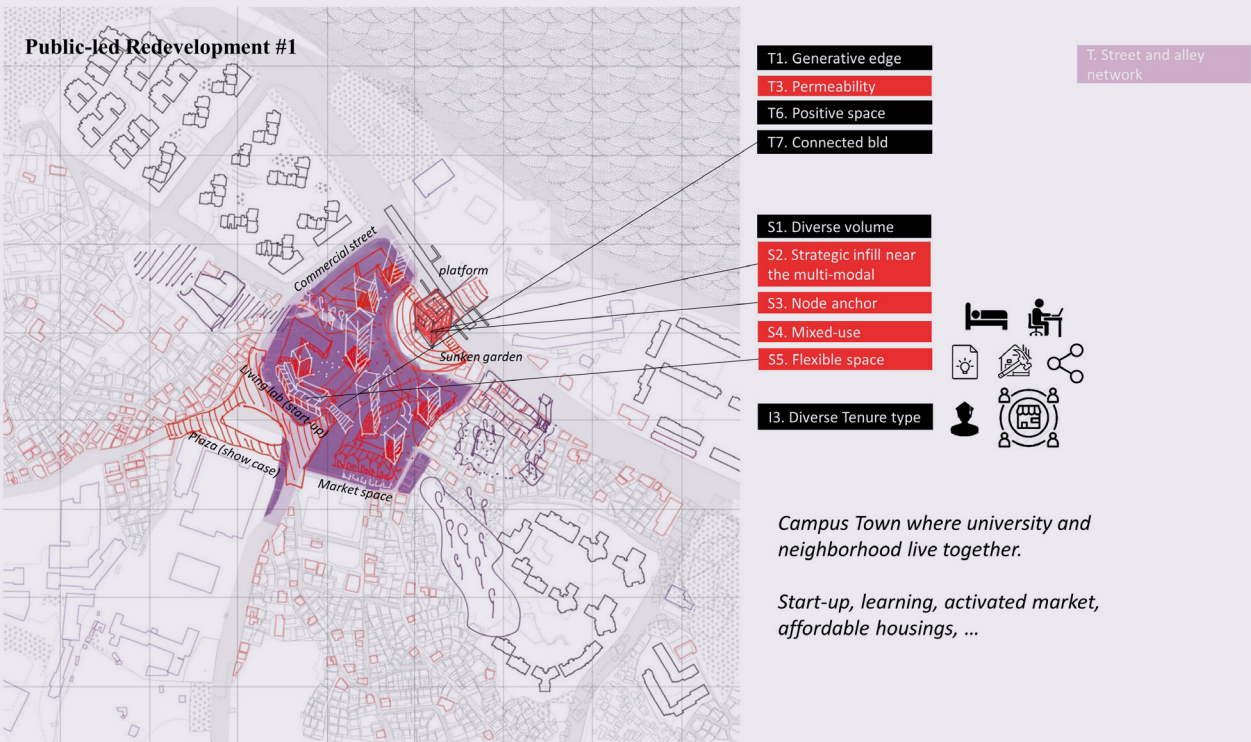
(source: developed by author)

FIG. BOX. 9.1 The examples to show the in-between process how patterns were developed [Next page]

(source: developed by author)

Box 9.1 – Testing the transferability with trials and error

After testing out to the target area, several trials and errors were taken to validate whether the patterns are adaptable.



9.1.2 – Testing specific adaptation of transitional zone of apartment complexes

After another iteration, new patterns were added specifically to deal with the context of apartment complexes.

EDGE: FROM PUBLIC TO SEMI-PUBLIC/PRIVATE

IN-BETWEEN: FROM SEMI-PUBLIC/PRIVATE TO PRIVATE

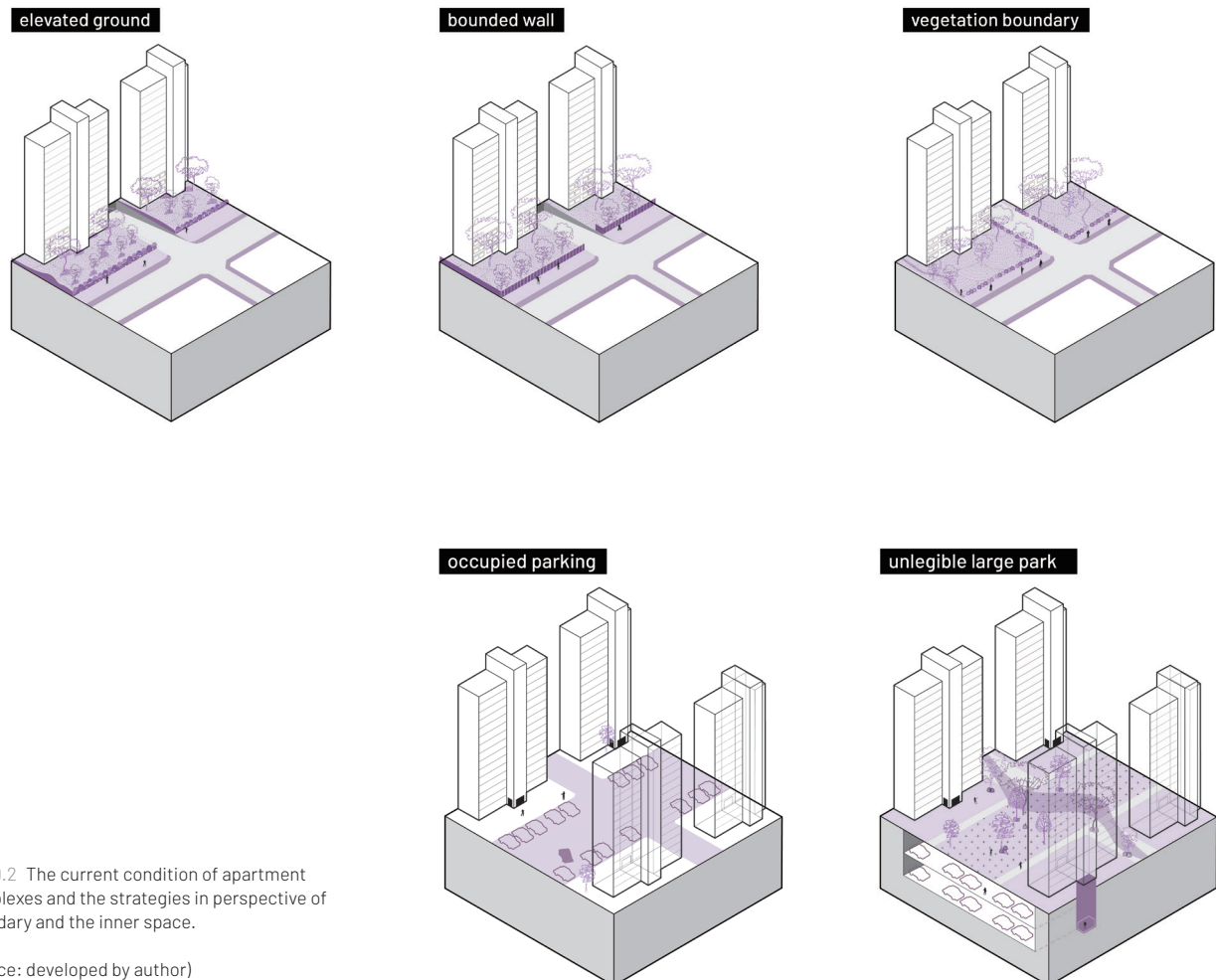
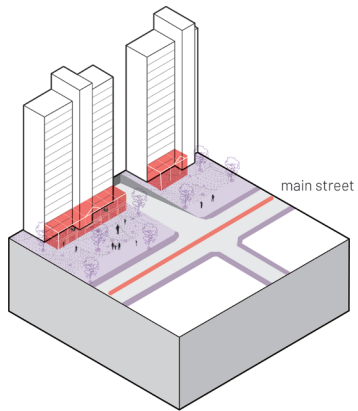


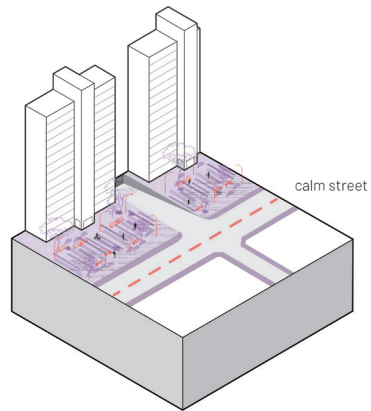
FIG. 9.2 The current condition of apartment complexes and the strategies in perspective of boundary and the inner space.

(source: developed by author)

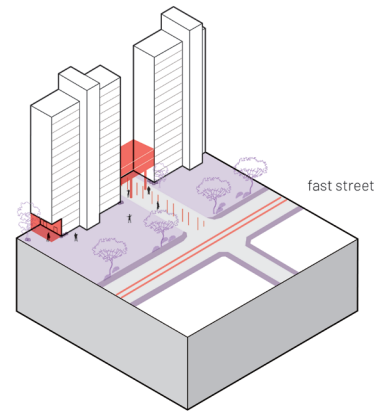
active groundfloor



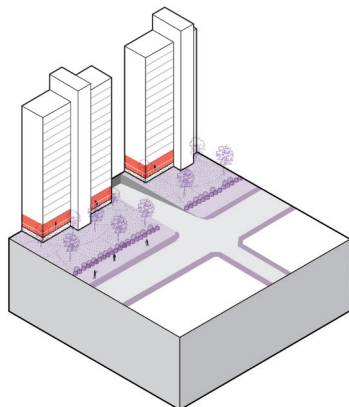
street furniture



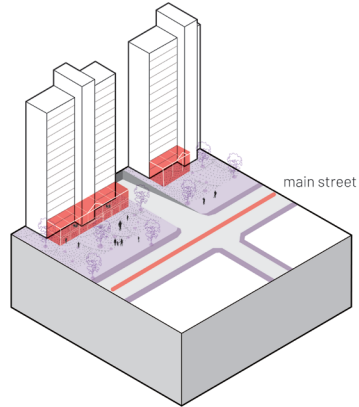
porous network



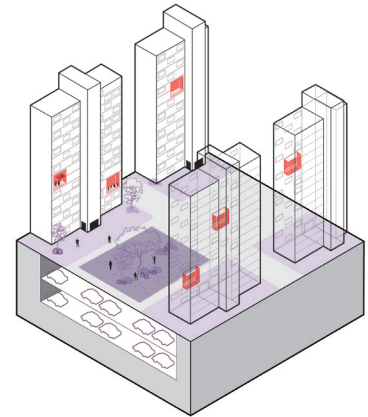
natural privacy



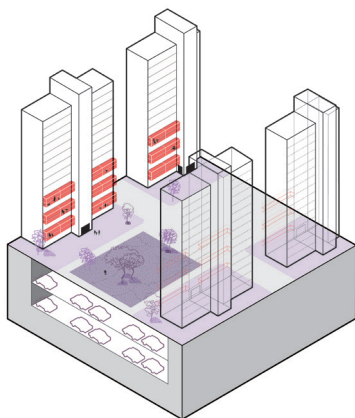
street-oriented strip



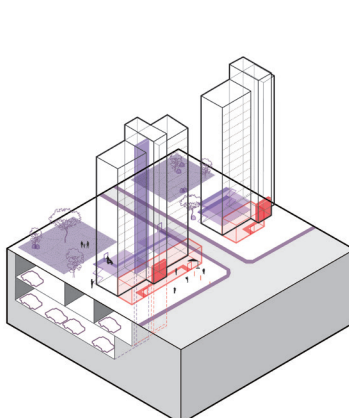
void facade



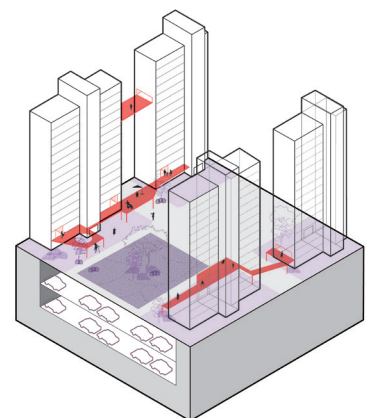
terrace gardens



separate entrance



connected deck



9.1.3 – The finalized patterns as language

TERRITORIAL DEPTH RELATED PATTERNS





T.07 OPEN TO THE STREET OR ADJACENT SURROUNDING

FORM/NETWORK - BLOCK - CASE

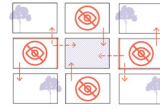


Not as perimeter block nor tower block, the open block allows the activities as well as visual connection to the inner side of the block. The variety of programs takes a place between the corridors stretching towards the shared communal space. A sensitive design approach is needed between opening the block and securing the privacy.

Relational to:
T.02 / T.08 / T.09

T.08 CONTROL PRIVACY

FORM/NETWORK - BLOCK/BUILDING - CONTEXT

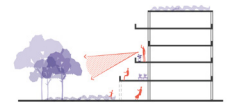


The integration strategy does not have to ensure the full openness. The thorough approaches towards in controlling the privacy give comfortability and safety to the residents living there and create more diverse urban space by ordering the depth structure.

Relational to:
T.07 / T.11 / T.14

T.09 OPEN TO THE GREEN • VIEW TOWARDS THE GREEN

FORM - BLOCK/BUILDING - CASE



The visibility to the nature or the green provides a feeling of connection to the outside as well as adequate sunlight and fresh air. This can be facilitated with the balconies and terraces using the height differences.

Relational to:
T.05 / T.07 / S.06



T.10 CREATE POSITIVE SPACE • SHARED COMMUNAL SPACE

FUNCTION - BLOCK/BUILDING - CASE

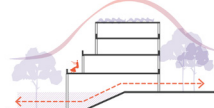


The inner spaces in the block are occupied with vehicles or distributed as green without clear intention. The intended positive spaces in needs of residents result in lingering and social interaction in that space (Gehl, 2011).

Relational to:
T.06 / S.04

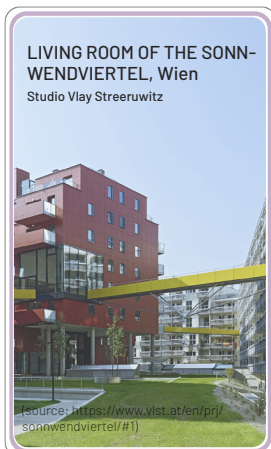
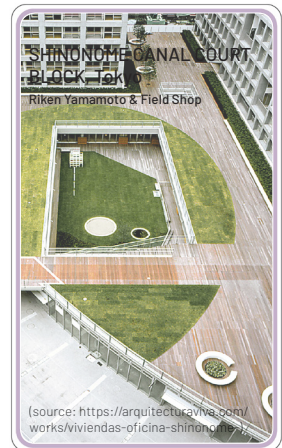
T.11 RESPONSE TO ELEVATION CHANGE • LEVEL DIFFERENCE

FORM - BLOCK/BUILDING - CONTEXT



The level differences give varieties in space and different sequence of experiences, yet control the accessibility by distinguishing the realms. The natural topography itself is a great opportunity to draw the nature into the block with adaptation.

Relational to:
S.1 / R.1.



T.12 TEMPORARY • FLEXIBLE USE

FUNCTION - BUILDING - CASE/CONTEXT



The temporary and flexible use is one of tactics that is applied for short-term strategy in local context. By testing what works or not through the pilot projects, the users are able to diversify their needs and obtain their own management skills and organization. It gives a capacity to respond the sudden external changes.

Relational to:
T.06 / T.10 / T.13 / S.08 /// S.10

T.13 STREET TO STAY • THRESHOLD STREET

FORM/FUNCTION - STREET - CASE/CONTEXT

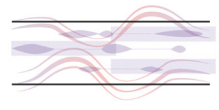


The good street design functions as place to appropriate, not as through movement. It invites citizens to linger and engage with spontaneous public life on the street. The blended boundaries between public and private spaces and adequate furnitures hybrid the realms and enrich the experiences.

Relational to:
S.10 / T.03 / T.04

T.14 LAYERING AND SOFT EDGE

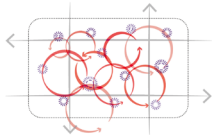
FORM/FUNCTION - INTERFACE - CASE



The overlapping method achieve the bigger impact of result without transforming many things. It considers the time and speed as rhythms, and expands the degree of experience through the senses.

Relational to:
T.06 / T.08 / S.10


S.01
POLYCENTRIC • DECENTRALIZED STRUCTURE
FUNCTION/NETWORK - REGION - POLICY



The previous planning emphasized on the centralized and infrastructural structure, which resulted in unequal distribution of goods and services. The shift from global to locality empowers the compact lifestyle that is creative and authentic, and the networked relationship enables complementary and synergistic relationship between nuclei.

Relational to:
S.02 / S.03 / S.04 / S.08


S.02
STRATEGIC ACCESS TO MULTIMODAL MOBILITY
FORM/NETWORK - REGION - POLICY



The public transport nodes have a potential as a strategic site to gain the investment from various actors due to its accessibility and potential users. A system of integrated mobilities at different scale and speed promotes the various options, therefore, contribute to sustainable transit transition.

Relational to:
S.01 / S.03 / S.04 / T.02

S.03
WALKABLE SERVICE AREA
FORM/NETWORK - NEIGHBORHOOD - POLICY

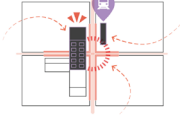


The local area services all the needs of residents within the walkable range. It focuses accessibility more than the mobility and provides the optimal route between nodes. The potential becomes greater when multi-mobility of slow networks, such as bicycle, enables the sustainable urban growth.

Relational to:
S.01 / S.02 / S.06 / T.01 / T.02 / T.03 / T.04



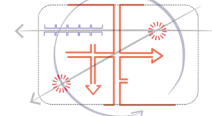
S.04
PUBLIC FACILITY AS STRONG ANCHOR POINT
FORM/FUNCTION - NEIGHBORHOOD - POLICY



The recognition point contributes to the sense of place in constituting the structure, while becoming the focal point of activities. It is accentuated through the height intensity or the important functions, and is located adjacent to the public transport nodes.

Relational to:
S.01 / S.02 / S.09


S.05
IDENTIFIABLE NEIGHBOURHOOD
FORM/NETWORK - NEIGHBORHOOD - THEORY



The identifiable space, or legible space, recognizes the key elements such as clear axes or accentuated point, as wayfinding system without visual interruptions or monotonous features (Lynch, 1960). Conceived as simplified symbols, it is essential to address the orientation and interpretation of the place.

Relational to:
S.02 / S.03 / S.07 / S.09

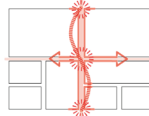
S.06
DIVERSE PLOT SIZE AND VOLUMES
FORM/FUNCTION - BLOCK - THEORY



The variety in plot sizes and building volumes increase the flexibility to adapt to the external changes and give range of possibilities to the various tenants. Especially the diversity in plot sizes can be linked to the extensive land ownership, and contribute to the processive and gradual transformation.

Relational to:
T.01 / T.06 / T.07 / T.11 / S.09 /// S.01


S.07
CONTINUITY BETWEEN THE NODES
FUNCTION/NETWORK - STREET - THEORY



The connected network between the major focal points increase the overall liveability of neighbourhood by creating walkable environments. The concentrations of mixed-use and activities along the streets ensure the series of experience and vibrant street life.

Relational to:
T.01 / T.02 / T.13 / S.04 / S.10


S.08
CLUSTERED ACTIVITIES
FUNCTION - NEIGHBOURHOOD - CONTEXT



When the groups of similar characteristic are agglomerated, it synergizes the performance and contributes to the efficient use of the space. The comparable or supportive groups can be interconnected in large scale through the shared local infrastructures and foundations.

Relational to:
S.01 / S.06 / T.06 / T.10 / T.12 /// S.03 / S.07

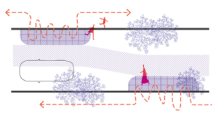
S.09
ACCENT AT CORNER POINT
FORM/FUNCTION - BLOCK - CASE/CONTEXT



The corner point is an important location where the multiple flows of people intersect. Especially, the corner at ground floor is traded with the highest price in property. The corner point is emphasized by non-residential functions, density or specialized design. This not only increases the legibility but also give identity to the place.

Relational to:
S.02 / S.04 / S.05 / T.06

S.10
STREET CALMING • WOONERF
FORM/NETWORK - STREET - CASE/CONTEXT



The concept of living street by sharing the street with multiple modes balances the busy and quite, and fast and slow movements. It prioritizes the pedestrians without neglecting the motorized traffic. The changes in visual element help drivers to perceive the uncomfortable such as pavements, kerbs, plants or more.

Relational to:
T.12 / T.13 / T.14

I.01

PARTNERSHIP BETWEEN THE PUBLIC AND PRIVATE SECTOR

FORM/FUNCTION - REGION - POLICY



The cooperative relationship between the public and the private sector enhance the quality of living environment through the cohesive vision and coordinations.

Relational to:

I.02

INTERMEDIATE (PUBLIC) ARCHITECTURE • DESIGNER

FORM/FUNCTION - BLOCK/BUILDING - THEORY



The intermediate public designer involves the whole process of designing the block to fill the gap in policies and zoning plan and coordinates the conflicting interests between the private, public, and civic sectors.

Relational to:

I.03

DIVERSE TENURE MODELS

FORM/FUNCTION - STREET - CASE/CONTEXT



The provision of range of property tenure models from ownership to rental give capacity towards the inclusive society between different socio-economic backgrounds of people. Yet, this is limited in current private real-estate market, which aims to make the profit. Therefore, the proper financial tools or the incentives are required to build the sustain relationship between the public and private.

Relational to:

I.04

SPECIAL STRATEGIC DISTRICT

FORM/NETWORK - STREET - CASE/CONTEXT



The special strategic district provides grounds for experimentation that couldn't be possible in traditional land use type. It could be used as quick wins to test out the effectiveness of design approach.

Relational to:

I.05

SHARED OWNERSHIP

FUNCTION - STREET - CONTEXT



The shared ownership apart from the individual property creates a stewardship and an atmosphere of engagement. It empowers the involving actors: residents, business and local government as co-creator and modifiers of place.

Relational to:

I.06

PLACED-BASED FINANCIAL LEVERS

FORM/NETWORK - NEIGHBOUHOOD- THEORY



The proper incentives on the strategic projects can be led to long-term strategy that make a successive value creation not only for the users but also for the whole locality.

