Urban Vitality in Dutch and Chinese New Towns

A comparative study between Almere and Tongzhou

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' To my grandparents, parents and Xiaodong '

Contents (concise)

Contents (extensive)

1 Introduction

§ 1.1   **Problem statement**

New towns, the concentrated decentralization of the over crowded population and urban functions from the uncontrollably sprawling large cities, are widely adopted as a rational regional planning strategy all over the world. Since the beginning of the Twentieth century, a large number of garden cities and new towns have been built in both developed and developing countries. Such a list can be found in Sir Frederic Osborn's (1977) book New Towns: their origin, achievements and progress, as well as in the archive of International New Town Institute (INTI in Almere). International experiences on new town planning and design, achievements and challenges were extensively exchanged, especially in the 1970s and 1980s, by means of publications, international conferences and dedicated research organizations (e.g. INTA and INTI).

A review of the existing literature reveals that one of the common problems confronting many new towns is the difficulty of making a town into a socially, culturally and economically balanced city, which is the ideal seeded in Howard's Garden City model, Saarinen's theory of "organic decentralization" and Geddes's "organic unity" view of cities. Although some new towns successfully become the growth or activity centers of the region because of the relocated industries or public sectors (e.g. higher education), many wind up similar to the monotonous suburban housing expansions, which are characterized as lacking social urban life. The early new towns built before the middle of the 1960s were often criticized for being unattractive in regards to city landscape, homogenous in social composition, and deficient or under-used in public facility supply. Associated social complaints were also documented, such as loneliness, depressions, and nuisance in public spaces. The problems were partly incurred by the nature of the garden city model - the limit of town size as well as the remoteness and segregation in relation to the mother city. The problems also stem from the modernistic way of planning - the large-scale mass production and minimalism in design. The unsuccessful experience of new town construction has led to the questioning of the fundamental feasibility of this urbanization and regional development model by researchers and practitioners: if cities as complex systems can be artificially planned and if a satisfactory measure of self-containment can be achieved.

During the last two decades, new town construction has been growing exponentially in China. The country has been experiencing rapid urbanization since the country's transformational reform into a socialistic market economy in 1978. Large cities are increasingly troubled by traffic congestion, environmental pollution, exploding populations, inner city deterioration, soaring housing prices, and more. Early new towns emerged in the 1990s. Hundreds of new towns have been planned in the early twenty-first century. Dozens of them have are already been constructed or are under construction. This massive wave of new town movement fosters both great opportunities and challenges. It is extremely important to learn from the process of establishing new towns, and to explore innovative solutions to the critical common problems found in their development process and operation. Unfortunately, the developers of some of the Chinese new towns have already shown a tendency to weigh too much on form, image, speed and profit, and too little on quality of urban life, social dynamics, and sustainability. The consequences of such constructions results in a severe lack of urban vitality, and sometimes even deserted "ghost towns".

The socio-economic contexts of both western and eastern societies have drastically changed in the Twenty-first century. New mentalities have developed in the discipline of urban planning and design. Postmodern urbanism calls for humanistic planning processes and products: shifting attention from quantity to quality, from uniformity to individuality and diversity, from isolation to contextualism and identity, and from centralism to negotiation and participation. The main challenge of this research project is to determine how new towns can enhance their urban vitality by incorporating new planning criteria and demands.

§ 1.2 Research aim and subject
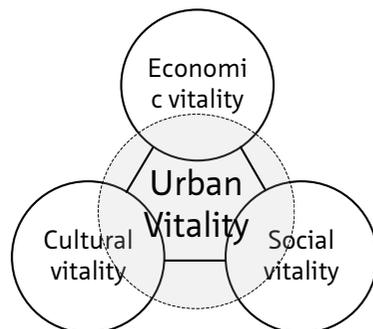
Figure 1.1
What constitutes urban vitality?

The aim of this Ph.D. research project is to investigate the spatial and non-spatial factors that facilitate the development of urban vitality in new towns, based on comparative study of two cases: Almere in the north wing of the Randstad region in the Netherlands and Tongzhou in the metropolitan region of Beijing in China. In theory, economic, social and cultural urban life constitutes urban vitality. However, the study of urban vitality in this research does not intend to tackle the economic and sociological concepts in themselves, but to focus on the interrelationships between space and society (figure 1.1).

The reasons that these two cases are chosen as study subjects lie in the fact that they are comparable in terms of time of development, relative location, and socio-economic position in the region. These cases also clearly contrast and complement each other, in terms of their urban planning and governance approaches, spatial organizations, and patterns of urban life. They are thus effective cases to be developed through this comparative research process for the purpose of identifying methods to make new towns more self-contained and enlivened with real urban quality.

Almere and Tongzhou are both important and large-scale new towns in their respective regions. Almere is the most developed new town, and already the seventh biggest city in the Netherlands. It has a population of about 190,000 inhabitants occupying a built-up area of 190 square kilometers. Tongzhou is the biggest of the eleven new towns around Beijing central city, and it is designated as one of the three key growth centers after the 2008 Beijing Olympic Games. There are currently over 250,000 long-term inhabitants living on an urbanized area of 42 square kilometers. Due to the close distance (20-40 km) to the major cities and job centers in the region, they both have successfully attracted a substantial number of commuters and immigrants to become residents, generating a well developed real estate sector. They both have established sufficient economic activities for daily-life services, and the number of jobs in town is increasing. However, they still remain largely dormitory towns dependent on the economic and cultural life of the dominant cities. Currently, they both have higher ambitions to become more balanced, independent and attractive in the coming decades.

In terms of urban planning and governance, Almere and Tongzhou are both important government projects. Almere is a thoroughly and coherently top-down planned new town. It started being planned in the 1960s and the construction began in 1976 as a national grant project, on the undeveloped, reclaimed IJsselmeerpolder. The aim of the planners for Almere was to accommodate the people displaced from the city of Amsterdam's renovation projects, and absorb overspills from other nearby regions and cities (het Gooi, Utrecht). Almere has gone through a range of development processes, from nationally planned and funded (1976-1984), to planning and management by the local government through a national subsidy and technical support (1984-1995),

to independent local government and market-involved development (1995-2007), and finally to become a national project again in order to realize the ambitious plan of "scale leap". Tongzhou started as a top-down appointed satellite industrial town in the 1950s in the suburb of Beijing city. Dozens of state-owned factories were successfully relocated there, but urban development was initially slow. China's transition to a market economy in 1978 brought about accelerated planned construction in the 1980s. A decade of deindustrialization and market-driven self-organized real estate booming in Tongzhou began in the early 1990s. Since 2004, the planning and management of urban development has become tightly controlled by the local government and subsidized by the central government.

