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Neighborhood ribbon:
Integrated with local provision and public-shared space

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Preface:

Located in north China, Tianjin is one of the four central government-control cities. I lived there for 19 years before I moving to the UK and then the USA to pursue my architecture dream. Similar as the other mega cities in China, Tianjin is a lovely and diverse metropolis with a rich character, until recently the urban conditions started to change rapidly. The dramatic urbanization has great impact on peoples' daily lives. Most people in urban areas live in commercial residential towers without engaging and sharing their lives with others. It is tragic that one does not know one's neighbor's name; one does not take care of the community environment, or the security issues because property managers take charge of everything. Moreover, community services are absent on neighborhood scale. People are forced to driving far away from the local community to access essential services.

This is a completely different situation compared with my childhood when everyone knew everyone in the neighborhood, elder took care of the young, residences shared small gardens for growing food, and convenient stores were widely available.

I miss this way of life, but it is hard to find such healthy living community in new urban areas. I researched and defined the existing problems of our current communities and neighborhoods, investigated

different strategies, and proposed an optimum scenario to response to the existing urban condition. The purpose of this M.Arch thesis at the University of Washington, is to propose an architecture project, in order to promote a better living environment for our society.

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Chapter 1 Introduction

Problem statement

In the early years of the new millennium, massive new master planning has become the dominant force of China's urban transformation.

The quality of this urban transition in ecological, socio-cultural, and economic terms is crucial to the maintenance of sustainable living conditions in the urban context. It is especially critical to consider access to community services and public space at both the metropolitan and neighborhood scales. (Figure 1.1)

Since the 1980s, China's open-market economic policy has promoted 'the movement of village-based society to increasing urbanization'^[1]. Urban land reform and comprehensive urban development has led to a property boom in many Chinese cities. Housing has become an increasingly expensive individual consumer good as both; it, as well as the surrounding environment, has become very commercialized. Modern urban life has brought not only an abundant supply of consumer goods, but also a new concept of dwelling, accompanied by modern technology and culture.^[2] Most traditional Chinese houses

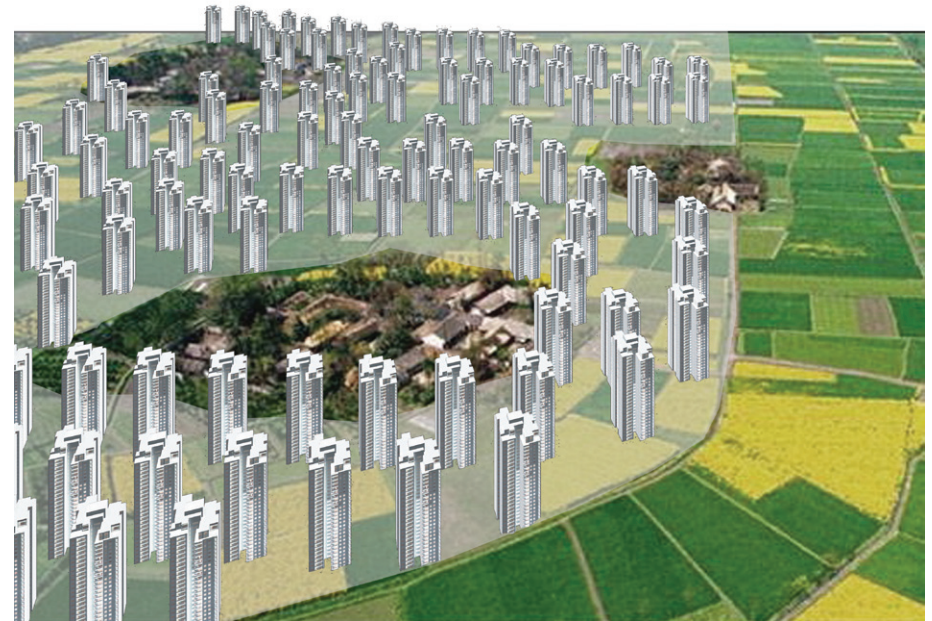


Figure 1.1 China urban expansion

1 John Friedmann, China's urban transition, p.39

2 Ray Forrest and James Lee, Housing and social change, p.185

are grouped around public facilities and organized to form a coherent environment for residential use. New design solutions have moved away from arranging relentless groups of residential blocks, and have attempt to integrate the original local landscape within the housing development.

^[3]Each group of housing is surrounded by fences or walls; pedestrian pathways are well lit; road surfaces are of good quality, plantings are plentiful and street furniture is provided for residents. The private spaces are well protected and isolated from the public streets (Figure 1.2).

While these represent important improvements in many new housing developments, most of these residential districts do not meet the most basic needs of their inhabitants. Although a variety of service infrastructures have been planned, they have not been realized due to a lack of commercial motivation or well organized social welfare system. It usually requires years or even decades for a mature community with sufficient local services to meet the neighborhood's demands to evolve. For instance, people living within these new housing development find it difficult to buy groceries, find a place for breakfast, get a haircut or send their children to school. The new residential areas face other problems as well including the maintenance and renovation of apartment buildings, the maintenance and renewal of accessory facilities, bicycles and vehicles



Figure 1.2 Modern Chinese residential compounds

3 Ya Ping Wang and Alan Murie, Commercial Housing Development in Urban China, Urban Stud 1999 36: 1475

the management of public space, public security, and the area's landscape.

Current commercial and comprehensive development lacks integration between different urban activities and land use. While contemporary large-scale real-estate developments are creating apartment units of better quality, there is a lack of local services and infrastructure and the integration of housing and local amenities such as retail-scale shopping and recreation services, is absent.

Local economic performance and political forces in China are the two main factors in promoting better living conditions and a strong sense of community. According to Qingwen^[4] the World Resources Institute in 2000 indicated that 170 million rural Chinese inhabitants will migrate to cities between 2000 and 2010. Contrary to popular belief Chinese peasants are not naturally 'rooted' in their villages any more than are agriculturalists elsewhere in the world, and are moving to cities as a way of improving their prospects in life.^[5] However, in the past 25 years, economic growth has replaced the existing urban residential communities in the hearts of the cities, with

4 Qingwen Xu, Julian C. Chow, urban community in China: Service, participation and development, International journal of Social Welfare 2006, p.201

5 Si-Ming Li , Housing Tenure And Residential Mobility In Urban China, p.635

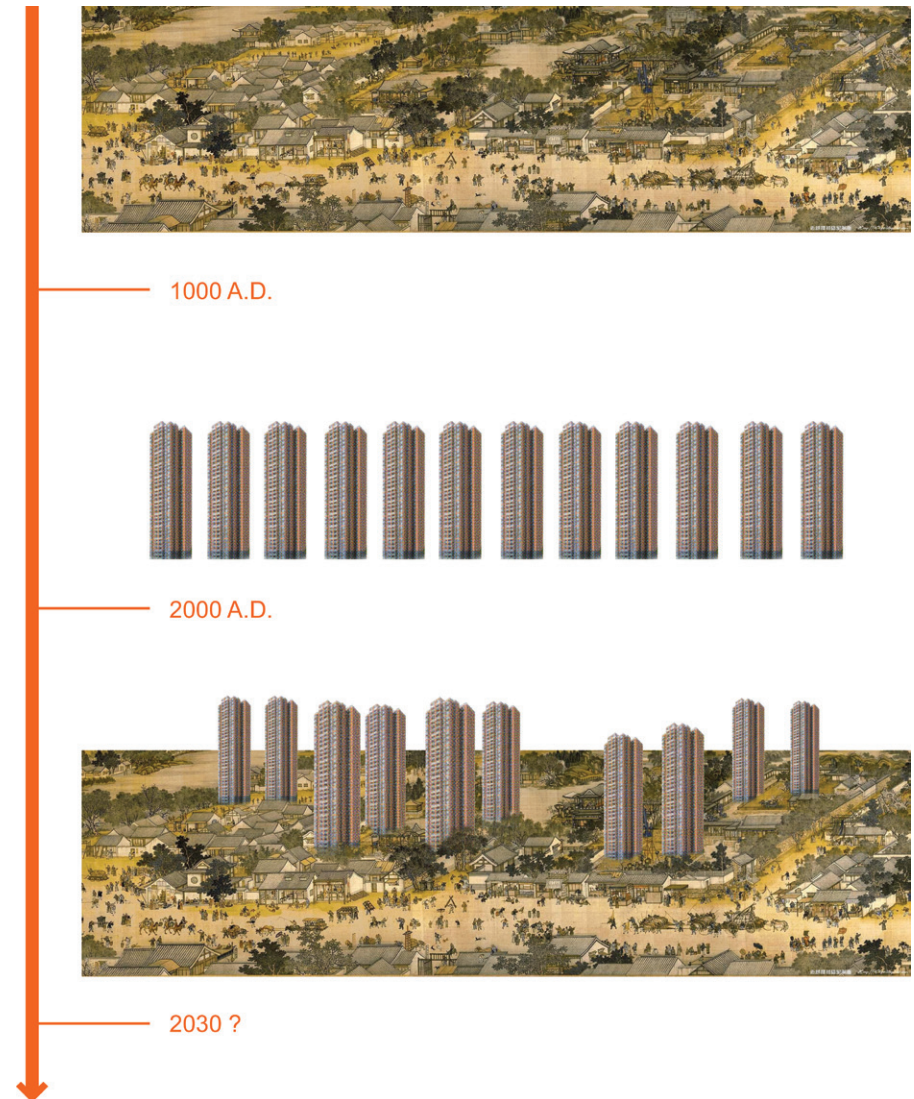


Figure 1.3 The vision: fusion between old and new

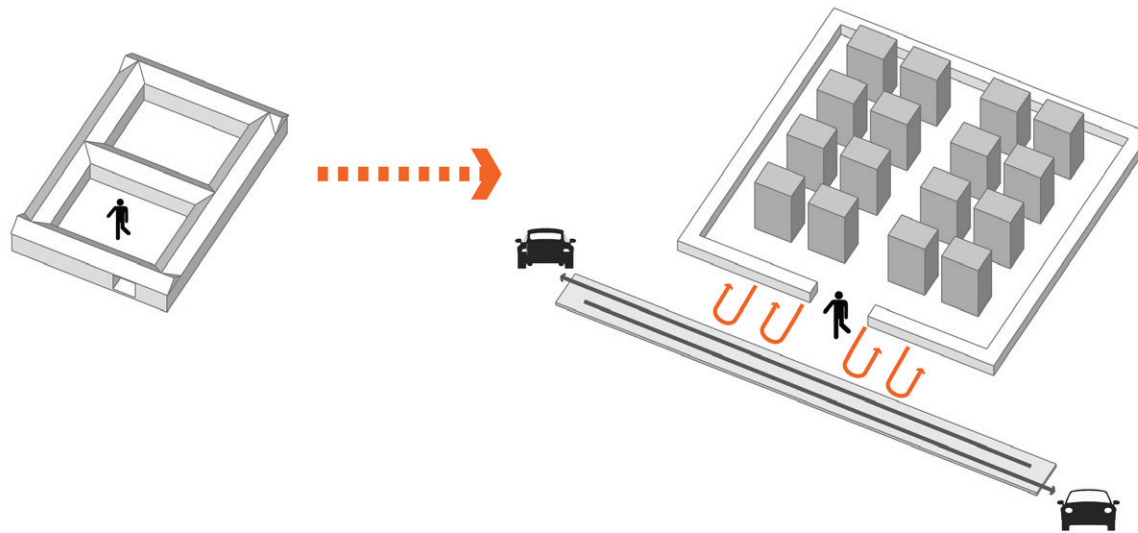


Figure 1.4 Traditional Chinese courtyard vs. Modern Chinese residential compound

commercial and business development including hotels, shopping center and offices. As a result, significant portions of the country's rural areas have transformed into new urban communities due to China's transformation. The provision of commercial amenities and community services in these new urbanized areas is largely dependent upon the communities ability to develop a local services network, the residents' ability to provide for themselves ^[6] and the effectiveness of service delivery and transportation systems.

6 Qingwen Xu, Julian C. Chow, urban community in China: Service, participation and development, International journal of social welfare 2006, p.205

Project Rationale

The concept of urbanization and the idea of the public realm has been embedded in Chinese history for centuries. A famous Chinese painting from the Song dynasty (Figure 1.3) reflects that a thousand years ago the integrated urban system was well established. The painting shows the interaction between individual dwelling units, commercial enterprise and public space. But with China's population now 20 times the size compared with China's population one thousand years ago,

most Chinese citizens in the recent constructed urban areas in live high density residential towers. This thesis proposes to synchronize the old and new in a better way.

The making of community is an active social process in which people consciously engage, it is not something that happens once but is something that is continually evolving like a natural environment. A truly sustainable living environment advances mankind as the core, makes residences convenient, comfortable, and more closely connect with people's real living habits, provides living landscapes, reduces traffic burden, reduces the energy consumption, and improves the water and waste recycle system.

The significance of 'enclosure' has long been understood in Chinese culture as a measure of security and protection. Small scale dwellings such as Hakka's circular housing, courtyard housing, or even the Forbidden City, are defined by a rigid wall at a larger scale. Moreover, at a macro scale, China's great wall defends the nation against barbarians. In contemporary urban China, the vast majority of new housing is also enclosed within walls of one sort or another. Duanfang argued^[7] that 'the property developers have continued the tradition of work unit type to enclose each new housing estate with a high wall. Even the

'block-type' community is usually constituted by a number of smaller enclosed compounds'. Where the newly demarcated community lies entirely within a single compound its 'naturalness' is no doubt enhanced by the spatial configuration. However, when a community is spread across several walled compound it is clearly more difficult to foster a sense of belonging to a common social units. Therefore, the new Chinese community requires considerable new investment in community infrastructure (Figure 1.4).

7 Duanfang Lu, Remaking Chinese urban form,p.135

Thesis Overview

This thesis proposes strategies to improve the distribution of services and the network of public open space at the neighborhood scale.

The new services will help to reshape the residential community by activating the boundary of enclosed residential compounds, provide diverse commercial facilities and services and extend the vibrant living environment throughout the new urban context. A 'generic' framework is proposed to provide a diversity of services specific to each neighborhood. Once the distribution prototype is established, it can be replicated through a centrally managed system. As most new residential projects are developed under the same patriarchal system, variations of the prototype can be easily adapted to different locations and conditions.

An essential task of this thesis is to re-evaluate the existing service network in recently developed residential areas, and to provide the essential amenities and commercial services that missing. At the same time, the proposal strive to integrate existing development with the landscape and crossing the boundaries of multiple independent residential development (Figure 1.5). A primary goal is to provide a hare catalyst to enable neighborhood communities to create their own service networks as much as possible.

These local networks will provide commercial amenities including farmers market, convenience stores, super markets, and restaurants, as well as essential services including outdoor recreation, entertainment, post office, property maintenance offices.

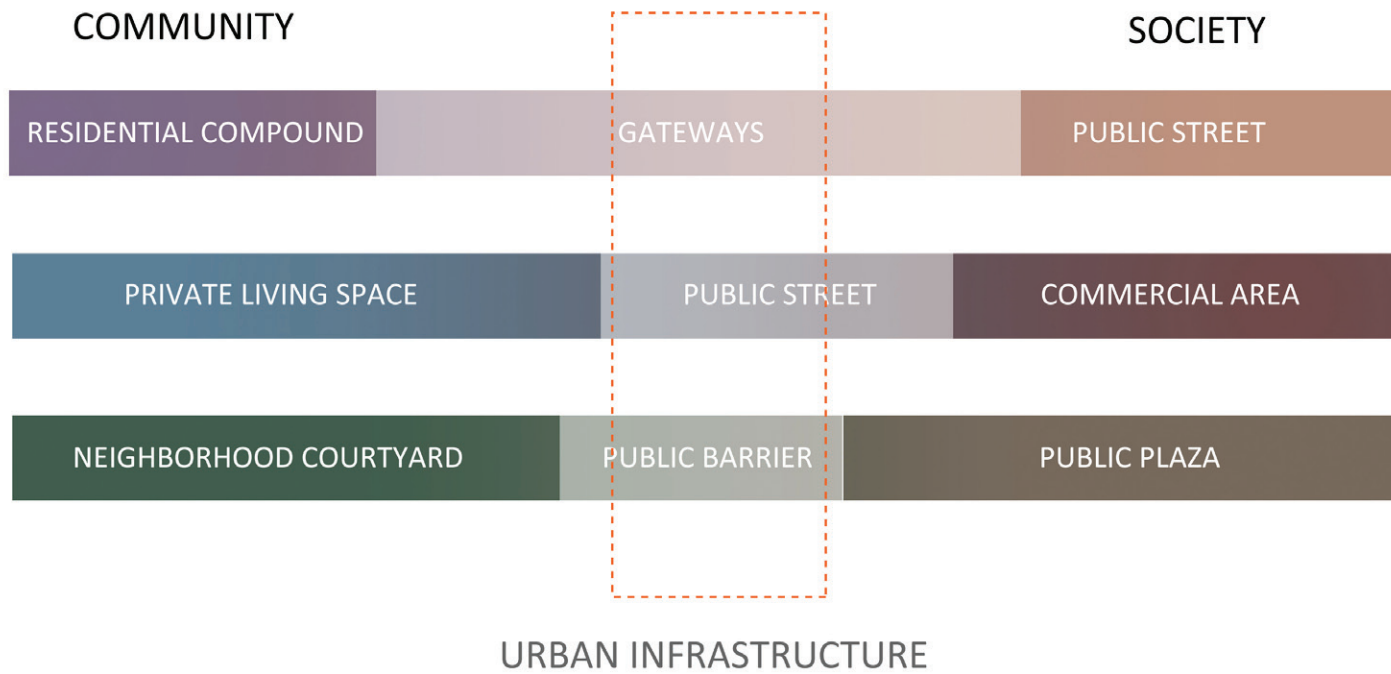


Figure 1.5 Community, Society and urban infrastructure

Chapter 2: Theoretical Framework

Literature Review: the need of local service

To understand such a framework can connect isolated neighborhoods while providing essential services and public open space it is necessary to study the salient characteristics of new constructed residential prototypes. In modern China, residential zones are typically isolated from commercial areas due in part to land-use policies and zoning regulations developed nearly 100 years ago to reduce the public health hazards associated with overcrowded and unsanitary urban living. In recent years, further consolidation of shopping and other commercial interests has led to “big-box” stores and mega malls accessible only by automobile. Since the ‘open-door policy’ started of the 1980s, the transportation system has become a driving force of change to the life style of China’s urban population. As individuals need to cover substantial distances to accomplish virtually any task, such as buying groceries, seeing a doctor, or visiting a friend, the automobile has become the essential link. However, for neighborhoods to thrive, more intimate environments based on the scale of human activities are necessary to fulfil daily necessities. According to Duanfang^[8] and Dieter Hassenpflug^[9] most of residential areas in China are based

8 Duanfang Lu, Remaking Chinese Urban form, p.124-142

9 Dieter Hassenpflug, the urban code of China, p.73 –P81

on residential blocks, neighborhood units and the micro-district as described below. By comparing different residential configurations one can evaluate the efficiency and quality of community services; and thus generate a framework to enliven and advance the quality of life in existing neighborhoods.

Residential block: Semi-private and public spaces (since 1950s)

The typical residential development is arranged on a south orientation in response to health considerations including the demand for light, air, and sun. Therefore, the linear housing structures follow an east-west axis, with a high density footprint. In general, windows and balconies face planted green landscape strips on the south side of each block. This is an efficient strategy generally applies to middle class and low income housing developments^[10]. The gaps between the individual residential blocks, are typically occupied by green gardens, which function as neighborhood courtyards and private gathering spaces within the residential compounds. These semi-private spaces are the responsibility of the immediate communities, which is represented by the municipal

10 Dieter Hassenpflug, the urban code of China, p.73 –P81

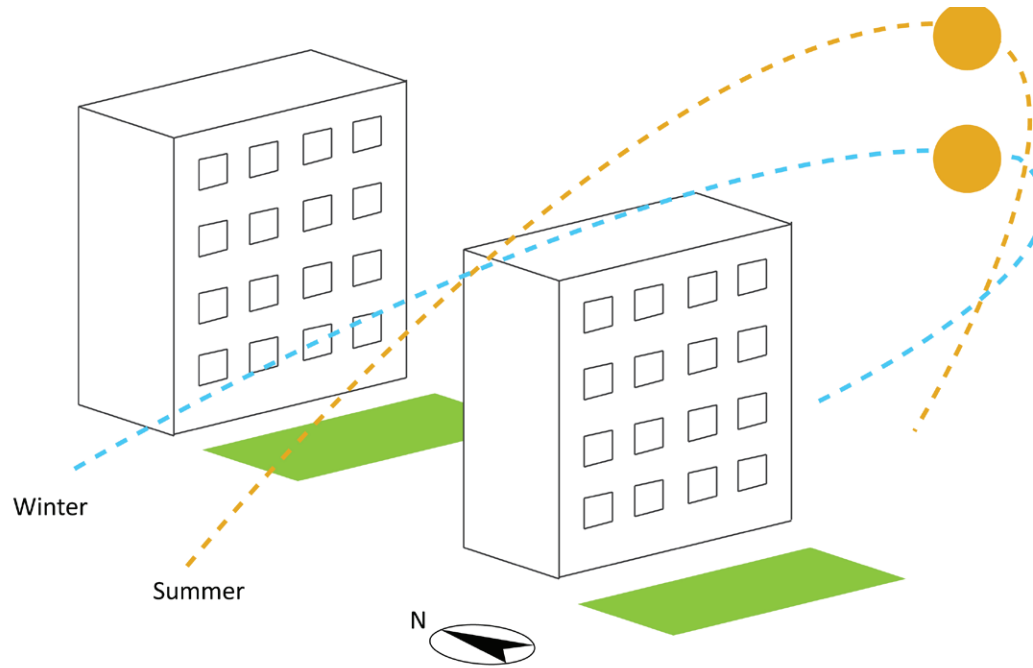


Figure 2.1 The individual residential block

authoritie or property management agency at that level. As a result, the appearance of these controlled spaces is clean and orderly. As the inhabitants of the surrounding area treat these spaces respectfully. In contrast, the use of public open space is less respectful with waste paper, bottles, cigarette butts, and other kinds of other debris carelessly left behind after events (Figure 2.1).

The neighborhood unit: (1970s)

The Neighborhood Unit fused a range of early 20th Century visions and actions into a few tangible design principles. First, 'clear boundaries are determined by wide, arterial streets to control the movement of through traffic past the neighborhood'.^[11] Grouping of local shops are located at the periphery of neighborhood while public parks comprise about 10 percent of the area. The Neighborhood Units represents a design solution that integrates urban functions and social interactions.