Relational to:

9.2 – Design strategies and principles

9.2.1 – The mutual relationship between patterns

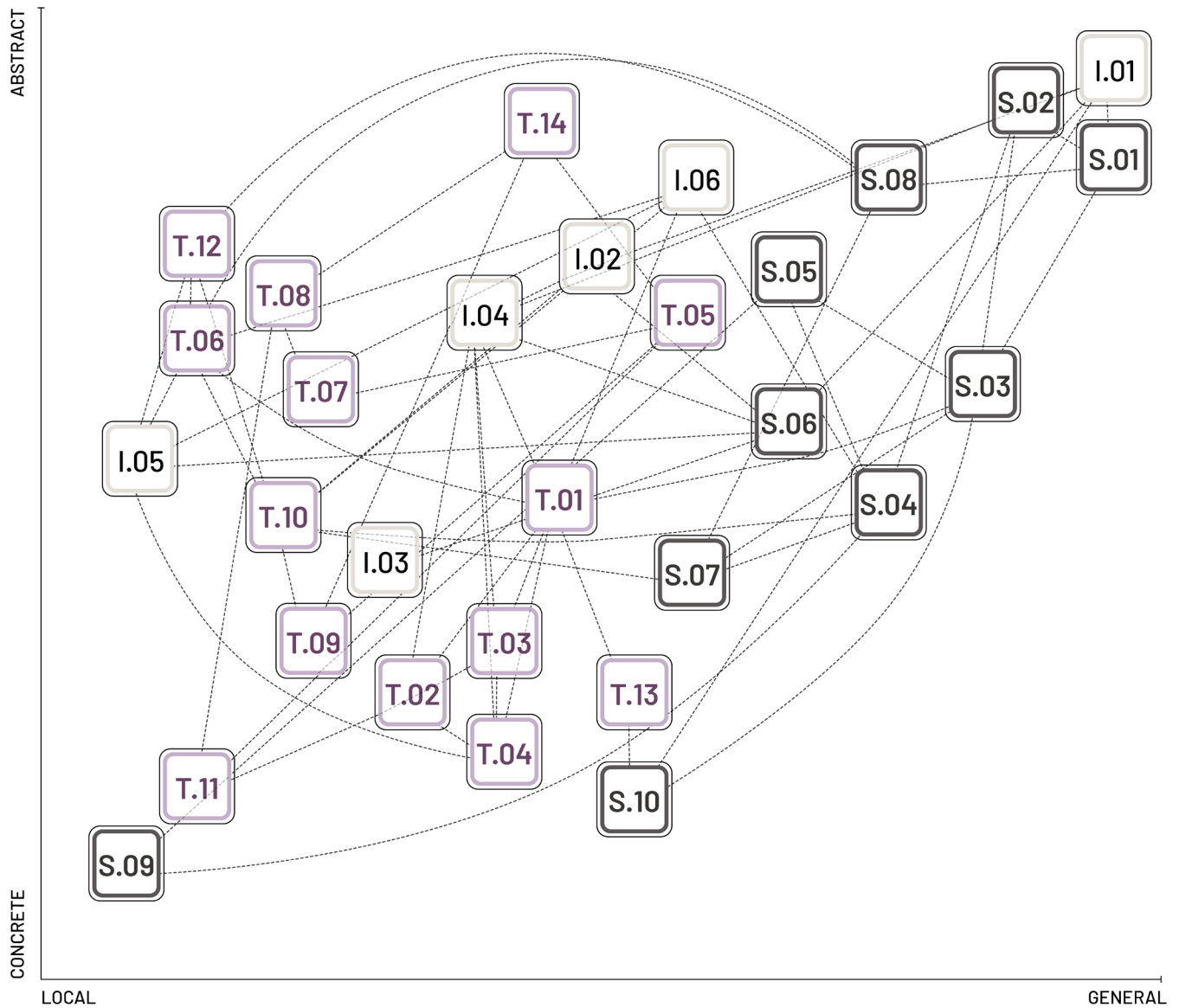


FIG. 9.4 The mutual interrelationship of the patterns - scale of application. Some of the primary patterns are visible.

(source: developed by author)

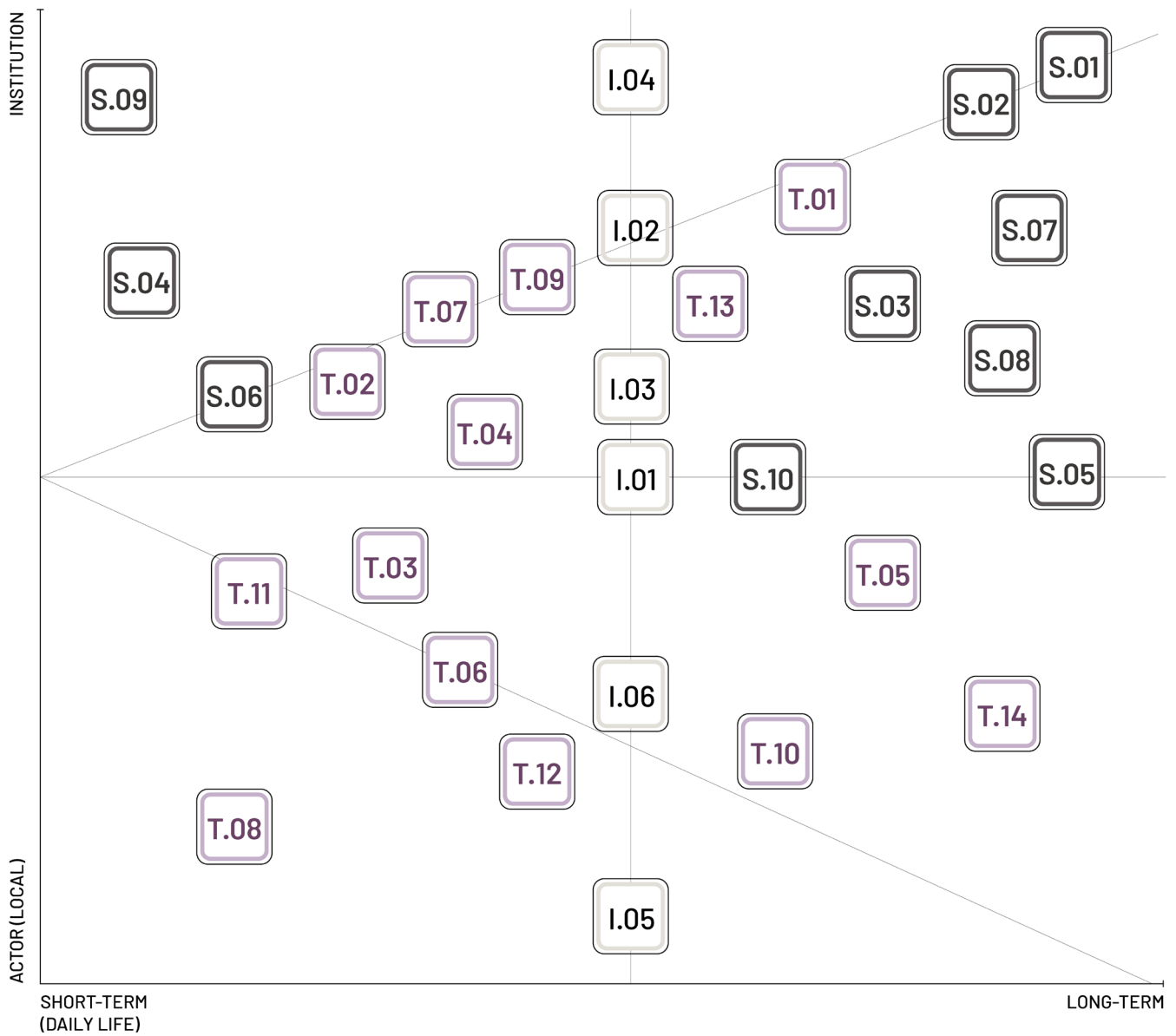


FIG. 9.5 The mutual interrelationship of the patterns - user and the activity.

(source: developed by author)

9.2.2 – The density clusters and the primary patterns

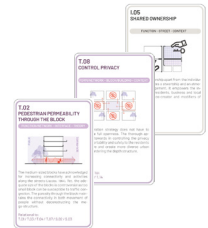
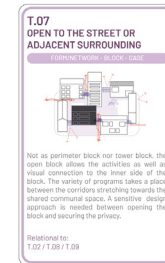
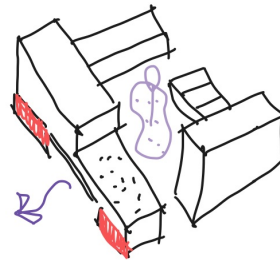
The current practice in constructing the apartment complexes merely plugs the individual building without mutual relation nor the consideration of the context since the edge of the boundary distinguish the inside and outside. Instead of the individual towers, I want to make a proposal of density cluster that can be adaptable to the various contexts, such as road hierarchy or the natural geographical condition. When the similar operational densities are clustered together and perform along the boundaries, they will create own identifiable characteristics by interacting with the surroundings. The following image is the example of possible density clusters.

① Courtyard type (clustered)

: all size / family

~ 35th. / 350%.

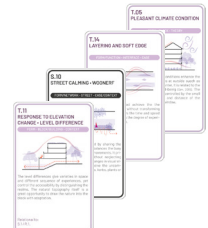
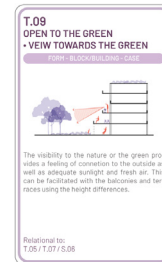
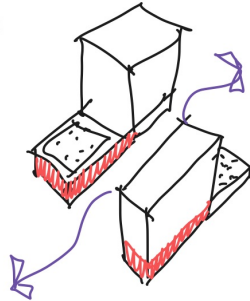
- arcade.
- mixed-type



② open to nature (to mountain or the river)

: small / medium / family

5th ~ 12th / 150%.



③ Street friendly type.

: small / medium / w2 family

mixed-use

3 ~ 8th / 250%.

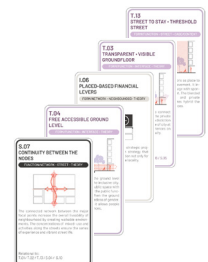
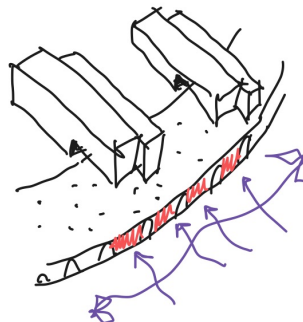


FIG. 9.6 The different typologies of the interfaces and the possible linkable patterns as primary source.

(source: developed by author)

At the same time, the project aims to restructure the urban space not only the block scale but also the neighbourhood scale. The approach starts from the acknowledging the limitation of current practices, which are based on the centrality, administrative boundary, and the area-based zoning system. These practices lack the urban dynamism by distributing the benefits partially and lock the function separately. Therefore, the proposal de-infrastructures into local system and connects the important nodes. The area-based approach transformed into street-based or networked system. The functions do not confine into the zoning, rather operate simultaneously with interconnectivity and flexibility.

L - RESTRUCTURING THE NEIGHBOURHOOD

M - DENSITY AND DEPTH

S - DIVERSITY AND SYNERGY

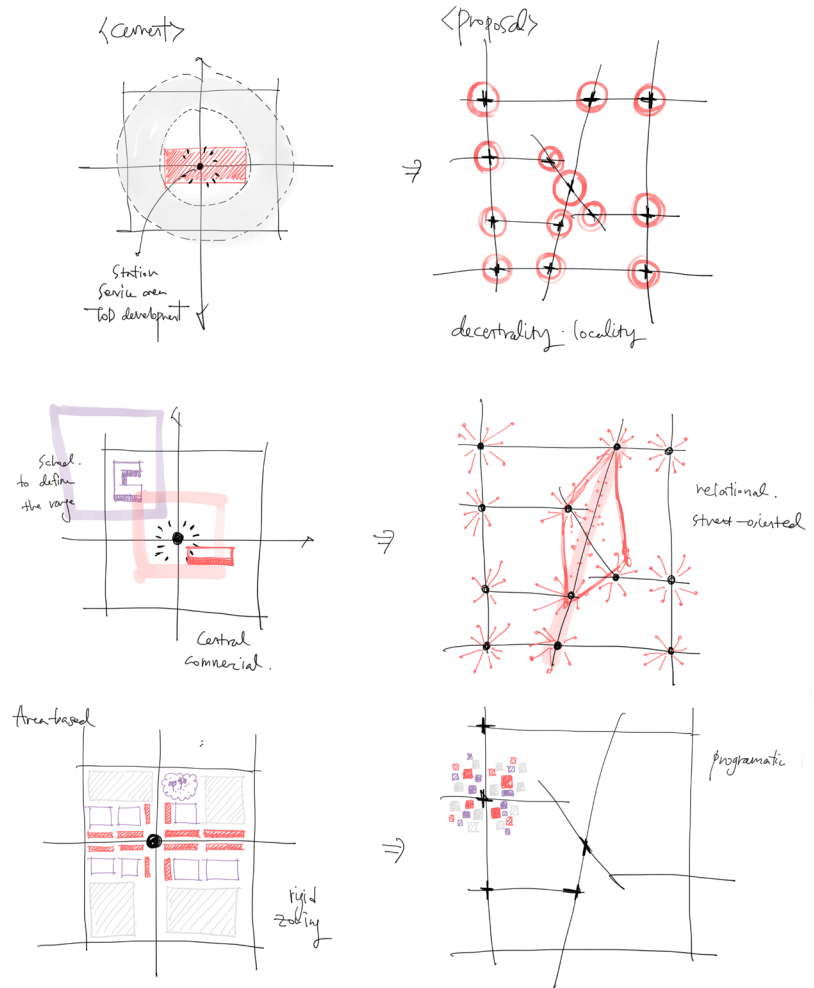


FIG. 9.7 The strategies in searching the alternative to the limitation of current planning system in Seoul.

(source: developed by author)



CBD

CASE #1
private
property

cluster
CASE #2
public
property

10 – Design Possibilities between Two Conditions

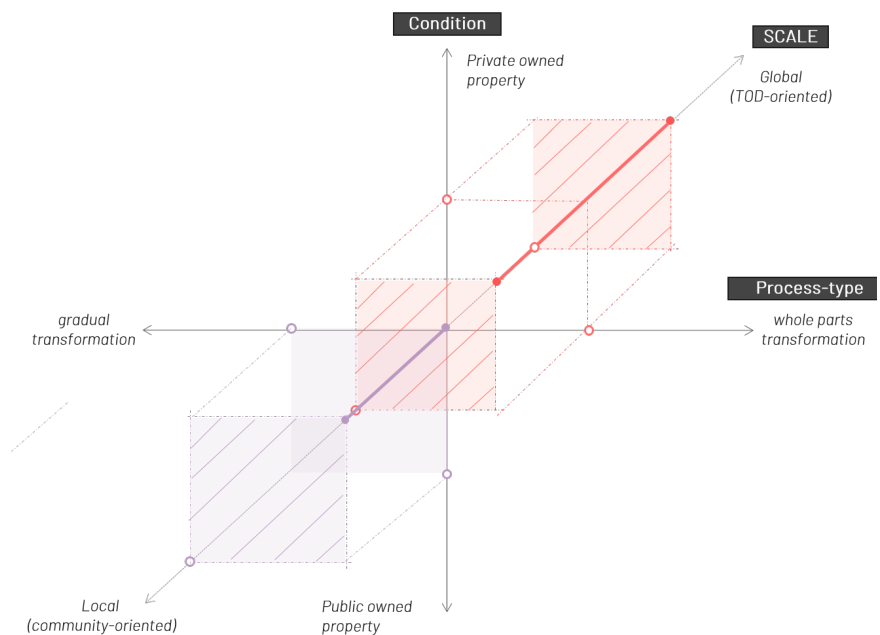
Explore the Range between Private and Public Properties

FIG. 10.1 The location of the two design sites [previous page].

(source: aerial image from kakao map; developed by author)

FIG. 10.2 The design exploration on different conditions to range the possible alternatives.

(source: developed by author)



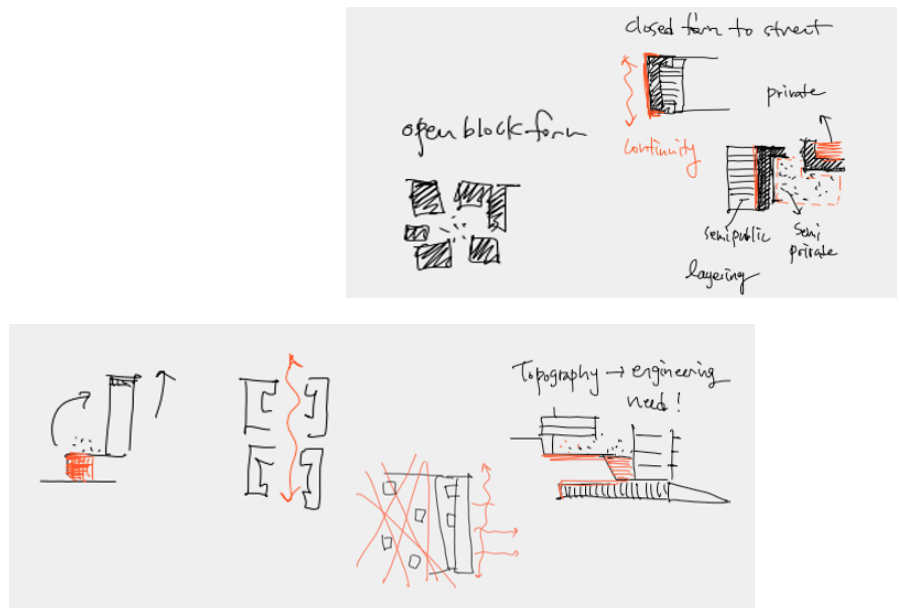
10.1 – The initial design exploration in scenario construction

Although this part is the preliminary research in going in-depth of research-by-design with specific place-making strategies, here it lists the possible generic guidelines that can be applied to the different context. Here, the scenario does not illustrate a generic and static condition, but a scenario referring to a process and gradual sequence of each steps towards preferable future. The clarification of some specific and small-scale interventions can be supplemented to the principle guidelines.

The physical composition of the city decides the different assemblage of density, relationships between land uses. In turn, it influences the movement of different social groups – wealthy and poor, children and elderly, disabled people, and etc. within related urban settings. The following cases are illustrated in next page.

- What if we enrich the urban depth to facilitate centrality and activities?
- What if we enrich the urban depth to mix the various social groups?
- What if we enrich the urban depth to support and improve the quality of overall neighbourhoods?

As a next step, the first case elaborates into various conditions to control the degree of depth structures – diffused territory between the private and public versus discrete territory between private and public. Also, different options of incentive are investigated to support the transformation led by the private sector.



1) The central activity block

The first case is the apartment complex blocks which are adjacent to the subway station and main streets where the commercial functions are aligned. In order to maintain the continuity of activity along the street, the traditional large-plot blocks are divided into small and medium-scale blocks, allowing the flows and movement between the activity spots. The new apartment complex blocks cover the original density of population, but they break the form of traditional single urban volume and give varieties in height and forms by distributing over a number of buildings. For example, the buildings facing the main streets will be the low and medium-rise volume with neighbourhood services on ground floors, giving human-scale feeling to the pedestrians, while the high-rise towers of apartment buildings are located inside of the blocks. The new economic functions cultivated in relation to newly developing medical cluster district will clear the image of commuter town (bed town) with the co-existence of living and working environment.

This type of blocks is not only utilized by the residents, but also allow the inflow of local people and the visitors from outside. Therefore, the multi-layering from private to public space is elaborated by the spatial structure of buildings to control the movement of people and to ensure the inside of blocks to be quite space for the residents.



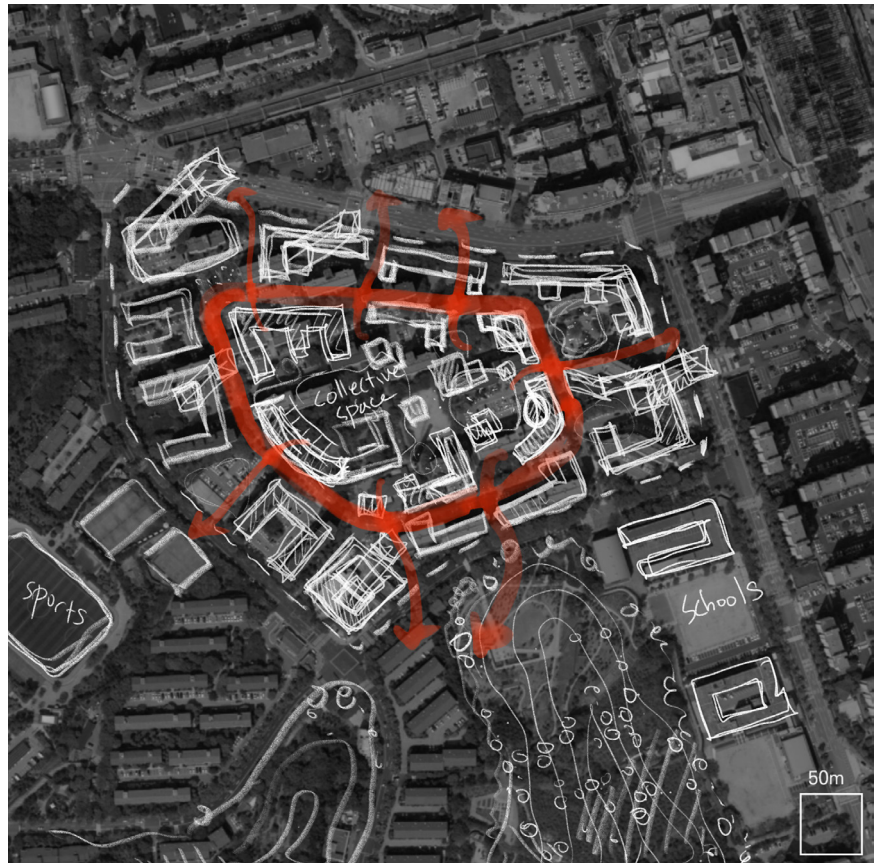
The design exploration on the central activity blocks.

(source: aerial image from Kakao map; developed by author)

2) The community blocks for new relationship between people

The second case targets the social mix among various groups of people such as newly married couple or the family with young children. It is located near the school zones. Due to the different basic needs in everyday life, the block structures control the spontaneous meeting and contacting with precise manner. The collective outdoor spaces act as the key operational mechanism to organize and promote dense urban activity, thereby producing a socially vibrant community. It is accessible through the open shared streets which are onto the interiors of block. Yet, this inter-network of semi-public space allows the visual profit that comes from the private gardens, while ensuring the series of linkage as well-defined spaces. Structured around this network, the added vistas from the ground plane as well as from buildings such as balcony terraces allow for very different experiences to take advantage of generous views.

The block can be designed by multiple actors. Under a common vision, different architects can participate in creating various units of housings. These units can adapt to the lifecycle of people, merging and dividing. The empty units can modify with residents' life-style with consensus such as children's playground, laundry space, library or etc. Some parts of units give freedom of self-build to the residents with supportive housing policies and subsidies.