The different planning and governance approaches, as well as the resultant spatial forms and organization, have led to different manifestation of urban vitality in these two new towns. This research will develop in-depth analysis of these aspects, through the measurement of the actual situation of urban life, and the evaluation of the functioning or non-functioning factors. This process will result in the development of recommendations for the future development of the two new towns, in regards to the spatial planning/design and urban governance.

§ 1.3 **Research questions and hypotheses**

The main research question is what kind of spatial qualities, as well as urban planning and governance approaches, promote the urban vitality of new towns?

The subsequent research questions include:
- What is the definition of urban vitality? Why is it important?
- How does it relate to the economic, cultural and social aspect of urban life?
- How can urban vitality be quantitatively measured?
- What are the reasons that planned new towns are prone to the lack of urban vitality?
- What kind of efforts have been made in the planned new town Almere in creating urban vitality? What works and what does not?
- What can be learned from the market-driven, self-developd Tongzhou new town?
- In which aspects can these two new towns learn from each other?
- Is the new town strategy a good regional development model to be multiplied in large quantity? Can they eventually develop into self-contained vital cities?

Hypotheses:
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1 The amount of social, cultural and economic activities taking place in the public domain of a city is the key indicator of the degree of urban vitality.

Small-scale economic activities, planned public and commercial facilities, and organized and bottom-up initiated social and cultural events, are key attractors for the presence of people on the streets and in open, public spaces.

2 Place, people and program constitute the three essential elements for urban vitality.

The "hardware", in other words the spatial framework, provides conditions for the growth of the "software", the social-cultural life in the city. The city is vital if there are sufficient quantities of activities and attractive urban space drawing people's participation, and if people are given opportunities to become active participants in city making, and to realize their own initiatives.

3 Urban life is dynamic when a city has a sufficient level of complexity and diversity in terms of urban environments, social composition, as well as the number of parties involved in urban development.

Complexity occurs when there are a variety of elements and actors in a system, and when they have a myriad of possible combinations and correlations made possible by good connections and communications.

4 Physical planning and design at multiple scale levels affects the level of urban vitality. The influence of street network configurations and functional distribution patterns on city and district scales on urban vitality have a greater impact than that of architectonic variations and landscape design on local scales.

Tree-like network structures combined with inward-looking, self-centered neighborhood units limit the development of urban life. Grid structures with open interfaces conditions the development of mixed-use programs, and the aggregation of people.

5 Urban development methods and urban governance has a great influence on urban vitality. The method of small-scale incremental development pushed forward by a multiplicity of parties and actors is more effective than large-scale strictly planned development involving only a few big players.

An extremely rigid planning system demands more flexibility, while an extremely market liberal system requires stronger planning regulations.

Scientific and social relevancy

This research has been developed under the research framework of the International New Town Institute (INTI, Almere, the Netherlands), whose aim is to establish research platforms for new towns worldwide. The research on new town development in China in the past and coming decades constitutes an integral part of its knowledge database. The development of connections and comparisons with new town experiences in the western society establishes continuity with research and practice on this particular subject.

New town development in urban China since the 1990s has been drawing the attention of international researchers. For example, Dutch researcher Harry den Hartog (Urban Language) published the book Shanghai new towns in late 2010. The China-rooted Dynamic City Foundation (founded by Dutch architect Nevile Mars) carried out research about the pros and cons of the super satellite towns in China as well as Eco (green) new towns. Moreover, there is an increasing number of international firms directly participating in the planning and design of Chinese new towns. However, there are not many research projects that compare the development of Western and Chinese new towns for their common interests, and potential, of becoming real cities.

Specifically, the research about Tongzhou provides a social-spatial study of the largest new town near Beijing. The only existing comprehensive research for Tongzhou was made during the development of the Tongzhou master plan (2004-2020) in 2004, which served as a basis for spatial strategies and planning. This PhD research benefits from the latest social-economic data collected in the official documents, but also focuses on formulating critical views on the relation between spatial planning and urban vitality.

Many studies have been carried out on the characteristics of the planned new town Almere. They include historical documentation and analysis of planning and developing process (e.g. Van de Wal, 1997; Brouwer, 1997; Nawijn, 1998; JaapJan Berg, 2007), studies of social cohesion (by researchers from Amsterdam University, 2001; by municipality: Samen Leven in Almere, 2003; Sociale Agenda, 2009), and a study on economic development (by municipality: Economische Tussenbalans, 2009). Much of the current spatial studies and designs are focused on new developments and urban expansions (Almere 2.0). However, there is generally a lack of holistic social-spatial studies on the actual functioning situation and daily life patterns of the existing urban nodes, with the aim to draw lessons and generate constructive design proposals for both existing and new urban areas. In the broader sense, there is also a lack of systematic comparison between planned new towns and organically-grown new towns or traditional urban fabrics.

This Ph.D. research is related to several other research projects developed in the chair of urban design and city design (Stedebouwkundig Ontwerpen & Stadsontwerp) in TU Delft. Some examples are the analysis of Almere's spatial structure and street network using Space Syntax by K. Buurmans, P. de Bois and students, the tracking of pedestrian movement pattern by S. C. van der Spek and P. de Bois, the comparison study between Leiden city center and Almere city center by E. Brandes and students, and the Ph.D. research on Istanbul and Almere by E.Tan.