11 Duanfand Lu, Remaking Chinese Urban form, p.135



Figure 2.2 The neighborhood unit

The provision of community facilities creates an environment which strengthens community and moral bonds. Similar to the traditional Chinese courtyard house, the modern residential district not only defines precise borders, but also provides a clear separation of interior and exterior.^[12] As a result, their interior access pattern separates from not part of the urban street infrastructure. In addition, they feature a community core, in the form of a school, cultural center or community green space, which symbolically establishes the differentiation between interior and exterior. Traditionally, the planning of public services and

12 Ruixuan Li, Xianghui Li, Pan Zhang, from space to place P137

public housing have been completely separate processes controlled by different civil departments, with no influences upon each other. As a result, Duanfang describes that 'in Chinese cities today, housing is exclusively planned, built, and marketed in the form of gated neighborhoods. Residential areas secured by walls and gates are still the standard in most of Chinese cities, the interior access system of individual residential buildings is completely cut off from the traffic infrastructure of open public space'^[13] (Figure 2.2).

13 Duanfang Lu, Remaking Chinese Urban form, p.140



Figure 2.3 Soviet influenced housing system, the micro-district

Soviet influenced housing system: the Micro-District (1980s)

According to Duanfang,^[14] micro-districts were introduced in the 1935 Moscow Plan, defined as a self-contained residential district, each of which features a service radius of 1000 to 1200 feet, made a residential complex. The micro-district concept was introduced to China translated from Russian and became a prototype for the residential master planning for the following 50 years. The district is a self-contained residential unit, with a service radius of 1000 to 1200 feet, with an

integration of housing and facilities, optimum service distances and a hierarchical spatial structure, the Micro-District is similar to the Neighborhood Units. The Micro-District is designated to organize residents, services and facilities in an efficient manner while creating an aesthetically pleasing living space. The Neighborhood units, in contrast, disguised class conflicts in capitalist society by imposing a social and geographical unity. As the individual housing units are in similar size and orientation and the building blocks are of equal distances from each other, the overall layout does not suggest a social or economic

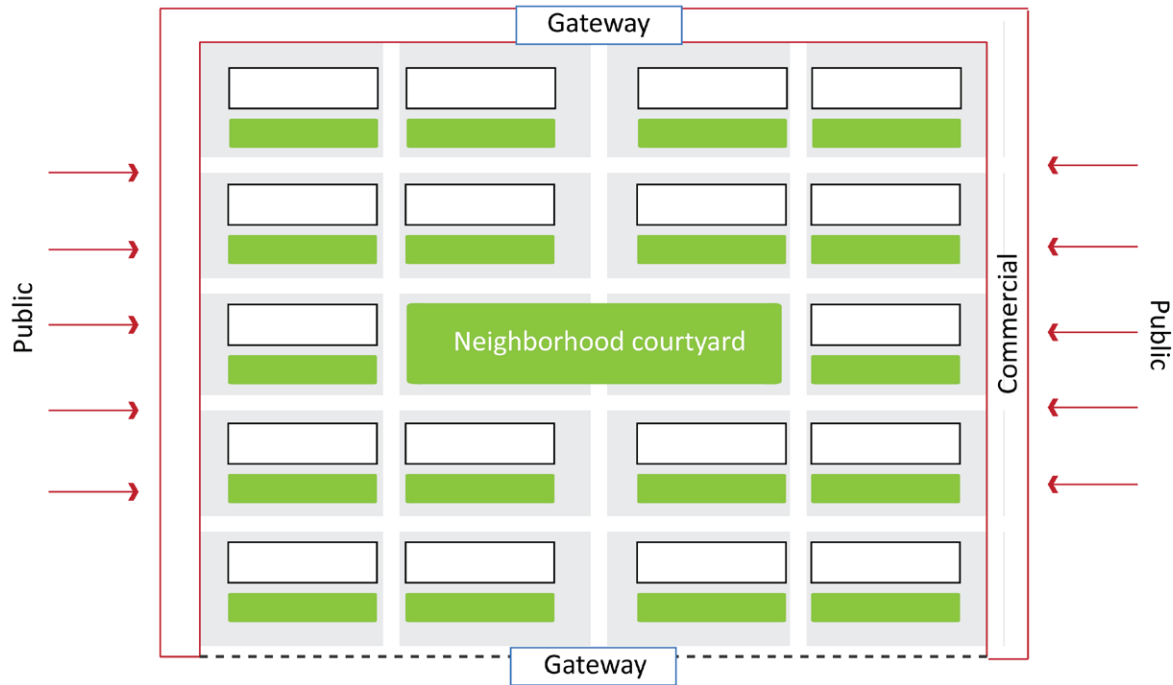


Figure 2.4 Integrated perimeter block strips

hierarchy.

The 1935 Moscow Plan strongly influenced residential planning and design in China for a half century. However, under this paradigm, residential development was not able to adequately respond to sweeping political, social and economical changes; Thus, the concept of 'Community Building' arose in the mid-1990s in response to the changing urban conditions under the new 'open door' policy by central government in China^[15]. Community Building is described as a form of

grassroots organization with a defined territory,^[16] it serves not only as a social service center, but also provides entertainment and substantial facilities to benefit merging neighborhoods. The following will describe how these new community service centers integrate with the residential compounds using the three typologies that best represent the community centers found in Chinese urban housing system (Figure 2.3).

p.272

16 Bray, D Social Space and governance in urban china

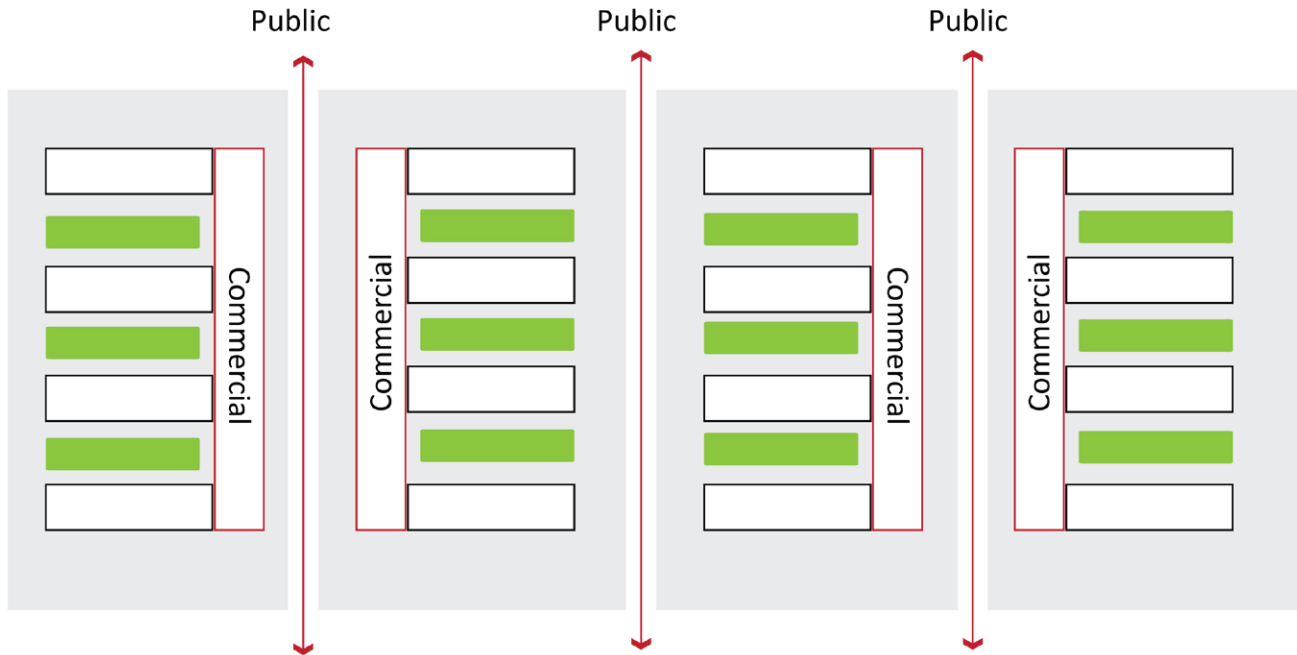


Figure 2.5 Neighborhood pedestrian street

Integrated perimeter block strips: (1990s)

The culturally rooted linear orientation paradigm of residential construction offers limited alternatives in urban planning and design. Hassenpflug contends that ‘the linear housing structure and perimeter block construction do not contradict each other; instead, both types complement each other harmoniously’.^[17] In my opinion, however, retail and commercial strips separated from enclosed residential

neighborhoods’ with walls, fences, and gates disengaged residents from their urban environment (Figure 2.4). Residents hardly benefit from this type of configuration as the commercial storefronts only face public streets, with no orientation towards the residential community. As a result, there is no traditional zone between private dwellings, semi-public services and public spaces. Within the housing slabs or blocks, there are typically neighborhood courtyards shared by residents, but with insufficient programs to encourage the use

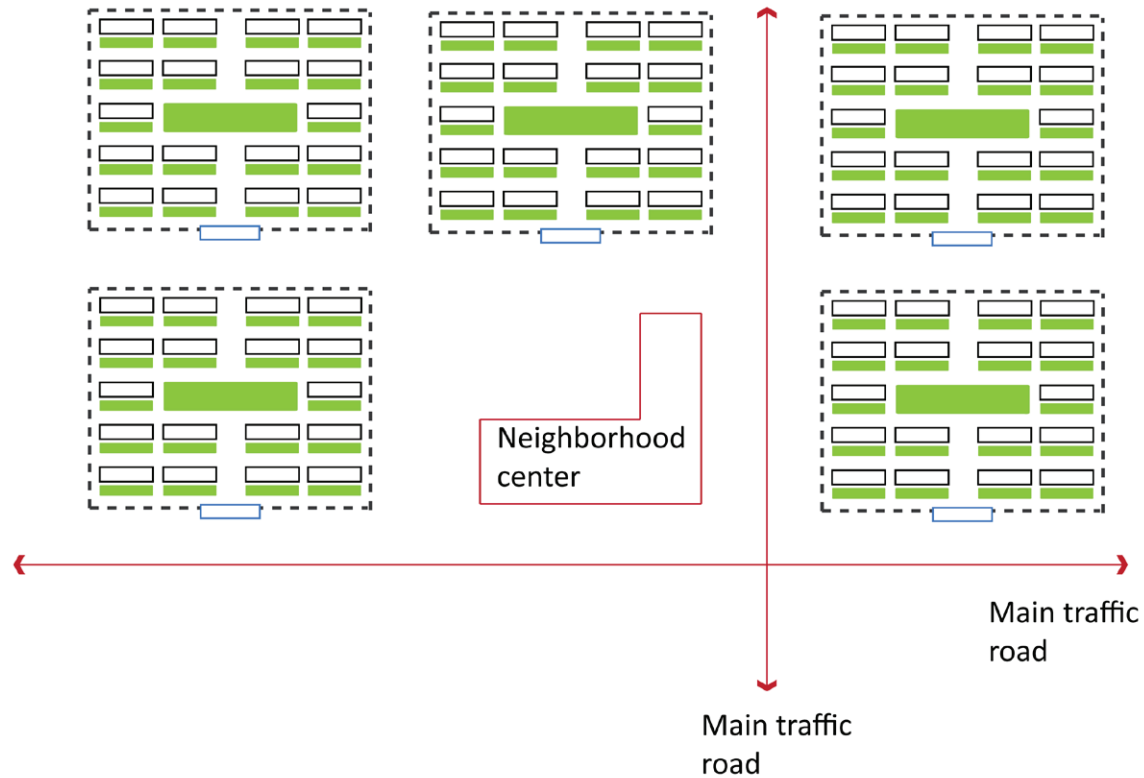


Figure 2.6 Neighborhood and district center

of the spaces, this “non-functional landscape’ makes the living environment looks ‘good’. This is in stark contrast with the ideal of traditional courtyard housing in China described above. As a result, one can observe how the quality of life in contemporary Chinese cities is shaped solely by commercial interests causing amenities and public open spaces to be disconnected from the immediate residential neighborhood.

The Neighborhood Pedestrian Street: (1990s and beyond)

In contrast to the soviet influenced housing compound, there is an ‘inverted’ version of the perimeter block strip, in which the neighborhood pedestrian street opens directly to the city road network. It is also publicly accessible, and attracts customers by the same means as other shopping streets and pedestrian areas. However, there is no division between semi-public and semi-private space in this type

of development. Public space directly connects to the private living environment by simply placing the commercial storefront beneath the residential block, without creating immediate zones for interaction and structured community activities. As a result, the neighborhood obtains little benefit from the so-called local service system which can also lead to the security and safety issues. (Figure 2.5)

Neighborhood and District Center: (2000s)

Recent Chinese urban planning regulations mandate that every new cluster of 'suburban' residential development including a shopping and service center. These centers are a Chinese version of the American shopping mall in an urban context. They are generally located at the core of an existing or planned city center or sub-center, and typically include a large supermarket, several small stores, and fast food restaurants. Some of them also offer their own bus shuttle services and delivery services. This prototype also reflects the rapidly increasing rate of car ownership in China. However, these centers are generally shared by multiple residential compounds sprawling across a mile or two with populations of 5,000 to 20,000 residents. As a result, it is difficult for people who live relatively far away to access the District Center without an automobile. In addition, the single use commercial nature of the

District Center offers little more than the shopping experience (Figure 2.6).

A lack of concern and even negligence in the planned development of urban public open space is reflected by the limited number of such spaces within the contemporary urban realm. There is a remarkable amount of ambiguous residual space, especially around the shopping center, which is devoid of a sense of places or any kind of amenities. As the most significant public areas have been zoned purely for commercial purposes, there is a lack of public space to sit down and have a rest, gather or engage in non-commercial social activities.

The above outlines some of the most common residential configuration within contemporary Chinese urban conditions and analyses the relationship between the living environment, local services and the public open space within each configuration. As described, most contemporary residential projects have been developed by private interests and sold or rented to individuals. The most typical condition is that of a large group of residential blocks or towers within a fenced or walled enclave to separate the private land from the public realm outside beyond the residential compound. This results in a separation between the large community, services and the individual living space.

Therefore, it is necessary to investigate some case studies to envision different configuration that promote a more integrated community and neighborhood.

Case studies

The following case studies offer several contemporary ideas as to how diverse neighborhood communities can be achieved in several ways. They provide different opportunities within the urban context to foster a healthy living community with sufficient services, amenities and public open spaces. Some of these design proposed by this thesis.

The selection of projects is based on several criteria outlined in chapter two including:

- The Projects are located in new urban context
- The context is a high density residential neighborhood
- Residential uses are integrated with community services
- There is careful consideration of semi-public space and private space

Case study 1: Horizontal Service Network

Designed by Steven Holl Architects, the Linked Hybrid is a high-rise mass-housing development located in Central Beijing, China. The 630,000 sf complex contains more than 700 apartments, commercial space, a hotel, a cinema, a kindergarten, and underground parking. The entire complex is a three-dimensional urban space in which buildings on the ground, underground and above ground are fused together. The eight block towers are connected on the twentieth floor by a ring of public programs including a health club, café, art gallery and exhibition space, all of which provides spectacular views over the city. The ground level offers open space for pedestrians, which ensures a small scale urban character. The public roof gardens on the intermediate level provide green space for outdoor activities. Public spaces on the ground, and upper levels function as inner focused social gathering spaces, resulting in a three dimensional experience of both the residential and public realms (Figure 2.7 to Figure 2.9).

Case study 2: Vertical Service Network

Located in the city center of Beijing, the Jian Wai Soho was designed by Riken Yamamoto and developed by Soho China. The project combines high rise residential buildings, commercial space, shops, parking, and landscaped courtyard to create a sophisticated, mixed-use complex near the Tonghui River. The 20 square-shaped mixed-use towers are arranged in a checker-board pattern so that the perimeter of each tower receives sufficient natural light as well as pedestrian flow. The multilevel public interface provides diverse opportunities within this urban complex as it separate automobiles and pedestrians, placing parking below grade and people on a landscape level. The top level of the public plaza provides 16 walking lanes with seating and green area to celebrate the pedestrian walkways that connect individual towers, and allow movement through the site from the urban context. A series of sunken gardens scattered throughout the site brings daylight to the parking level, and establishes a visually exciting rhythm of open space and levels (Figure 2.10 to Figure 2.13).

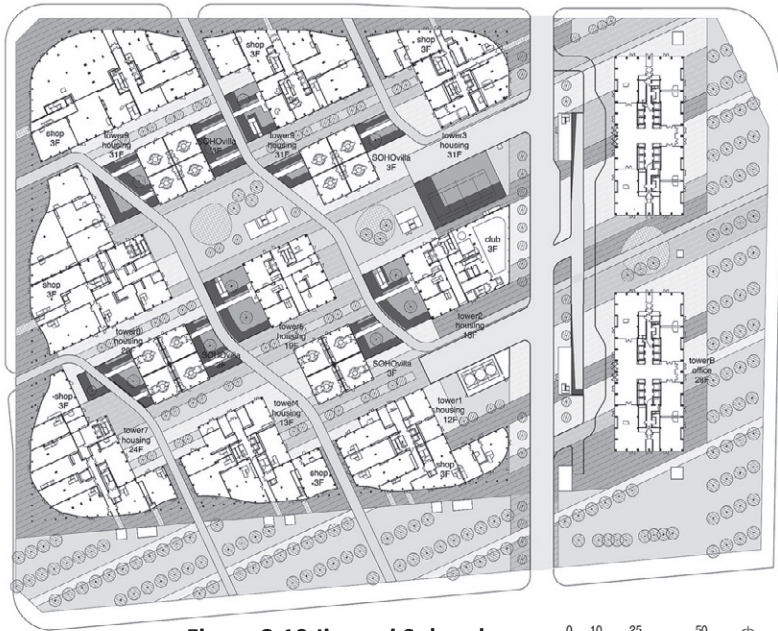


Figure 2.10 Jianwai Soho plan



Figure 2.11 Jianwai Soho perspective 1



Figure 2.12 Jianwai Soho perspective 2



Figure 2.13 Jianwai Soho perspective 3

Case study 3: Circulation of Urban Services

Located in Suzhou, China, this winning competition proposal for the Suzhou industrial Park business District by SWA Group is aiming to bridge old and new cultural historic heritage through the public open space. The master plan provides the connection between ecological, social environment, and urban landscape of Jinji Lake with the waterfront activities.

The design proposal responds to two major features of the urban context: the east-west axis from the Suzhou Old Town to the new central business district, and the grand tower at the center of the CBD. The complex is organized along a central urban axis enveloped by five district rings of landscapes and pedestrian walkways. The central plaza provides a strong anchor for the Suzhou corridor, creating access to commercial and residential developments. The surrounding circulation rings unify the grand scale of landscape and architecture while providing intimate encounters with the environment.

Each of the rings represents five themes – Garden, Urban, Forest, Culture, and Water.

- The Garden Ring connects the rooftops of office towers, hotels, and apartment buildings. Particularly, the residential gardens are supported by swimming pools, outdoor bars, workout areas, and ornamental gardens.
- The Urban Ring creates a commercial boulevard, and connects the light rail infrastructure.
- The Forest Ring creates a secure and attractive eco-corridor for residents and lays a green ecological foundation for the iconic building complex.
- The Culture Ring holds cultural facilities and institutions around the city plaza including performance arts center and educational facilities such as a children’s Exploratory.
- The Water Ring is a walkway loop on the water itself for a lake shore, enhanced by a music fountain.

The Suzhou Center integrates a historical city with a healthy environment.

(Figure 2.14 to Figure 2.17)