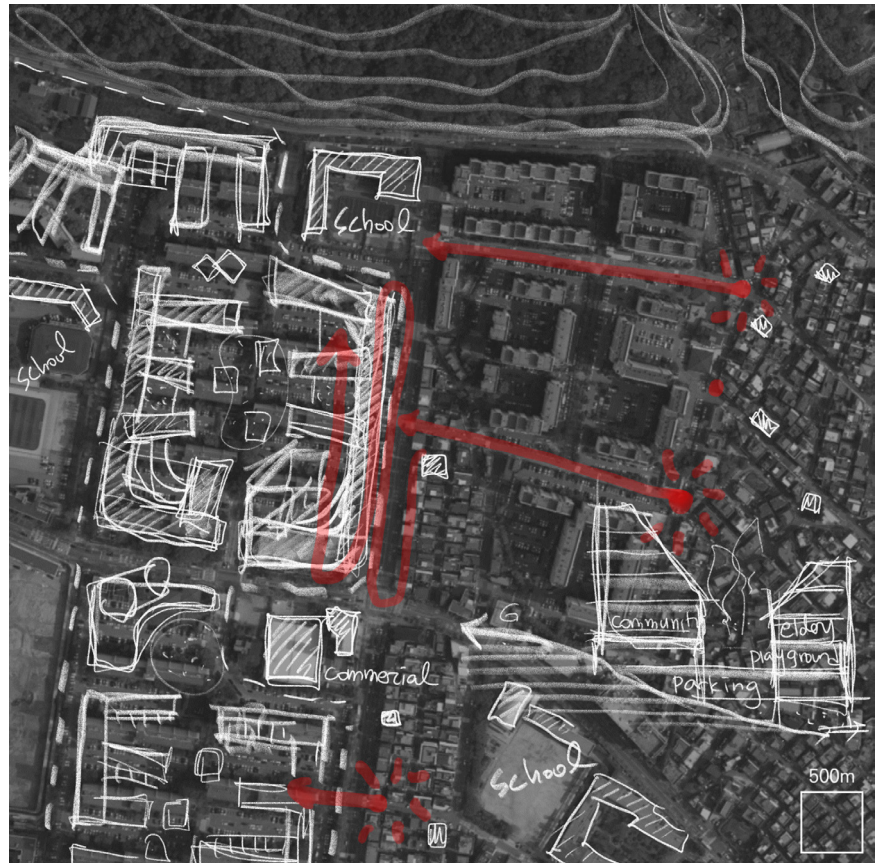
The design exploration on community blocks for possible social group mixing.

(source: aerial image from Kakao map; developed by author)

3) The synergetic and symbiosis block

This block has characteristic that it is located at the edge of the mountain area as well as single-detached housing district, which is deteriorated and lacks of basic urban services such as parking lot. In addition, some areas are located on the sloped terrain. To handle not only the functional and technical demands of accessibility or lighting, but also eco-friendly and energy-saving living environment, the contour of terrain and the folding movements are created along the edge of the block to make connection with the single-detached housing district and to provide the necessity services and functions. The sloped layer can be utilized in various ways such as urban farming, parking area, coop market, green park, and elderly community center. It also offers varieties of experience with different spatial connections which ensure the movement of elderly and walking-impaired as well as local people. All in all, it provides not only acclimatization; it also gives a recreational value to the space.

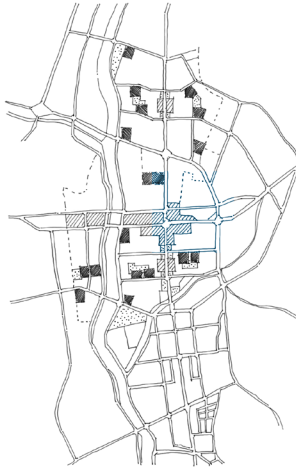
In consideration of landscape and skyline, the block volume takes form of low-rise building, yet horizontally stretching. The regional artists from near base camp take a main role in cooperating and participating in this block through the initiative projects and program that bridge the local residents.



The design exploration on synergetic blocks in their complementary role with adjacent blocks.

(source: aerial image from Kakao map; developed by author)

10.2 – The central activity blocks :private property



- PRIVATE PROPERTY
- RECONSTRUCTION PROJECT
- **APT: 99%**
- POP DENSITY: 257 /HA
- % SINGLE-PERSON HH: 27%
- % OF TWO-PERSON HH: 28%
- % OF BIG FAMILY: 45%
- % CHILDREN: 12%
- % OF WORKING: 74%
- % OF ELDERLY: 14%
- % of low income: 1.7%

10.2.1 – Location and context

The first case of private property targets the area where the preliminary design exploration was undertaken in Chapter 9. Named Sanggye Jugong 4th complex and 6th complex, these two complexes are the ones that have high possibilities for the approval of reconstruction project. The complexes are well-connected with the infrastructure networks – the two subway lines are intersecting at the northern side, which indicates the good accessibility for commuting. At the same time, the newly proposed project by the government to transform the formal metro depot into the high-tech and creative business district centre to promote the work environment in the region will facilitate the overall development in this region. Moreover, the few existing low height apartment complexes, five floors, gain interests as an exemplified reconstruction project where the public sector guideline the proper quality of design implementation such as connected pedestrian network is undergoing.

It is expected that these projects will trigger the same interests to the adjacent areas since the large-scaled projects are manageable to execute. Due to its underlying nature as private property, the whole apartment complexes will be demolished and new branding apartment complexes are highly expected. Moreover, in order to reach the maximum profitable gain, the maximum FSI, or the 35 floors will be executed. As overviewed from the previous chapter, the Nowon district is one of the homogenous living environment full of apartment complexes shaped during 1980s. In other words, the buildings tend to have a same alignment and the height. If this region is transformed with the same practice of constructing the new apartment complexes as tower-looking buildings, which is higher than before, the future image of Nowon would be disastrous.

In acknowledging the same challenges, the project on fifth Jugong apartment complex sets several guidelines to ensure the quality in urban life which are: 1) small block design; 2) open and shared local street; 3) mixture of courtyard block and towers; and finally flexible unit plan. Therefore, I assume the same quality of urban life will be carried out in 4th and 6th apartment complexes as well, since they share the blocks.

The image on the right illustrates the conceptual strategy on the target area. Instead of identical point towers, it sections the block into several clusters. Within the cluster, the structure of building will be elaborated with the depth structure strategies. In addition, the strategy escapes from the neighbourhood unit concept where the functions and activities are confined to the zoning or inner parts of block. Instead, it brings the street-oriented perspective as a base line and links the important nodes such as transit node or the neighbourhood functions. These new operational networks across the block as integrated manner will be activated through the design application.



FIG. 10.3 The conceptual strategy in opening the block by linking the major nodes and clustering with the performance.

(source: developed by author)

10.2.2 – Design application

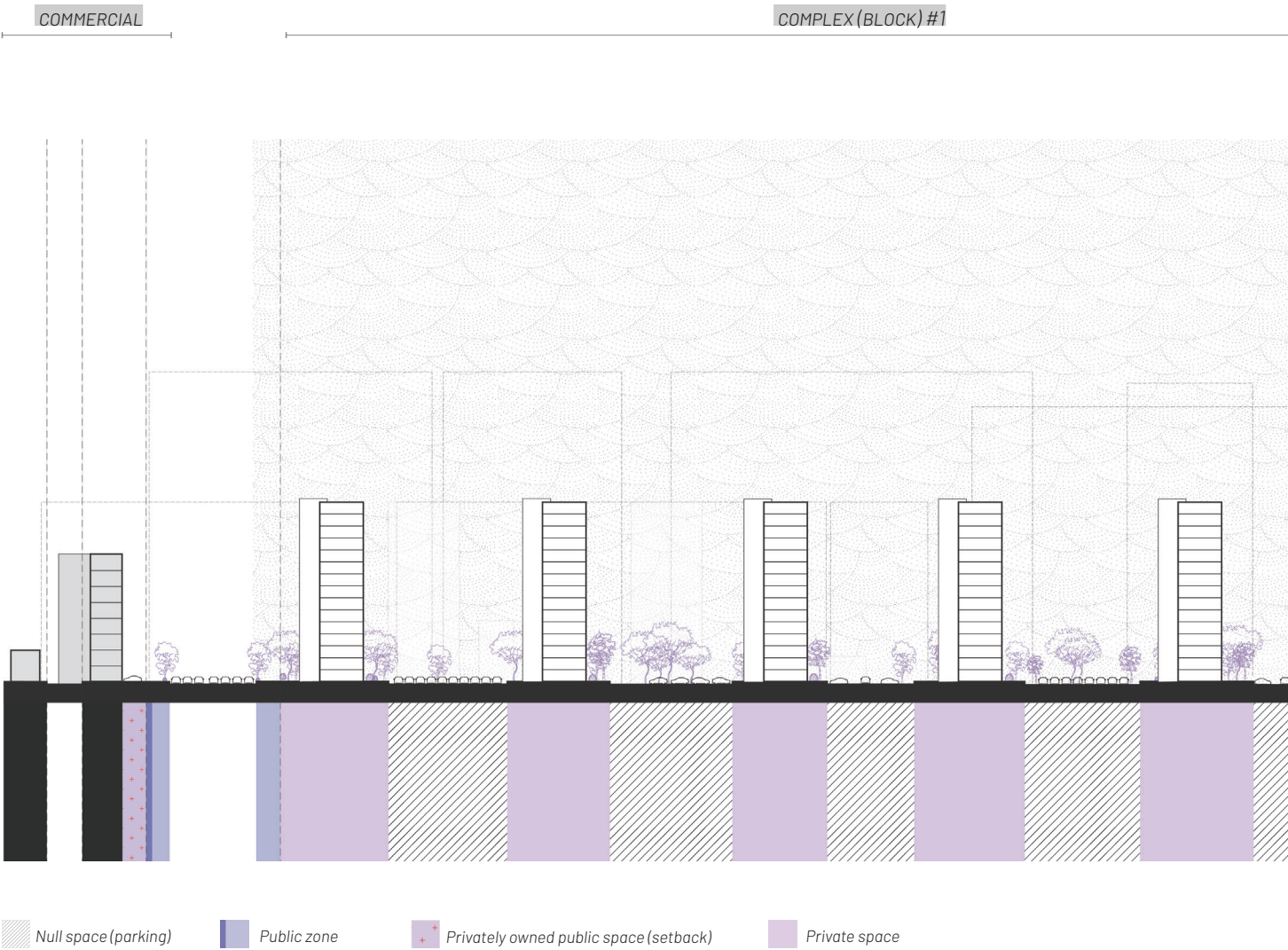
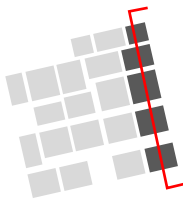
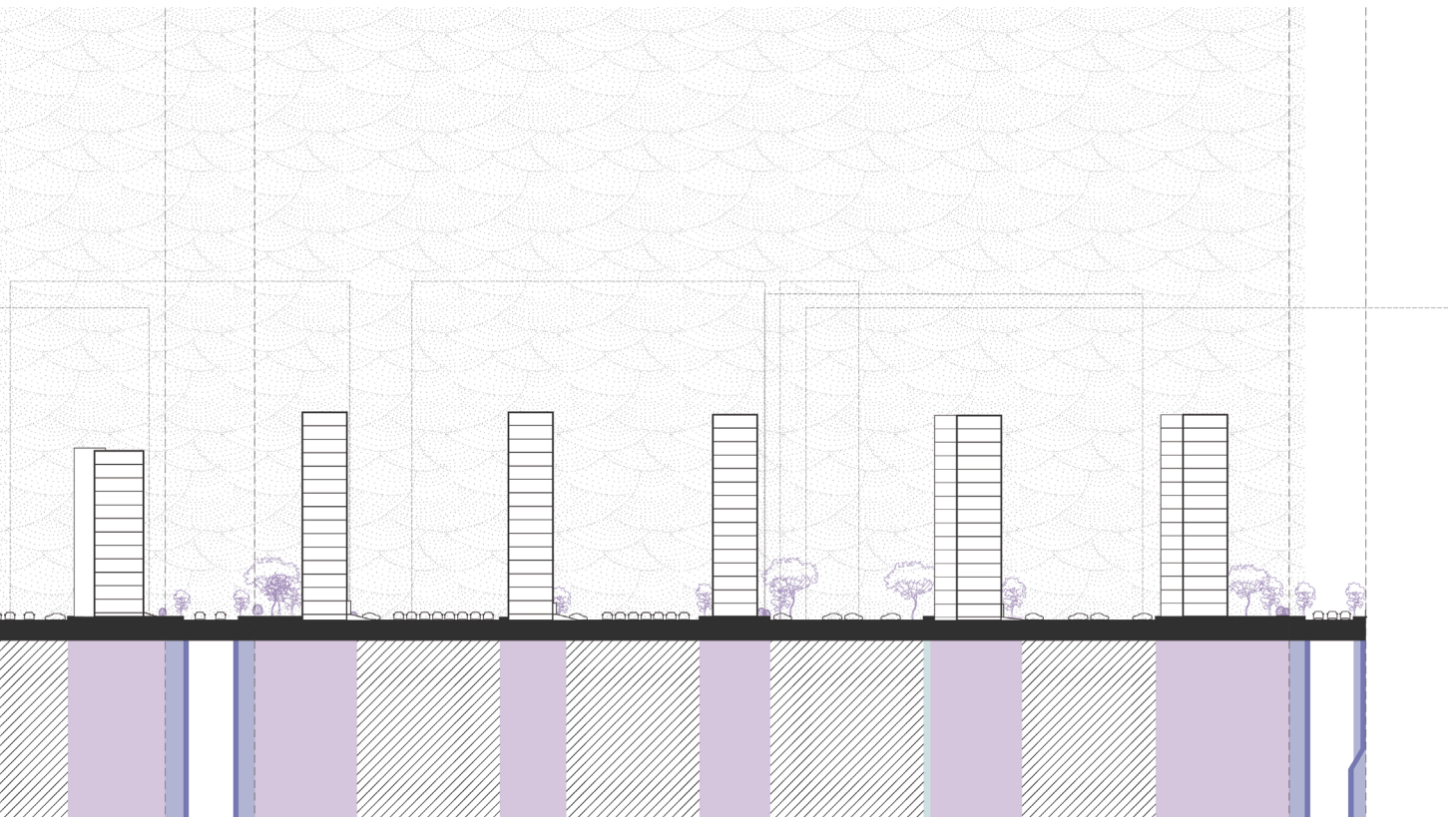
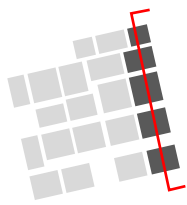


FIG. 10.4 The before section of the apartment complexes in private property.

(source: developed by author)

COMPLEX (BLOCK) #2

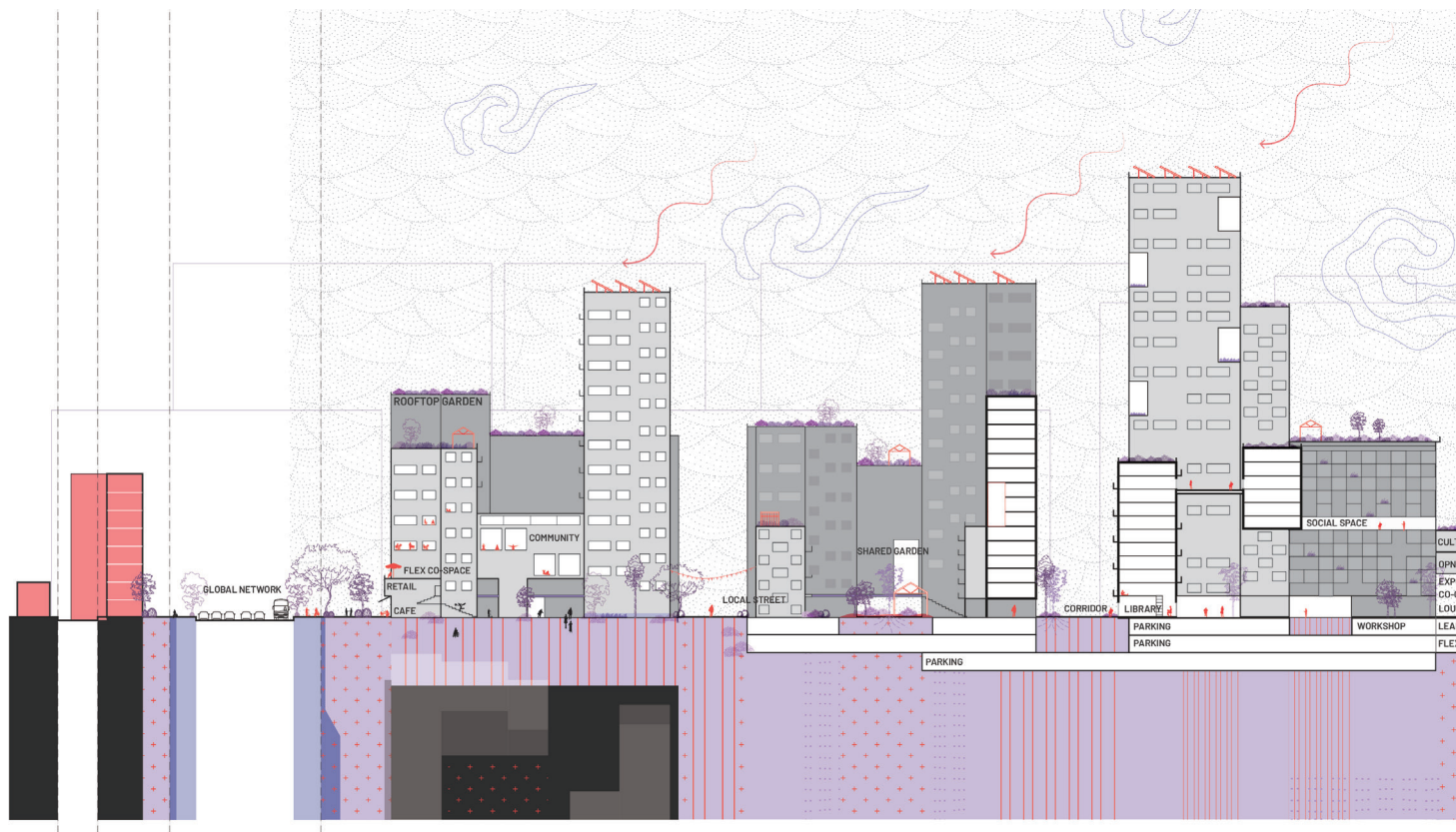




GLOBAL NETWORK INTERFACE

COMMERCIAL

COMPLEX (BLOCK) #1



Controlled public zone for people
 Public zone
 Privately owned public network
 Privately owned public space (setback)
 Transitional space (horizontal)

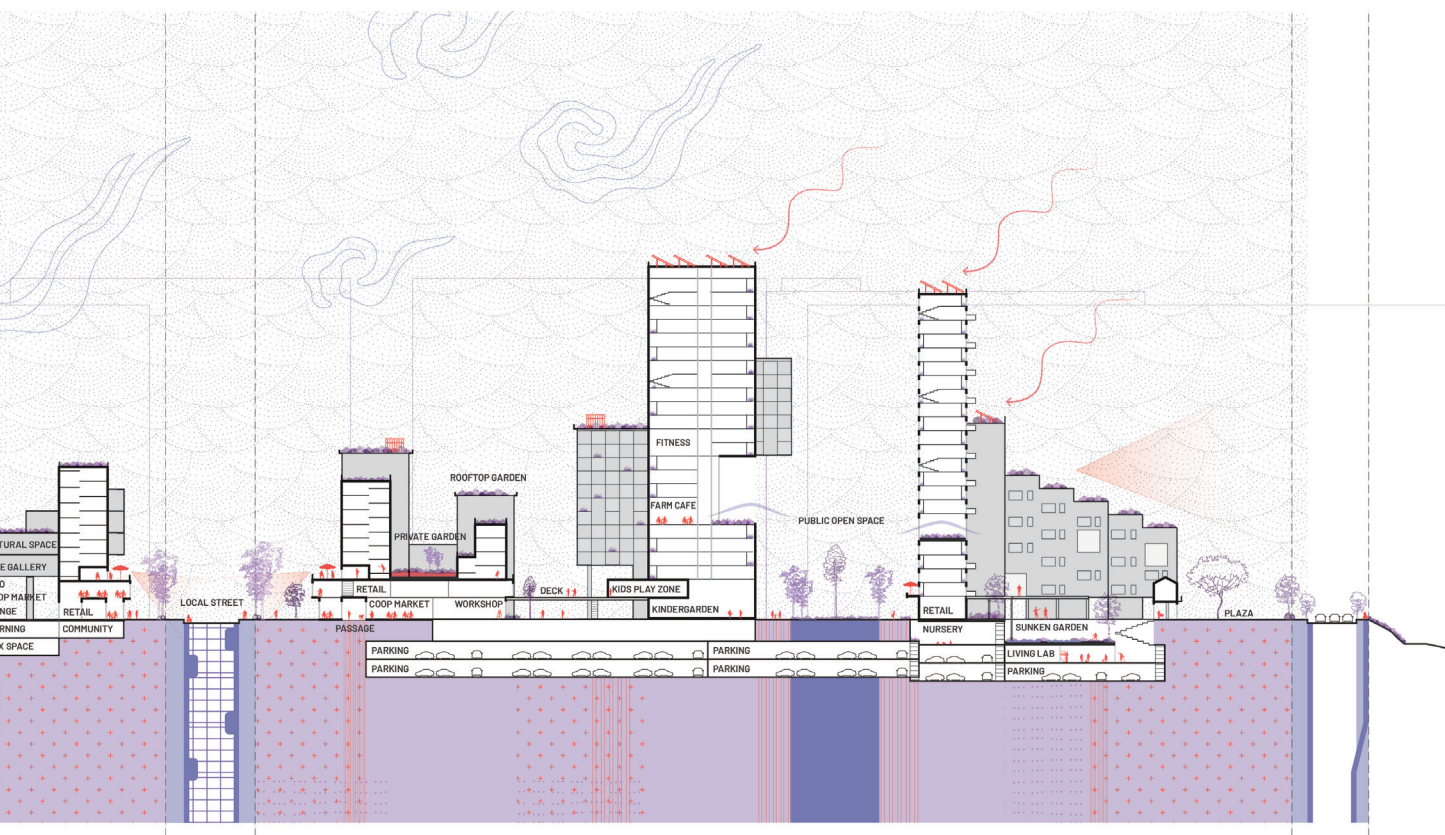
FIG. 10.5 The proposal section of the apartment complexes in private property.