Overall, the general focus of this research project is to research and understand the interrelationships between space and society (figure 1.2). The specific focus of the research project isto determines how the process of city making and its spatial composition at different levels of scale influence the degree of liveliness of urban life. The primary research focus is on spatial factors, but non-spatial factors, such as planning strategies and urban governance, are also considered essential to the subject, and are integrated into the research process.
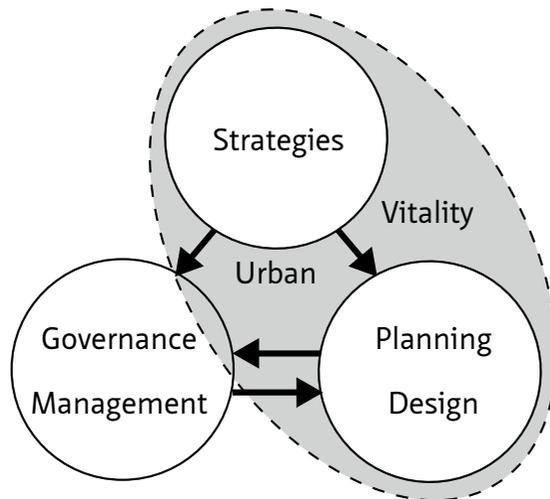
Figure 1.2
The main research domain

Outline of the dissertation
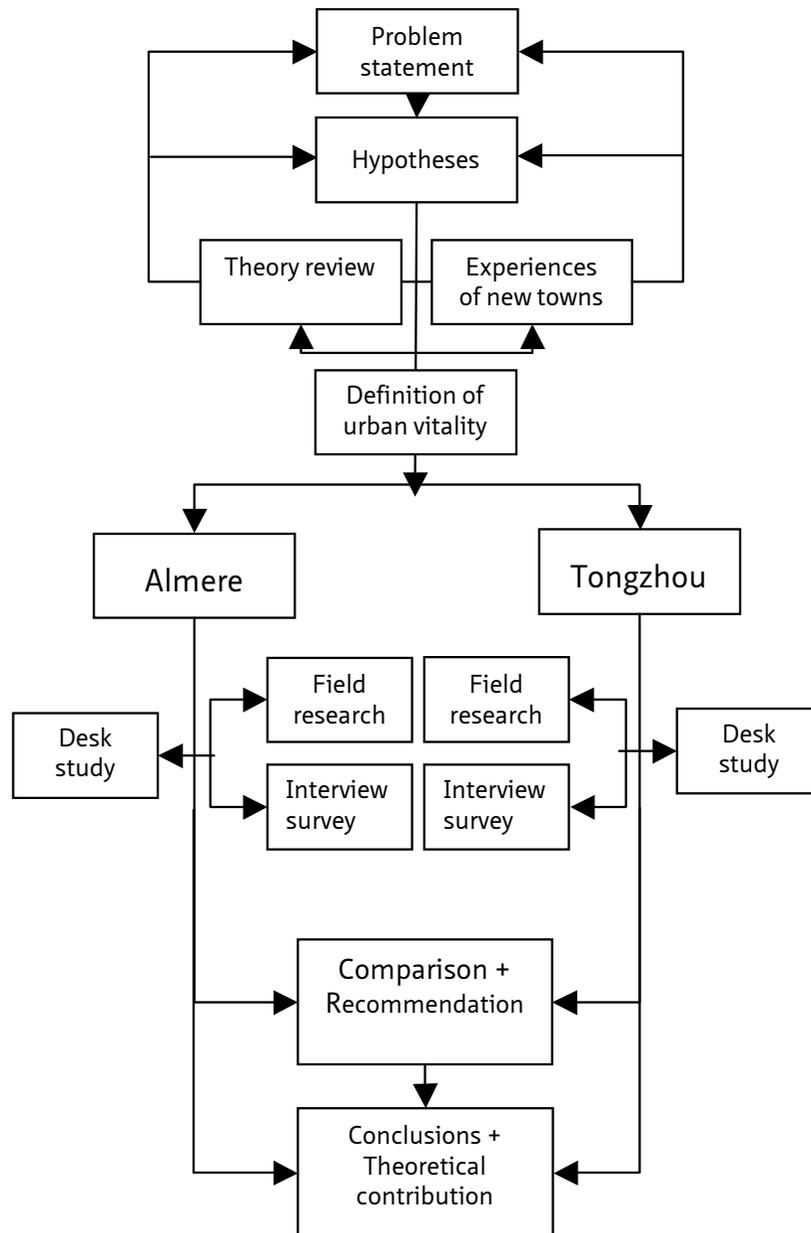
Figure 1.3
The structure of the dissertation

This dissertation is structured as follows (figure 1.3):

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Chapter 1 introduces the main subject, aim and relevance of this Ph.D. research project. The relevance of the research focus is explained by providing evidence and solutions to the following research questions: why urban vitality of new towns is an important issue to study, what is the value of comparing Western and Chinese new towns, what are the preliminary theoretical propositions to the research questions, how are these hypotheses to be tested, and why Almere and Tongzhou were selected as study cases.

Chapter 2 is comprised of a literature and theory review. It consists of three parts. The first part investigates the origin of the Garden City model and relevant regional theories and economic geography models developed in the period of industrialization of the Western society. Then, the prevalence of the new town movement in Western Europe before the 1970s, the spontaneous regional development in North America through the course of the twentieth century, as well as the progression of new town construction in contemporary China is reviewed. The second part of the chapter identifies and reviews spatial factors from different scale levels that have been found to have a positive effect on promoting quality urban life. A clear, general definition of urban vitality is then able to be constructed. In the third part of the chapter, planning theories and strategies under the changing socio-economic context are discussed. Special emphasis is placed on a systems approach of planning and management, communicative planning rationale, and varied participatory approaches. Their possible inspiration to new town planning is reflected upon.

Chapter 3 describes the case study methodology used in this research project. First, the criteria of case selection and the relevance and comparability of the two new town cases are clarified. The sources of data acquisition and the spatial analytical tools are listed. It goes into detail to explain the main principle of space syntax theory as well as static snapshots and spatial registration techniques, as they are the primary research tool for empirical study. Finally, the principles and experiences in designing and conducting survey and interview are stated.

Chapter 4 and 5 describe the case study researches of new town Almere and Tongzhou respectively. Each chapter is similarly divided into three sections. The first section gives a concise overview of the city development method, the socio-economic contexts, planning actions, urban governance method, and current social demographics. The research is focused on illustrating and describing the two distinct development processes: top-down planning and market-driven self-organization. The evolution of the planning and design ideas during the development process is revealed (lateral comparison). The next section is the core of the empirical study. The characteristics of the spatial composition and design on various scales are evaluated by virtue of the

quality of local urban life and activity patterns measured in real situations. The towns are also compared with the spatial structure and design of traditional urban fabrics in natural cities (vertical comparison). Recent planning developments for the new towns and the effect on urban vitality are also discussed. Positive factors and concrete suggestions on improving urban vitality of these new towns are finally drawn out, which are also informed by the results of the developed interviews and questionnaires.