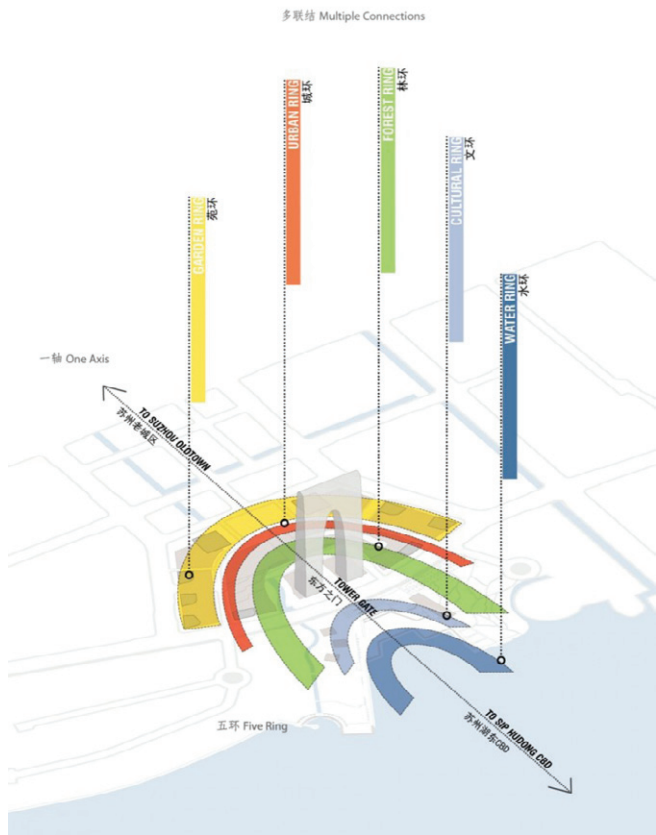


Figure 2.14 Suzhou Industrial CBD 1

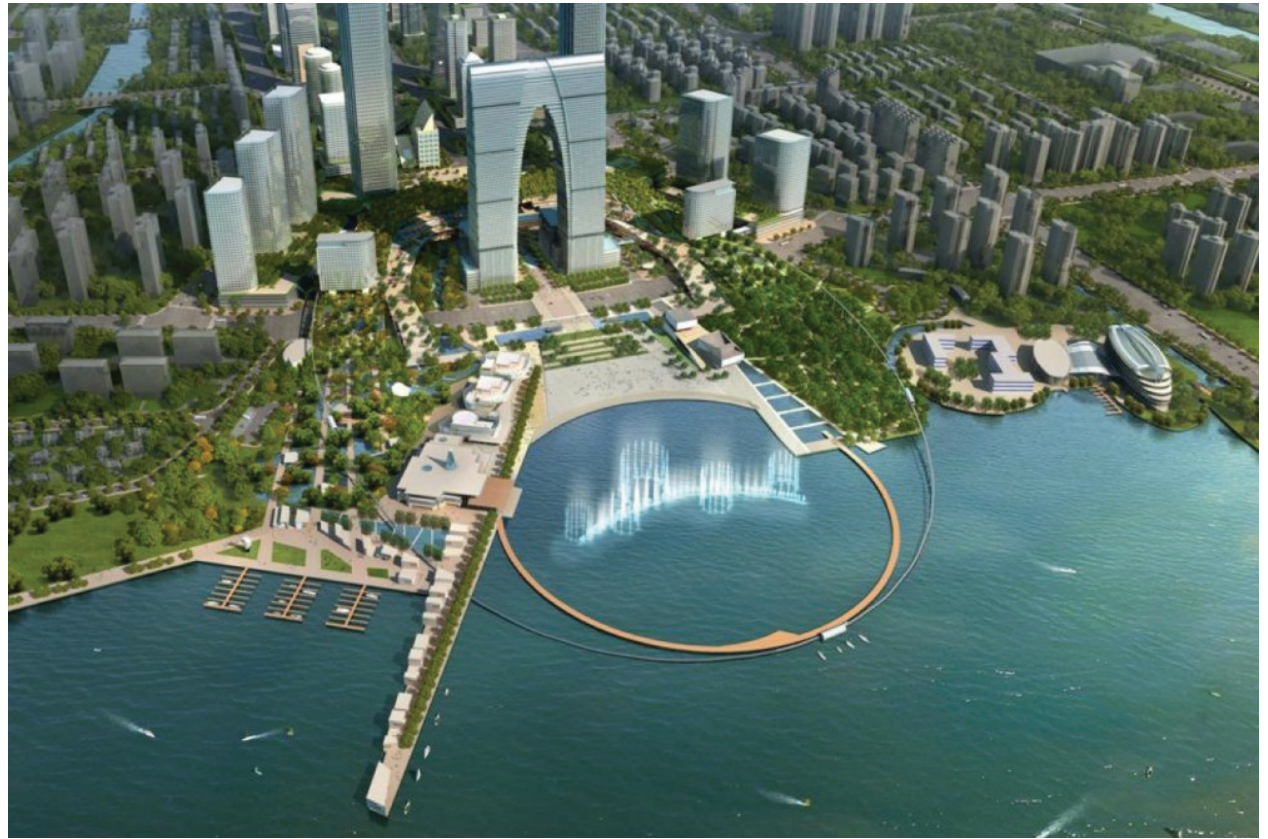


Figure 2.15 Suzhou Industrial CBD 2



Figure 2.16 Suzhou Industrial CBD 3

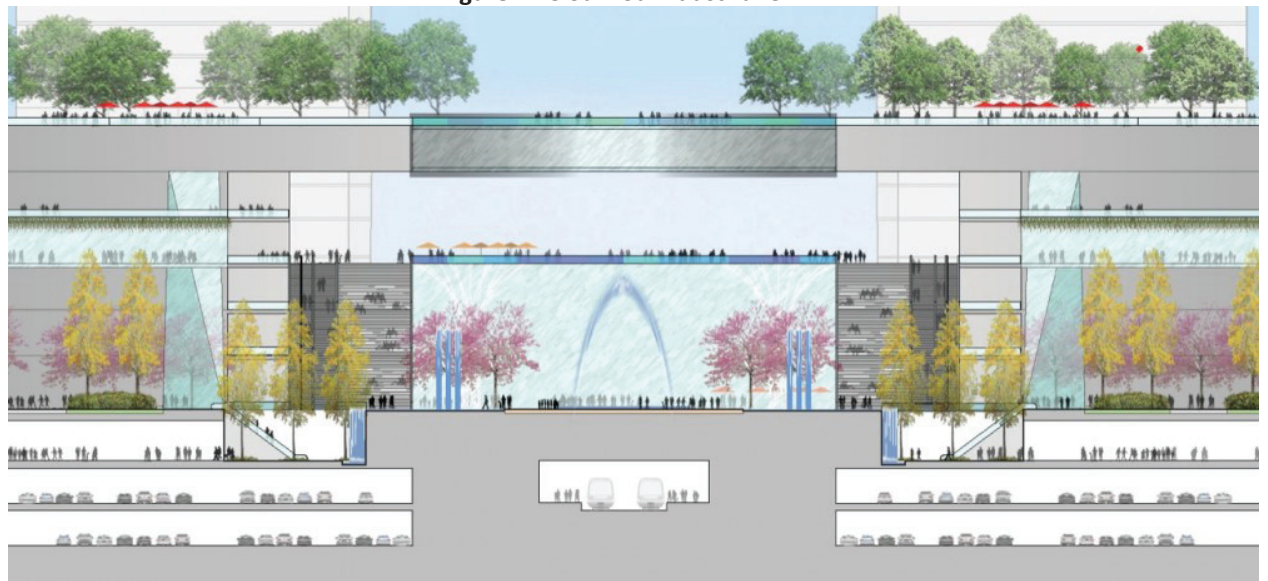


Figure 2.17 Suzhou Industrial CBD 4

Chapter 3: Methodology

Site Selection and Analysis

Site Criteria

This chapter outline the site selection criteria, used to determine the site location that best allows for a design response to the problem statement described above.

Neighborhood location:

Most communities within the existing urban areas are well established after decades of development, while local services typically being sufficient to meet residents' demands. In response, this thesis will focus on a new urbanized area, which has been developed within the last 5-10 years, and with ongoing construction phases.

Neighborhood size:

This thesis responds to a condition in which a series of adjacent high density housing enclaves have been developed by different developers, with no master planning in place to connect them. A residential population between 5,000 to 10,000 within high density living units

(apartments instead of houses) is required, so that multiple community services, amenities and public open space can be supported at a large scale.

Neighborhood building typologies:

A combination of high rise and low rise buildings is necessary to ensure that the services and amenities can benefit wide range of dwelling types. The typical residential community in the Chinese urban realm is organized as a group of row apartments or tower blocks, orientated to the south with greenbelts or traffic circulation between them.

Classification of residents:

Kevin Lynch^[18] notes that it is important to determine that who the residents are and what are their requirements for daily life. This may be obvious enough in a place already in use, but if the site is yet to be developed, one must predict what needs future residents may required. Thus, identifying potential residents by social class, personality, ages, and interest essential. As the provision of community

18 Kevin Lynch, Site planning, Cambridge [Mass.] 1972, p.97



Figure 3.1 City of Tianjin, China

services is a complex issue involving, different values and purpose, potential residents must be identified, and strategies devised to satisfy their diverse requirement without conflict.

Site analysis:

Located in north China, Tianjin City is one of the four national central cities of China (Figure 3.1). Governed as a directly-controlled municipality, Tianjin borders Hebei Province and Beijing City, bounded to the east by the Bohai Gulf portion of the Yellow Sea. Colonial

influence combined with the modern industrial revolution in the early 20th century have allowed the Tianjin to play a significant role in China's economic success. In recent years, the great urban expansion has pushed the city's boundaries towards new suburban areas. As land values have constantly increased over the last two decades, massive housing programs have been developed within the suburban areas. Farmers from the countryside have given up their farm land and immigrate to the new urban areas, As a result, more and more



Figure 3.2 History of Tianjin and population growth

producers are becoming consumers (figure 3.2).

During the course of urban expansion, the city's ring roads have established the boundary of the city constantly extending outward over time. The current Tianjin municipality is encircled by the 71 kilometer long Third Outer Ring Road completed in 1987, most major China National Highways and roads are linked to it, making it one of the busiest urban thoroughfares in the city. However, the ring road is not a highway as since it connects most of the arterial roads leading

towards the city center. Traffic lights have been installed at all major intersections, resulting in complicated traffic conditions but lower speed.

The green belts along the outer ring road and on the west side of the residential area have been designated as a linear green landscape to create a buffer zone between the traffic flow and residents; However, it fails to provide any benefit for the adjacent neighborhoods other than being a 'green belt'; in fact, the form of so-called 'ring road landscape'



Figure 3.3 Ring roads and the city

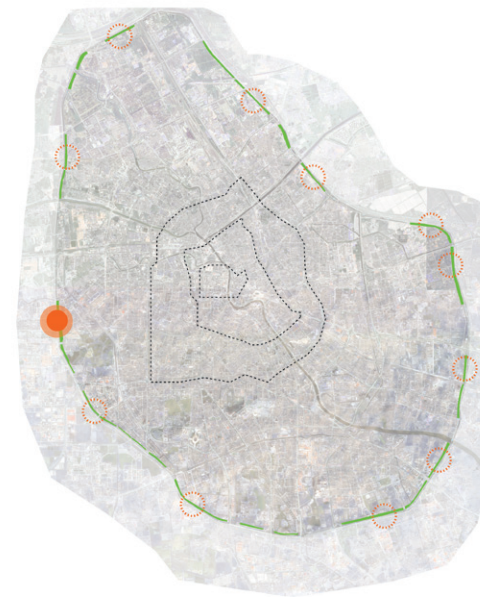


Figure 3.4 Ring roads and the green belts

is driven solely by political forces; while it appears pleasant master planned element from a bird's eye view, or from the highway; it is not used for recreation or any human activities.

The project site itself is located on the west part of the Third Ring Road in Xi Qing District, with large number of existing residential development on both sides of the road (Figure 3.3). There are also new residential developments currently under construction adjacent to the site. This area is quickly becoming a massively scaled urban residential area with



Figure 3.5 Figure & ground urban density

an exceptionally high demand for local services and amenities. The condition of the site is not a unique case, but is one of many emerging conditions that are taking place along the ring road (Figure 3.4).

The figure ground map above illustrates the density of the neighborhood (Figure 3.5) , 55% of the land area is constructed as enclosed residential compounds, with very limited services, amenities and public green space (figure 3.6). There are more than 10 of these

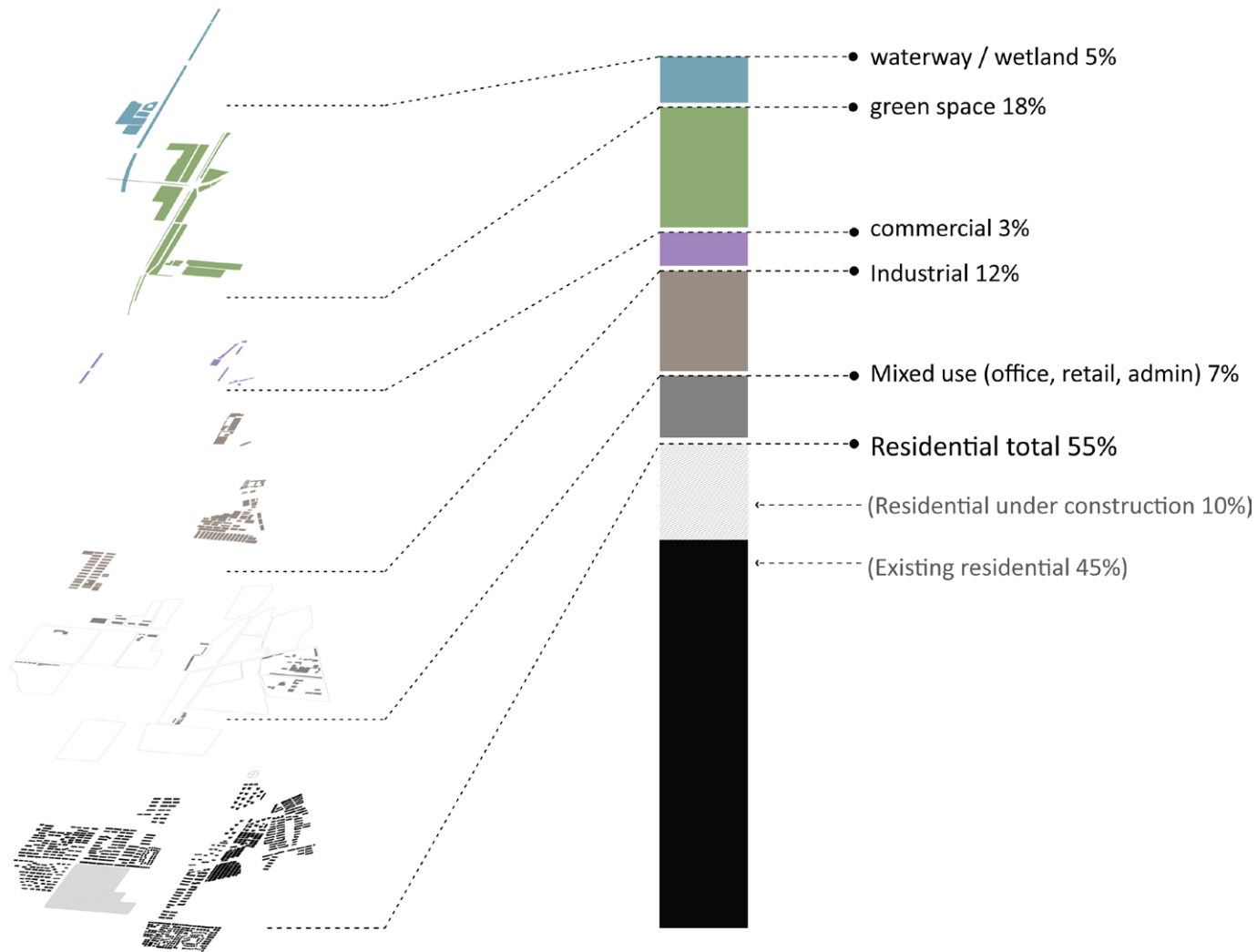


Figure 3.6 Area distribution

compounds within an area of 1 km². All have been developed by different developers as commercial residential projects, grouped within isolated urban blocks, and separated by major vehicular thoroughfares. The overall neighborhood offers the potential for

individual residential compounds to provide a hierarchy of scale and order by various neighborhood spaces including the green gardens, public squares, bicycle paths and automobile routes. However, the current configuration of the compounds do not connect to an extended



Figure 3.7 Community neighborhood population

urban service system. Instead, individual residential development all reproduce the inadequate features typical of these projects. The public spaces between the various compounds are poorly defined and lack any supporting functions. While there are numerous community centers within each development, most make use of empty buildings or ground

floor apartments. While mixed-use tracts were planned to include day care, stores and recreational facilities. Most fail to serve the local residents due to their isolated location, high property values, and insufficient facilities.



Figure 3.8 Local community service map

Roughly 45 thousand people live on the immediate site (Figure 3.7) that provides insufficient community services, amenities, commercial uses and open space. Of the few facilities that do exist, most not designated for pedestrian and local access (Figure 3.9). The ring road green belt

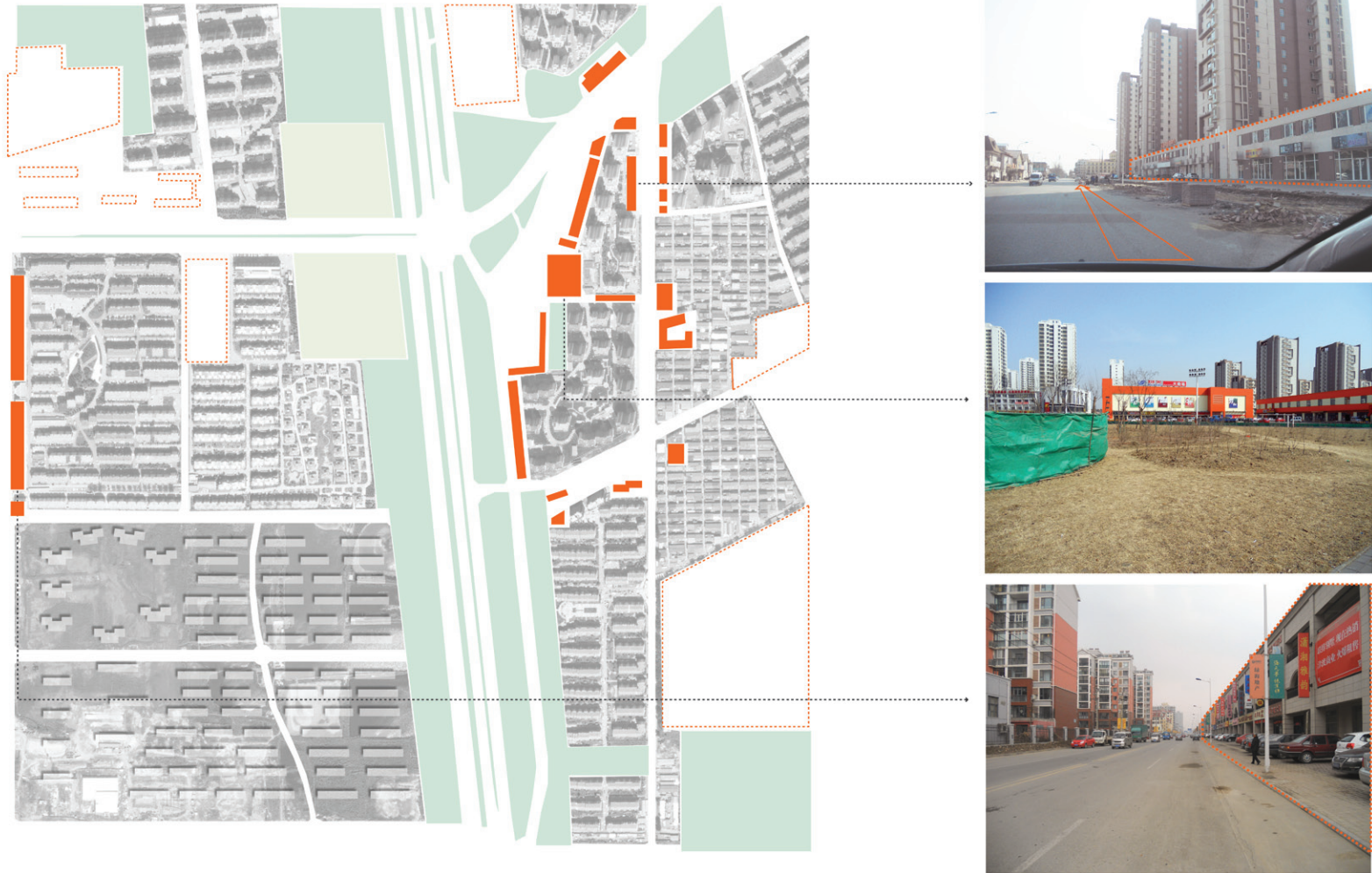


Figure 3.9 Existing community services

does not mitigate the impact of the infrastructure on the community, but rather, acts as a barrier to pedestrian across the ring roads. As a result, there is little sense of community at both the large and small scale (Figure 3.8).

The services are not equally distributed among individual residential compounds and, as the diagram on the right suggests most units within the residential area are not supported by any of services within a 0.5 mile radius (Figure 3.10). The ring road serves the pedestrian

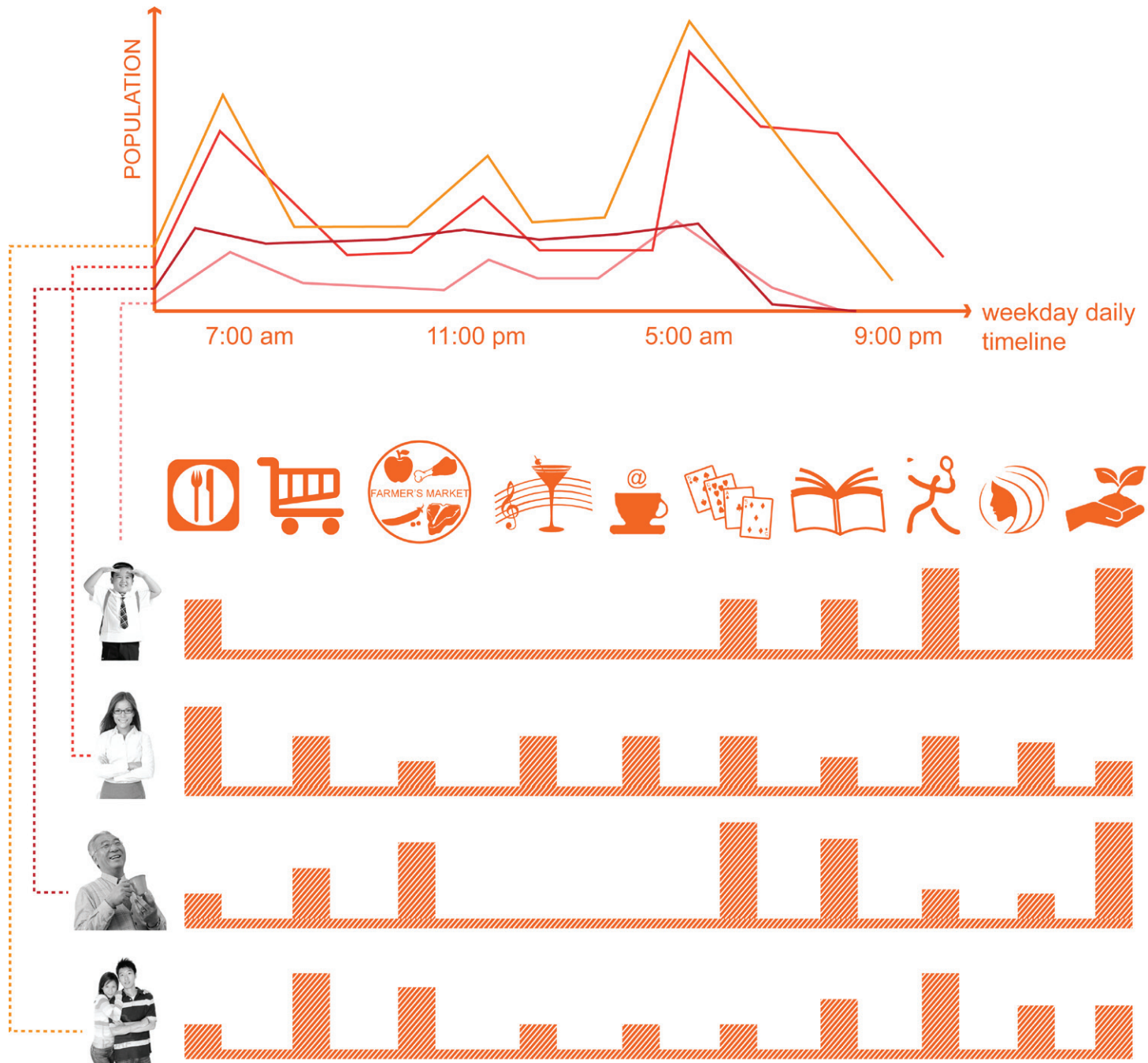


Figure 3.11 Analysis of daily public amenities



Figure 3.12 Existing traffic condition

path makes the situation even worse, as it is difficult to promote public interaction between developments on each side of the ring road. The traffic medians limit the vehicle, pedestrian and bicycle within their individual zones, and the green belt along the ring road is abandoned with nothing going on, the traffic configuration discourage the

pedestrian and bike flow from both sides of the ring roads (Figure 3.12). Each residential compound are fenced or walled with limited number of gateways, there is only one gateway in one residential compound that facing the green belt directly, make the public realm difficult to infiltrate into the public shared space.