(source: developed by author)

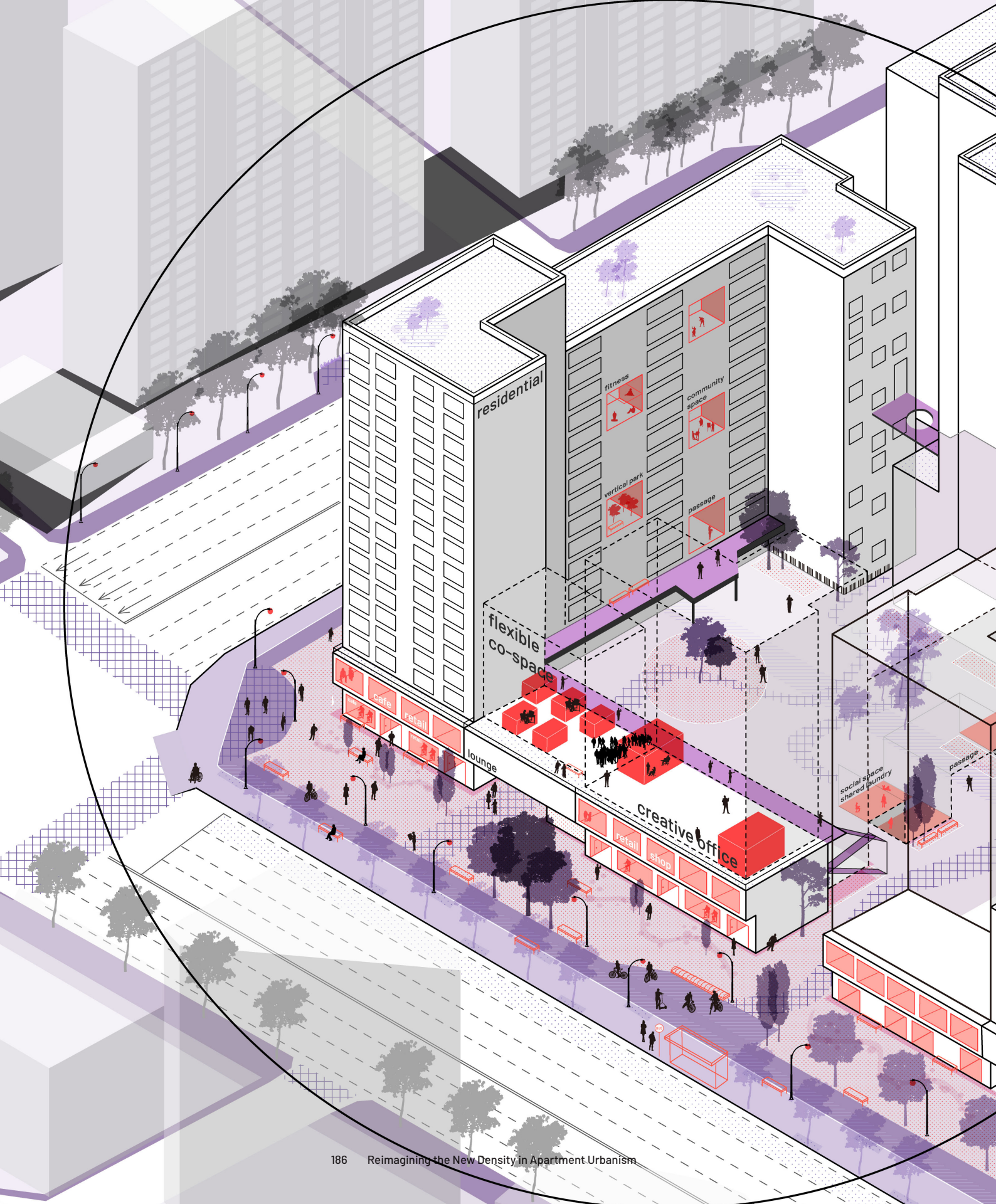
LOCAL STREET INTERFACE

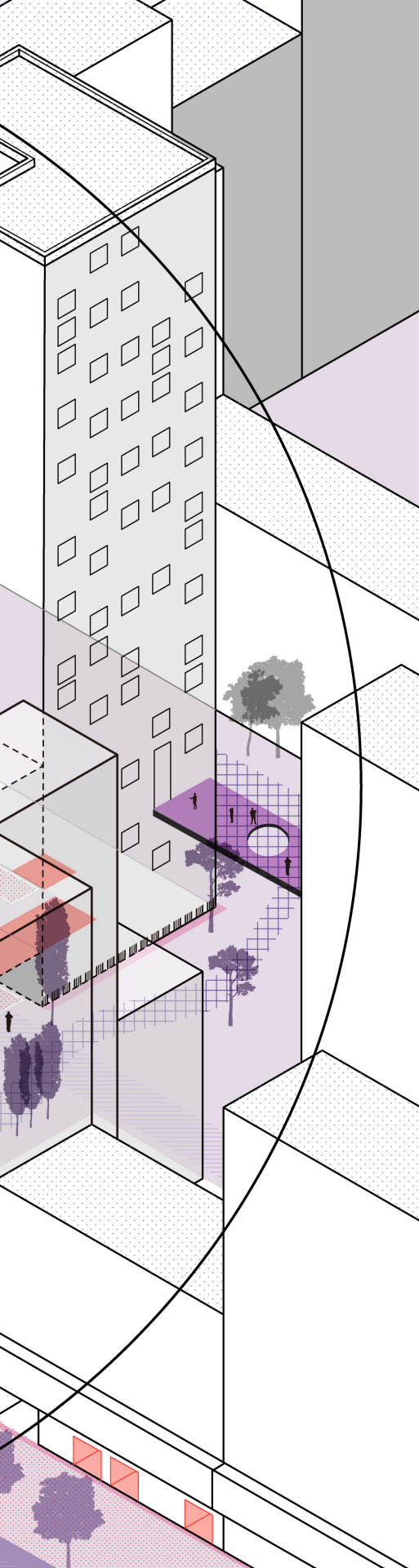
COMPLEX (BLOCK) #2

STREAM



ntal / vertical) Private zone





Central Activity Blocks - Zone 1: The global network interface

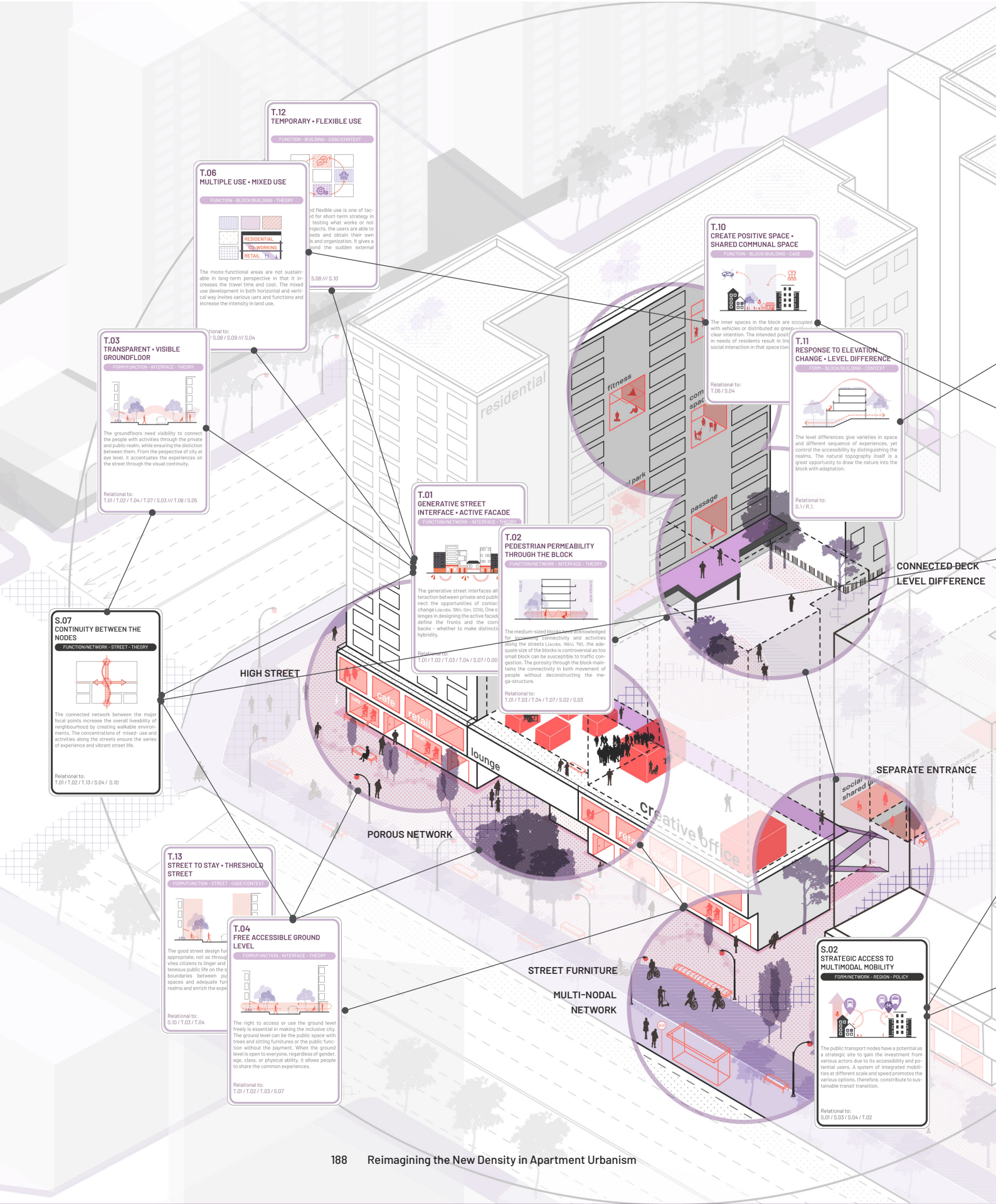
This interface is located on the north side of the blocks where the global network is passing – eight lanes of road and the well-connected bus networks. Adjacent to the subway stations, this interface has a potential of development towards live-work proximity environment. These characteristics bring plausible hypothesis that this interface will be designed for people from outside as visitors or young working people. Therefore, the measures to distinguish the public accessible realm and privately secured realm for the residents are considered. In supporting the facing commercial districts and wide road, the widened pedestrian street is proposed with the bicycle network. The ground floor is activated with the retail functions while allowing people to visit the inner block with the porous network.

If the new CBD performs well, there is also possibility that the young working group can migrate to this region who are concentrated in historic centre and Gangnam district. Usually structured as single-person households, they prefer the live-work proximity and the sharing economy. In the line of this trend, the diverse depth structure contains the public or semi-public spaces such sharing kitchen or laundry room.



FIG. 10.6 The isometry of global network interface.

(source: developed by author)



T.12 TEMPORARY • FLEXIBLE USE

FUNCTION • BLOCK/BUILDING • CASE/CONTEXT



Flexible use is one of the tactics for short-term strategy in testing what works or not. The users are able to adapt and obtain their own needs and organization. It gives a space the sudden external

S.08 // S.10

T.06 MULTIPLE USE • MIXED USE

FUNCTION • BLOCK/BUILDING • THEORY



The mono-functional areas are not sustainable in long-term perspective in that it increases the travel time and cost. The mixed use development in both horizontal and vertical way invites various users and functions and increases the intensity in land use.

Relational to:
T.01 // T.02 // T.04 // T.07 // S.03 // S.04

T.03 TRANSPARENT • VISIBLE GROUND FLOOR

FORM/FUNCTION • INTERFACE • THEORY



The ground floors need visibility to connect the people with activities through the private and public realm, while ensuring the distinction between them. From the perspective of city at eye level, it accentuates the experiences on the street through the visual continuity.

Relational to:
T.01 // T.02 // T.04 // T.07 // S.03 // S.05

S.07 CONTINUITY BETWEEN THE NODES

FUNCTION/NETWORK • STREET • THEORY



The connected network between the major focal points increases the overall livability of neighbourhood by creating walkable environments. The concentrations of mixed-use and activities along the streets ensure the series of experience and vibrant street life.

Relational to:
T.01 // T.02 // T.13 // S.04 // S.10

T.01 GENERATIVE STREET INTERFACE • ACTIVE FACADE

FUNCTION/FORM • INTERFACE • THEORY

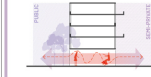


The generative street interfaces all interaction between private and public realm. The opportunities of contact change. Lanes, 18th-20th. One or two changes in designing the active facade define the fronts and the corners - whether to make distinct hybridity.

Relational to:
T.01 // T.02 // T.03 // T.04 // S.07 // S.10

T.02 PEDESTRIAN PERMEABILITY THROUGH THE BLOCK

FUNCTION/NETWORK • INTERFACE • THEORY



The medium-sized blocks have a responsibility for increasing connectivity and activities along the streets (Lanes, 18th). Yet, the adequate size of the blocks is controversial as too small block can be susceptible to traffic congestion. The permeability through the block maintains the connectivity in both movement of people without deconstructing the mega-structure.

Relational to:
T.01 // T.03 // T.04 // T.07 // S.02 // S.03

T.10 CREATE POSITIVE SPACE • SHARED COMMUNAL SPACE

FUNCTION • BLOCK/BUILDING • CASE

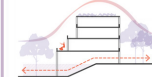


The inner spaces in the block are occupied with vehicles or distributed as green spaces. The intended positive space in the block results in a social interaction in that space.

Relational to:
T.06 // S.04

T.11 RESPONSE TO ELEVATION CHANGE • LEVEL DIFFERENCE

FORM • BLOCK/BUILDING • CONTEXT



The level differences give varieties in space and different sequence of experiences, yet control the accessibility by distinguishing the realms. The natural topography itself is a great opportunity to draw the nature into the block with adaptation.

Relational to:
S.11 // R.1

CONNECTED-BLOCK LEVEL DIFFERENCE

SEPARATE ENTRANCE

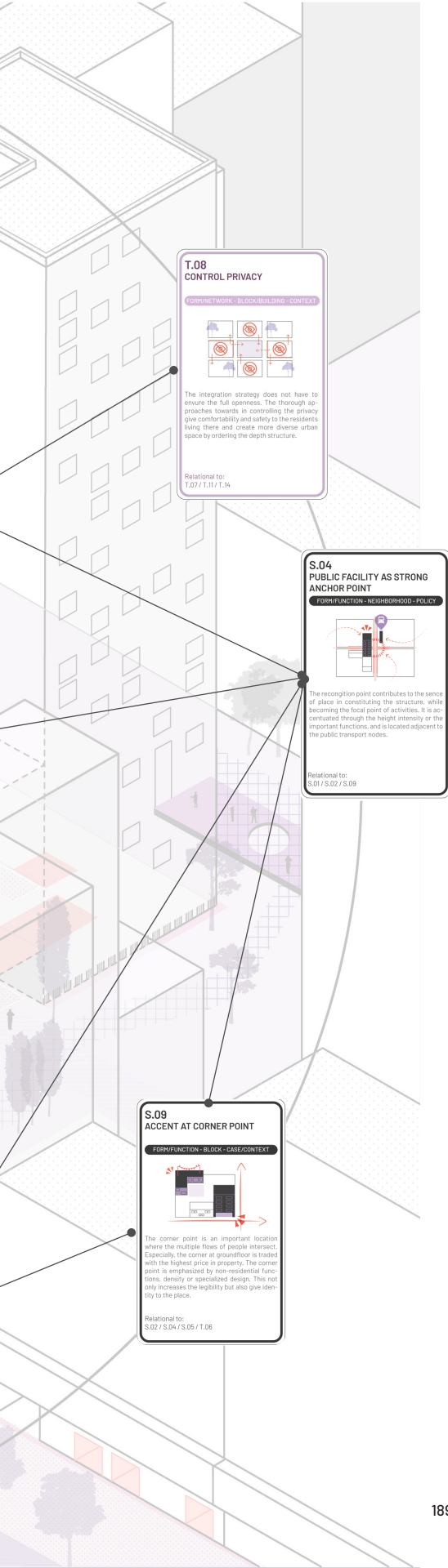
S.02 STRATEGIC ACCESS TO MULTIMODAL MOBILITY

FORM/NETWORK • REGION • POLICY



The public transport nodes have a potential as a strategic site to gain the investment from various actors due to its accessibility and potential users. A system of integrated mobility at different scale and speed promotes the various options, therefore, contribute to sustainable transit transition.

Relational to:
S.01 // S.03 // S.04 // T.02



T.08 CONTROL PRIVACY

FORM/NETWORK - BLOCK/BUILDING - CONTEXT



The integration strategy does not have to ensure the full openness. The thorough approaches towards in controlling the privacy give comfortability and safety to the residents living there and create more diverse urban space by ordering the depth structure.

Relational to:
T.07 / T.11 / T.14

S.04 PUBLIC FACILITY AS STRONG ANCHOR POINT

FORM/FUNCTION - NEIGHBOURHOOD - POLICY



The recognition point contributes to the sense of place in constituting the structure, while becoming the focal point of activities. It is accentuated through the height intensity or the important functions, and is located adjacent to the public transport nodes.

Relational to:
S.01 / S.02 / S.09

S.09 ACCENT AT CORNER POINT

FORM/FUNCTION - BLOCK - CASE/CONTEXT



The corner point is an important location where the multiple flows of people intersect. Especially, the corner at groundfloor is treated with the highest price in property. The corner point is emphasized by non-residential functions, density or specialized design. This not only increases the legibility but also give identity to the place.

Relational to:
S.02 / S.04 / S.05 / T.06

S.03 WALKABLE SERVICE AREA

FORM/NETWORK - NEIGHBOURHOOD - POLICY



The local area services all the needs of residents within the walkable range. It focuses accessibility more than the mobility and provides the optimal route between nodes. The potential becomes greater when multi-mobility of slow networks, such as bicycle, enables the sustainable urban growth.

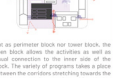
Relational to:
S.01 / S.02 / S.06 / T.01 / T.02 / T.03 / T.04

<neighbourhood>

<district>

T.07 OPEN TO THE STREET OR ADJACENT SURROUNDING

FORM/FUNCTION - BLOCK - CASE/CONTEXT



For an perimeter block near inner block, the open block allows the activities as well as visual connection to the inner side of the block. The variety of programs takes a place between the urban form structure towards the shared communal space. A sensitive design approach is needed between opening the block and securing the privacy.

Relational to:
T.01 / T.08 / T.09

S.06 DIVERSE PLOT SIZE AND VOLUMES

FORM/FUNCTION - BLOCK - CASE/CONTEXT



The variety in plot sizes and building volumes increase the flexibility to adapt to the external changes and give range of responses to the urban demands. Especially, the variety in plot sizes can be linked to the extensive land ownership, and contribute to the progressive and gradual transformation.

Relational to:
T.01 / T.04 / T.07 / T.11 / S.08 / S.01

S.08 CLUSTERED ACTIVITIES

FORM/NETWORK - BLOCK/NEIGHBOURHOOD - CONTEXT



When the groups of similar characteristics are equipped, it strengthens the performance and contributes to the efficient use of the space. The comparison in response through the shared local infrastructure and foundation.

Relational to:
S.01 / S.06 / T.06 / T.12 / T.13 / S.03 / S.07

I.01 PARTNERSHIP BETWEEN THE PUBLIC AND PRIVATE SECTOR

FORM/FUNCTION - REGION - POLICY



The cooperative relationship between the public and the private sector enhance the quality of living environment through the co-creative vision and contributions.

Relational to:

I.02 INTERMEDIATE (PUBLIC) ARCHITECTURE - DESIGNER

FORM/FUNCTION - BLOCK/NEIGHBOURHOOD - THEORY



The intermediary public designer involves the whole process of designing the block to fit the gap in policies and zoning plans and coordinate the conflicting interests between the private, public, and civic sectors.

Relational to:

I.03 DIVERSE TENURE MODELS

FORM/FUNCTION - STREET - CASE/CONTEXT



The provision of range of property tenure models from ownership to rental gives capacity towards the inclusive society between different socio-economic backgrounds of people. For this, it is limited in current private real estate market, which aims to make the profit. Therefore, the public finance tools and the incentives are required to build the sustainable community between the public and private.

Relational to:

I.04 SPECIAL STRATEGIC DISTRICT

FORM/NETWORK - STREET - CASE/CONTEXT



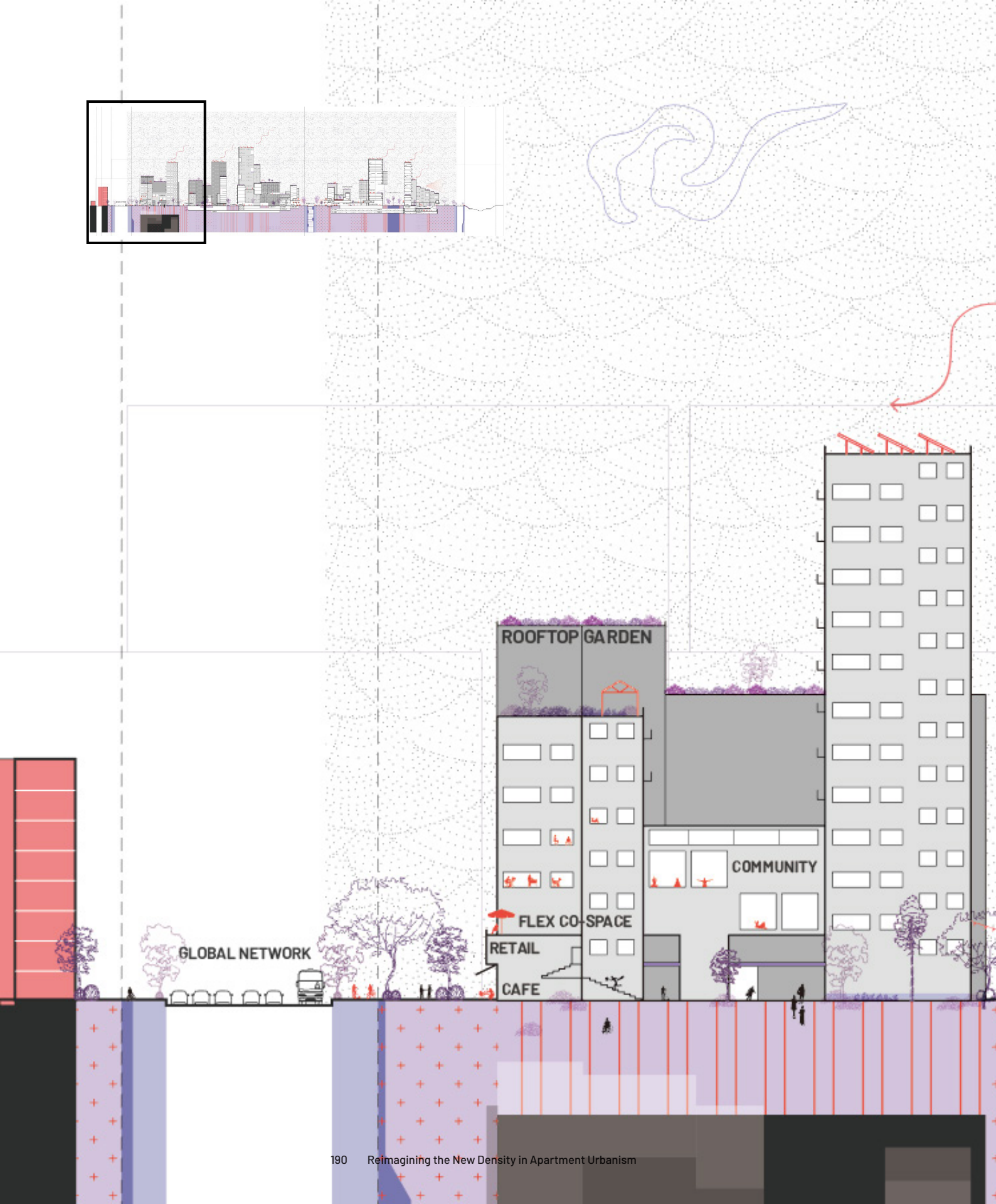
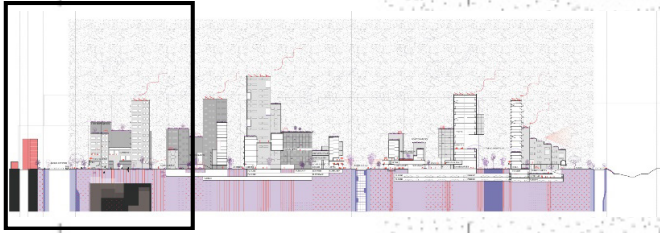
The special strategic district provides greater for experimentation that cannot be possible in traditional land use type. It could be used as such area to test out the effectiveness of design approach.