Following the detailed analysis of each new town, chapter 6 synthesizes and compares the differences and similarities of the two cases in a concise and clear manner. The key factors to urban vitality and how the two new towns can learn from each other are further discussed.

The final chapter re-states the scope and usefulness of this research. Six primary points of added values to the body of knowledge of urban vitality are established, including a clarified definition of urban vitality illustrated with a diagram of the urban vitality triangle, the dynamic relationships between the variant spatial configurations, attractors and movement of flows, the planning process and product from a systems view, and finally the key spatial factors for urban vitality. The relationship between these key points and the hypotheses and main theoretical framework of the thesis is clarified. Specific suggestions to both new towns are emphasized as reflections of the conclusions on current planning and design practice. Recommendations for future research directions are presented, including the suggestion that urban life in suburban settings will be a topic of continuous discussion in the field of spatial planning and social study for many years to come.

2 Literature Review on New Town Model, Urban Vitality and Planning Theories

The focus of the primary research question is on the urban vitality of new towns. It is found to be one of the most common social-spatial problems in many artificially planned new towns worldwide. This chapter is to explore this question by investigating the fundamental principles of new town model as a regional strategy, the reasons why it is challenging to achieve real urban qualities, the definition of urban vitality, and the design and managerial approches that are considered relevant means to this end.

In the first section, Howard's Garden City model, i.e. the origin of new towns, is revisited. Special attention is focused on the concept of "self-containment". The feasibility of it is tested through studying relevant regional space economic theories, especially the rank-size theories, location theories and central place theories. The American "edge cities", which spontaneously emerged out of the free-market-driven and uncontrolled regional development, is also served as a reference for the possibility of switching the role of core and periphery in economic and social terms. The achievements and problems of new town planning and development practices are concisely summarized. The reasons of the lacking of urban vitality are found related to the urban planning and governance approaches, as well as the quality of physical design in the making of the new towns.

The key task of the second section of this chapter is to develop some understandings on the varied social, economic, political and spatial planning contexts for the concept of public life in Chinese and European societies, and to clarify a relatively specific and common-ground definition of urban vitality focused on the social-economic aspects of urban life, a general and measurable interpretation that could be applied for the comparative study of new towns in Chinese and Dutch societies. The formulation of this concept is primarily influenced by the works of Jane Jacobs, John Montgomery and Jan Gehl. However, the search for the spatial and non-spatial factors is from a wider scope, not only looking for design factors of different scale levels that could encourage social cultural interactions and economic exchanges in the public realms, but also emphasizing the role of people's participation in the process of city-making.

The spatial factors identified in the third section of this chapter mainly include the configuration of urban networks, the composition of urban land use, the structure of urban blocks and neighborhoods, as well as the quality of the space between buildings. The functional, social and spatial diversity and mixture, an open and well-connected network, and attentions to human-scale details are found crucial conditions for the animation of urban life in outdoor public space.

The fourth section continues to explore factors and solutions for improving urban vitality in the top-down planned new towns from the viewpoint of urban planning and governance approaches, the tool in itself. First, the traditional rational-comprehensive and synoptic planning paradigms are critically reviewed. The manners in which the shifts in social, cultural, and political contexts have affected the mentality of the planning profession are discussed with respect to modernism and postmodernism. Then, the new people-oriented planning approaches with emphasis on communication, participation, collaboration and self-organization are discussed in more detail, with the aim to offer advices on activating the involvement of diverse actors in the private and public domain in the process of new town development.

§ 2.1 New towns as a regional strategy

§ 2.1.1 The origin of Garden Cities

§ 2.1.1.1 Early Utopian ideals and experiments

One of the earliest pieces of literature on the ideal city is the Englishman Thomas More's Utopia (1516) which was influenced by Plato's Republic. The author depicted "a very attractive ideal of towns of limited size and open internal layout spaced out at considerable distances over the countryside" (Osborn, 1977). American urban theorist Lewis Mumford concluded in his book The Story of Utopias (1922) that the common dream of the Utopian cities is to bring the richness of the country to cities, and to and bring the vitality of cities to the country.

Utopian ideals were further elaborated on and experimented with in the 19th century by a number of great Utopian socialist reformers, including Robert Owen (1771-1858) and his French contemporary F.M.C. Fourier (1772-1837). They believed that better working and living conditions, and better education for factory workers and their families, could motivate workers and thus improve productivity. Owen successfully carried out his reform principles in the New Lanark factory in Glasgow, and formalized the model of a good "working community" - a small township offering every variety of employment and self-contained as much as possible (Owen, 1817). However, his further investment in building the "Village New Harmony" (1825) in America failed, due to the mechanism triggered by radical socialist equalitarianism. Besides the experiments of social reformers, "industrial villages" or "company towns" emerged in the suburbs of large industrial cities. They were created by private industrialists who were not keen on changing property ownership, but who wished to provide workers with better conditions.

The "Port Sunlight Village" near Liverpool in England was an iconic project of garden villages built by Lever Brothers from 1888 for employees of their soap factories. The townscape was beautifully designed. The architectural style was influenced by the Arts and Crafts Movement. The housing and public facilities were designed according to a high quality standard, and were carried out by more than 30 architects. Until the 1980s, the residents of the village were all Unilever employees and their families. Since the 1980s, the houses were sold privately. Lever introduced welfare schemes, provided his workforce with education and entertainment opportunities, and encouraged organizations which promoted art, literature, science and music. The community organization, Port Sunlight village society, is currently devoted to preserving and enhancing the character and fabric of the village (figure 2.1).