Figure 3.13 Existing community gateways

Each living community has been fenced or walled. The gateways of each community limit residents' ability to access the public shared space in between multiple community compounds (Figure 3.13). Security issue is the main reason to prevent public flow from one community compound to the other. Within the residential compound, the central community



Figure 3.14 Existing community garden

parks are not secured enough as the public park. Only the residents can use the community parks. Therefore it is necessary to reinforce the community space outside the residential compound which directly encounters several residential compounds^[19]. (Figure 3.14)

19 Naoki Hasegawa, Hiroshi Suzuki, The situation of community parks use in Beijing, Meijo University, 2010

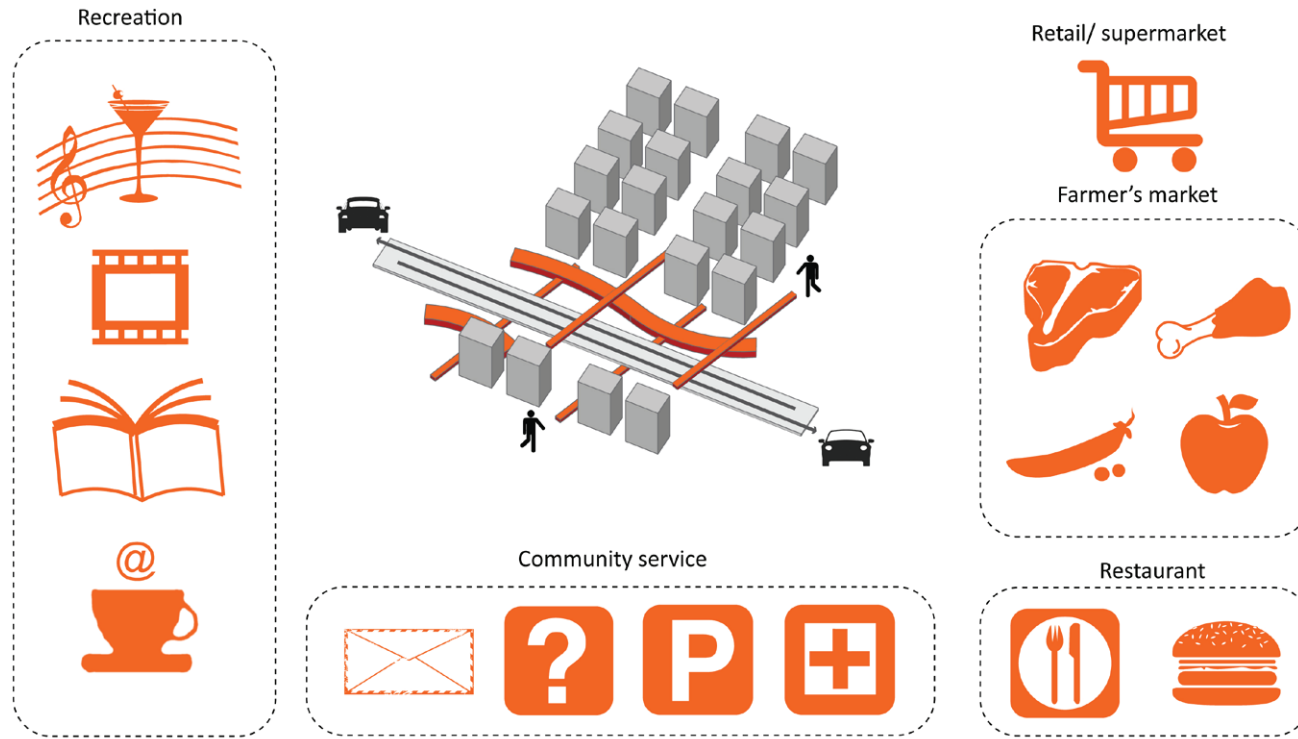


Figure 3.15 Proposed program of spaces

Program of Spaces

The new community ribbon will not only serve the adjacent residential area with a series of indoor facilities, but also integrate with the outdoor programming landscape. The indoor spaces will break down into several small scale buildings which will house semi-public programs engaged with local residences including Local farmer’s market, chain store supermarket, multimedia center, local library, entertainment

center, restaurants, property management office, vehicle service station, art gallery, senior center, youth center and flexible community multifunctional spaces. The outdoor landscape area will provide urban agricultural land, gardening plot, and community plazas, which fill in the small parcels among the indoor space. The whole entity will directly connect with the ring road on the west side to merge into the urban context.

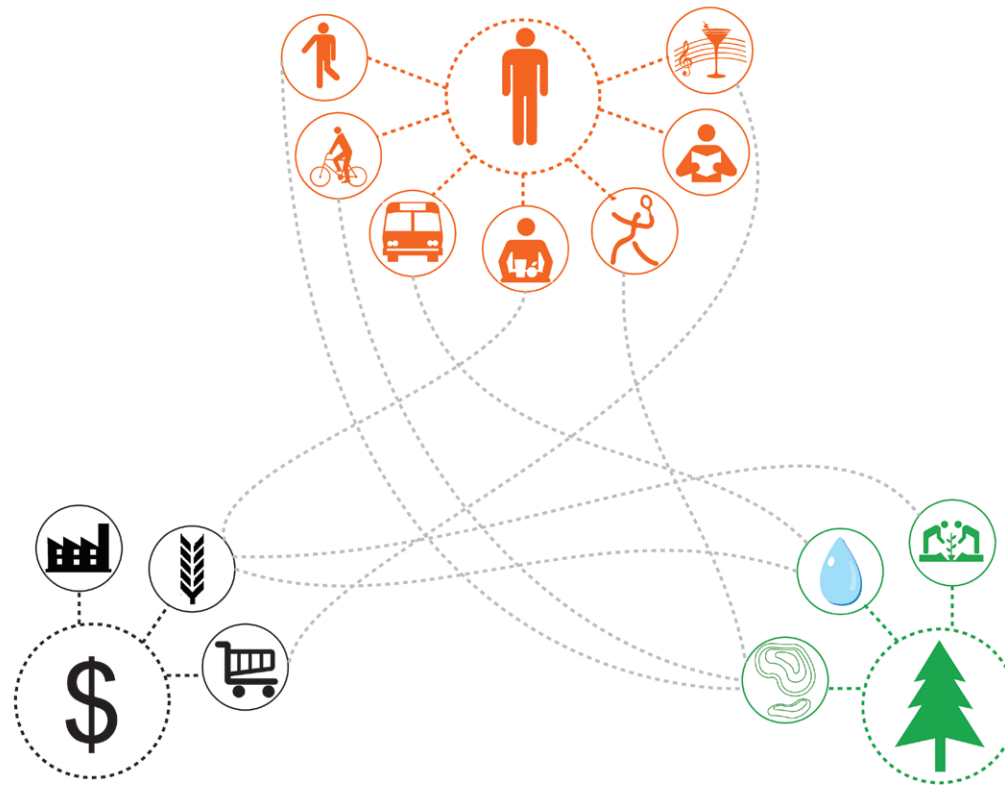


Figure 3.16 Social amenity, natural environment and economic benefit

Design Methods and principles:

Social amenities, natural environment, and economic benefit will be the core consideration throughout the design process. These three terms should be reflected in several issues then interrelated with each other very closely. The goal is to minimize the material consumption and building footprint and reduce the contamination on site as well as

during construction; to use as much vernacular material as possible; create intimate human scale spaces and avoid creating 'infrastructure'; design durable as well as flexible space to promote multifunctional use for the long term; take advantage of the integrated landscape on the site to provide local food supply and reduce energy consumption.

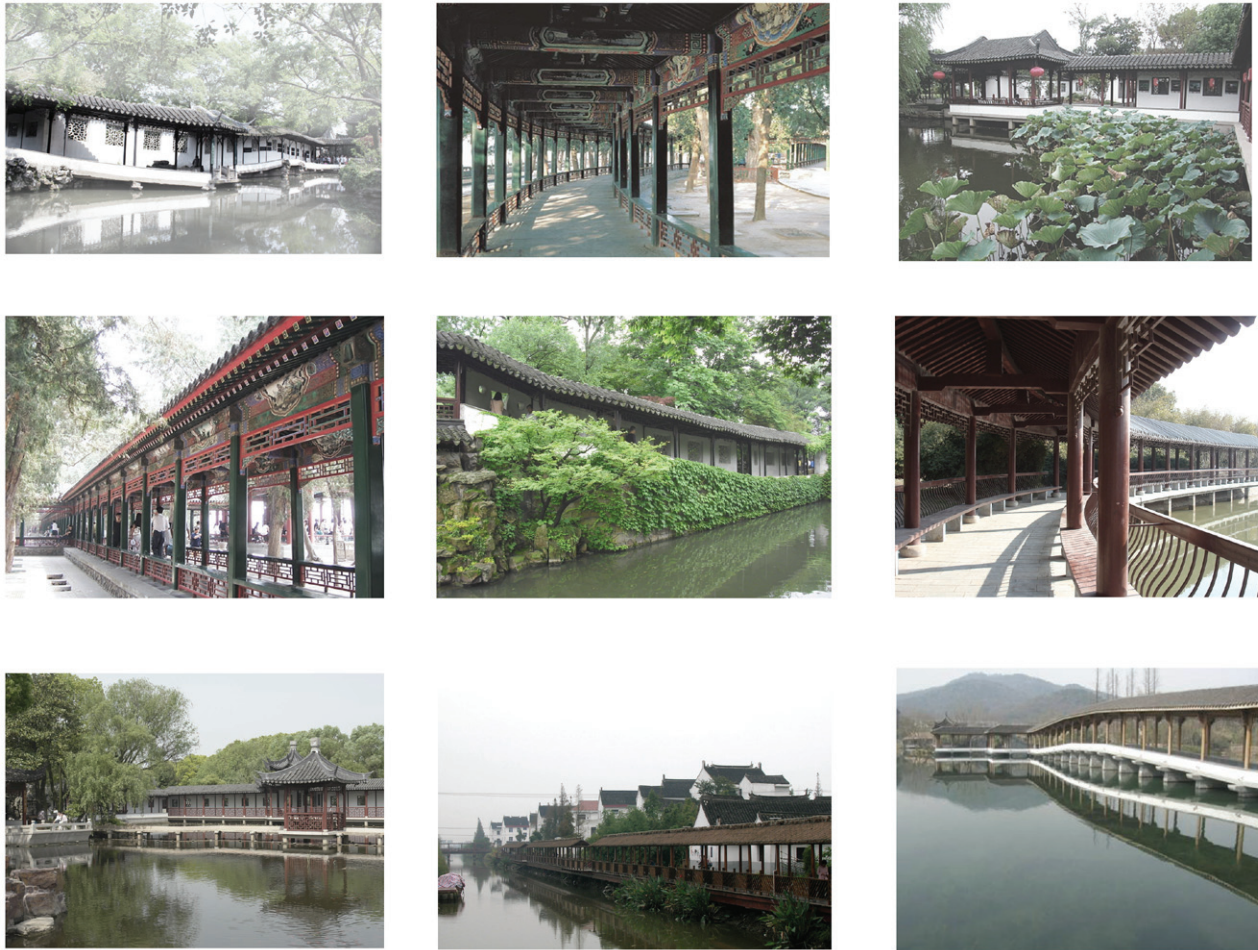


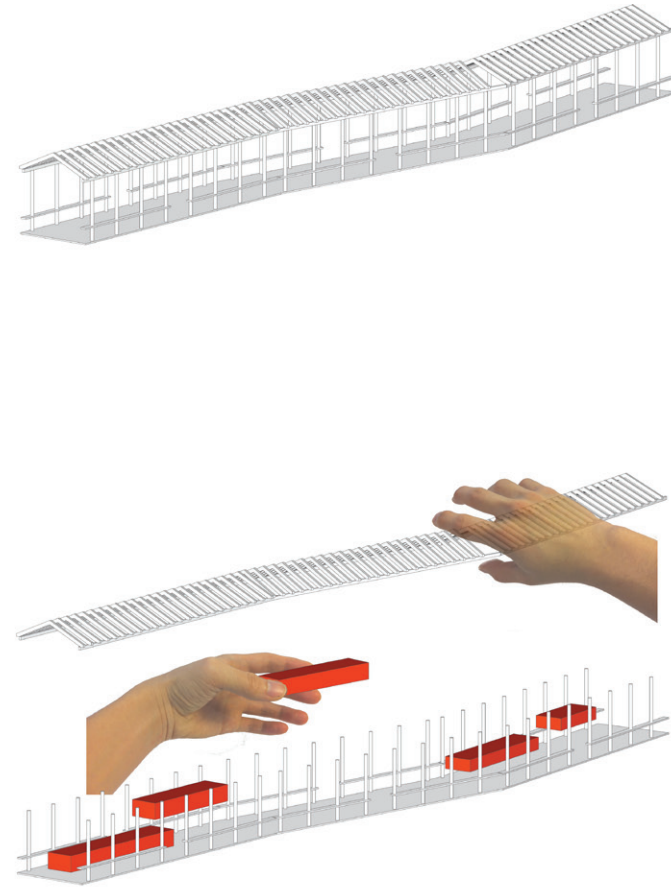
Figure 4.1 Traditional Chinese covered corridors

Chapter 4: design solution

Concept

Investigating the traditional Chinese covered corridor as a building typology allowed me to understand the way to connect the human beings with the urban infrastructure, and embrace nature with a minimized building footprint (Figure 4.1).

The traditional covered pavilion is an empty shell. The elegant wood columns support the gable roof with hand painting ornaments on each every girder and beam. The size of the structure can be varied; some of the ones in traditional Chinese private gardens can be a hundred feet in length. The covered pavilion in the Summer Palace in Beijing is half-mile long. The core function of the traditional covered corridor is for people to walk through and sit. In my opinion, to engage the people, it is possible to insert program space along the linear pathway underneath the covered corridor with breathing nodes for interaction and outdoor landscape programs. By doing this, the covered corridor is no longer simply a dynamic linear pathway, but a fluid armature carrying multiple function(Figure 4.2).



Evolution

However, fostering a healthy community is not as simple as just investing a single armature such as the covered corridor I mentioned above, and hope everyone will come and engage with it. Therefore, to achieve the three goals, it is necessary to consider the site development as an ecological cycle including human being, environmental consideration and economic benefits. There are several steps to achieve the goals.

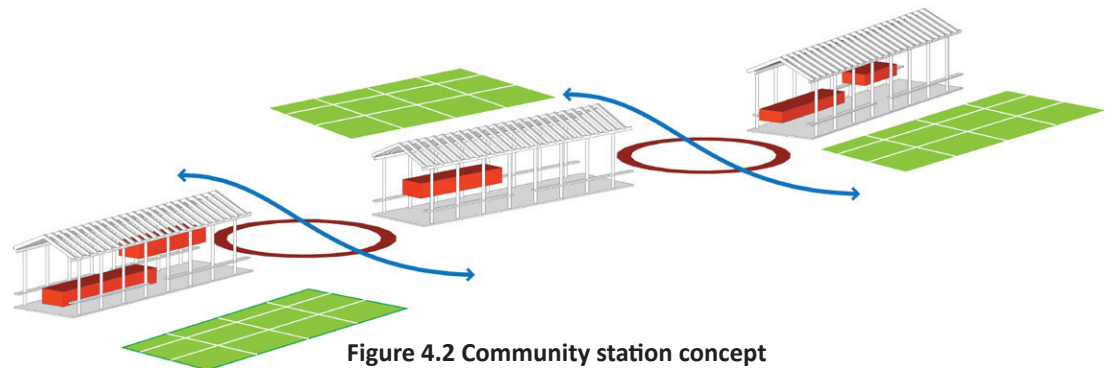


Figure 4.2 Community station concept

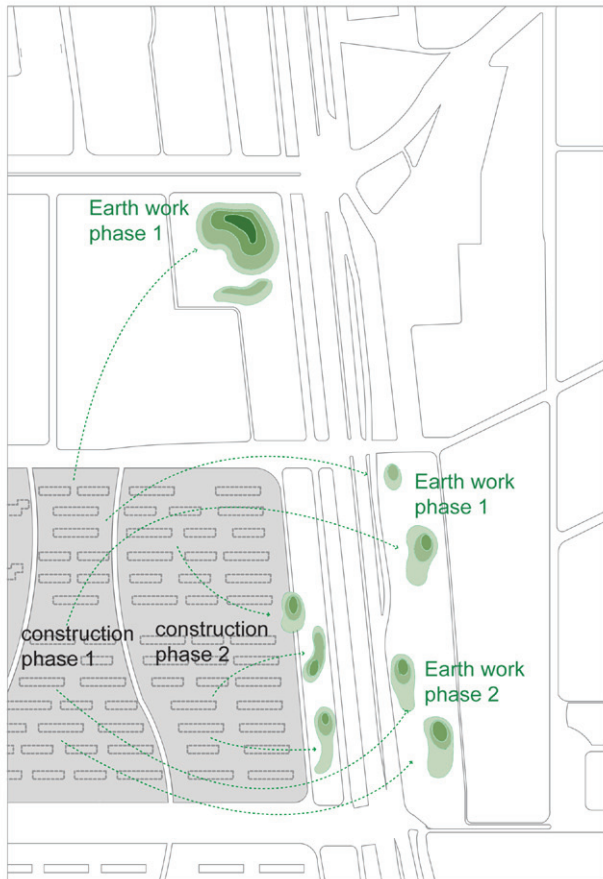


Figure 4.3 Proposed strategy_earth work

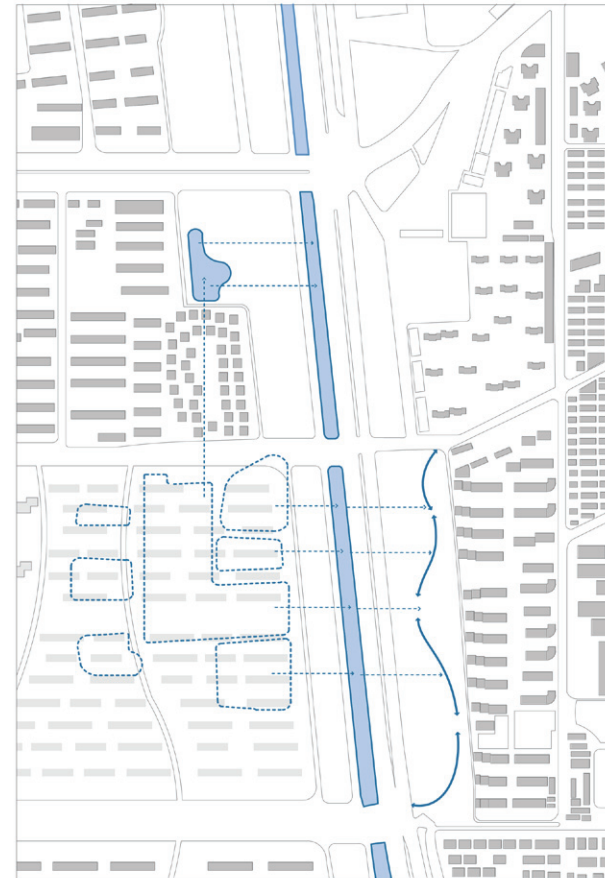
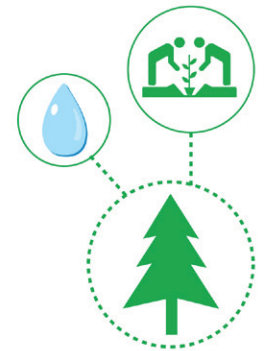


Figure 4.4 Proposed strategy_water feature



The first phase is to modify the landscape, take the waste material from the current construction site to build an earth mound and to create new retention ponds to capture storm water instead of the existing ones which will be replaced by new residential buildings (Figure 4.3 and Figure 4.4).

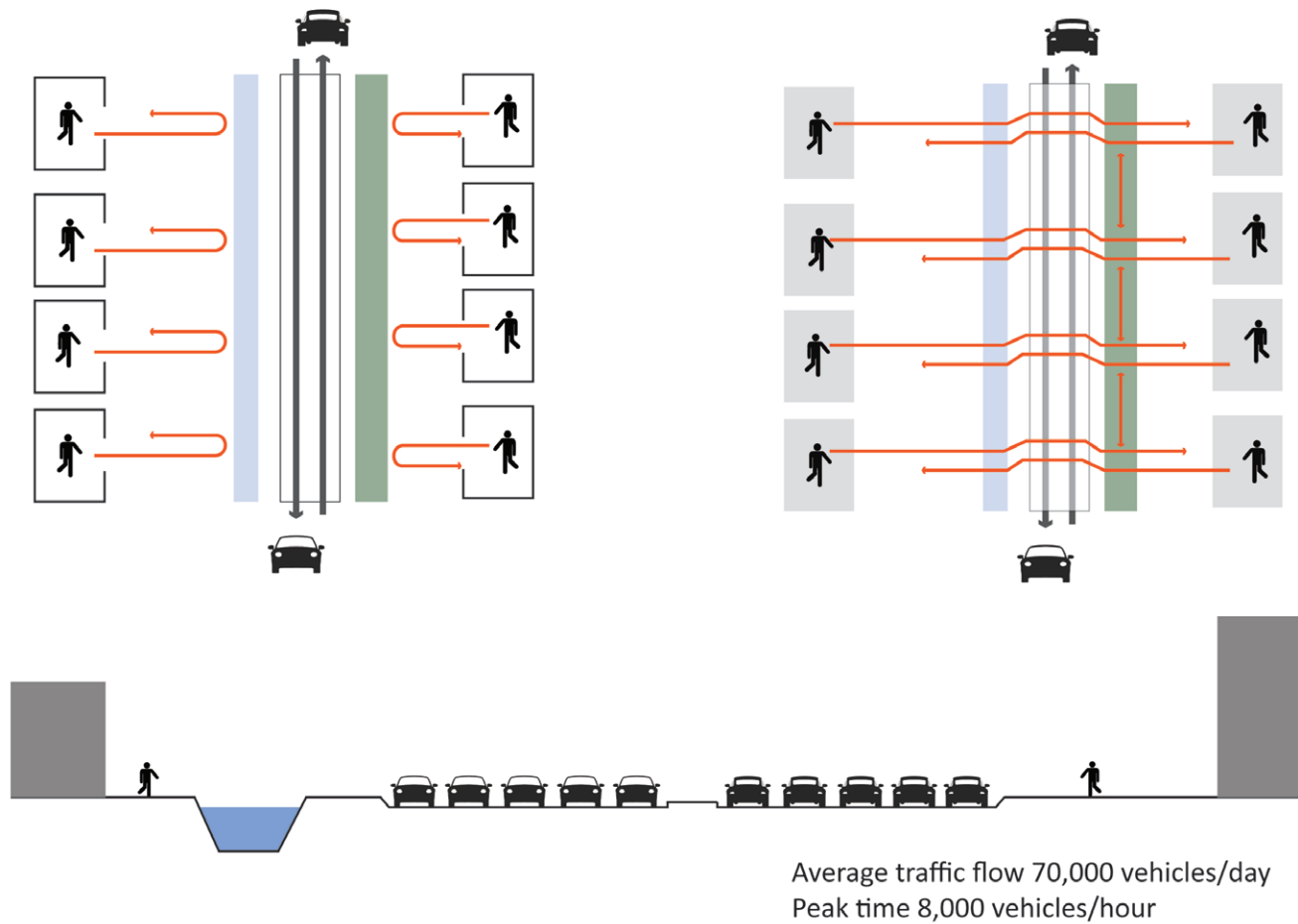


Figure 4.5 Proposed strategy_ring road

The next phase, is to bridge the ring road by creating new pedestrian paths and bike trails along the green belts, and also invite new public transportation routes close to the site and place a few bus stops to connect the pedestrian paths (Figure 4.5 to Figure 4.7).