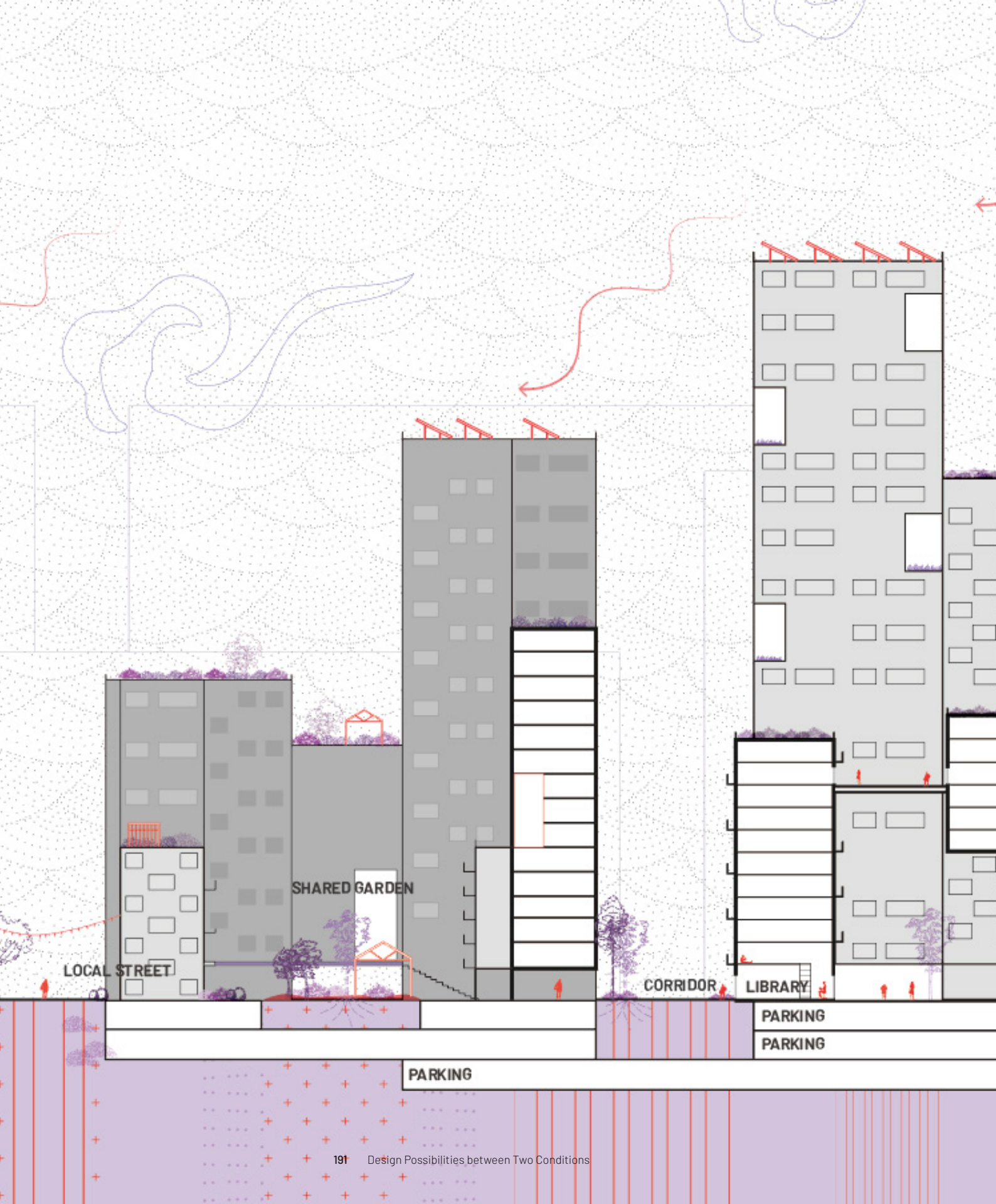
Relational to:

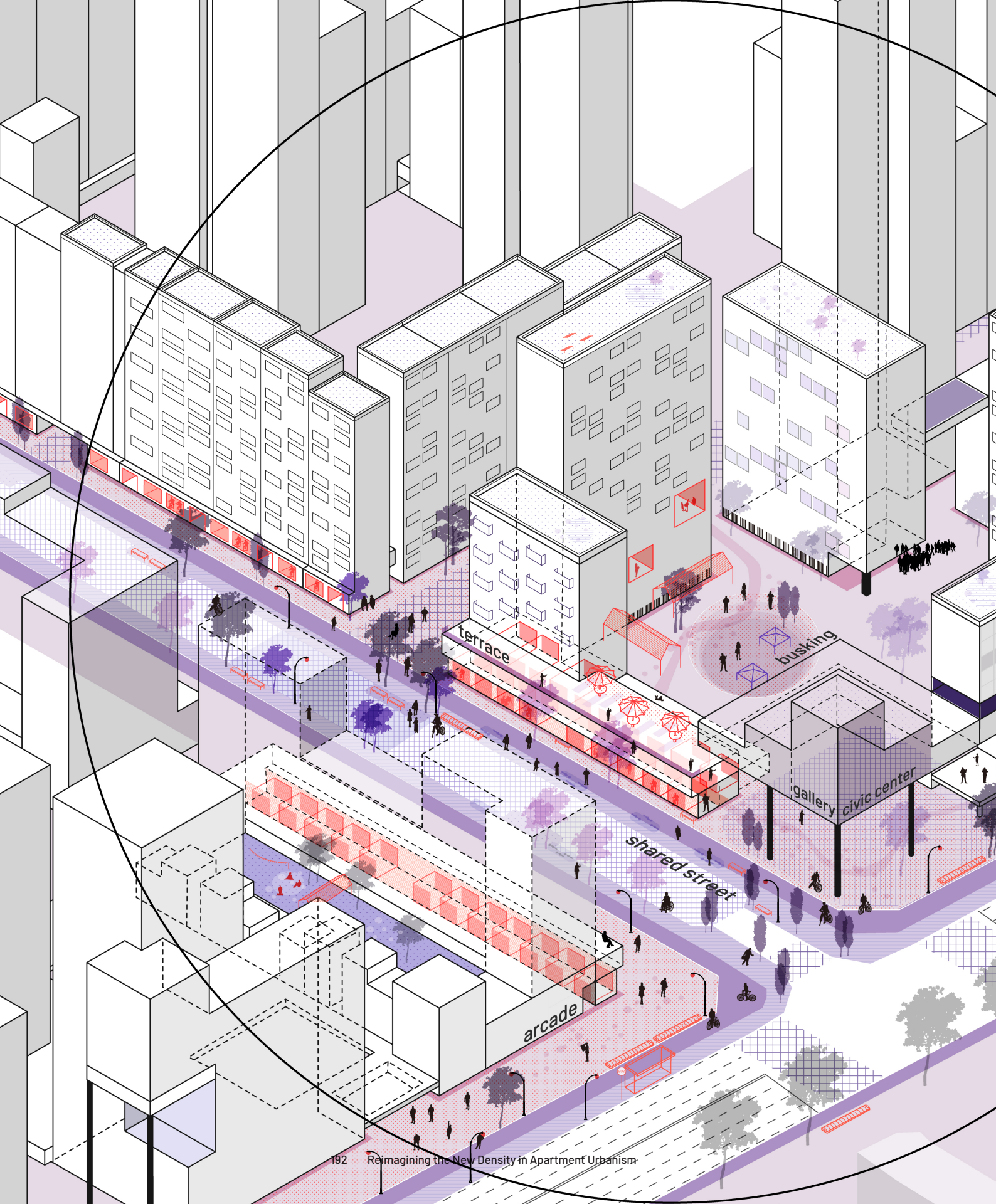
The patterns that are applied the whole target area : the basic design quality

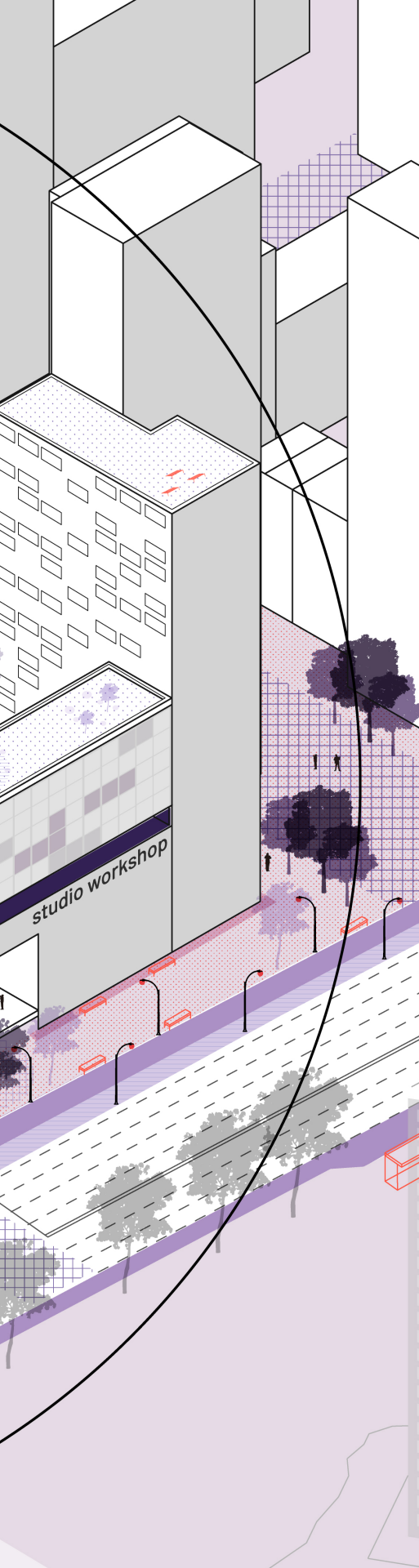
FIG. 10.7 The network of patterns appeared in the condition of global network interface.

(source: developed by author)









Central Activity Blocks - Zone 2: Local Street Interface

Unlike the zone 1, this interface has a characteristic of locality - the two interfaces of blocks share the existing local street. The local street is important in a way that it serves the children group as two schools are located on the street. In addition, the scale of the street is human-scaled with only 2 lanes. Therefore, it is wise to allocate this local street to the residents for their slow movement, not to the vehicles. The walking environment will be enhanced through the street calming approach. Due to this reason, the interface zone also ensures the human scale of height and volume with the tool of the setback. The street will be facilitated with the local servicing functions and the transitional zone such as terrace opening towards the street will give more vibrancies. The start of the street becomes the new nodal point, therefore, the public functions such as exhibition for the local accentuate this point.

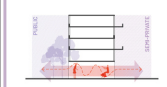


FIG. 10.8 The isometry of local street interface.

(source: developed by author)

T.02 PEDESTRIAN PERMEABILITY THROUGH THE BLOCK

FORM/FUNCTION - BLOCK - THEORY

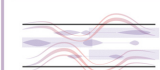


The medium-sized blocks have acknowledged for increasing connectivity and activities along the streets (Jacobs, 1961). Yet, the adequate size of the blocks is controversial as too small block can be susceptible to traffic congestion. The porosity through the block maintains the connectivity in both movement of people without deconstructing the mega-structure.

Relational to:
T.01 / T.03 / T.04 / T.07 / S.02 / S.03

T.14 LAYERING AND SOFT EDGE

FORM/FUNCTION - INTERFACE - CASE

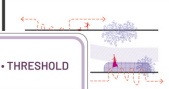


The overlapping method achieve the bigger impact of result without transforming many things. It considers the time and speed as rhythms, and expands the degree of experience through the senses.

Relational to:
T.06 / T.08 / S.10

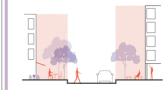
S.10 STREET CALMING - WOONERF

FORM/FUNCTION - STREET - CASE/CONTEXT



T.13 STREET TO STAY - THRESHOLD STREET

FORM/FUNCTION - STREET - CASE/CONTEXT



The good street design functions as place to appropriate, not as through movement. It invites citizens to linger and engage with spontaneous public life on the street. The blended boundaries between public and private spaces and adequate furnitures hybrid the realms and enrich the experiences.

Relational to:
S.10 / T.03 / T.04

T.03 TRANSPARENT - VISIBLE GROUND FLOOR

FORM/FUNCTION - INTERFACE - THEORY



T.04 FREE ACCESSIBLE GROUND LEVEL

FORM/FUNCTION - INTERFACE - THEORY



The right to access or use the ground level freely is essential in making the inclusive city. The ground level can be the public space with trees and sitting furnitures or the public function without the payment. When the ground level is open to everyone, regardless of gender, age, class, or physical ability, it allows people to share the common experiences.

Relational to:
T.01 / T.02 / T.03 / S.07

S.06 DIVERSE PLOT SIZE AND VOLUMES

FORM/FUNCTION - BLOCK - THEORY



The variety in plot sizes and building volumes increase the flexibility to adapt to the external changes and give range of possibilities to the various tenants. Especially the diversity in plot sizes can be linked to the extensive land ownership, and contribute to the processive and gradual transformation.

Relational to:
T.01 / T.06 / T.07 / T.11 / S.08 / S.01

I.03 DIVERSE TENURE MODELS

FORM/FUNCTION - STREET - CASE/CONTEXT



The provision of range of property tenure models from ownership to rental give capacity towards the inclusive society between different socio-economic backgrounds of people. Yet, this is limited in current private real estate market, which aims to make the profit. Therefore, the proper financial tools or the incentives are required to build the sustainable relationship between the public and private.

Relational to:

T.01 GENERATIVE STREET INTERFACE - ACTIVE FACADE

FORM/FUNCTION - STREET - INTERFACE - THEORY

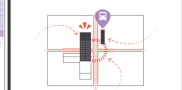


The generative street interfaces allow the interaction between private and public and connect the opportunities of contact and exchange (Jacobs, 1961; Sen, 2003). One of the challenges in designing the active facade is how to define the fronts and the corresponding backs - whether to make distinction or give hybridity.

Relational to:
T.01 / T.02 / T.03 / T.04 / S.07 / S.08 / S.09

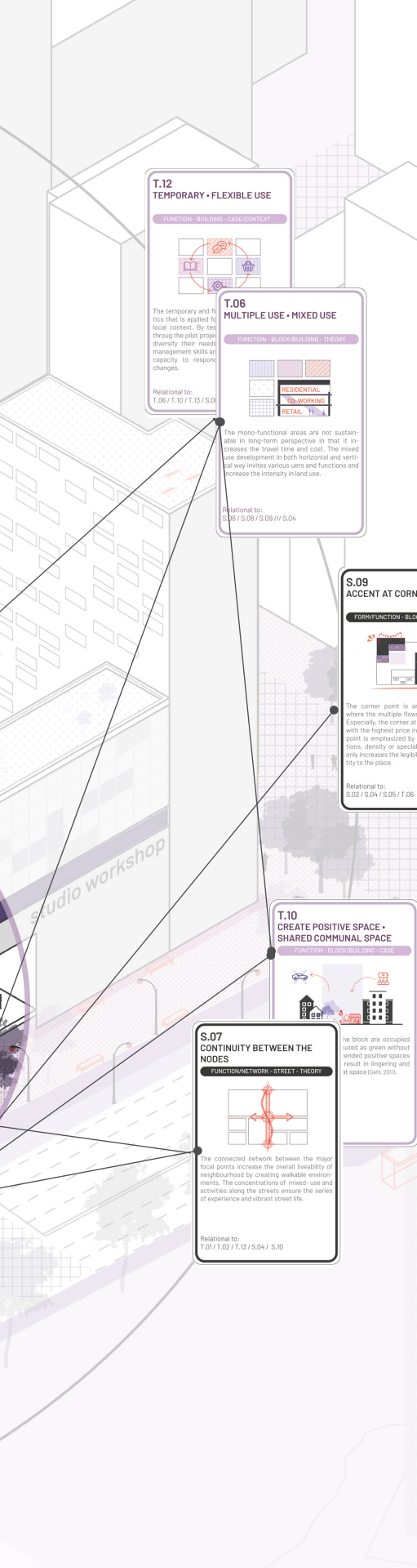
S.04 PUBLIC FACILITY AS STRONG ANCHOR POINT

FORM/FUNCTION - NEIGHBORHOOD - POLICY



The recognition point contributes to the sense of place in constituting the structure, while becoming the focal point of activities. It is accentuated through the height intensity or the important functions, and is located adjacent to the public transport nodes.

Relational to:
S.01 / S.02 / S.09



T.12 TEMPORARY • FLEXIBLE USE

FUNCTION - BUILDING - CASE/CONTEXT



The temporary and flexible use is applied to local context. By testing through the pilot project, diversify their needs management skills and capacity to respond changes.

Relational to:
T.06 / T.10 / T.13 / S.04

T.06 MULTIPLE USE • MIXED USE

FUNCTION - BLOCK/BUILDING - THEORY



The mono-functional areas are not sustainable in long-term perspective in that it increases the travel time and cost. The mixed use development in both horizontal and vertical way invites various users and functions and increase the intensity in land use.

Relational to:
S.05 / S.08 / S.09 // S.04

S.09 ACCENT AT CORNER POINT

FORM/FUNCTION - BLOCK - CASE/CONTEXT



The corner point is an important location where the multiple flows of people intersect. Especially, the corner at groundfloor is traded with the highest price in property. The corner point is emphasized by non-residential functions, density or specialized design. This not only increases the legibility but also give identity to the place.

Relational to:
S.02 / S.04 / S.05 / T.06

T.10 CREATE POSITIVE SPACE • SHARED COMMUNAL SPACE

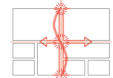
FUNCTION - BLOCK/BUILDING - CASE



The block are occupied with green without wasted positive spaces result in lingering and it space (Went, 2018).

S.07 CONTINUITY BETWEEN THE NODES

FUNCTION/NETWORK - STREET - THEORY



The connected network between the major focal points increase the overall liveability of neighbourhood by creating walkable environments. The concentrations of mixed-use and activities along the streets ensure the series of experience and vibrant street life.

Relational to:
T.01 / T.02 / T.13 / S.04 / S.10

<neighbourhood>

<district>

I.05 SHARED OWNERSHIP

FUNCTION - STREET - CONTEXT



The shared ownership apart from the individual property creates a sense of ownership and an atmosphere of engagement. It empowers the involving actors: residents, business and local government as co-creator and modifiers of place.

Relational to:

T.07 OPEN TO THE STREET OR ADJACENT SURROUNDING

FUNCTION - BLOCK - CASE/CONTEXT



For an perimeter block near inner block, the open block allows the activities as well as visual connection to the inner side of the block. The variety of programs takes a place between the perimeter block and the inner block.

Relational to:
T.01 / T.08 / T.09

S.03 WALKABLE SERVICE AREA

FUNCTION/NETWORK - NEIGHBOURHOOD - POLICY



The local area services all the needs of non-urban within the walkable range. It focuses accessibility more than the results and provides the optimal route between nodes. The network becomes greater when multi-modality of mass networks, such as bicycle, enables the accessibility (urban growth).

Relational to:
S.04 / S.05 / S.08 / T.01 / T.02 / T.03 / T.04

S.08 CLUSTERED ACTIVITIES

FUNCTION - BLOCK/BUILDING - CONTEXT



When the groups of similar characteristics are concentrated, it strengthens the performance and contributes to the efficient use of the space. The concentration in specific blocks can be interconnected in large scale through the shared local infrastructures and foundations.

Relational to:
S.01 / S.03 / T.06 / T.10 / T.13 // S.05 / S.07

I.01 PARTNERSHIP BETWEEN THE PUBLIC AND PRIVATE SECTOR

CONSERVATION - DESIGN - POLICY



The cooperative relationship between the public and the private sector enhance the quality of living environment through the co-creation and coordination.

Relational to:

I.02 INTERMEDIATE (PUBLIC) ARCHITECTURE - DESIGNER

CONSERVATION - BLOCK/BUILDING - THEORY



The intermediate public designer involves the whole process of designing the block to fit the gap in policies and zoning plans and coordinate the conflicting interests between the private, public and civic sectors.

Relational to:

I.04 SPECIAL STRATEGIC DISTRICT

CONSERVATION - STREET - CASE/CONTEXT



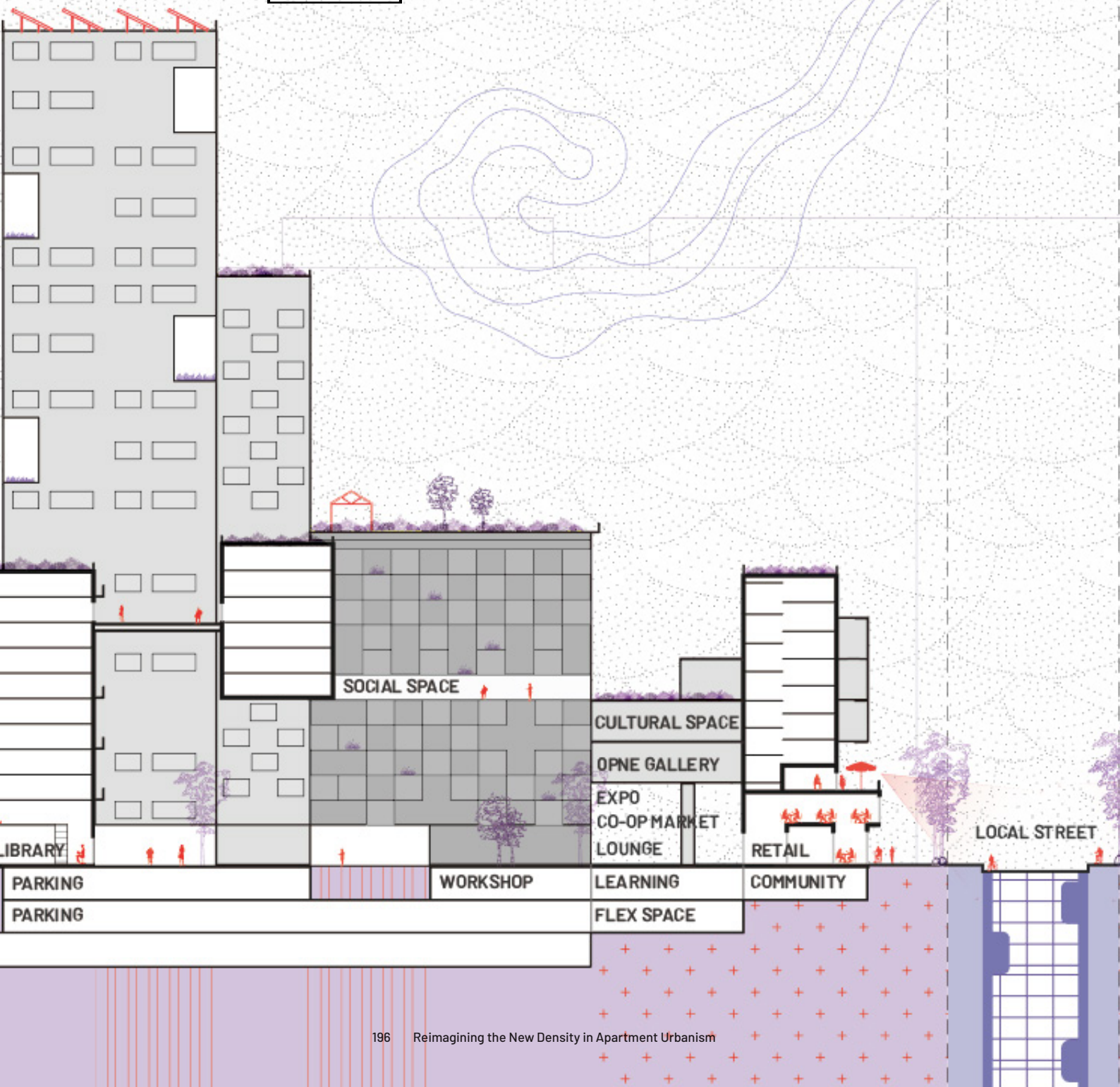
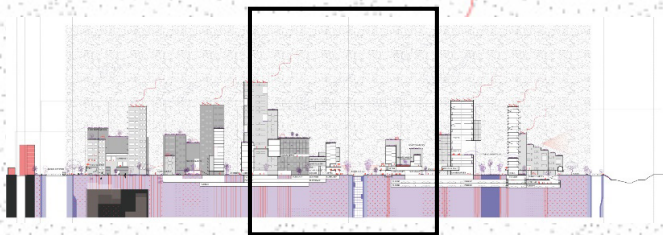
The special strategic district provides programs for experimentation that cannot be possible in traditional land use type. It could be used as a scale unit to test out the effectiveness of design approach.