Such developments have a significant social meaning for capitalist industrial societies at that time. These early individual spontaneous experiments by social reformers and industrialists gradually created a paradigm for planned communities and townships, by providing a high-quality and collectivistic lifestyle that allowed people to work, live and play in healthy and pleasant conditions. Planning and design were used as tools to realize physical and social improvement. The new 'industrial villages' in suburbs can also be seen as the early decentralization of economic activities from the center to the periphery by private initiatives.
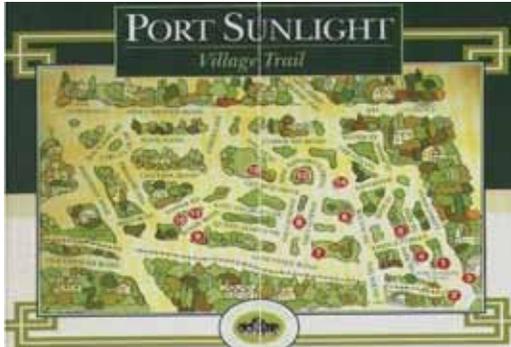
Figure 2.1
The master plan and the central public space of Welwyn garden city. Source: Osborn, 1997

§ 2.1.1.2   Howard's Garden City model and its influence

The second half of the nineteenth century is characterized by great scientific discoveries, technological inventions, and philosophical and social development. Sir Ebenezer Howard, who was influenced by Utopian ideas, systematically demonstrated the concept of the "Garden City" in his book Tomorrow: A Peaceful Path to Real Reform (1898, 1902). Howard believed the Industrial Revolution created enormous urban and social problems for societies, and his solution was to decentralize the over-congested, large industrial cities by building planned and well-balanced small towns (30,000-50,000 people) in the suburbs. It was a plan he defined as being "designed for healthy living and industry, of a size that makes possible a full measure of social life but not larger, surrounded by a rural belt, and the whole of the land being in public ownership or held in trust for the community" (Osborn, 1977, p.4) (figure2.2).
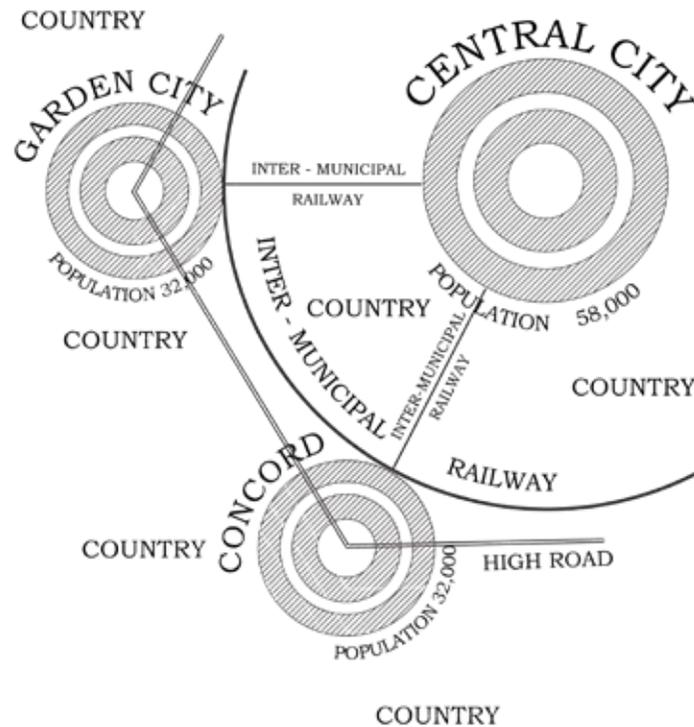
Figure 2.2
Garden City model by Ebenezer Howard. Source: Howard, 1898

Howard's Garden City was highly influential to the field of urban planning (Hall, et al. 2003). It is believed to be the starting point for the modern town planning movement. Unlike the Utopian thinkers or capitalist industrialists, Howard conceived of new urban growth patterns from the point of view of a city. As Lewis Mumford put it, Howard "attempted to improve the city as a whole, to alter the very method of its growth, based on well-defined wholes" (Osborn, 1977, xiv). Howard believed rational planning interventions were a means to ameliorate the urban problems in industrial cities. Although his enthusiasm with regard to small towns can be perceived as the nostalgia for pre-industrial human settlements, his "concentrated decentralization" concept was original. Howard's planning concepts were among the first to consider urban development from a regional perspective. His proposal for a regional unit consisted of a group of satellite towns bound together by a rapid transport system was widely considered as an appealing rational alternative to the uncontrolled urban sprawl. He emphasized on limiting the size of the town and integrating generous green

space into urban environment. His Garden City model could be viewed as a modest in-between of the highly compact urban model and the highly dispersed "anti-urban" model. Furthermore, he gave value to the social cultural development of the new city by addressing that garden cities should develop a "full measure of social life", and become "self-contained" as much as possible. The western new towns practices from the 1940s to the 1970s have indicated that developing social and cultural life is one of the most challenging tasks, especially for new towns out of the immediate influence of "parent" cities. Consequently, the concept of "self-containment" requires further exploration.

In contrast to the Garden City model, which combines countryside living qualities with a sense of society, a number of other city models speculated on possible urban forms shaped by modern technology. For example, the Linear City concept created by the Spanish Engineer Mata (1882) proposed continuous urban ribbons alongside means of rapid transport (especially trains). The Contemporary City model and the Radiant City (La Ville Radieuse) model conceived by the modernist architect Le Corbusier (1922, 1931) featured clusters of modern residential and office towers, with large scale open spaces in-between. The Broadacre City concept proposed by the American architect Frank Lloyd Wright (1934) was comprised of individual houses in a dispersed low-density urban layout dominated by the private car usage. Although different urban patterns were derived in different contexts, it was clearly a consensus that the city should be understood and regulated in a rational way in the new age of rapid technological development.

In order to put his theory into practice, Howard launched two experimental projects: Letchworth Garden City (56 km north of London) in 1903-4 and Welwyn Garden City (30 km north of London) in 1919-20, which were both financed by private investors. After a certain amount of struggling in the initial development phase, they successfully became self-contained industrial towns. As Sir Frederic J. Osborn commented, "the planning and development of Welwyn Garden City (figures 2.3) became famous as the best example of whole-town design" (Osborn, 1977, p.30). These two garden cities are not only visually beautiful and human in scale from an urban design perspective, but also economically viable and socially cohesive (Nadin, 2012). With his two successful projects, Howard demonstrated that the Garden City model was feasible and able to be more widely reproduced.
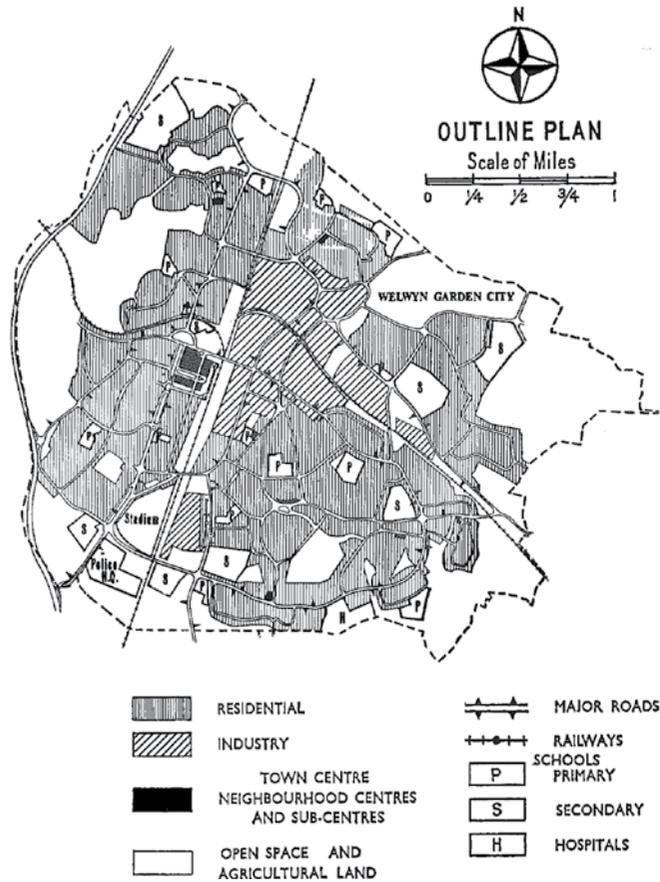
Figure 2.3
The master plan and the central public space of Welwyn garden city. Source: Osborn, 1997