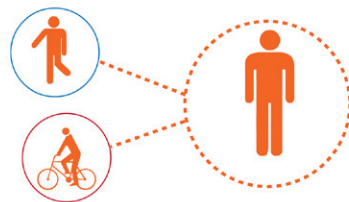
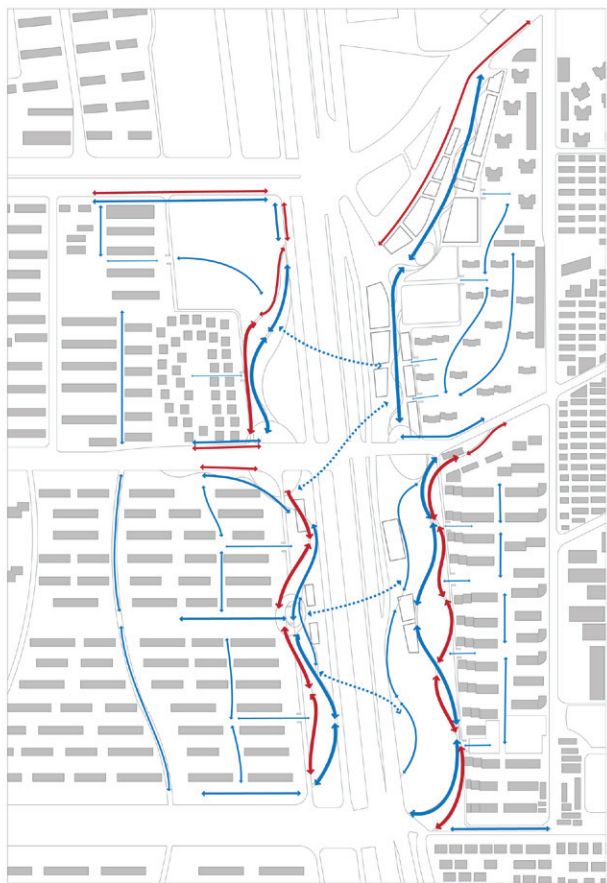


Figure 4.6 Proposed strategy_pedestrian path & bike trail

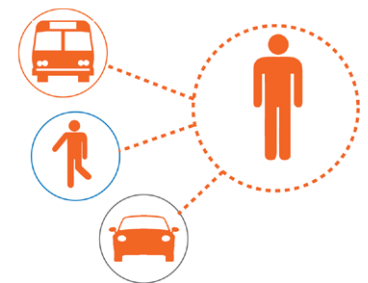
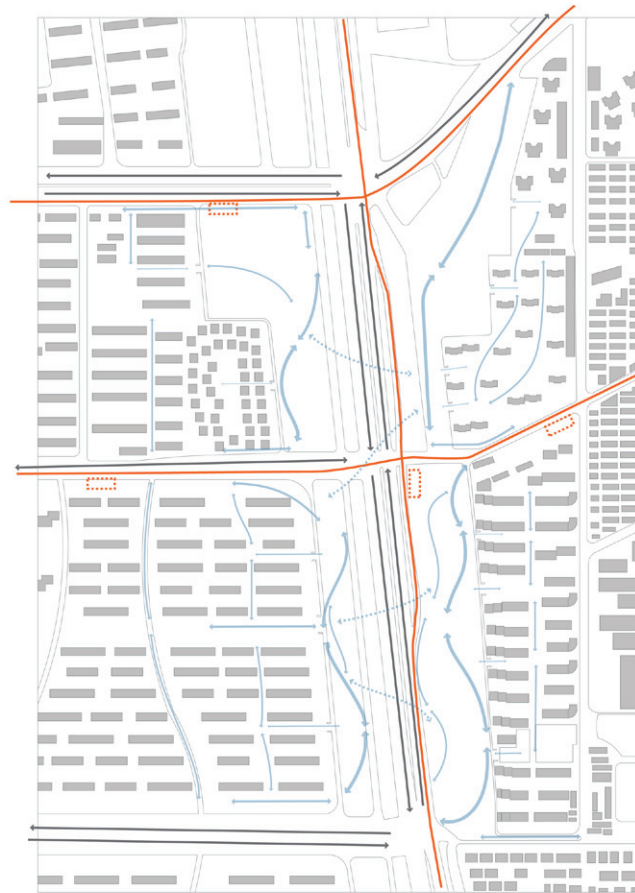


Figure 4.7 Proposed strategy_public transportation

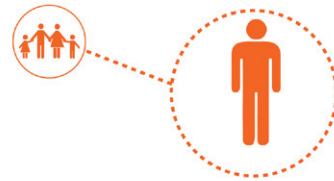
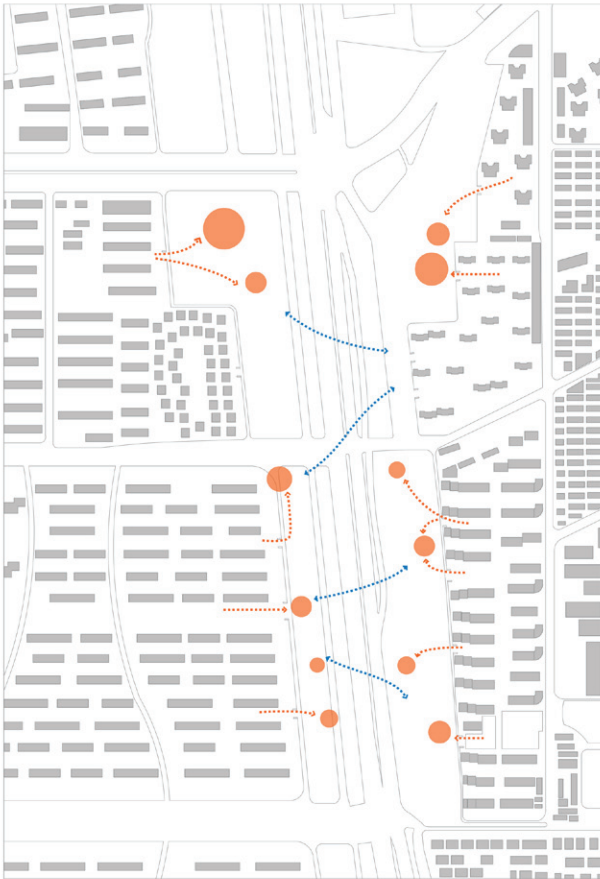


Figure 4.8 Proposed strategy_Outdoor public plaza



Figure 4.9 Proposed strategy_urban agriculture

And the third phase is to create new public plazas and outdoor agricultural programs that potentially support local food supplies (Figure 4.8 and Figure 4.9).

Underneath the covered corridor, the various programs can fit into a series of prototype community service stations as shown below. The central cores are fully conditioned spaces to house group programs such as community dining hall, entertainment, and retails, that are surrounded by the public shared space. Smaller intimate boxes could be plugged in adjacent to the core to provide private programs such as reading seats, café, and Internet booths (Figure 4.11).

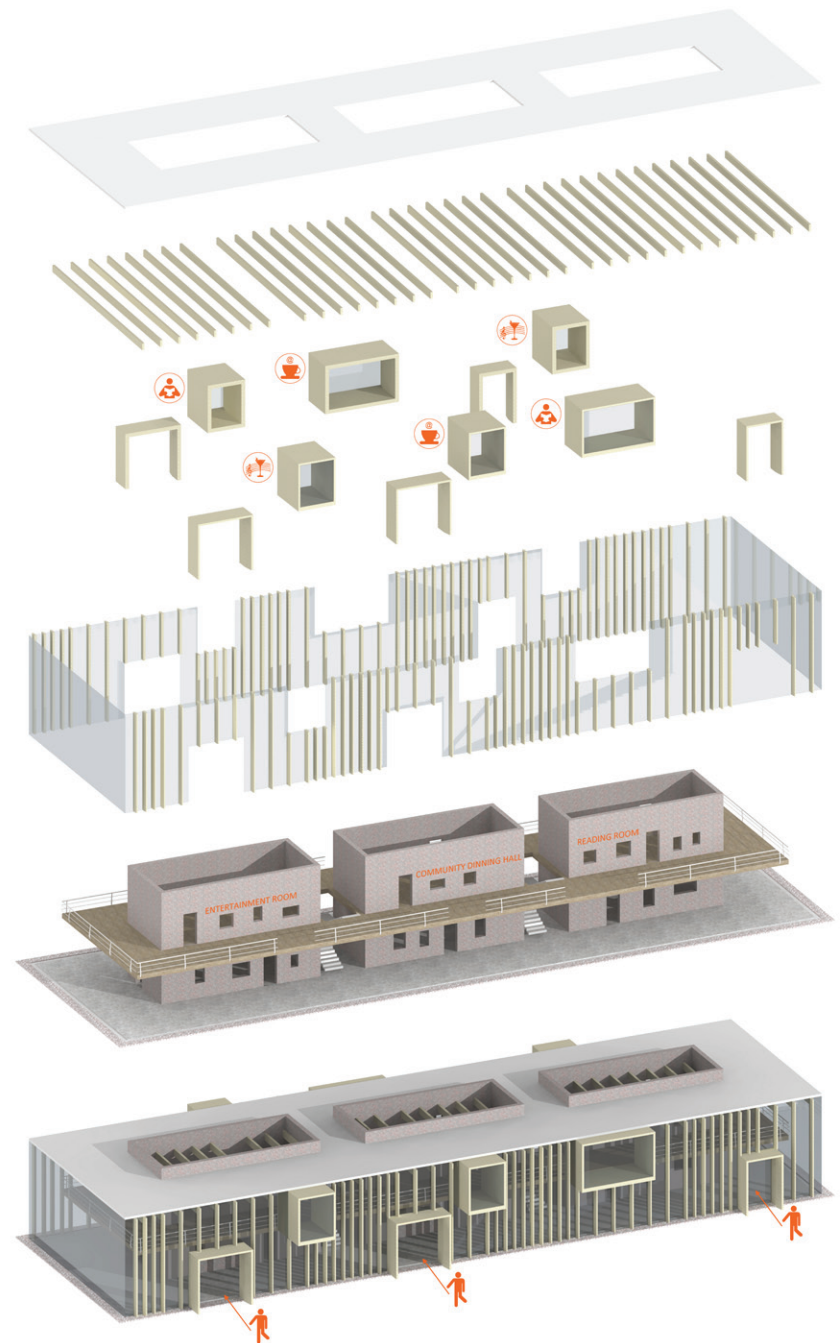


Figure 4.11 Proposed strategy_community services station

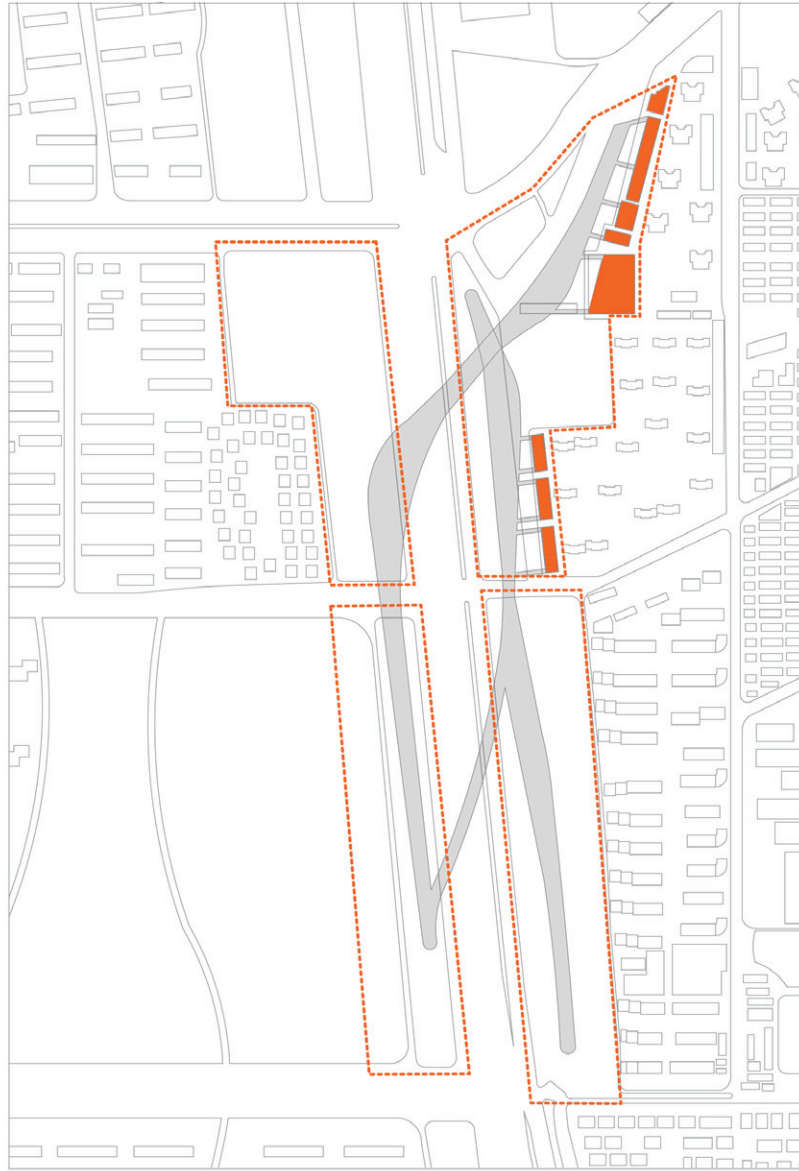


Figure 4.12 Proposed strategy_old & new structure

The existing building structure will be reprogrammed and connect to the proposed community ribbon, to create a service network (Figure 4.12).

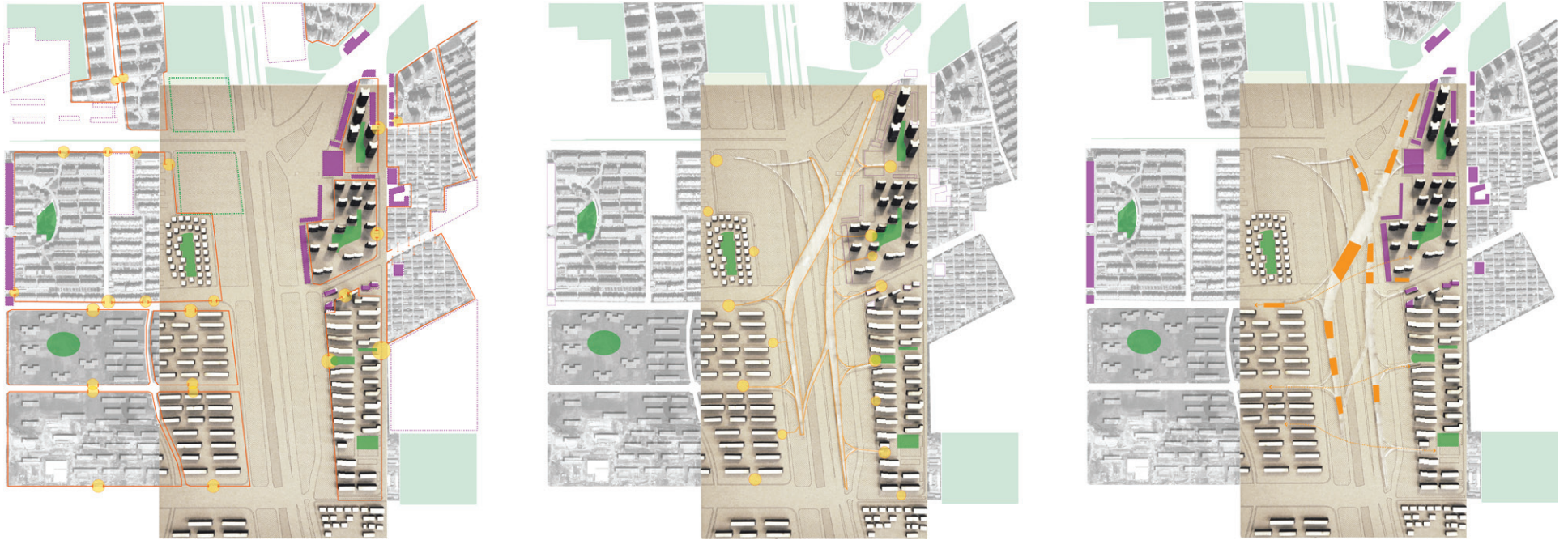


Figure 4.13 Proposed strategy_overall

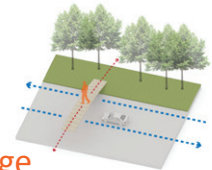
To sum up, the proposal strategy, the new community ribbon will not only serve the adjacent residential area with a series of indoor services to support people's daily lives, but also integrated with the outdoor landscape that provide productive and recreational activities (Figure 4.13).



Bike trail & pedestrian path



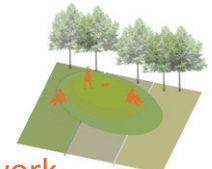
Pedestrian foot bridge



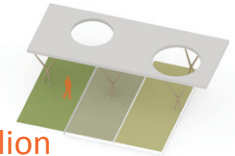
Community station



Earth work



Covered Pavilion



Water feature



Figure 4.14 Site plan

Design outcome

The site plan is the integration of all the interventions that are inter-dependent from each other. It is a result of multiple forces that evolved from phase to phase, and a response to the constant urban transformation (Figure 4.14).

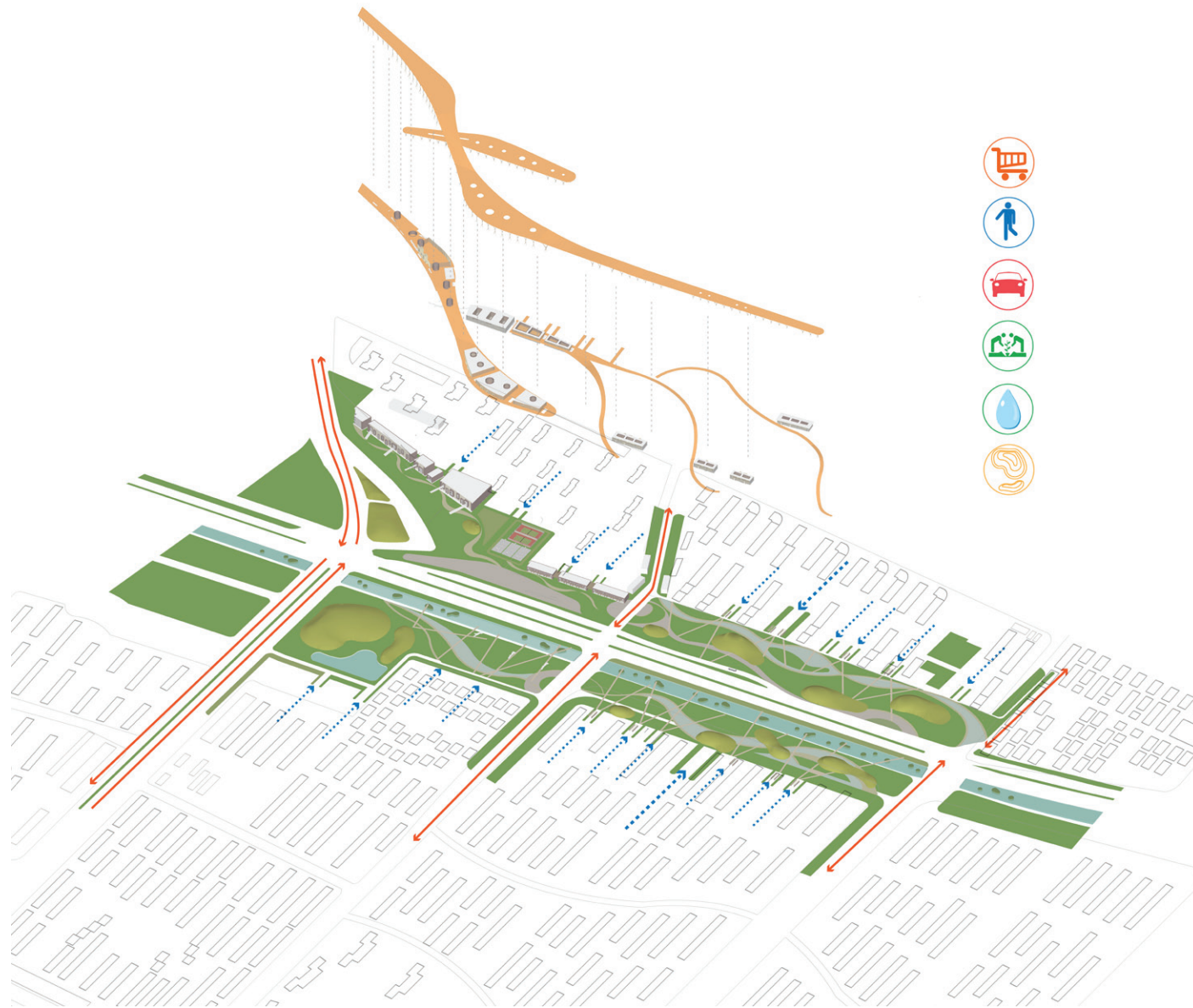


Figure 4.15 Isometric site proposal

The fluid shape of the community ribbon is a result of multiple forces that evolve from phase to phase, responding to the constant urban transformation. The building means more than a singular mega-

structure, but an energetic armature growing from the dynamic landscape that is influenced by the existing dense urban context as well as the flow of human amenities (Figure 4.15).



Figure 4.16 Site overview_north

The community ribbon will provide an armature to improve the service distribution and its network in the neighborhood scale. The new services will help to reshape the residential community by activating the boundary of enclosed residential compound to provide diverse facilities (Figure 4.16).