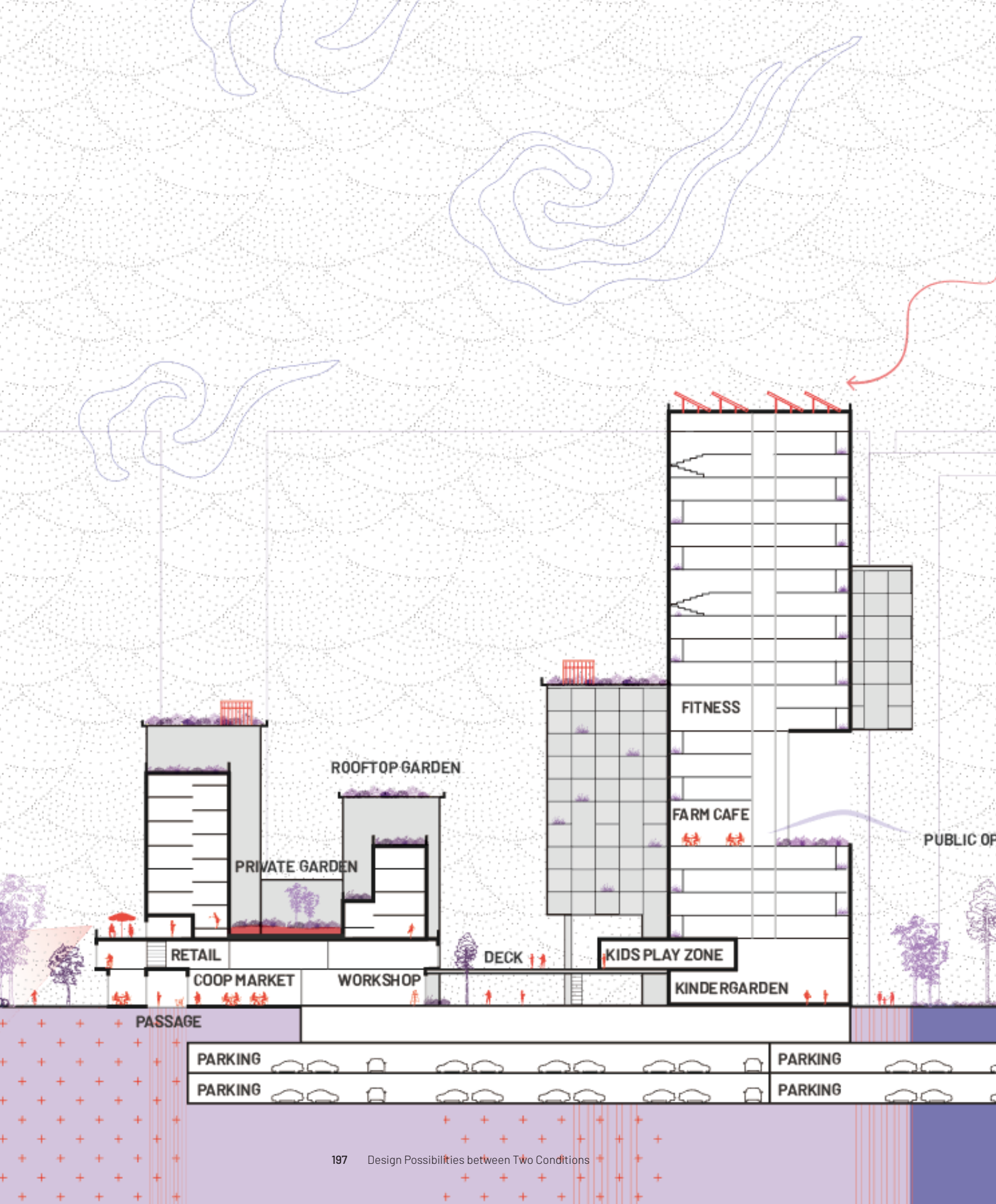
Relational to:

The patterns that are applied the whole target area : the basic design quality

FIG. 10.9 The network of patterns appeared in the condition of local street interface.

(source: developed by author)





10.3 – The community blocks for new relationship between people: public property

10.3.1 – Location and context

The second case is located across the southern stream from the first case. It is the public owned property, especially by the Seoul Metropolitan Government. Although the physical conditions look similar from the first case, the future image will differ greatly since this property does not have enough capital for reconstruction. Instead, the gradual transformation of apartment block is examined here.

What is interesting in this property is that the local engagement is very active. There are two main facilities located in the block: the regional elderly centre and the neighbourhood youth centre. Located at the edges, these public facilities serve the vibrant activities and bridge the social network across the neighbourhood. However, the degraded physical condition does not support these demands of the residents as well as the visitors since the block does not have adequate space to sit and rest for the elderly people and the most of the inner spaces are occupied with the ground car parking.

The small-scale densification is adopted here, which could provide more freedom to the residents in deciding what kind of living space they want to build. The residential association can take the role of running the living support or the income generating activities, which, in turn, contributes to the social and economic resiliences of the living environment. In a wider context, these activities can be interconnected with the other social activity groups since the Nown district has a rich resources of these groups. Clustered and linked together, this case public housing block will be the trigger project that enhance the other adjacent public housing blocks with the chain effect.



- PUBLIC PROPERTY
- GRADUAL TRANSFORMATION PROJECT
- APT: 99%
- POP DENSITY: 432 /HA
- % SINGLE-PERSON HH: 29%
- % OF TWO-PERSON HH: 30%
- % OF BIG FAMILY: 41%
- % CHILDREN: 10%
- % OF WORKING: 70%
- % OF ELDERLY: 19%
- % of low income: 9%

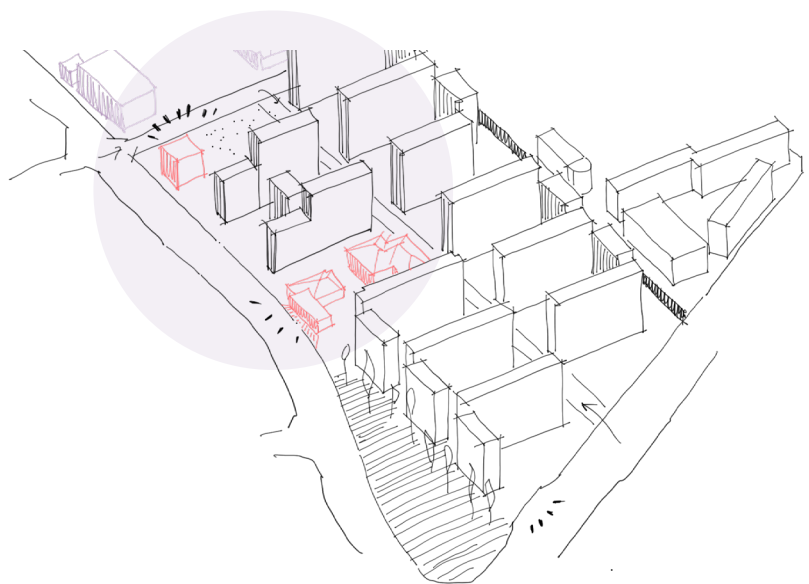


FIG. 10.10 The zoom-in location for the testing application for gradual transformation.

(source: developed by author)

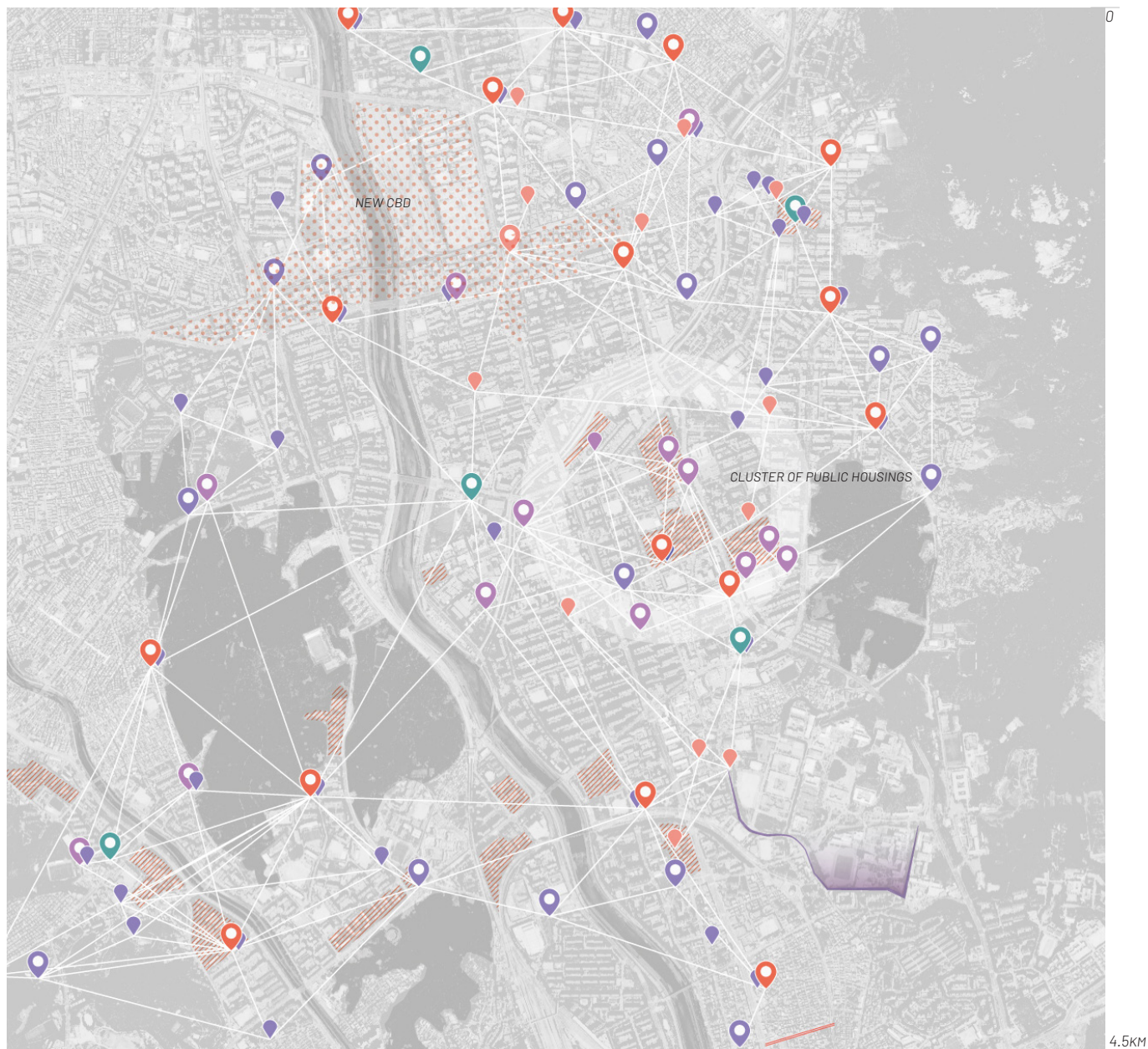


FIG. 10.11 The rich resources in Nowon district for social activities.

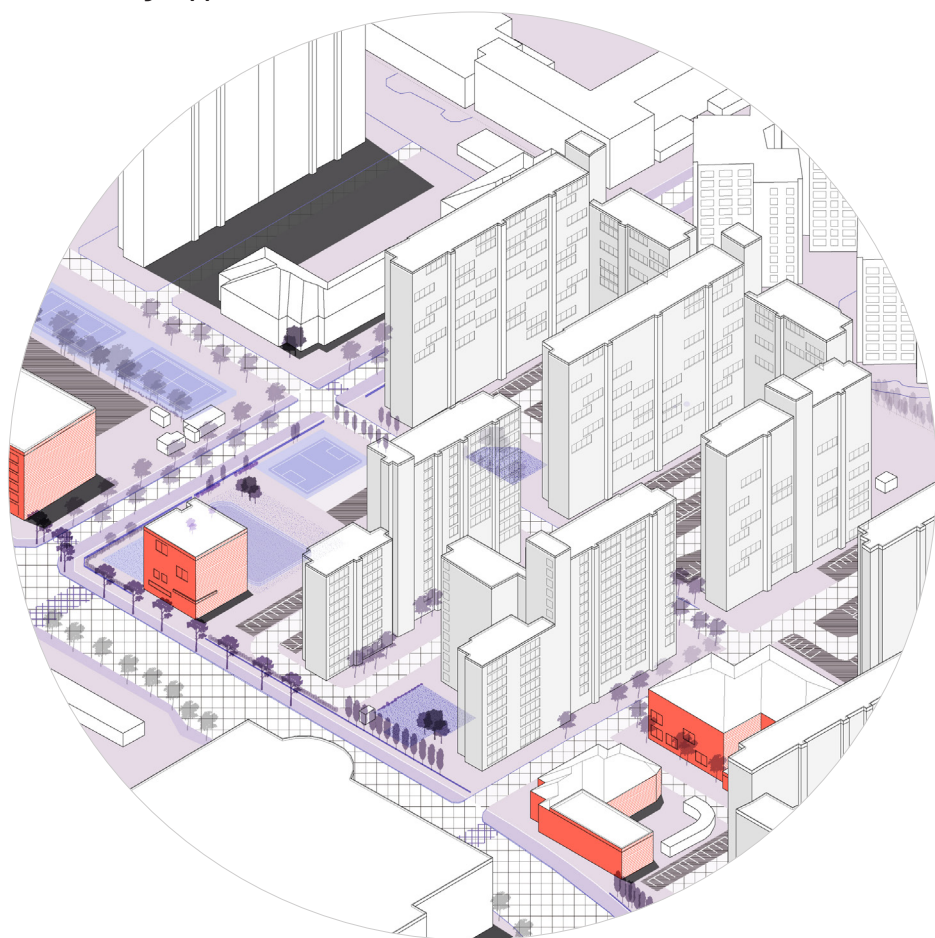
(source: developed by author)

FIG. 10.12 The process of gradual transformation [next page].

(source: developed by author)

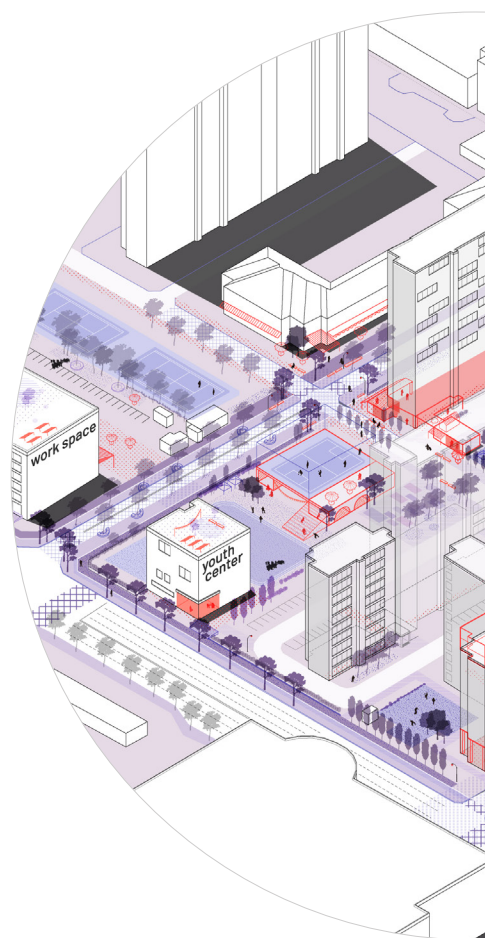
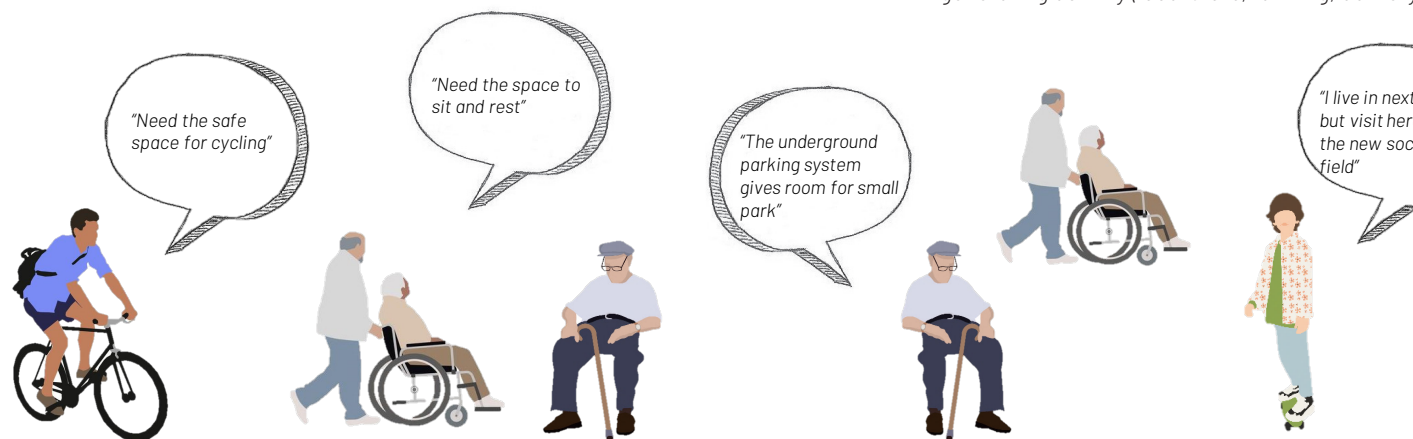
-  SOCIAL ACTIVITY GROUP
-  COMMUNITY CENTRE (MUNICIPALITY)
-  COMMUNITY FUNCTION (EX. ELDERLY FACILITIES)
-  CULTURAL FUNCTION (EX. LIBRARY)
-  ECOLOGICAL FUNCTION (EX. FARM)

10.3.2 – Design application



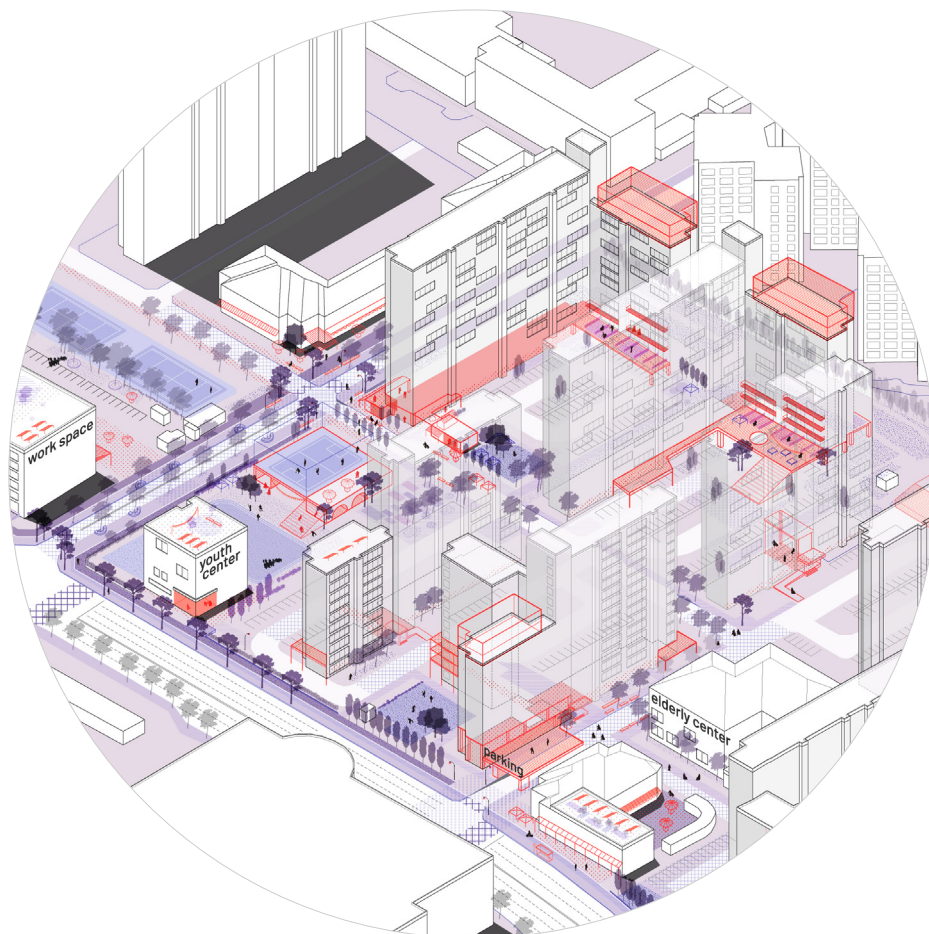
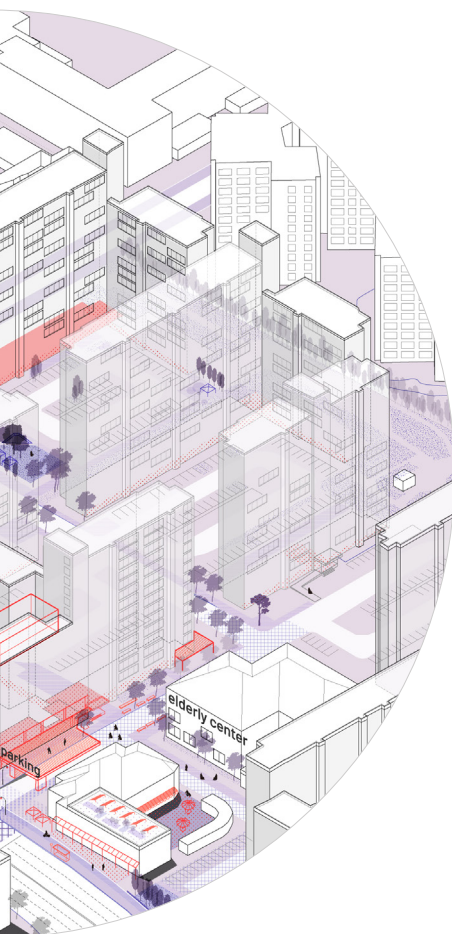
Phase 0: status quo

The aging infrastructure does not meet the demand of the residents.