Howard's concept of rationally decentralizing the population and economic activities from a large congested city into suburban self-contained new towns was highly influential and received wide recognition. In fact, Garden City planning principles were reflected in many well-known plans of western metropolises from the early to mid-twentieth century, including the Greater Helsinki Plan of 1918, the Moscow Master Plan of 1935, the Finger Plan of Copenhagen of 1948 and the Greater Paris Plan of 1965. In the case of London, following the green belt and satellite towns proposal by Raymond Unwin in the report of the Greater London Regional Planning Committee of 1933, the Greater London Plan of 1944 by Patrick Abercrombie (figure 2.4) made a further historical advance by converting the concept of "metropolitan redevelopment on human standards, and decentralization, green belts, new towns and country-town expansions into a clear and concrete practical proposition" (Osborn, 1977, p.50). These master-plans were of great significance. They symbolized the beginning of metropolitan regeneration and structural adjustment by top-down intervention. For the first time, the new town strategy was legitimatized as a government policy in Britain, enabling city governments to implement such large-scale urban development as public projects.

GREATER LONDON PLAN

THE FOUR RINGS

mile 0 — 5 — 10
km 0 — 5

- outer country ring
- green belt ring
- suburban ring
- inner urban ring
- the administrative county of London

Royston

Luton

Bishop's Stortford

Hertford

Hemel Hempstead
St. Albans

Chesham
Cheshunt

Watford
Brentwood

High Wycombe

Romford

Uxbridge

Slough
Tilbury

Windsor
Dartford

Epsom

Woking
Sevenoaks

Guildford
Redhill

Horley

Haslemere

§ 2.1.2 Relevant urban theories and the validation of new town model

§ 2.1.2.1 Regional science: Location theories and Central Place Model

Since the early twentieth century, many new urban theories have been developed in the fields of space economy, urban geography, social ecology and even physics, in an attempt to explain the underlying laws of the formation and transformation of cities and regions by scientific measures. The most influential theories include *location theories*, *central place theory*, and *rank-size theory*.

Location theories

As the second industrial revolution was rapidly developing in the Western European cities since the middle of Nineteenth century, the location and movement behavior of industries became a subject of intensive research. According to McLoughlin, location theories developed before the First World War concentrated on the study of location behavior of individual (manufacturing) firms (McLoughlin, 1969, p.61). Alfred Webber (1909) developed the Least Cost Theory, arguing that firms attempted to minimize transportation costs in association with their access to raw materials, production or assembly points, distributors ,and finally, to customers (ibid). Webber later (1929) attempted to formulate the location of the city in relation to (raw material) industries using his locational triangle model.

Numerous theories were developed from the fields of economy, geography, sociology and planning, on the subject of the economics of location (both secondary and tertiary economic activities) from the early twentieth century well into the 1960s and the 1970s. They include, to name a few, Least Effort (Zipf), Distance Inputs (Isard), Intervening Opportunities (Stouffer), Social Gravity Laws (Stwart), Stochastic Processes (Vining), Law of Retail Gravitation (Reilly). Many of the theories were derived from observations of urban phenomena, and attempted to explain and model the agglomeration and de-glomeration process of economic activities within a city or a region (in Europe and the United Stated). A commonly presupposed market rule is that firms want to maximize profits and minimize costs. The clustering of industries and services allows individual firms to benefit from the scale of the economy. The agglomeration of businesses and services forms a magnet to the market, and leads to the further enlargement of the concentration. In addition, the important opportunities

for (human) contacts that are considered useful in increasing the attraction of large urban centers are made available. This dynamic process continues until the negative effects of agglomeration, such as congestion, excessive taxes or competition, outweighed the advantages. Then, moving-out occurs. Empirical evidence reveals that a large metropolis as a whole has continuously strong agglomeration forces, and the de-glomeration movement is often intra-metropolitan, occurring in the suburbs of the metropolitan area (Alonso & Friedmann, 1964).

Ecological approach

The above mentioned theories or models mainly tackled the location behavior of firms and spatial structure of cities using economic laws. There is also a school of thought using an ecological approach to explain the patterns of land use within cities. The approach of the Chicago School scholars, led by Park and Burgess (1925), is a representative of this concept. Their approach incorporated the theory of concentric zones which was developed by the agriculturalist von Thunen in 1826. Von Thunen depicted an ideal city model by assuming an equilibrium condition that has no external disturbances. It describes an isolated state of uniform plain of land where transport costs and opportunities are equal to every direction, different land uses form concentric rings around the central market place (McLoughlin, 1969; Portugli & Hanson, 1999). Ecological competition among plants and animal species was used as the central analytical approach to urban phenomena. The resulting sectors of land use patterns were largely compared with agricultural land use arrangements. Another major contribution of the "ecologists" was the introduction of demographics, sociology and geography into the study of urban form (McLoughlin, 1969, p.62). Their research was also labelled as "urban geography" or "urban sociology". Harris and Ullman (1945) developed the "multiple nuclei" theory, which dealt with the land use distribution within cities in the context of American cities (figure2.5). Their model is considered an alternative to the concentric zone model and the sector model (Alonso & Friedmann, 1964; McLoughlin, 1969).