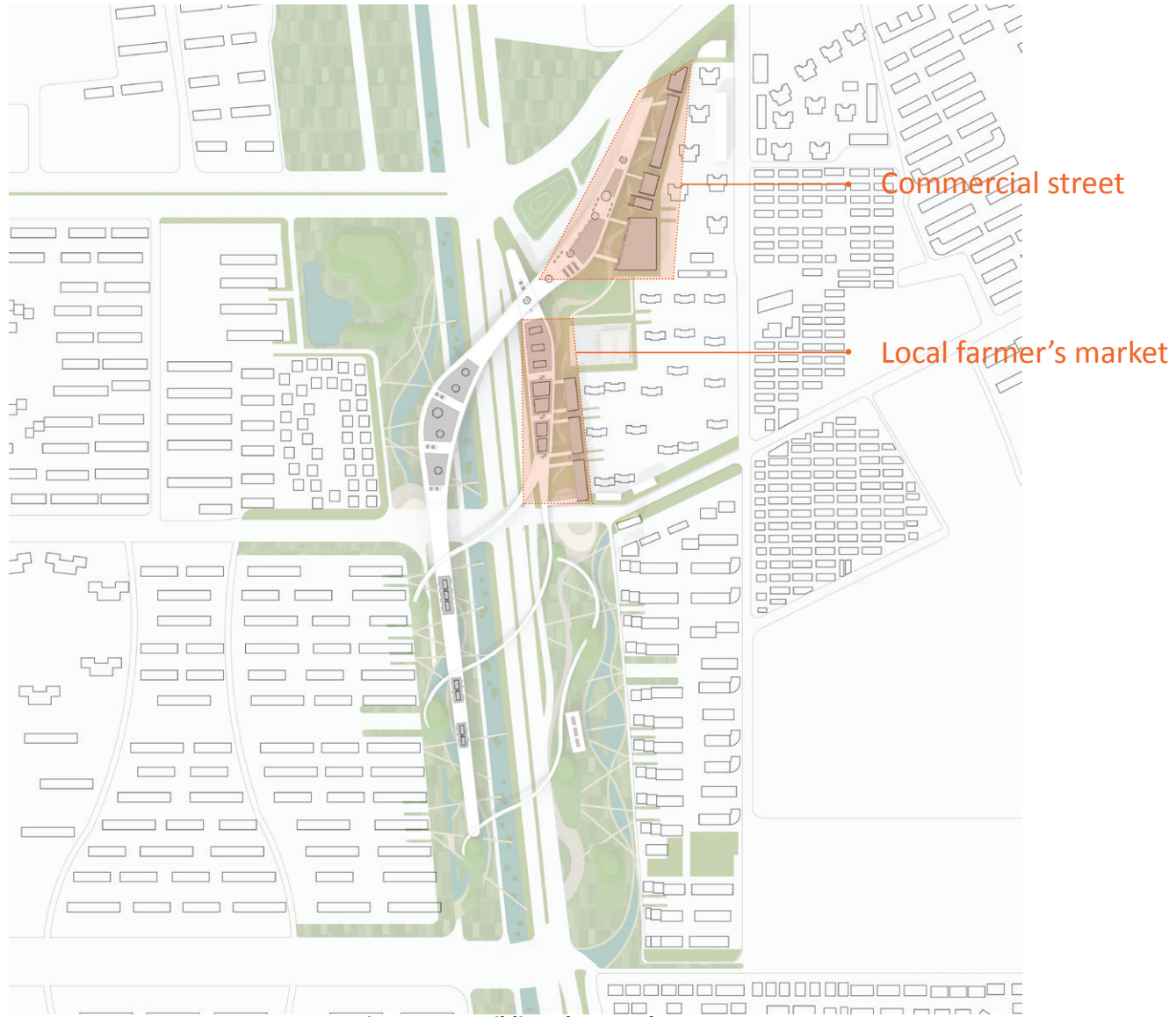
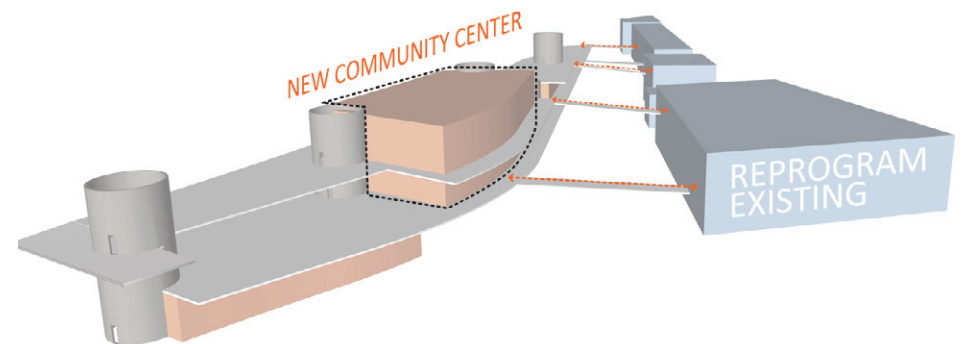
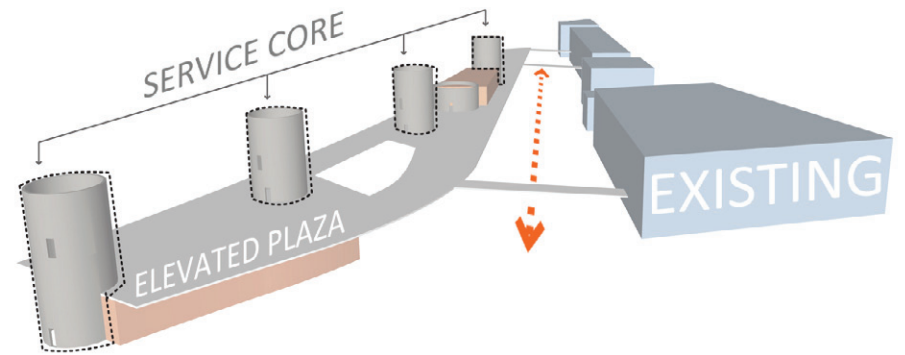
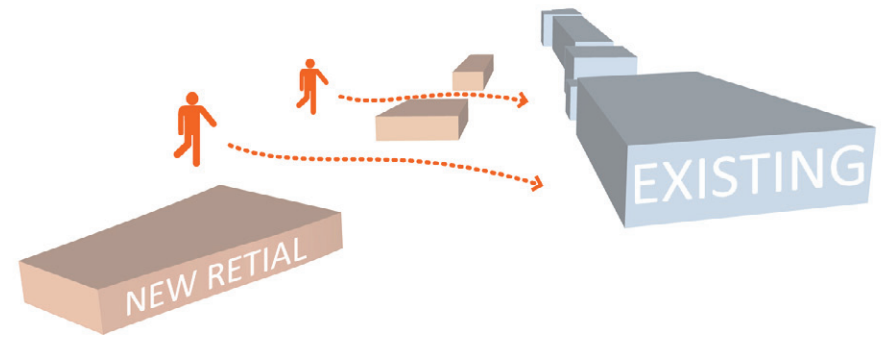


Figure 4.17 Building plan_north

The ribbon crosses over the ring road and the green belt, connecting several community compounds from north to south. The most integrated indoor programs are located on the north end of the ribbon

with the main services including the commercial streets, local farmer's market, recreation, and the culture center (Figure 4.17).



The new shopping ribbon grows along the existing buildings, and attracts public flow from the commercial streets. The service cores provide vertical circulation and support the outdoor public platforms, which connect the new ribbon with the existing structure.

(Figure 4.18 and Figure 4.19).

Figure 4.18 Commercial street development

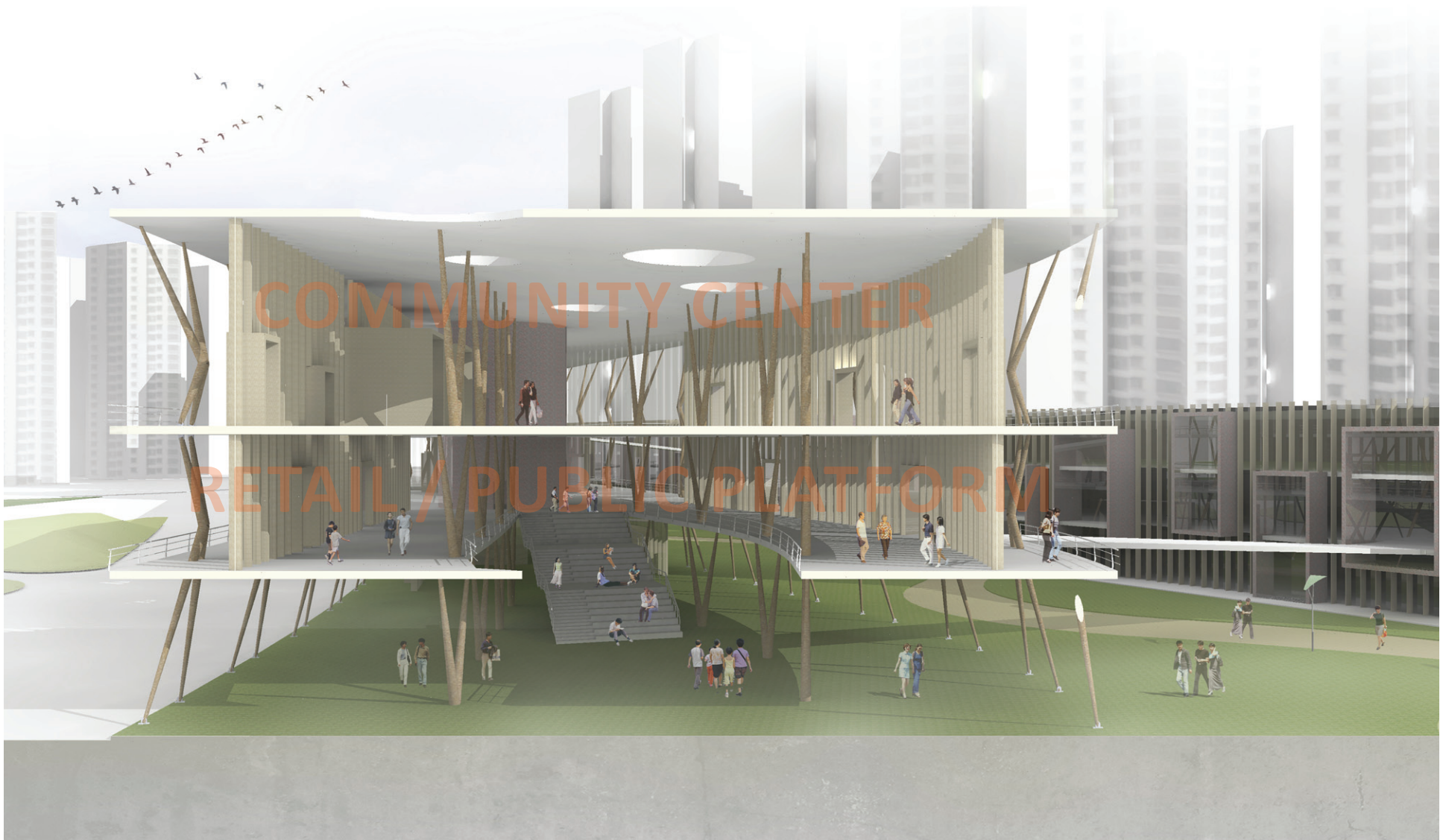


Figure 4.19 Section perspective_community center & commercial street



Figure 4.20 Community center & commercial street perspective

Walking on the commercial street, the combination of existing building on the east and the new proposal on the east frames a public 'canyon' to capture the public flow and creates a 3 dimensional outdoor experience. The steel columns serve as 'tree branches' to support the public platform and express the indoor program spaces as floating in the air (Figure 4.20, Figure 4.21).

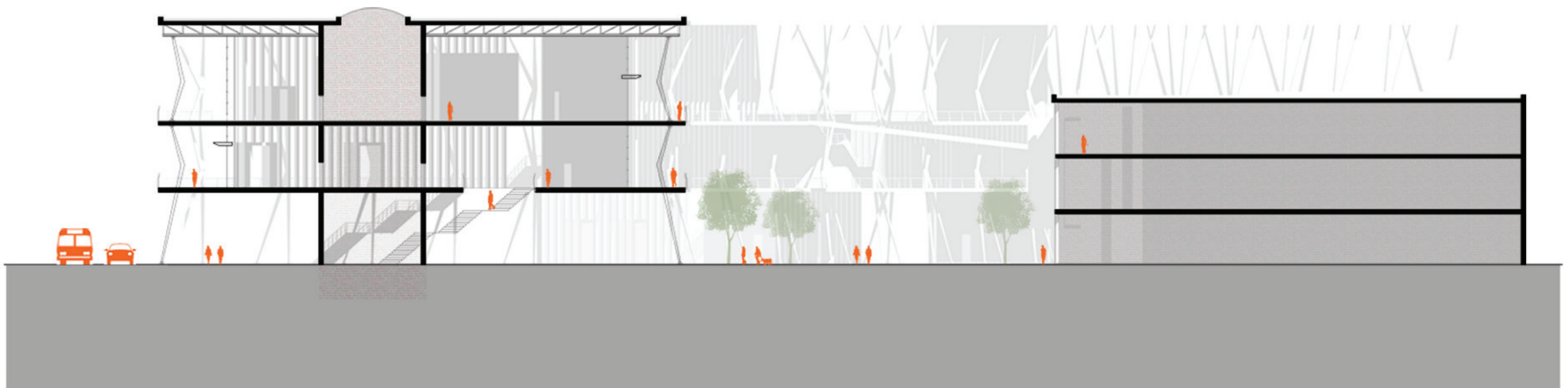


Figure 4.21 Section AA community center & commercial street



Figure 4.22 Local farmer's market perspective

One of the most important programs is the local farmer's market south of the commercial street, which reflects the typical vernacular shopping experience in China. The farmer's market will sustain the self-reliant neighborhood community by providing locally resourced food directly

from the adjacent urban agriculture program. The market will be operated by local residences and thus provide job opportunities for youth and senior people (Figure 4.22, Figure 4.23).

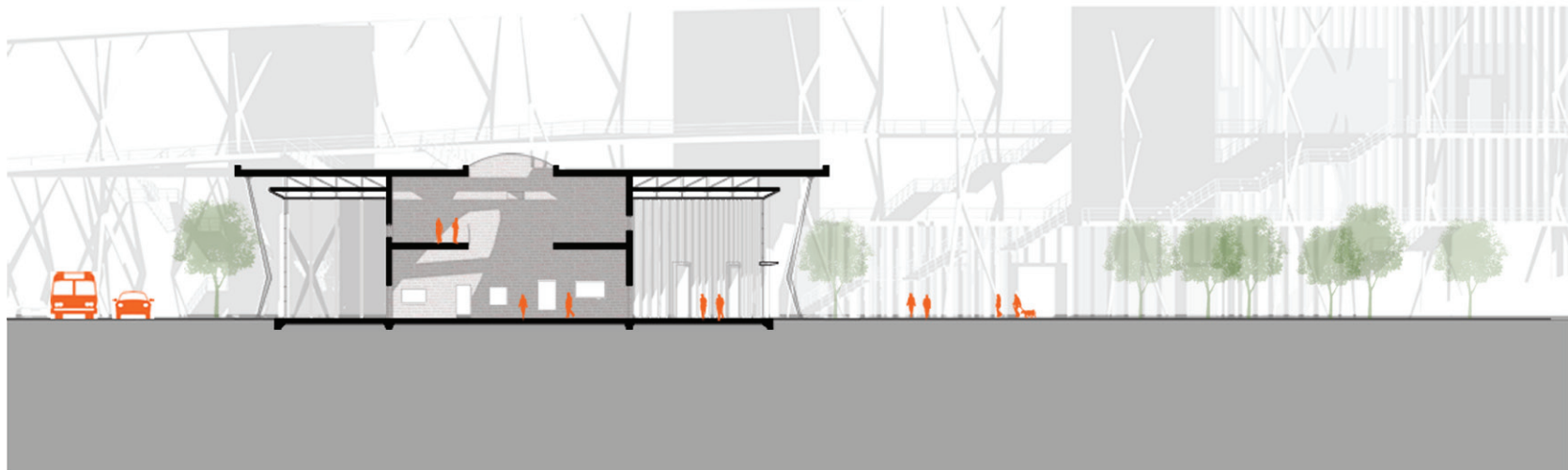


Figure 4.23 Section BB local farmer's market



Figure 4.24 Community center & farmers market overview

An overview standing from the public platform of the commercial street,
looking towards the local framers' market on the south (Figure 4.24)

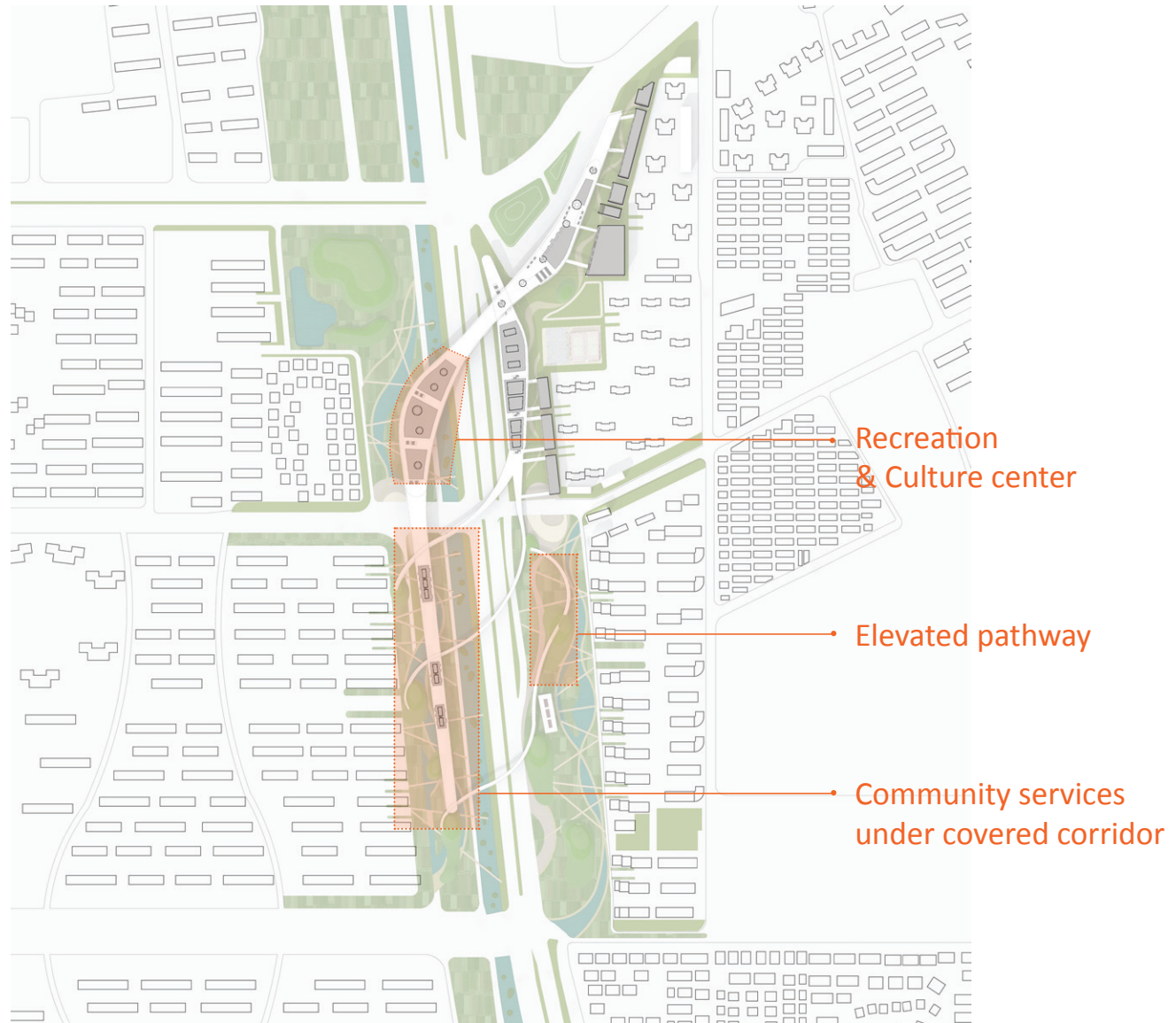


Figure 4.25 Building plan_south

The south end of the community ribbon dispersed into the modified urban landscape, the elevated pathway connect the individual service stations from the west to the urban park / agriculture land on the

east. The secondary green belts infiltrate into individual community compound and increase the pedestrian flow (Figure 4.25).



Figure 4.26 Community center perspective

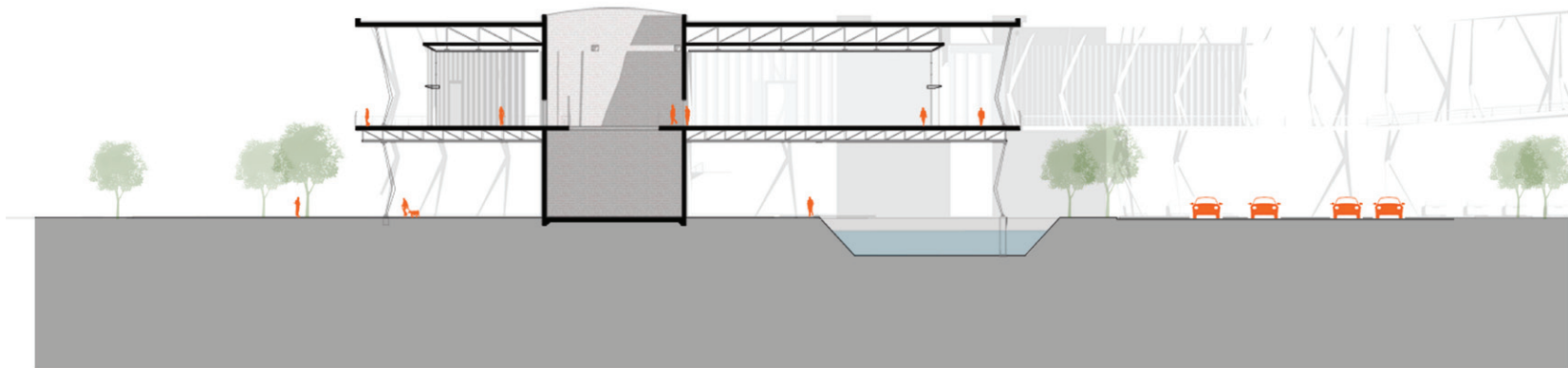


Figure 4.27 Section CC community center

A healthy community is based on the combination of giving and sharing diverse life styles. The community center promotes an opportunity to allow multiple activities, both indoor and outdoor, and leads the community ribbon towards the public park and urban farm (Figure 4.26 and Figure 4.27).