Phase 1: emphasize from the important public

Insert the functions of living support (kitchen, la, generating activity (local store, farming, delivery



nodes and network

(laundry, warehouse) and income
(, etc.)

block,
e to rent
cer

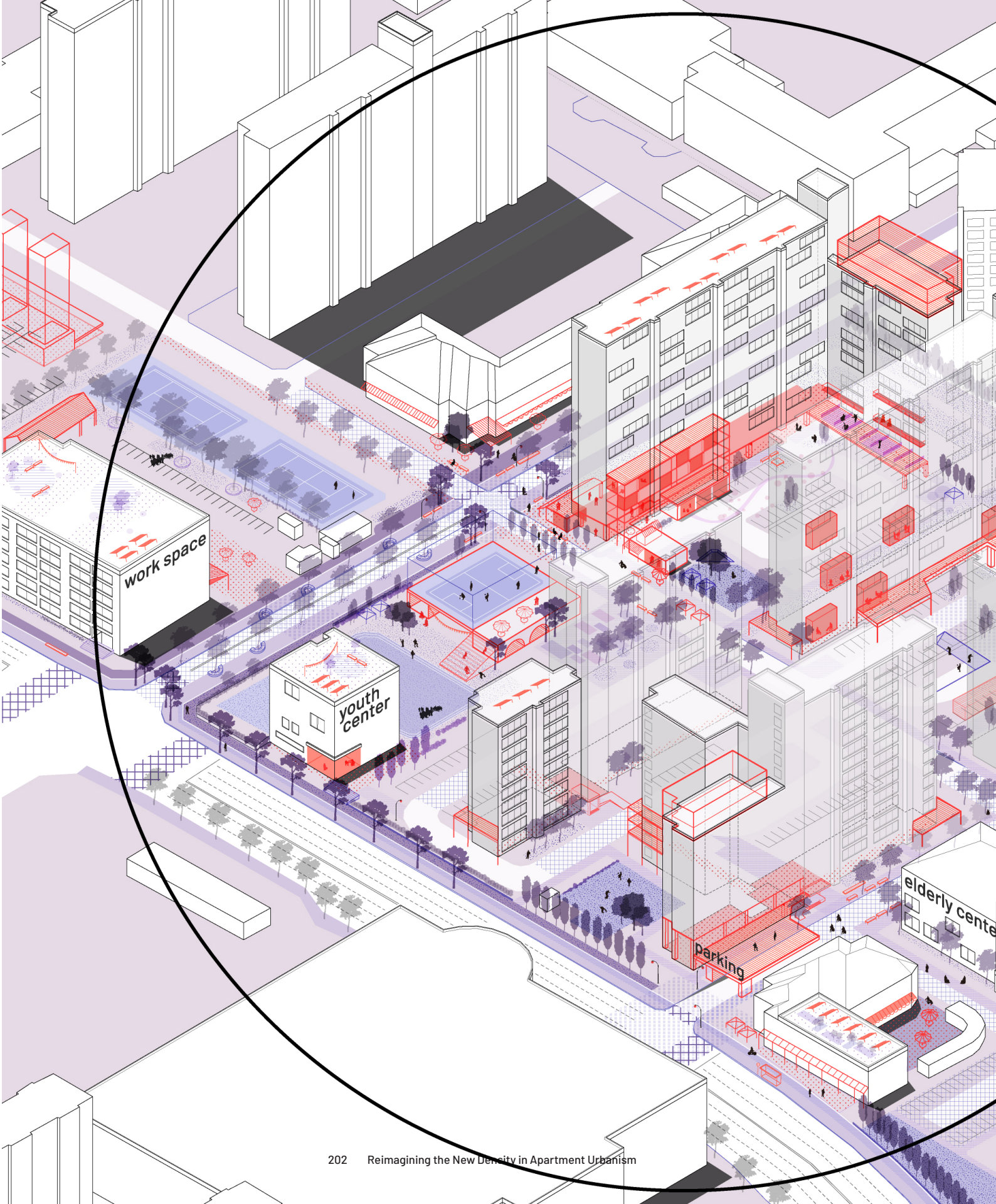
"The street is
activated with the
shops. I also help
for running it"

"We move for
couple of years
because of our
new jobs"

"Now we secure
the competitiveness
for sustainable
management"

Phase 2: densify the inner parts of the block to accommodate new comers

Reprogram the ground floor with sharing functions



Community Oriented Blocks : Neighbourhood Hub Interface

The target nodal point is the interface of the local street between the two public apartment complexes stands. Similar with the previous intervention, the street is adjusted to more walkable environment through the diverse measurements. Since this block has a wide range of residents from elderly to disabled group and children, the universal design approach is needed to provide the safe and active urban space. In addition, the entrance of the block that links with the penetrating inner road becomes new emphasized focal point. Since this block lacks the enough density to gain profit, it introduces an alternative business model. Densification on the ground floor by reconstructing the spatial order of the block optimize the new depth order. The consensus on running the common shops and community functions on the ground floor reduce the maintenance costs.

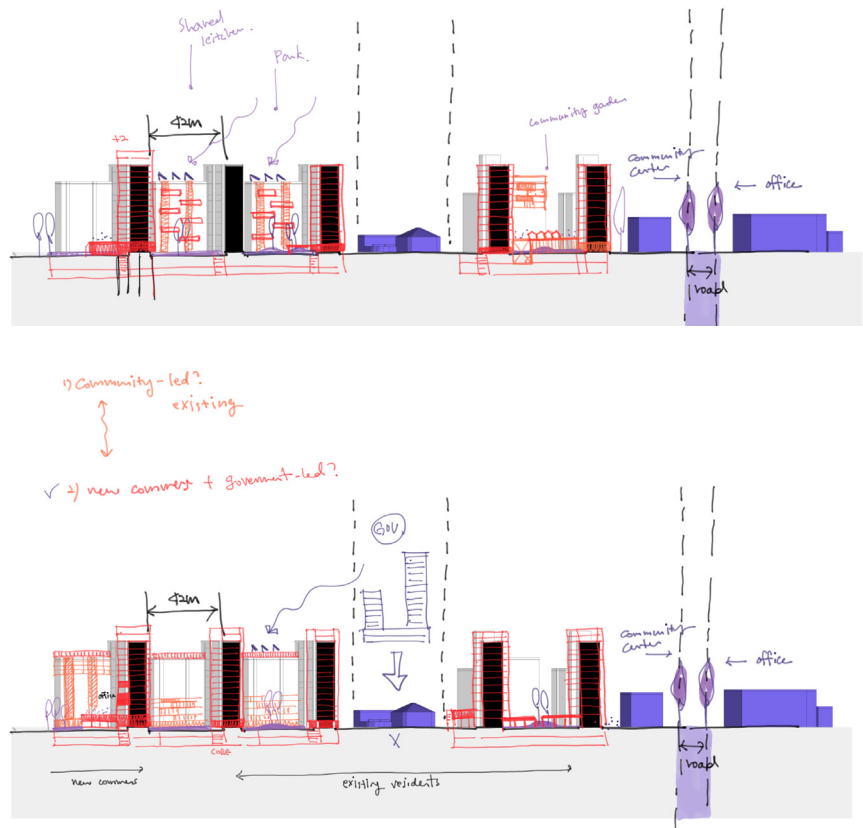
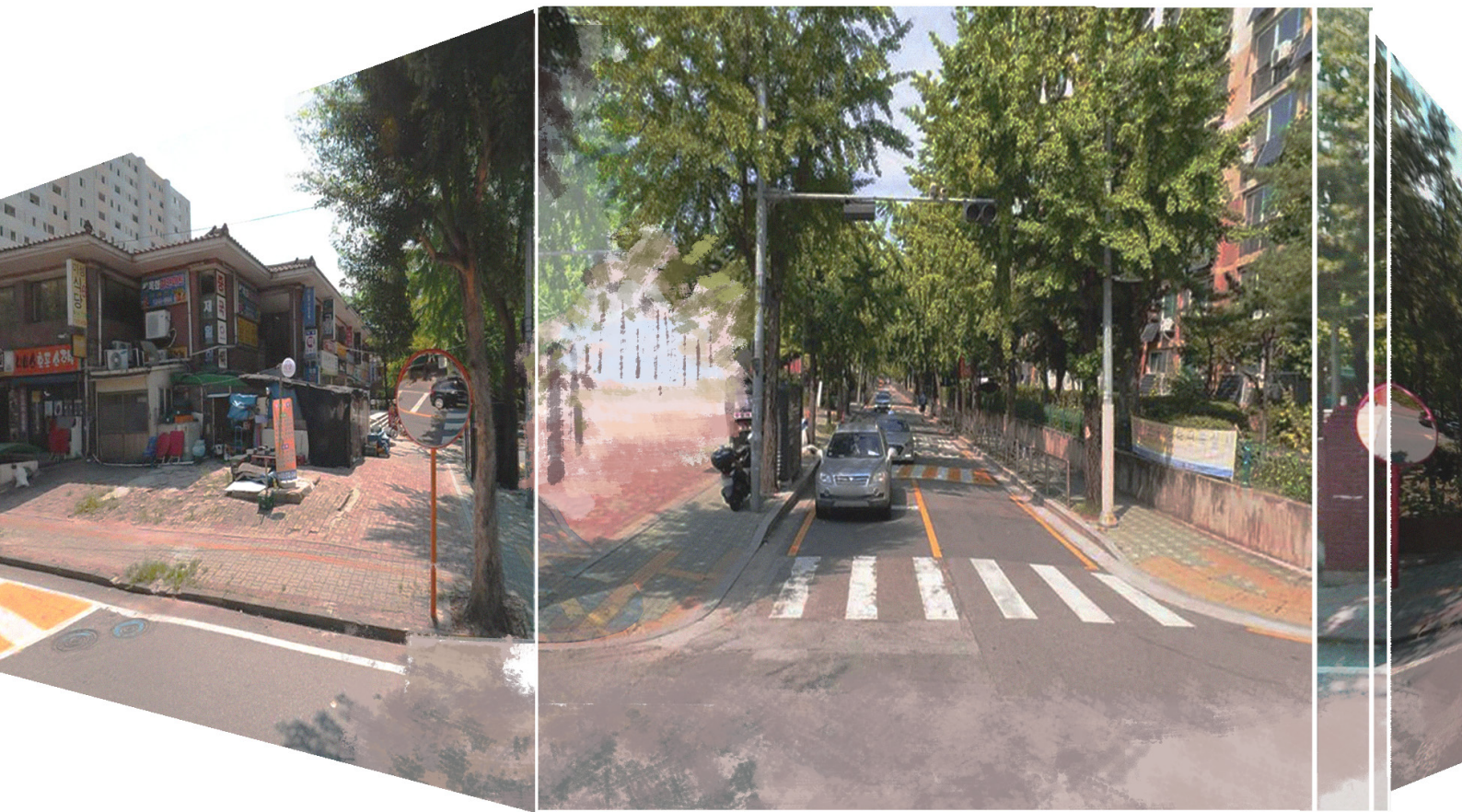


FIG. 10.13 The gradual transformation and the preferable result image of the block.

(source: developed by author)



LOCAL STREET

BOUNDED WALL

Interface zone from the public street to the inner space (original condition).

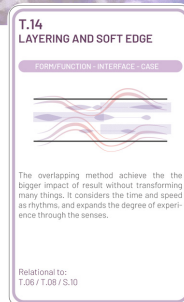
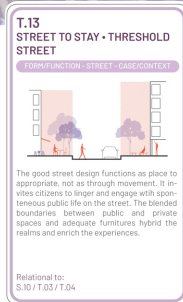
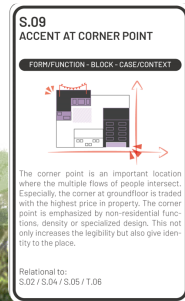
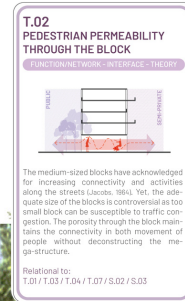
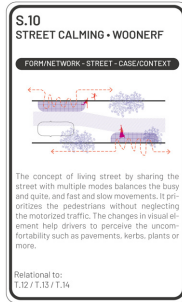
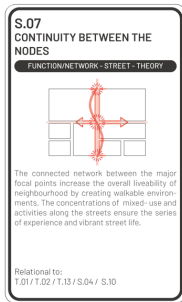
(source: street images from Kakao map; developed by author)



ALLEY (BUFFER)



INNER SPACE OF APARTMENT COMPLEX



Interface zone from the public street to the inner space(after transformation with the patterns).

(source: street images from Kakao map; developed by author)

I.05 SHARED OWNERSHIP

FUNCTION - STREET - CONTEXT



The shared ownership apart from the individual property creates a stewardship and an atmosphere of engagement. It empowers the involving actors: residents, business and local government as co-creator and modifiers of place.

Relational to:

T.01 GENERATIVE STREET INTERFACE - ACTIVE FACADE

FUNCTION/NETWORK - INTERFACE - THEORY



The generative street interfaces allow the interaction between private and public and connect the opportunities of contact and exchange (Jacobs, 1961; Sim, 2018). One of the challenges in designing the active facade is how to define the fronts and the corresponding backs - whether to make distinction or give hybridity.

Relational to:
T.01 / T.02 / T.03 / T.04 / S.07 / O.00 / O.00

T.04 FREE ACCESSIBLE GROUND LEVEL

FORM/FUNCTION - INTERFACE - THEORY



The right to access or use the ground level freely is essential in making the inclusive city. The ground level can be the public space with trees and sitting furniture or the public function without the payment. When the ground level is open to everyone, regardless of gender, age, class, or physical ability, it allows people to share the common experiences.

Relational to:
T.01 / T.02 / T.03 / S.07

T.10 CREATE POSITIVE SPACE - SHARED COMMUNAL SPACE

FUNCTION - BLOCK/BUILDING - THEORY



The inner spaces in the block are occupied with vehicles or distributed as green without clear intention. The intended positive spaces in needs of residents result in lingering and social interaction in that space (Joh, 2015).

Relational to:
T.06 / S.04

T.06 MULTIPLE USE - MIXED USE

FUNCTION - BLOCK/BUILDING - THEORY



The mono-functional areas are not sustainable in long-term perspective in that it increases the travel time and cost. The mixed use development in both horizontal and vertical way invites various users and functions and increase the intensity in land use.

Relational to:
S.06 / S.08 / S.09 // S.04

PART 6

CONCLUSION

GENERAL REMARK AND REFLECTION

11 – Conclusion

Summary and Discussion

11.1 – General remark as summary

THEME AND FRAMEWORK

This graduation project is placed on capital city of Seoul, South Korea to question the existing urban spaces where the new paradigm shifts – demographic change, technology innovation, climate changes, and etc. – demand a new adaption in space. The prevalence practices which are compressed into the new town development on the empty lands or total demolition as well as the homogeneous apartment buildings are criticized recently in re-evaluating the qualities and values that we should pursue in future Seoul.

The manifesto for the ‘preferable’ urbanity has transformed constantly to accommodate the transitions time to time – in case of Seoul, it is the density. Always justified by the limited resource of lands and soaring population growth, the massive production of apartment complexes has been adopted in Korea in very efficient and speed-oriented manner. What left in Seoul is the current fragmented and unintegrated urban fabric where the homogenous ‘towers in the park’ function without the context. Clearly, the sustainable management for existing urban space conflicted with the ‘old’ and ‘new’ is very complex and challenging task, when compared to the new development on the blank paper.

Upon on disciplines from the past two years of learning experience, this graduate project poses several fundamental questions as starting point:

- Are the existing urban spaces, tissues, and even architectures in Seoul future-oriented?
- How to redefine the density, not represented as verticality?
- What will be the future vision for current quantity-oriented high-rise apartment buildings, not only in the architectural perspective, but also in city scale?
- Do apartment complexes have a capacity for balancing the polarized living environment of detached housing districts which lack of amenities such as green space and the parking lot as well as sustainable management?

Based on the strong design driven research, design as a knowledge producer is articulated to carry out in context of application. These context-driven and problem-focused perspectives are the ones that are needed in this graduation project as the characteristic of both interconnectedness and fragmentation of urban settings in Seoul require greater understanding in multi-scalar and interdisciplinary approaches.

This graduation project, therefore, utilizes research and design in interactive manner since most of the urban challenges we face are the wicked problems with no definite solution. The research stage provides the foundation for the overall framework. Based on the theoretical knowledge, research helps to understand the problem components and builds the tools in defining the spatial qualities. Meanwhile, design process explores the possibilities and alternatives to solve the stated problems. The conclusions from the research stage translate into the application of design in site. One of the important aspect in research and design is that they are iterative processes, repeating the cycles of analysis, synthesis, and evaluation to elaborate knowledge.

Methodology and process

This graduation project is structured into manifolds with variate methods of inquiry in quantitative and qualitative approaches.

The first part is to build the knowledge on relevant theories, methods, and gaps in existing research which are applicable to the context of Seoul under deductive approach. Literature review is an important first step to provide a basis for the conceptual background and theoretical framework to understand the current condition as well as to guide the preferable future environment. The literature review is specified into: 1) understand the act of housing production; 2) the composition that makes the dynamic in density; and 3) the relation between spatial structure (territorial depth) and public life. Synthesized together, the overall guiding framework narrows to the trialetics of form, function, and network for the analysis.

Form is based on the morphological approach to investigate the structure or form constituting the overarching logic. Using the mapping as tool, the spatial system is layered into various levels such as plot, building, block, street network, and open space. This morphogenetic approach indicates the chronological characteristics in Seoul using both diachronic and synchronic comparisons, since Seoul has gone through the radical development according to political regime. Meanwhile, Spacematrix developed by Berghauser Pont and Haupt in measuring the density both quantities and qualitative approaches is adopted as an additional method. The initial goal was to identify the possible clusters between representative apartment blocks and to see their geographical patterns. However, it reveals that comparison is invalid in the context of Seoul – the apartment complexes have similar logic in reaching the maximum FSI, proving the homogeneous environment in Seoul. Rather, when it compared with the other context, for example Paris, the distinctive difference in constructing the density between the Europe and Korea is reflected. Therefore, the Spacematrix analysis further supports the design component in diversifying the density types.

Combined with the morphological study, function and network are represented with the logical system analysis. The street network of spatial configurations is described in defining the accessibility and relationship between street segments and social activities. Using the tool of Place Syntax in geographical format, the local centrality and the reachable amenities are identified. The logical system analysis is employed in multi-scalar manner ranging from administrative unit to the block scale.

Parallel to the trialetic framework, the spatial strategies translated into the pattern language are developed to inform the depth-order in territorial, scalar, and institutional perspectives. The territorial depth related patterns set the strategies to build the diverse range between public and private realm. The literatures from Habraken and Clossick as well as in-depth case studies provide the basis of how different configurations of depth-order result in diversity and public life including accessibility. The scalarable depth patterns are linked with diversification not only in physical form, but also the experience of people. Same with territorial depth, the theories and the case studies, especially in other context, become the foundation for creating the patterns. Lastly, the institutional depth patterns expand the role of public sector (as well as citizens) in the process of development, reflected on Turner & Fichter's literature of 'Housing as verb', which implies the separation between the provider and the consumer as embedded problem in current housing market.

As seen, these pattern languages are the bridge between the research and the design, developed by literature theories, analyses of case studies, and design explorations. The cyclic processes of mapping on existing conditions and conflicting forces, adding the new patterns, applying the new designs elaborate the collection of patterns. Using pattern as language, the complexity in urban settings narrows down to simple reasoning to solve the problem: what are interconnected or what is missing.

At the initial process of research-by-design, different sets of scenario constructions were explored in describing the possible future. With the two crossing axes between institutional depth and territorial depth, the case of TOD development was tested for seeking the multiplicity in alternatives, yet this scenario construction does not integrate with the disciplinary practice of pattern language, which needs to elaborate in further stage.

11.2 – Responses to the research questions

A. How to transfer the dynamicity in density to the urban life?

B. What are the other practices of qualifying the density beyond the quantification?

The first part of question draws the conceptual framework in transferring the dynamicity in density. Through the literature review, I came up with the triangulated approach of form, function, and overarching network as an interrelated element. When all of these qualities are synthesized the density acts as intensity to grasp diverse urban life. The next question inquires the content of the density not has vertical height. The chapter 4 delineated the series of the literatures to introduce what other qualities are existed in the density. For example, density can be the population or accessible (public) services.

C. How does the spatial structure of apartment complex evolve in relation with urban fabric as well as policy and the values of the time?

D. What persistence or convergence is learnt in spatial intervention in apartment complexes? What can be transferable from these legacy of modernity?

The second part of the research questions is related to the analysis part. The overall knowledge upon the histories, policies the strong willingness of the government renew the understanding on the apartment complexes. Moreover, the taxonomy of the case blocks interpreted into the framework of form, function, and network traced the path of how apartment complexes have evolved. I, personally, was surprised at the quality of the initial projects which I can feel the in-depth studies of predecessor urban designers. The problem aroused when the government left the hands in housing construction process. The initial projects had a diverse trials introduced from the western, yet, the unpopular design such as terrace or the duplex, erased in the housing market since they did not gain profits to the private sector. Moreover, the early stage of apartment complexes had a similar features and the way they constructed, the polarization started to emerge when the apartment complexes reconstructed into the brand.

E. How does design with the patterns inform new possibilities in designing apartment complexes apart from the traditional custom?

F. In what extent, can we adjust the patterns to make transformation to integrate the apartment complexes into the city?

Finally, the design section explores the different range of settings with the patterns to see their applicability and adaptation. The patterns proved to be an effective tool in delivering idea in a simple way, yet the combination of patterns as language revealed a complex and cohesive idea. The whole process of delivering this project transferred into the patterns and the final outcomes are tested through the design exploration. The two contrasting conditions are selected as target, one for private property and the other is public property. Beginning with the same features of living environment, the resulting outcome and the process vary on the context. While the former one challenges to the path dependency of market system to deliver the 'good' space even though there were no financial incentives, the latter case takes the challenge of how to harmonize the existing urban structure to the new ones.

11.3 – Discussion on the spatial manifesto towards the apartment complexes

The quantification is the universal reference to rationalize the space. Through the comprehensible numeric indicator, it decides the ways our lives shape. However, this quantification of space is easy to be abused by the means of the speculation, misleading the intentional outcomes (Lee, 2012): The living environment is translated into the quantified property values; the number of inhabitants justifies the new development. The other dimensions, related to quality, are not only hard to map as materialized space but also hard to grasp as conceived space.