District

1 Central Business District
2 Wholesale, light Manufacturing
3 Low-class Residential
4 Medium-class Residential
5 High-class Residential
6 Heavy Manufacturing
7 Outlying Business District
8 Residential Suburb
9 Industrial Suburb
10 Commuters Zone
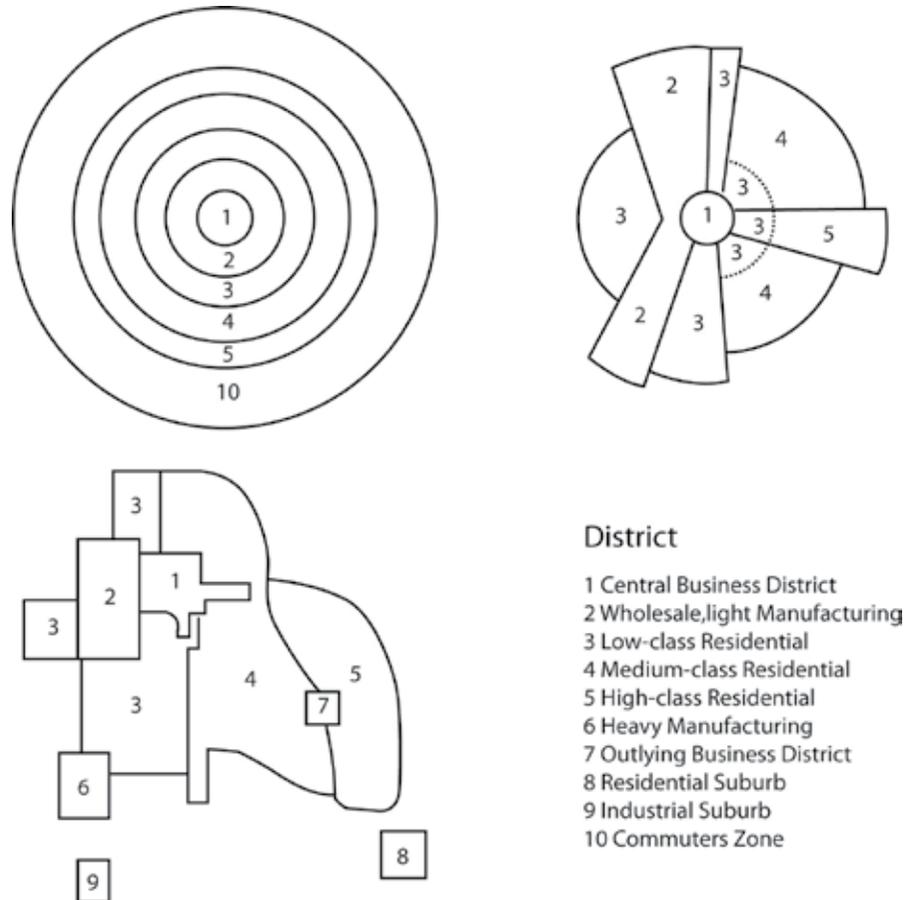
Figure 2.5
Harris and Ullmans' multiple nuclei model (re-draw). Source: Friedmann & Alonso, 1964

Central places

The development of central place theories also makes use of von Thunen's concentric rings model. The classic studies of central place theory came from Walter Christaller (1933), August Losch (1940, 1945) and Walter Isard (1956), among others. In general, central place models and theories deal with both the distribution of the service centers within a city or a region (locational behavior), and the distribution and size of cities in a region (rank-size relation). The key notions are range, threshold and hierarchy. Christaller's central place model (1933) illustrates the hierarchies that dominant central cities establish with the nearby dependent smaller towns (figure2.6).

The economic law of supply and demand is the foremost principle used in this model. The basic assumption for the hierarchical relation is that higher and lower level service economies are differentiated by the threshold of potential clientele. The few major centers in an urban region aggregate most of the large-scale and high-level retail stores and services; whereas the many small centers are only attractive to lower-level services for urban life and production. In contrast to Christaller's model, Losch's central place model (1945) approaches from the bottom of the hierarchy, explaining how dense agriculture settlements (small centers) in an area continue to grow and multiply and eventually occupy the whole region through competition and spatial equilibrium, forming a complex system of cities. Walter Isard (1956) modified the previous models by adding the factors of variation in population density in different locations and the position of major transport arteries. Both lead to the distortion of the hexagon cells and the overall pattern. There are diverse modifications and continuous progress towards the earlier central place model by virtues of the differences in city and regional development in different countries. Vance (1970) developed the "Mecantile" model based on his study on the historical development of cities in North America. He argues that local self-sufficiency, as depicted in the (European) central place model, seldom occurs. The consideration of the effects of the external influences and long-distance trade is also essential.

The marketing principle, k = 3, the G-system. (Top right sector shown in full detail)

◉	G - place
◉	B - place
◉	K - place
•	A - place
·	M - place
——	boundary of G-region
——	boundary of B-region
—·—·	boundary of K-region
------	boundary of A-region
··········	boundary of M-region
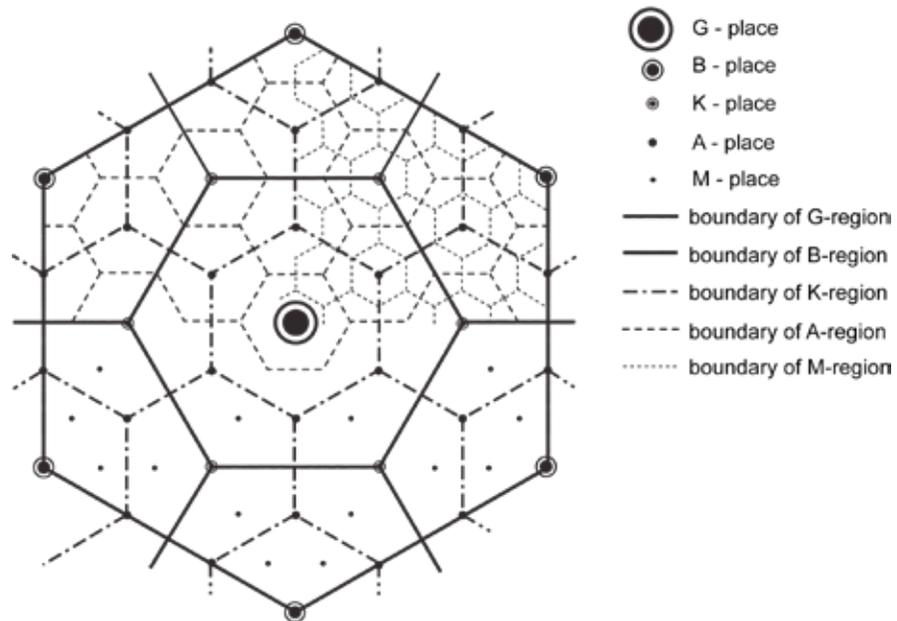
Figure 2.6
Walter Christaller's Central Place model based on economic laws (re-draw). Source: Portugali, 2011

Rank-size theory
....