Figure 4.28 Community services & urban agriculture perspective 1

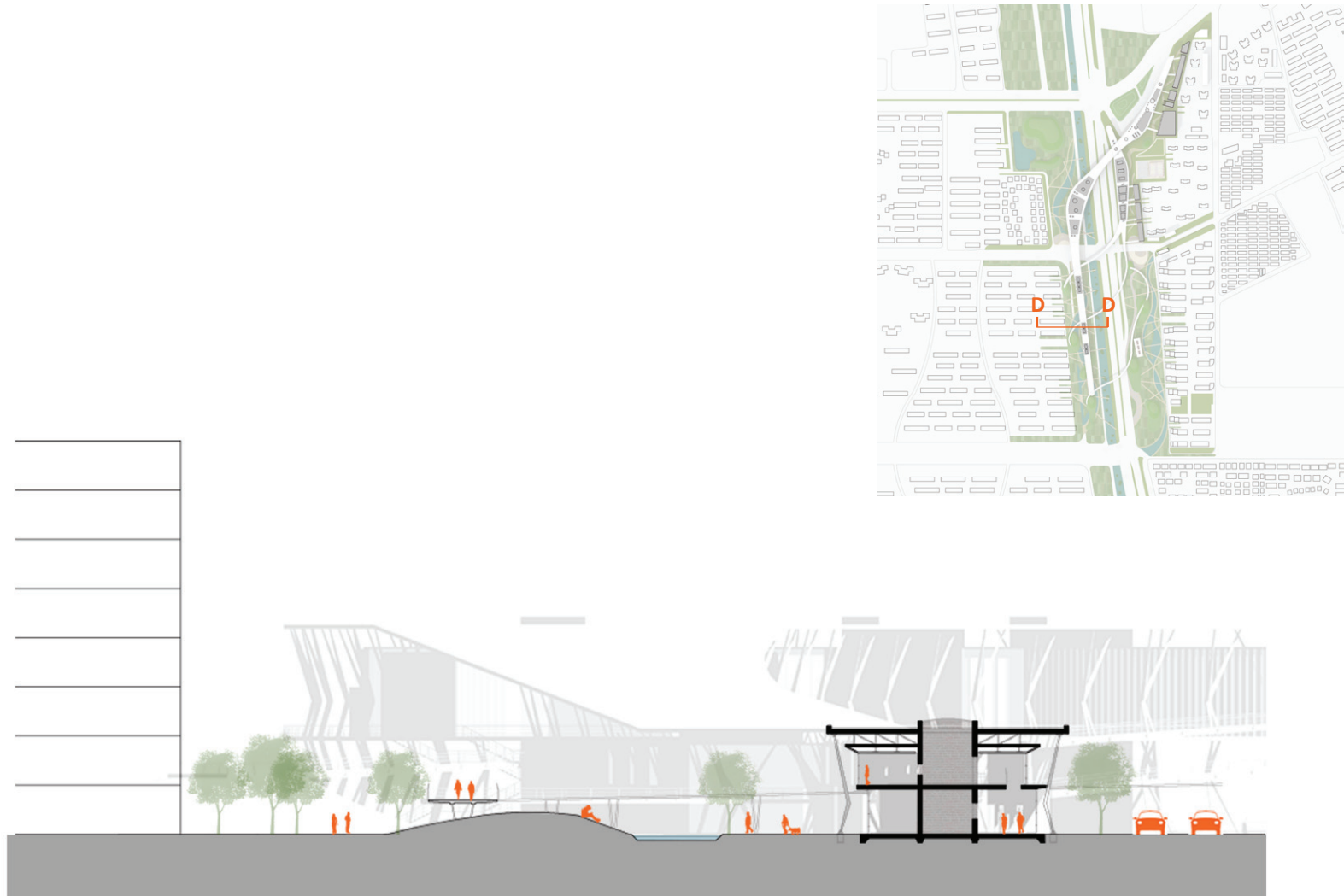


Figure 4.29 Section DD community services & urban agriculture

An overview from the top of the earth mound towards the juxtaposition of the rice paddy, the footpath and the community service ribbon. One important notion of the urbanization in China is that Chinese peasants are not naturally 'rooted' in their villages any more than agriculturalists elsewhere in the world. Moving to cities is a way of improving their

prospects in life. At the same time, they bring the agricultural program into the urban scale to support the food resource in the neighborhood scale (Figure 4.28 and Figure 4.29)



Figure 4.30 Community services & urban agriculture perspective 2

Same as the local farmer's market, the Productive Urban Farm-land will be operated by the local community to provide healthy food resources (Figure 4.30)



Figure 4.31 Urban park & public pathway

An urban park allows community neighborhoods to escape from the current urban intensity, and connect the community residential compounds to the pedestrian pathways from both sides of the ring road (Figure 4.31 and Figure 4.32).

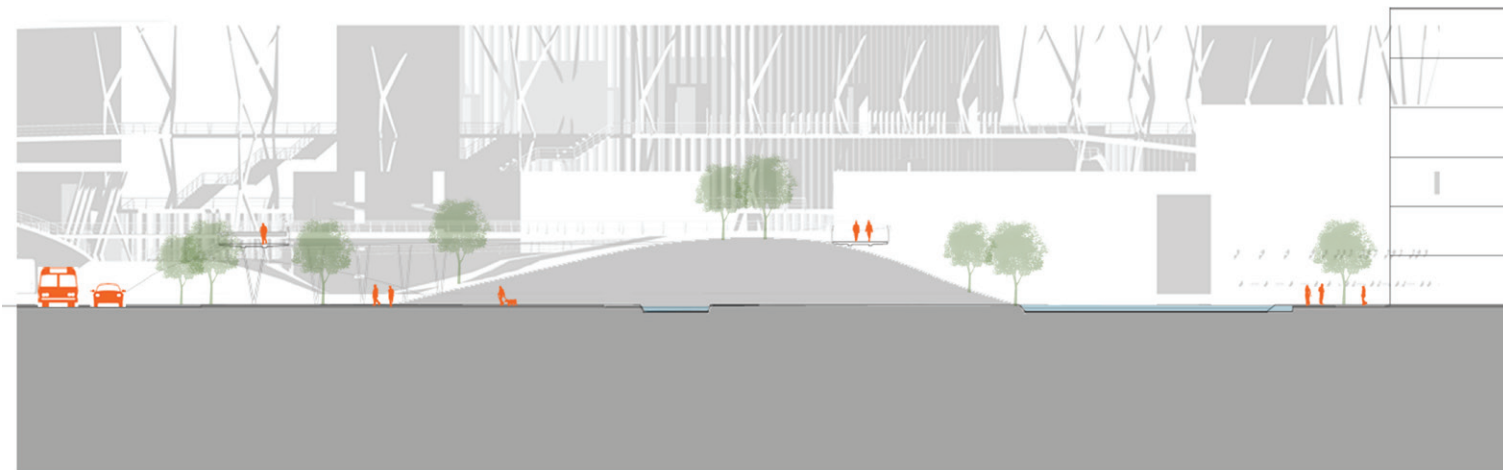
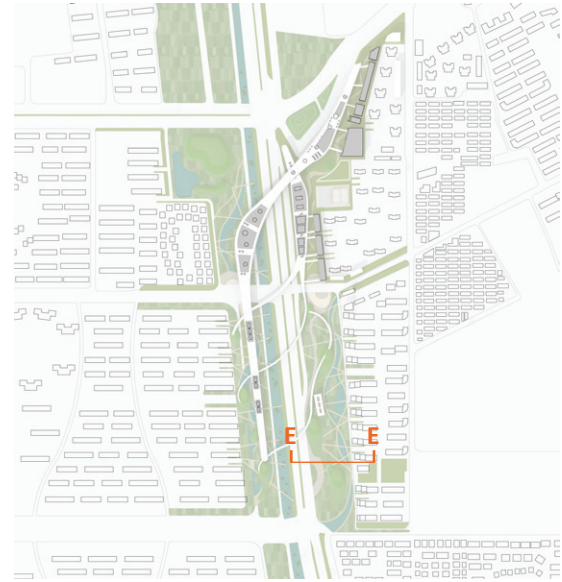


Figure 4.32 Section EE urban park & public pathway

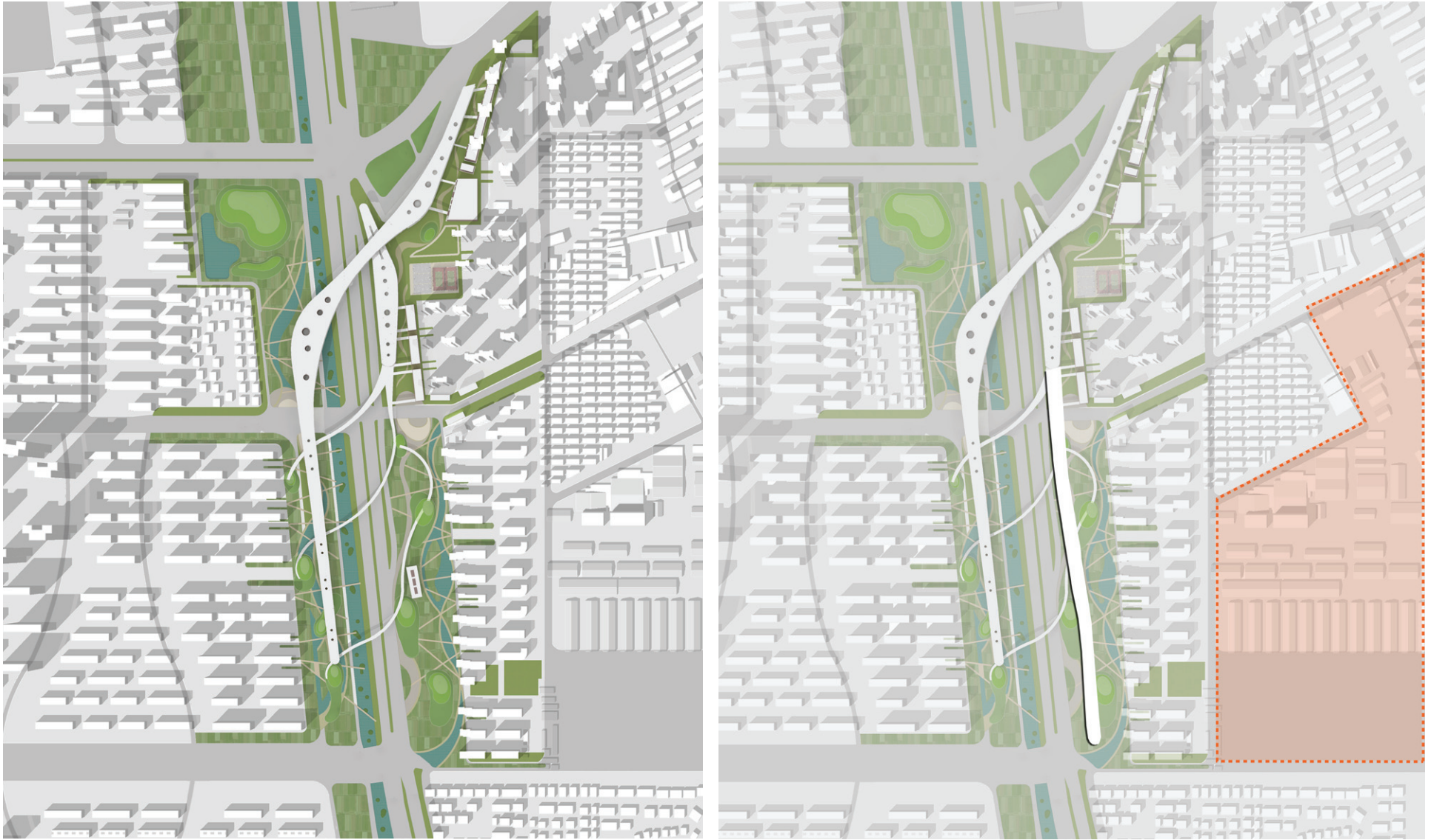


Figure 4.33 Future expansion of community ribbon

In the near future, as the urban population rapidly grow, the community ribbon will be extended along the ring road to serve growing number of residences. As the map above shows, the existing industrial area will be replaced by the new residential compound as the property value

increase, and new service programs will be inserted into the proposed community ribbon along the urban park (Figure 4.33).

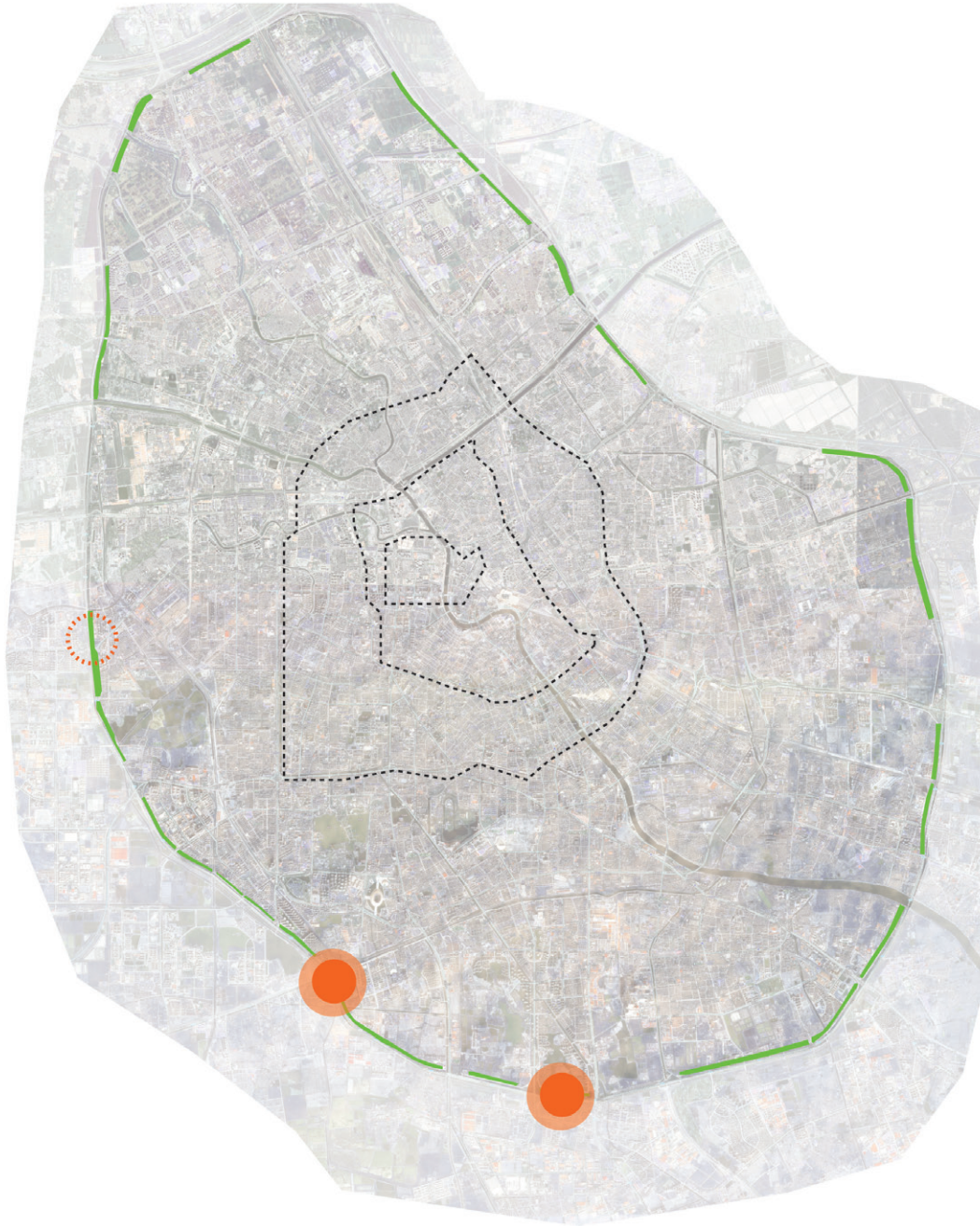


Figure 4.34 Beyond the site

The proposed site is one of the standard conditions located on the ring roads, so the prototype of the community ribbon can be implemented onto different locations along the city ring road, to promote local diversity and create new productive urban landscapes (Figure 4.34 and Figure 4.35).



Figure 4.35 Beyond the site 2 potential ribbons

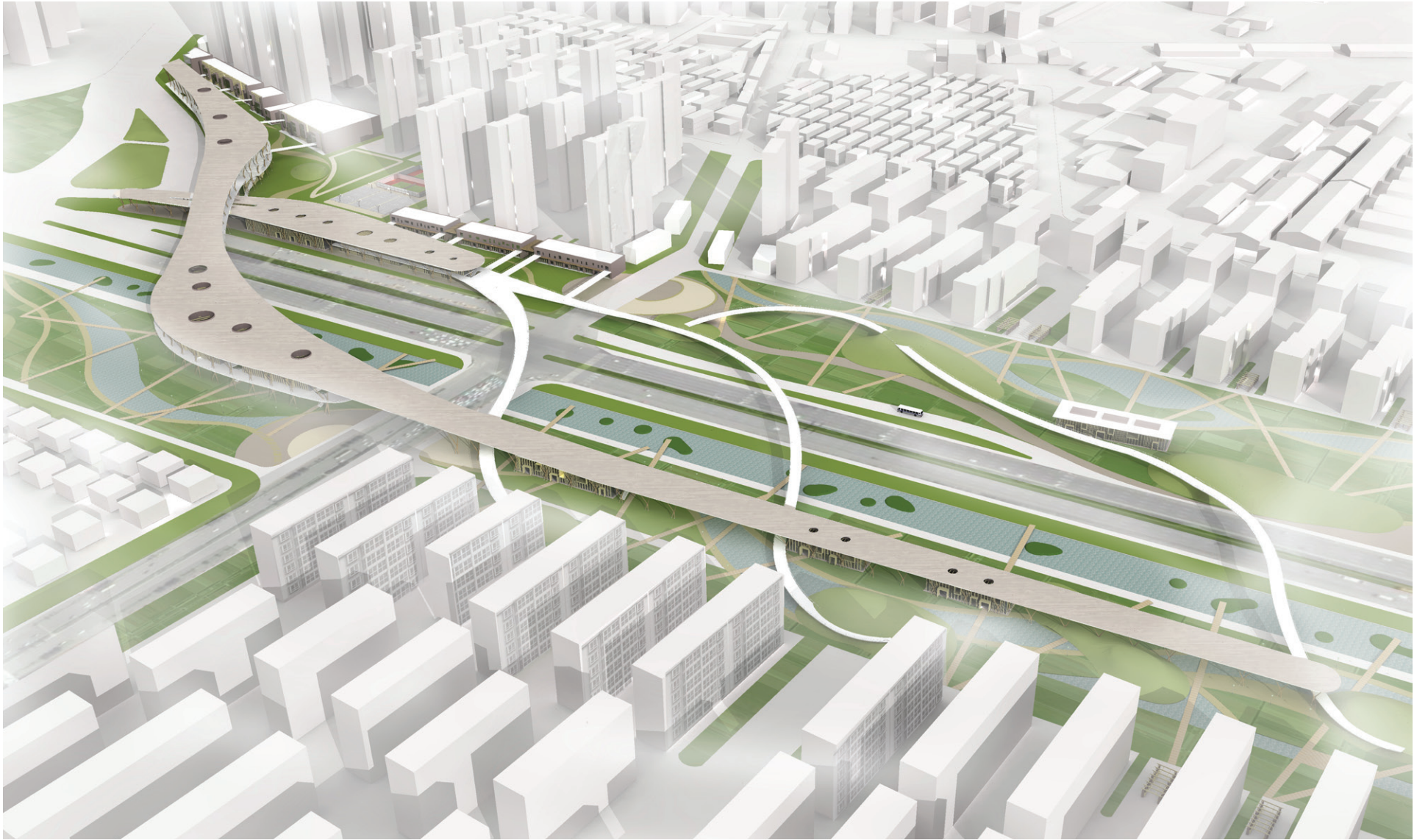


Figure 4.36 Community ribbon overview_south west

Chapter 5: Conclusions

The community ribbon operates as an active ribbon to bridge two different urban scales: neighborhood and urban infrastructure with multiple services, and infiltrates into residential compounds, along with the breath of the natural landscape (Figure 4.36). The community ribbon is not a complete project, but as the urban population rapidly grows, it will be extended along the ring road to serve a growing number of residences. The prototype of the community ribbon can be implemented onto different locations along the city ring road, to promote local diversity and create a new productive urban landscape.

This thesis has demonstrated some generic issues regarding the residential community development during the current urban expansion in Chinese mega cities, and raises three major problems:

1. Isolated apartments are separated by the urban infrastructure such as highway, subway and ring roads;
2. The local service provision is insufficient to support the new residential areas at a large scale;
3. The share public space between the individual residential

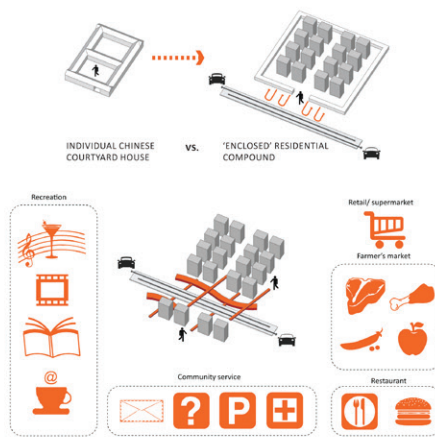
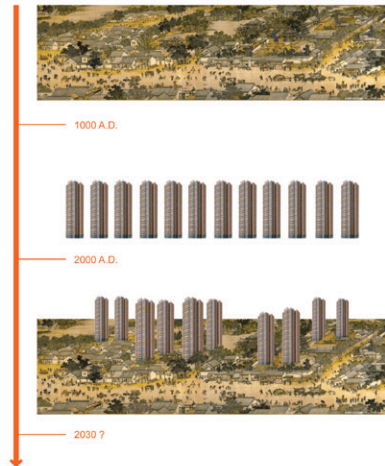
compounds is under utilized.

I believe that, the making of neighborhood communities is an active social process that engages with people gradually and evolves like a natural environment. The local service network is based on residence's ability to provide self-help and self-reliant services.

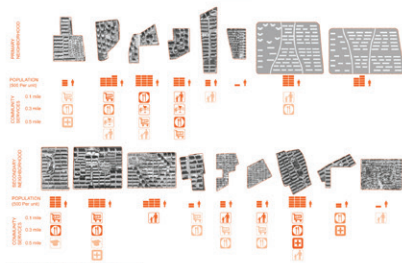
The response to the current problems is to:

1. Provide an architectural armature, to improve the service network across multiple neighborhoods;
2. Reshape the residential community by activating the boundaries of enclosed residential compounds;
3. Provide diverse facilities to help mix the individual living environment into the urban context.

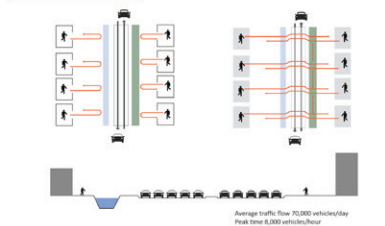
These goals highly rely on the integrated strategies regarding social amenities, environmental consideration and economic benefits.