It seems requisite to test and formulate the alternatives in imagining the density in apartment complexes. In this section, I will look at some approaches which have been proposed in this project.

The main critical argue in current apartment complexes, especially those has merged since 2000s is in their scale. The single large parcel is the unit that accompanies that substantial change in urban space. At the same time, it is the unit that is inflexible to change once it is imposed on the space. The agglomeration in its scale, on one side, bring the economic benefits of providing services and infrastructures, yet, on the other side, the same magnitude of negative impact cannot be neglect: the exclusive fortress.

From the point of view of the physical integration, the proposed approach takes its starting point with the dissolving the boundary. It is based on the practical acknowledgement that the dissecting the one unit of parcel into multiple owners would be complicated with complex power-interest relationship. The **'edge'** is the infrastructural boundary where things end. On the contrary, the **'interface'** is the programmatic border where different elements interact. The number of dualisms applied to the boundary of the apartment complexes can be discussed in further practices to test how enclosure/open, stack/layer, alone/cluster, mono/multiple, and spread/intensity give capacity for change and space to contain. The density is transferred with the activities and functions. Here, not all boundaries of the apartment complexes have to be completely opened to the public. With the partial exercises, the functional and monotonous become the contextual fabric. It is the small perspective shift to understand the city or the urban space as the continuous networks and the integral system and to share the common value of publicity.

The relation-based approach, translated into pattern language then strengthens the operation of the **'interface'**. As the rigid outcome of area-based zoning system in higher planning hierarchy imposed by the government, it is meant to be bounded. The distinction of boundary in both visible and invisible way undermines the dynamicity as well as interaction by confining the functions and activities. Again, city does not function only with patches of the land; the reciprocal relationship between them is the basis for the nature of the city. In other word, the plot of the apartment complexes is not the independent unit where the boundaries face the shared public realm and related patch of functions. Therefore, the characteristic of boundary and the linked apartment buildings or zone is essential to be adaptable depending on the other side of context like a zipper. This approach helps to construct the single unit of parcel into various combination of different sequences.

Beyond the physical interaction, the relation-based approach is a user-friendly tool portrayed as patterns to enhance the autonomy in space. Combined with the workshop of various stakeholders, users are able to have opportunity to customize the space by shaping new relationships ranging public to private, open to enclosure, slow to fast, lingering to passing through and more, while designers are able to develop the cohesive spatial language that allows the variations. Yet, this exercise would be suitable for the public housing properties as it gives the group of people freedom and choice who cannot realize their will through the market logic.

The image of apartment complexes depicts only the one side of Seoul. In fact, Seoul is a very heterogeneous city where old and new, and rich natural environment and high-technology co-exist. What I beware of current phenomenon is the growing gap and polarization between the built environment, where the outside of the apartment complexes become the 'otherness', which is processing to be path-dependent as the direct disparities of living quality between the apartment complexes and the multi-household houses have been exacerbated. The creative people are taking place in detached and multi-household housing districts, transforming space to hipster neighbourhoods and enjoyable places for everyone. New economy and way of living are testing out as well. There have been many projects in Seoul to make pedestrian-friendly environments. Yet, the existence and persistence of apartment complexes, of rigidity and monopoly that lack the communication, seem to be excluded from this discussion.

I want to make final remark that the practices on apartment complexes in Korea is certainly a different and unique practice that cannot be found in other countries. In fact, I was surprised by the different perspective towards the mass collective housing as a stigma image when I discussed with people from the European context. It was hard to make a common knowledge of the apartment complexes between us. As an apartment kid myself, I understand all the conveniences and safety that apartment complexes give to the residents. I acknowledge that the technology and the landscape applied in the apartment complexes are incredibly enhanced. I understand the we cannot force to make these club goods to common goods or even public goods. The purpose of this project is not to argue that the apartment complexes are wicked element that need to be disappeared. As an urban designer, I want to bring alternative perspectives towards the apartment complexes, in that the density or the building height is not the only content that compose the apartment complexes. We have to recall that the promise in collective living is to live 'together'.

12 – Reflection

Transferability and Limitation

12.1 – Transferability of project to wider context

This graduation project targets the apartment complexes in Korea which used to the legacy of modernism imported from the western, yet have evolved independently. Although much of researches have carried out on the deteriorated detached housing districts in purpose of regeneration, the discussion for the role of apartment complexes in relation to the urban fabric or the functions rarely happened before.

Therefore, this graduation project aims to shift the role of apartment complexes from the fragmented urban island to the integrated and interactive system. In addition, it seeks the synergetic relationship with the adjacent deteriorated detached housings by providing essential urban functions as well as social interaction. The alternatives in the new image of apartment complexes envision the diversity in everyday activities by proposing applicable spatial strategies as well as empowered actor involvement for the future residential development process.

Most importantly, this graduation project challenges the current regime of producing the density which pursues only the logic of highest FSI and its quantity. Densification is one of the “core” of contemporary society which dominates and imposes the prevailing theories and manifests at that ages. Yet, the density in Korea has been simplified into the quantity and justified by the limited lands. Therefore, this project aims to investigate the new definition of density, posing a hypothesis that what is important is the ordering structure, not the density itself, which enables the richness of everyday life. The role of density is informed as a form, function, and the relationship in-between to allow daily exchanges, liveness, or initiatives to occur. It is expected to bridge the territorial polarization, spatial inequality and practical dichotomy to requalify and revalue the density.

Although the design to drive the research is powerful tool in educational research as emerging frame-work within European academia, it tends to be underestimated in the practice in Korea, where the uncertainties are hardly accepted. This graduation project steps up significantly to the next step towards context-oriented and problem-solving approaches by inspiring the role of design to guide the preferable future, not as fixed solution but as the open discussion among various stakeholders to envision the coherent image at wider scale. It serves an alternative strategy for designing the large scaled high-rises building blocks from the perspective of spatial integration and social inclusion by informing the new layers of depth-order and taking the role back to the public sector.

Nevertheless, the realization of design proposal will depend on the capacity in local authority and citizen groups. The proposed sites which are the public-leading projects will have a great potential to operate what this graduation project envisions. On the other hands, the remaining areas where the private companies are in charge of ruling the development, would be hard to deviate from the same homogeneity of development without powerful policy or incentives.

In wider context, these explored alternatives have a possibility to transfer to other Asian countries, which have experienced similar development process: for example, residential superblocks in China or branding apartment complexes exporting to Vietnam. Nevertheless, the specific conditions such as socio-economic profile or living culture differ in those countries, therefore need the adaptation. For example, in case of Vietnam, the community network might be strong and visible. This way, it would open the importance of co-creation in design processes that enhance the capacity of autonomy among citizens in their decision-making in using of spaces.

12.2 – Limitation and further elaboration

The special condition of COVID-19 limits travelling across the countries, field works, and contact interviews. It was one of the reason that I chose my home country as study site where I have general knowledge. Still, the limitations to this work are greatly rooted on the lack of social aspects to feel how people are actually appropriating the space. With the help of the big data and analysis of space syntax, the relationship between the city function and the society can be explainable, however, this does not fully describe the active social interactions taking place in real space. Similarly, although the design proposals are grounded on the demographic information in projecting who will be the actors, they are based on the assumption and individual interpretation which do not incorporate the real demands of the people. Methods such as interviews or observations could help to build up more resolute and profound dialogue between exploration and feasibility. For example, the initial project design also aimed to investigate the issue of social segregation between the sale tenants and rented tenants within the same block. However, research regarding this issue removed due to the unavailability of time and condition.

Another limitation is that the proposed solutions or the possibilities simplify into several types, not applicable to all territory of Seoul. It has to be acknowledged that the project locations vary depending on relational context with different demographic and economic profile as well as natural setting, and the generalization has to be conducted in precise manner. In addition, the pre-selected sites for design exploration are the announced locations, filtered as the government-leading projects. Already discussed in transferability section, it does not assure whether same urban qualities are expected at the other areas where the private sector proceeds the project as usual following the market. The changing perception in people and justification in market would remain as great challenge not only in this graduation project itself, but for the overall transition in Seoul.

References

- Alexander, C. (1964). *Notes on the Synthesis of Form*. Cambridge, Mass.: Harvard University Press.
- Alexander, C. Ishikawa, M. Silverstein, M. Jacobson, I. Fiksdahl-King & S. Angel (1977). *A Pattern Language: towns, buildings, construction*. New York: Oxford University Press.
- Berghauser-Pont, M.Y., & Haupt, P. (2021). *Spacematrix: space, density and urban form*. Rotterdam: NAI010 Publishers.
- Byun, N., Choi, Y., & Choi, J. (2014). The Neighborhood Unit: Effective or Obsolete? *Journal of Asian Architecture and Building Engineering*, 13(3), 617–624.
- Clossick, J. (2017). *The depth structure of a London high street: a study in urban order* (Doctoral thesis, London Metropolitan University, London, UK). Retrieved from <http://repository.londonmet.ac.uk/1278/>.
- Dogan, O., Han, J., & Lee, S. (2020). Analysis of Large-Scale Residential Development on Walking Environments in Surrounding Neighborhoods: A Before-and-After Comparison of Apartment Complex Developments in Seoul, Korea. *Sustainability*, 12(18), 7335.
- Druot, F., Lacaton, A., & Vassall, J.P. (2007). *Plus: large-scale housing developments: an exceptional case*. Barcelona: Gustavo Gili.
- Duncan, J.S. (1994). The politics of landscape and nature, 1992–93. *Progress in Human Geography*, 18(3), 361–370.
- Foot, J. (2000). The urban periphery, myth and reality: Milan, 1950–1990. *City*, 4(1), 7–26.
- Förster, W., & Menking, W. (Eds.). (2018). *The Vienna Model 2: Housing for the Twenty-first-century city*. Berlin, Germany: Jovis Verlag GmbH.
- Gaubatz, P. (1999). China's Urban Transformation: Patterns and Processes of Morphological Change in Beijing, Shanghai and Guangzhou, *Urban Studies*, 36(9), 1495–1521.
- Gehl, J. (1987). *Life between buildings: Using public space*. New York: Van Nostrand Reinhold.
- ——— (2010). *Cities for people*. Washington: Island Press.
- Gelézeau, V. (2008). Changing socio-economic environments, housing culture and new urban segregation in Seoul. *European Journal of East Asian Studies*, 7(2), 295–321.
- Habraken, N.J. (1998). *The structure of the ordinary: form and control in the built environment*. Cambridge, Mass.: MIT press.
- Hillier, B. (2007). *Space is the machine: a configurational theory of architecture*. London: Space Syntax.
- ——— (2009). Spatial sustainability in cities: organic patterns and sustainable forms. In Koch, D., Marcus, L. & Steen, J., (Eds.), *Proceedings of the 7th International Space Syntax Symposium*. (pp.K01:1–20). Stockholm, Sweden: Royal Institute of Technology (KTH). <https://discovery.ucl.ac.uk/id/eprint/18538/>.
- Hillier, B., & Hanson, J. (1984). *The social logic of space*. Cambridge: Cambridge university press.

- Hirt, S. (2010). *To zone or not to zone? Comparing European and American Land-use Regulation*. PNDonline II.
- Hwang, S.W. (2018, July). *Seoul's morphology as 'Apartment Complex City' shaped by housing development methods* [Paper presentation]. The 18th International Planning History Society Conference, Yokohama, Japan.
- Hwang, S.W., & Kim, H.J. (2020). The intensifying gated exclusiveness of apartment complex boundary design in Seoul, Korea. *Planning Perspectives*, 1-11.
- IPCC (2018). *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., Zhai, P., Pörtner, H.-O., Roberts, D., Skea, J., Shukla, P.R., Pirani, A., Moufouma-Okia, W., Péan, C., Pidcock, R., Connors, S., Matthews, J.B.R., Chen, Y., Zhou, X., Gomis, M.I., Lonnoy, E., Maycock, T., Tignor, M., and Waterfield, T. (Eds.)]. In Press.
- Jacobs, J. (1961). *The death and life of great American cities*. New York: Vintage.
- Jung H.Y., Kim, S. I., & Lee J. S. (2012). *Building the Future of Seoul, Prospects and Policy Agendas in the Context of Spatial Evolution* (Report No. 2012-PR-56). The Seoul Institute.
- Kan, H.Y., Forsyth, A., & Rowe, P. (2017). Redesigning China's superblock neighbourhoods: Policies, opportunities and challenges. *Journal of Urban Design*, 22(6), 757-777.
- Kakao (n.d.). *Kakao Map* [Street view]. <https://map.kakao.com/>
- Korea National Housing Corporation. (1981). *Housing Complex Overview, 1978-1980*. <https://www.codil.or.kr/viewDtlConRpt.do?gubun=rpt&pMetaCode=OTKNRK040390>.
- Kim, J.H. (2011). *Jamsil District Comprehensive Master Plan (1974) in the context of Urban Planning of Seoul during 1960-1970s*. (Doctoral thesis, University of Seoul, Seoul, Korea). Retrieved from <https://scienceon.kisti.re.kr/srch/selectPORSrchArticle.do?cn=DIK00012379497>.
- Kim, S.H. (2018). High Density Dilemmas: Apartment Development vs. Urban Management Plan in Seoul. *Seoul Studies*, 19(4), 1-19.
- ——— (2020, Oct 01). *Lessons from Seoul: The Inequality of Density in Megacities*. TRANSFER Global Architecture Platform. Retrieved from <https://www.transfer-arch.com/transfer-next/lessons-from-seoul/>.
- Kim, D.K. (2021, May 20). Accumulating aging infrastructure, new investment plan is urgently needed. *Korea Construction Newspaper*. <http://www.conslove.co.kr/news/articleView.html?idxno=68591>.
- Kim, S.H., Cinn, E., Ahn, K., Kim, S., Chung, I., & Enos, R. (Eds.). (2016). *The FAR Game: Constraints Sparking Creativity: on the Korean Front Line: the Korean Pavilion, Biennale Architettura 2016, May 28-November 27, 2016*. Seoul: Space books.
- King, R. (2018). *Seoul: Memory, reinvention, and the Korean wave*. Honolulu: University of Hawaii Press.
- Korea Legislation Research Institute. (n.d.). *Law Search*. https://elaw.klri.re.kr/eng_service/lawAllSearch.do?pCode=01.
- Korean Pavilion 12th International Architecture Exhibition VENICE BIENNALE Aug 29 – Nov 21, 2010. (n.d.). *RE.PLACE.ING: Documentary of changing Metropolis Seoul*. Retrieved from <http://www.korean-pavilion.or.kr/10pavilion/index.html>.

- Kwon, Y.D. (2012). *The Issues and Policies in Urban Planning of Seoul in the 1960s* (Report No. 2012-BR-14). The Seoul Institute.
- Lee, M.K. (2012). *The Tyranny of the Straight line: mapping and constructing Parijs, 1791-1889* (Doctoral thesis, Northwestern University, USA).
- Lee, J., & Park, S.H. (2017). Exploring spatial layouts of the pedestrian paths in apartment complexes within large-scale residential developments. *Journal of the Architectural Institute of Korea, Planning and Design Section*, 33(2), 859-100.
- Lefebvre, H. (1991). *The production of space*. Oxford: Blackwell.
- Lefebvre, H., & Goonewardena, K. (2008). *Space, difference, everyday life: Reading Henri Lefebvre*. New York: Routledge.
- Lefebvre, H., Kofman, E., & Lebas, E. (1996). *Writings on Cities*. Oxford: Blackwell.
- Lehnerer, A. (2009). *Grand urban rules*. Rotterdam: 010 Publishers.
- Levy, A. (1999). Urban morphology and the problem of the modern urban fabric: some questions for research. *Urban morphology*, 3, 79-85.
- Land and Geospatial Informatrix Corporation (2016). 2016 *Giving wings to the land: 2050 Future Voyage of Korea* (Report No. 2016-01). <https://www.lx.or.kr/kor/publication/future/list.do?pageIndex=4>.
- Lynch, K. (1960). *The image of the city*. Cambridge, Mass.: MIT press.
- Marshall, R. (2003). *Emerging urbanity: global urban projects in the Asia Pacific Rim*. London and New York: Spon Press.
- Mehaffy, M.W., Porta, S., & Romice, O. (2015). The “neighborhood unit” on trial: A case study in the impacts of urban morphology. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 8(2), 199-217.
- Ministry of Land, Infrastructure and Transport (n.d.). *National Spatial Data Infrastructure Portal, Open market*. [Geospatial data set] Retrieved from <http://data.nsdi.go.kr/dataset>.
- Moudon, A.V. (1986). *Built for change: neighborhood architecture in San Francisco*. Cambridge, Mass.: Mit Press.
- Nora, P. & Kritzman, L.D. (1996). *Realms of Memory: Rethinking the French Past, Vol. 1, Conflicts and Divisions*. New York: Columbia University Press.
- OECD (2013). *OECD Regions at a Glance 2013*. Paris: OECD Publishing. http://dx.doi.org/10.1787/reg_glance-2013-en.
- Perry, C.A. (1998). *The neighborhood unit : from the Regional survey of New York and its environs, Volume VII, Neighborhood and community planning*. London: Routledge.
- Portzamparc, C.D. (2010). *Open Block*: Christian De Portzamparc. Brussels: Archives d'Architecture Modern.
- Rohe, W.M., (2009). From local to global: One hundred years of neighborhood planning. *Journal of the American planning association*, 75(2), 209-230.
- Rofo, Y. (1995). Space and community-the spatial foundations of urban neighborhoods: an evaluation of three theories of urban form and social structure and their relevance to the issue of neighborhoods. *Berkeley Planning Journal*, 10(1), 107-125.
- Rowe, P.G. (2005). *East Asia Modern. Shaping the Contemporary City*. London: Reaktion Books.
- Rowe, P.G., & Kan, H.Y. (2014). *Urban Intensities: Contemporary Housing Types and Territories*. Basel: Birkhäuser.
- Rowe, C., & Koetter, F. (1978). *Collage city*. Cambridge, Mass.: MIT Press.

- Ryan, B. D. (2006). Morphological change through residential redevelopment: Detroit, 1951-2000, *Urban Morphology*, 10(1), pp.5-22.
- Salingaros, N.A. (2000a). The structure of pattern languages. *Architectural Research Quarterly*, 4(2), 149-162. Retrieved from <https://applied.math.utsa.edu/~yxk833/StructurePattern.html>.
- Salingaros, N. A., & van Bilsen, A. (2005). *Principles of urban structure*. Amsterdam: Technepress.
- Seo, Y.H. (2017, June). Autonomous vehicles market and policy trends. *Monthly software oriented society*, Software Policy & Research Institute. Retrieved from https://spri.kr/posts/view/21830?code=industry_trend.
- SMG (1965). *Seoul City Master Plan*.
- ——— (1977). *Urban Planning History Book*. Retrieved from <http://ebook.seoul.go.kr/Viewer/1P6U7N65U2ZA>.
- ——— (2014). *2030 Seoul City Master Plan*. Seoul Metropolitan Government. <https://urban.seoul.go.kr/view/html/PMNU2020000000>.
- ——— (2015). *2025 Seoul City Urban Regeneration Strategic Plan*.
- ——— (2017). *Establishment of Apartment District Management Plan*. <https://news.seoul.go.kr/citybuild/archives/64312>.
- ——— (2020). Major Statistics on Senior population in Seoul, *e-Seoul Statistic*, 74. Retrieved from stat.seoul.go.kr/pdf/e-webzine74.pdf.
- ——— (n.d.). *Seoul Open Data Platform*. [Geospatial and statistic data set] Retrieved from <https://data.seoul.go.kr/>.
- Seoul Museum of History (2011). *Seoul, from ruins to Regeneration II: 1963-1966*. https://museum.seoul.go.kr/CHM_HOME/ebook/ecatalog.jsp?Dir=121&catimage=.
- ————— (2013a). *Build assault! Mayor Hyun-Ok Kim's Seoul 2: 1968-1970*. https://museum.seoul.go.kr/CHM_HOME/ebook/ecatalog.jsp?Dir=83&catimage=.
- ————— (2013b). *Permanent exhibition of 600 years of Seoul*. https://museum.seoul.go.kr/CHM_HOME/ebook/ecatalog.jsp?Dir=92&catimage=.
- ————— (2015). *Mole Mayor Taeksik Yang 2: 1973-1974*. https://museum.seoul.go.kr/CHM_HOME/ebook/ecatalog.jsp?Dir=53&catimage=.
- ————— (2016). *Northeastern Seoul: From Crop Fields to Forest of Apartment*. https://museum.seoul.go.kr/CHM_HOME/ebook/ecatalog.jsp?Dir=467&catimage=.
- ————— (2019). *Banpobon-dong: South Seoul to Old Banpo*. https://museum.seoul.go.kr/CHM_HOME/ebook/ecatalog.jsp?Dir=521&catimage=.
- ————— (n.d.) *Seoul History Archives* [Images]. https://museum.seoul.go.kr/archive/NR_index.do.
- Seoul Solution (2017). *The Land Readjustment Program*. Key Policy. <https://seoulsolution.kr/en/node/6381>.
- ————— (n.d.). *Key Policy*. https://seoulsolution.kr/en/seoulpolicy#mobile_menu.
- Sim, D. (2019). *Soft City: Building Density for Everyday Life*. Washington: Island Press.
- Statistic Korea (2012). *Future household forecase for city and province: 2010-2035*. <http://kostat.go.kr/assist/synap/preview/skin/miri.html?fn=ca2f1208511936731090952&rs=/assist/synap/preview>.
- ————— (n.d.). *Korean Statistical Information Service* [Statistical data set]. Retrieved from <https://kosis.kr/index/index.do>.

- The Seoul Institute (2015). How much will the number of ultra-small (1~2 person) households in Seoul increase?. *Seoul Infographics*, 140. Retrieved from <https://www.si.re.kr/node/52187>.
- ----- (2017). *Seoul and the global metropolitan cities: Comparison of urban changes after the Millennium*. The Seoul Institute. <https://data.si.re.kr/node/55512>.
- ----- (n.d.). *The Seoul Research Data Service* [graphs]. <https://data.si.re.kr/>.
- Turner, J. F. C. & Fichter, R. (Eds.). (1972). *Freedom to build. Dweller control of the housing process*. New York: Collier Macmillan.
- United Nations Human Settlements Programme (2019). *Land readjustment in the republic of Korea: A case study for learning lessons*. <https://unhabitat.org/land-readjustment-in-the-republic-of-korea-a-case-study-for-learning-lessons>.
- Van Dorst, M.J. (2005). Privacy Zoning. In P. Turner & E. Davenport (Eds.). *Spaces, Spatiality and Technology* (pp. 97-116). Dordrecht: Springer, Dordrecht.
- Vigano, P. (2016). *Territories of Urbanism: The project as knowledge producer*. Lausanne: EPFL Press.
- Vworld Geospatial Information Open platform (n.d.). *Map* [Past aerial images]. Retrieved from <https://map.vworld.kr/map/v3maps.do>.