POPULATION STUDY



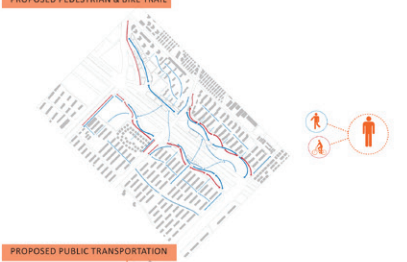
BRIDGE THE RING ROAD



EXISTING TRAFFIC CONDITION



PROPOSED PEDESTRIAN & BIKE TRAIL



PROPOSED PUBLIC TRANSPORTATION



EXISTING COMMUNITY GREEN SPACE



PROPOSED EARTH WORK



PROPOSED IRRIGATION PLAN



EXISTING COMMERCIAL SERVICES



EXISTING BUILDING & PROPOSED RIBBON



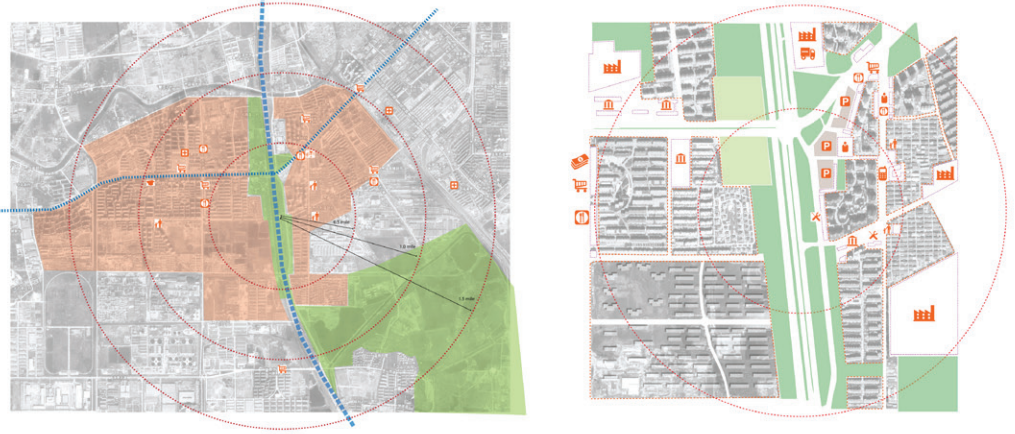
PROPOSED COMMUNITY SERVICES



EXPANSION & THE RING ROADS



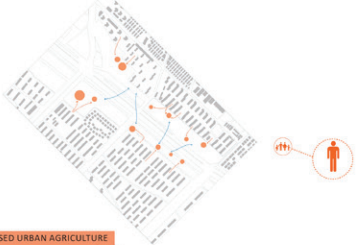
EXISTING RESIDENTIAL AREA, GREEN SPACE & COMMUNITY SERVICES



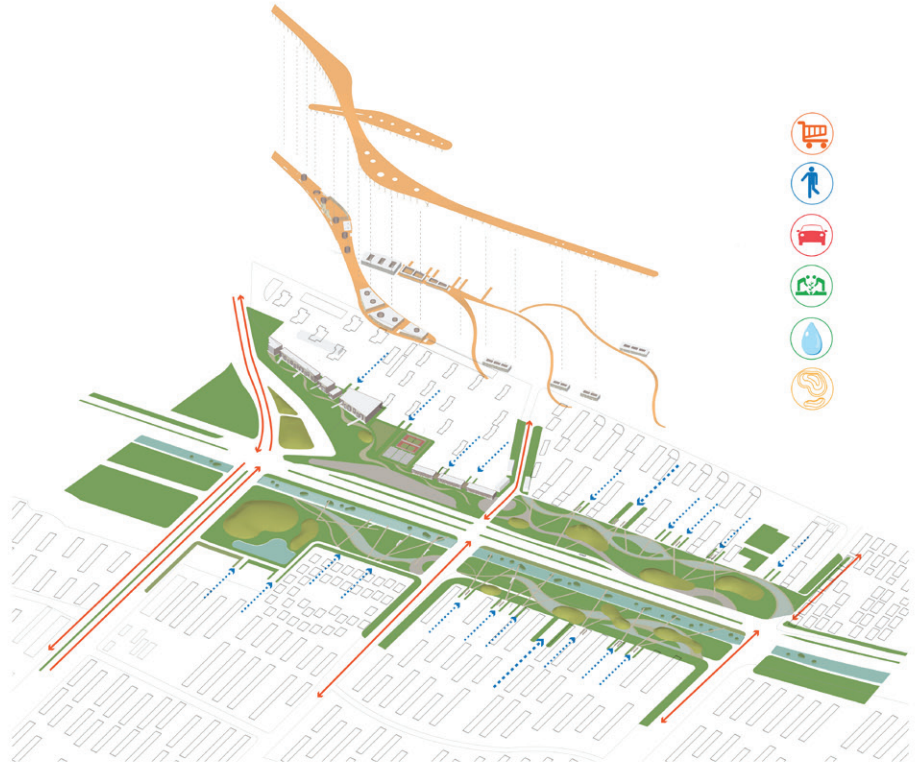
EXISTING COMMUNITY GATEWAYS



PROPOSED OUTDOOR PLAZAS

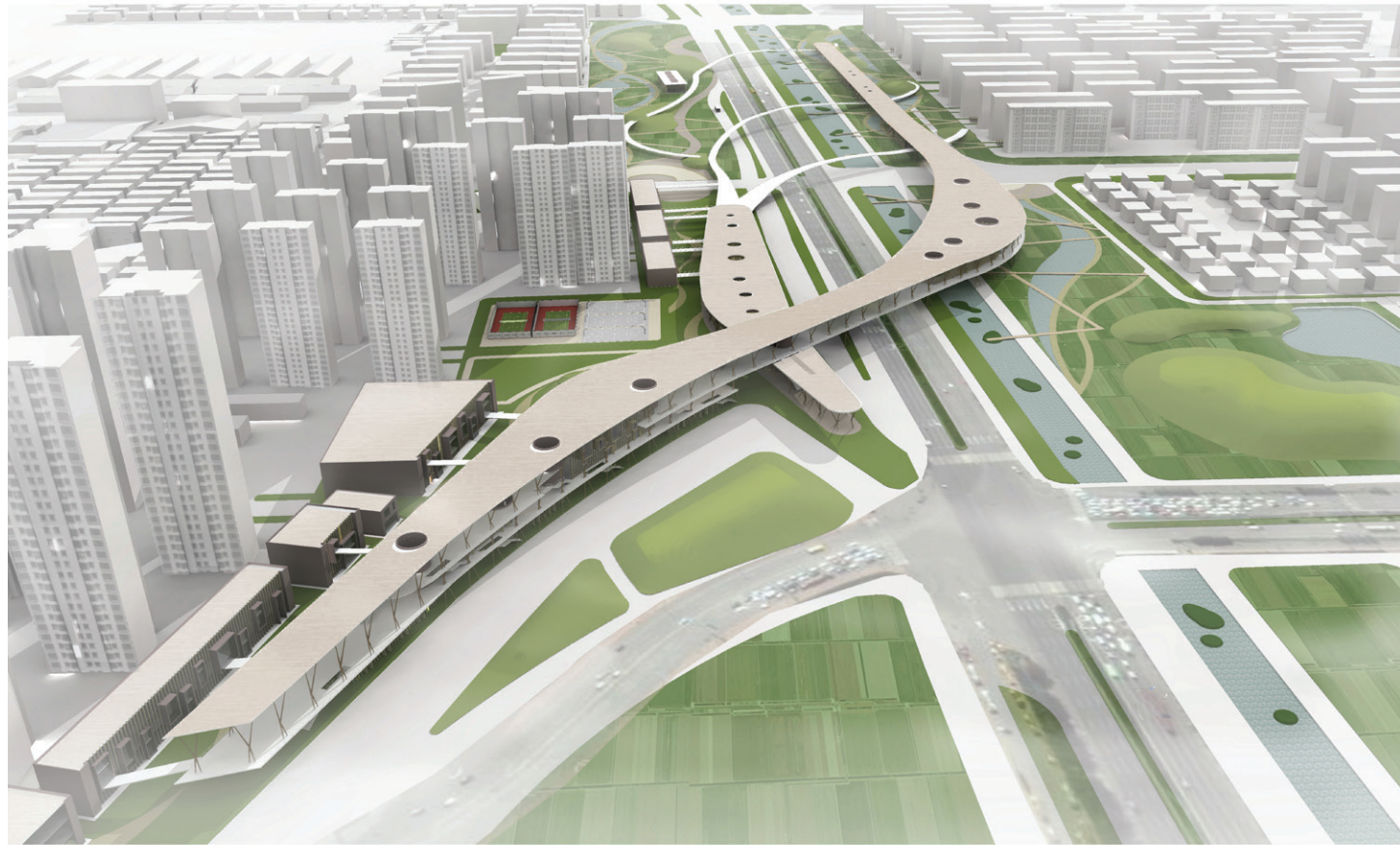


PROPOSED URBAN AGRICULTURE



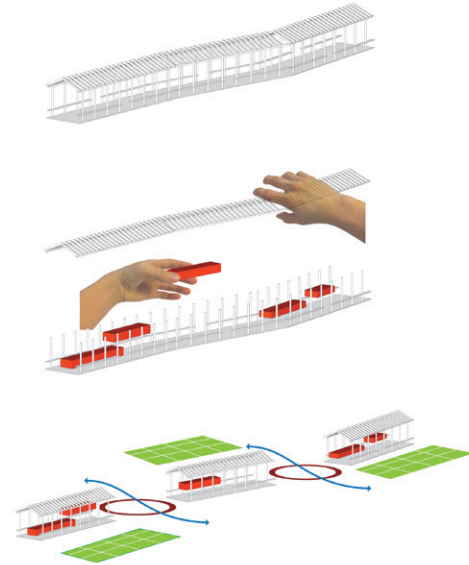
THE SHAPE OF THE COMMUNITY RIBBON IS A RESULT OF MULTIPLE FORCES THAT EVOLVE FROM PHASE TO PHASE, AS RESPONSE TO THE CONSTANT URBAN TRANSFORMATION.



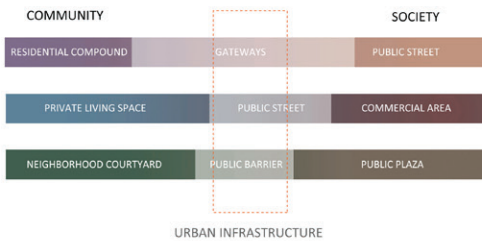
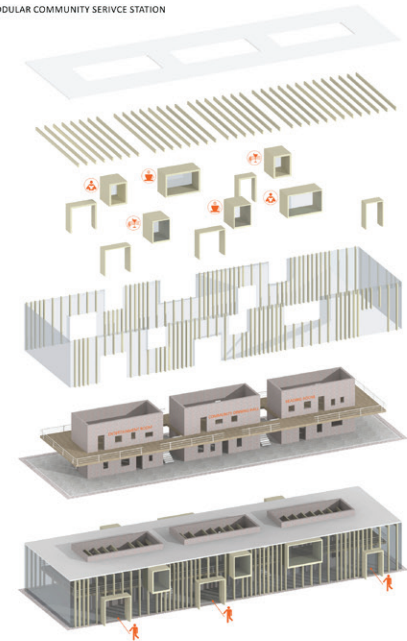


THE RIBBON WILL PROVIDE ARMATURE TO IMPROVE THE SERVICE DISTRIBUTION AND ITS NETWORK IN THE NEIGHBORHOOD SCALE. THE NEW SERVICES WILL HELP TO RESHAPE THE RESIDENTIAL COMMUNITY BY ACTIVATING THE BOUNDARY OF ENCLOSED RESIDENTIAL COMPOUND TO PROVIDE DIVERSE FACILITIES AND EXTEND THE VIVID LIVING ENVIRONMENT TOWARDS THE NEW URBAN CONTEXT.

TRADITIONAL CHINESE COVERED CORRIDOR



MODULAR COMMUNITY SERVICE STATION



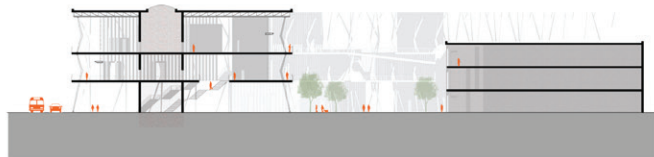
EXISTING PROBLEMS?

- ISOLATED APARTMENTS ARE SEPARATED BY THE URBAN INFRASTRUCTURE SUCH AS HIGHWAY, SUBWAY AND RING ROADS.
- LOCAL SERVICE PROVISION IS INSUFFICIENT TO SUPPORT THE NEW RESIDENTIAL AREAS AT A LARGE SCALE
- THE SHARED PUBLIC SPACES BETWEEN THE INDIVIDUAL RESIDENTIAL COMPOUNDS ARE UNDER UTILIZED

PROJECT GOALS:

- IMPROVE THE SERVICE NETWORK ACROSS MULTIPLE NEIGHBORHOOD.
- RESHAPE THE RESIDENTIAL COMMUNITY BY ACTIVATING THE BOUNDARY OF ENCLOSED RESIDENTIAL COMPOUND
- PROVIDE DIVERSE FACILITIES AND EXTEND THE VIVID LIVING ENVIRONMENT TOWARDS THE NEW URBAN CONTEXT

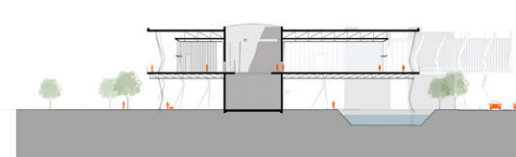
SECTION AA COMMERCIAL STREET



SECTION BB FARMER'S MARKET



SECTION CC COMMUNITY CULTURE CENTER

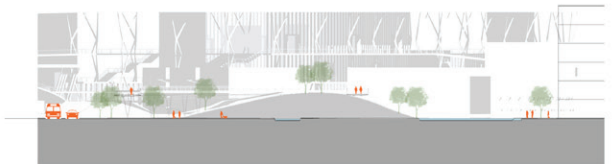


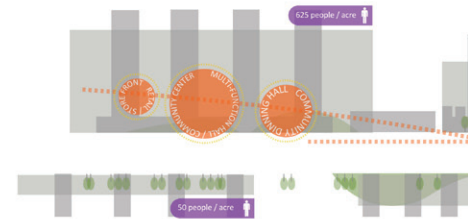


SECTION DD COMMUNITY DINNING HALL

SECTION EE COMMUNITY SERVICE STATION

SECTION FF URBAN PARK







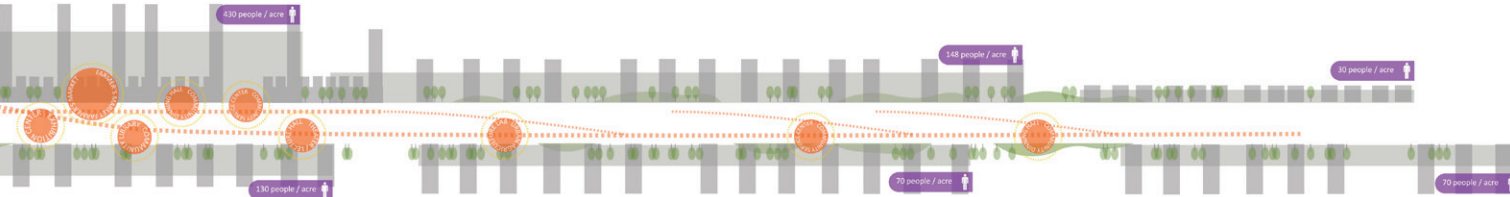
EXISTING BUILDING MEETS NEW STRUCTURE



A SELF RELIANCE COMMUNITY SUPPORTED BY LOCAL FOOD RESOURCE



MULTIPLE SERVICES IN 3 DIMENSION SCALE



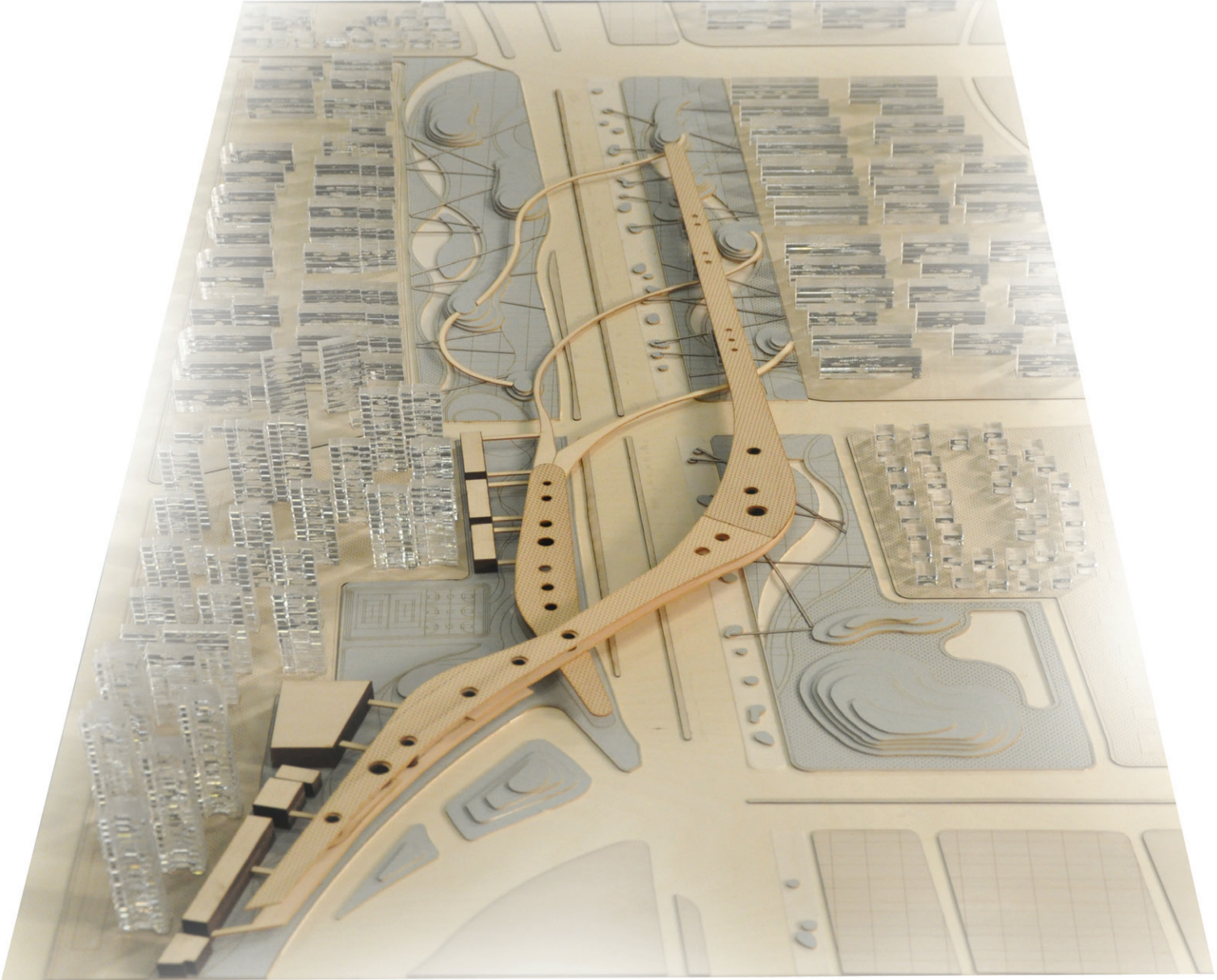
LIVING AND SHARE DIVERSE LIFE STYLE

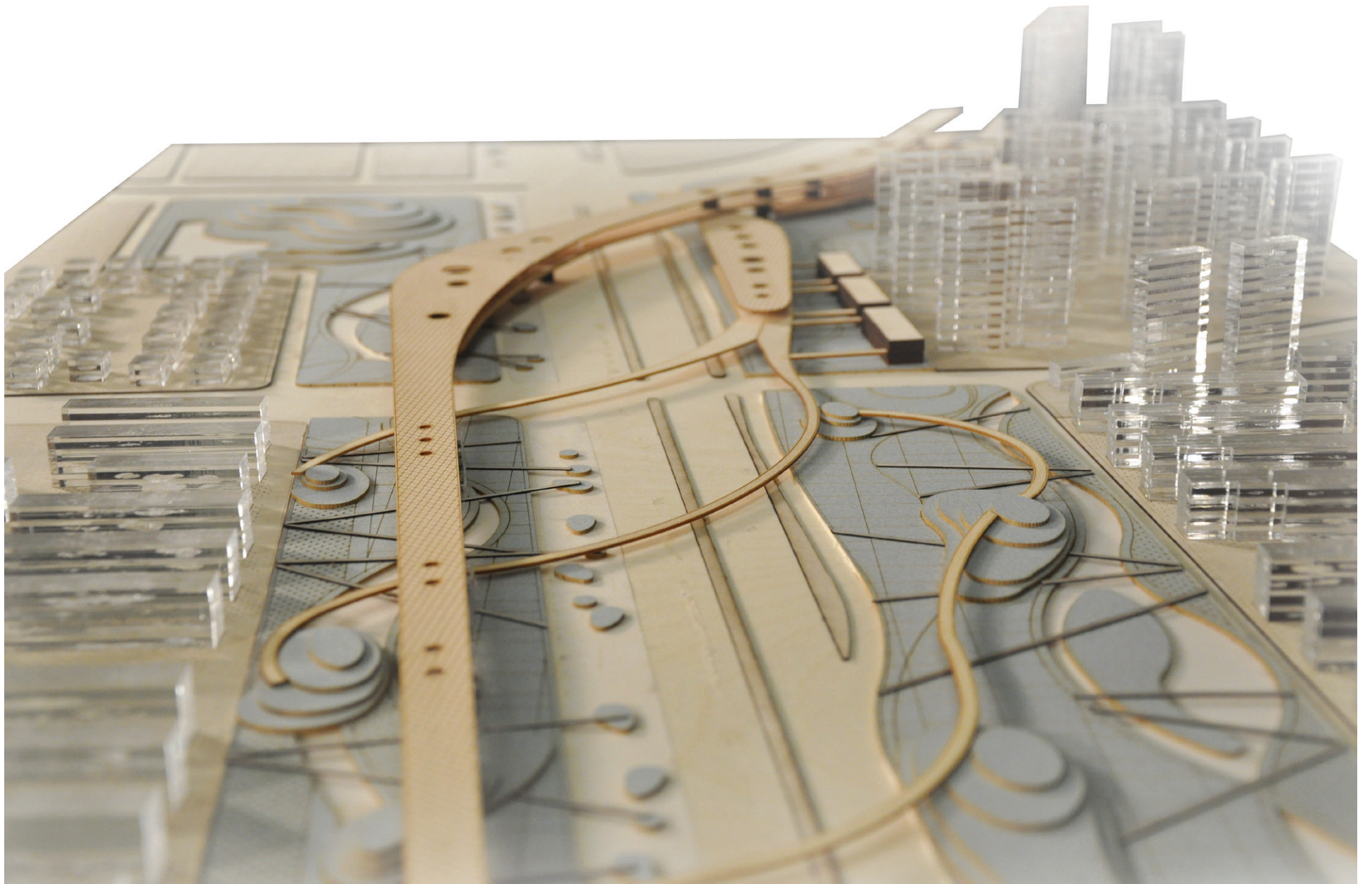


PRODUCTIVE URBAN FARM LAND OPERATED BY THE LOCAL COMMUNITY AS LOCAL FOOD SUPPLY



AN URBAN PARK ALLOWS COMMUNITY NEIGHBORHOOD TO ESCAPE FROM THE CURRENT URBAN INTENSITY





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Figure Sources

All photographs, drawings and diagrams were provided by the author, unless noted otherwise here.

Figure 1.2 <http://news.ks.js.cn/uploads/>

[allimg/110614/2_110614143042_1.jpg](http://img/110614/2_110614143042_1.jpg) Figure 2.7 Linked hybrid

perspective 1

Figure 2.8 <http://www.archdaily.com/34302/linked-hybrid-steven-holl-architects/>

Figure 2.9 <http://www.archdaily.com/34302/linked-hybrid-steven-holl-architects/>

Figure 2.10 <http://www.soufangbj.com/XZLinfo.aspx?id=304>

Figure 2.11 <http://chmak1.blogspot.com/2008/07/blog-post.html>

Figure 2.12 <http://www.soufangbj.com/XZLinfo.aspx?id=304>

Figure 2.13 http://archrecord.construction.com/ar_china/bwar/0604-03_JianWai.asp

Figure 2.14 <http://www.archdaily.com/170289/suzhou-industrial-park-central-business-district-swa-group/image-suzhou-new-cbd-swa-low-res-9-2011/>

Figure 2.15 <http://www.archdaily.com/170289/suzhou-industrial-park-central-business-district-swa-group/suzhou-new-cbd-multiple-connex-graphic-swa/>

Figure 2.16 <http://www.archdaily.com/170289/suzhou-industrial-park-central-business-district-swa-group/suzhou-new-cbd-section-swa/>

Figure 2.17 <http://www.archdaily.com/170289/suzhou-industrial-park-central-business-district-swa-group/forest-ring/>