As early as in 1913, German geographer Felix Auerbach published his findings on the regularity in the size distribution of cities, based on his survey of the system of cities in Germany, Great Britain, United States, France, Austria and Russia (Portugali, 2011, p.25). He discovered that the distribution of cities was hierarchical: there are few big cities, more medium ones and a relatively large number of small ones. This observation of size and distribution law was further developed by other scholars (e.g. Lotka 1924; Gibrat, 1936) using mathematical formulations (Alonso & Friedmann, 1964, p.118).

Log r = Log P1 − q*Log Pr

Where *P1* is the population of the largest or first-ranking city, *Pr* is the population of the city of rank *r*, and *q* is a constant (empirically *q* = 1.7).

Based on the previous endeavors, Linguist George Kingsley Zipf (1949) broadened the spectrum of the rank-size theory by arguing that not only language and city population, but also a whole range of other phenomena comply with this law. In the recent development of complexity theories on urban organization and development, the rank-size phenomenon has been found to be a property of fractal structures exist in nature, and it is also recognized as a genuine sign of self-organization (Batty, 2005).

Brian J. L. Berry (1964) argues that urban theories are scientific theories because they are derived from simple inductive generalizations drawn from observable facts about the world (empiricism). The location theories, central place theory, rank-size theory, and related theories that were developed mainly in the first half of the twentieth century, widely use mathematical formulations and geometric diagrams to explain (and try to predict) city and regional organizations developed under free market conditions. However, they were criticized in the 1970s for being either just statistical observation devoid of sound theoretical basic (Portugali, 2011, p.27), or too theoretical and far away from the real urban landscape. In effect, the fundamental goal of location theories is to explain the spatial behavior of human activities. There was increasing awareness since the 1950s and 1960s among scholars that the equilibrium conditions set forth in many models and theories were rarely found in reality. They realized that urban phenomena cannot be studied as isolated single events, because human society and the urban environment are enormously complex. The human mind and behaviors are sometimes irrational and unpredictable. Changes are an inescapable feature of human life, and the information needed for decision-making is never perfect or complete (McLoughlin, 1969, p.41). Therefore, the research focus on locational behavior of economic activities or city and regional structures has been shifted to a systems viewpoint. The planning approaches dealing with the dynamics of complex systems will be discussed later.

Despite the development of numerous theories and studies that were focused on understanding the city and regional development and spatial organization, the process of urban sprawl mostly occurred in quite uncontrolled manners. The metropolitan sprawl in North America is such an example of free market development. The following concise overview develops an interesting comparison between the controlled and top-down planned regional development of Britain and other European countries in the middle of Twentieth century.

The first wave of suburb infill started in the 1920s, which made possible by the widespread availability of the private automobile and massive construction of infrastructure. Suburban growth also followed the corridors of public transport (Trolley system). High-density settlements were developed near transit stops. The suburban sprawl of the 1920s to the 1930s was "totally unplanned and entirely without any conscious recognition of the challenges (e.g. traffic congestions, environmental quality) and opportunities (e.g. mixed functional land use) beyond the immediate implication for profitability" (Knox, 1994, p.112). Because of the growing market in the suburbs, shops and offices, wholesaling started to move out. At present, the suburban communities from that period are considered by today's standards relatively high density. They were characterized by a small plot size and few services and facilities. Consequently, they have filtered down the social scale and become working-class suburbs (ibid).

Due to the development of new assembly-line techniques, industrial plants needed more cheap land to build one-story buildings for production and parking. Furthermore, the replacement of rail transport by trucks made the choice of a building's location much more flexible. In the late 1930s, the inner city deindustrialization began. After WWII, much of the industry in metropolitan areas in the U.S. had moved to the suburbs (Alonso & Friedmann, 1964). The ownership of private cars soared, and the unplanned suburban sprawl grew much faster. Substantial and highly mobile populations were in place in most of the suburbs. The metropolitan sprawl was channeled by highways. Regional shopping centers, industrial and office parks strategically located themselves at the highly accessible sites in or near highway corridors. Peter Hall identifies this phenomenon as the "city on the highway". The success of the various decentralized economic activities in the suburbs and the fringe of the metropolitan areas are considered a revolutionary change in suburban economic life (Knox, 1994, p.120).

In the 1970s and 1980s, suburban production centers continued aggregating more functional related activities and became stronger growth magnets. These suburban and peripheral core areas are mainly specialized in high-tech research, development

and production (figure 2.7). They are comprised of office parks and business campuses. A plethora of labels have been attributed to them, such as "suburban downtown", "minicity", "outer city", "technoburb", "perimeter city" and the most commonly used one- "edge city" (Joel Garreau, 1992). In the meantime, the population and economic activities of the central cities kept diminishing. They are figuratively described as "doughnut cities", with an empty hole in the middle. Planning interventions on new public spaces, office clusters, and urban regenerations were carried out to bolster the city's image. They have triggered certain gentrification of mainly financial and transactional service companies. However, at present, the metropolitan areas of many North American cities have become multinucleated. The relation between the core and periphery has changed. Many of the "edge cities" have developed real urban qualities and achieved "new towns", primarily through free-market forces.

Figure 2.7
The edge cities of St. Louis and Atlanta Source: www.skyscrapercity.com, www.city-data.com

§ 2.1.2.3   **Relevance to the new town model**
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In contrast to the largely unplanned regional urban sprawl, building garden cities or new towns seem to be a conscious planning intervention fitting with the Central Place model and Rank-size theory on the system of cities. The success of the American "edge cities" demonstrates the possibility of transforming peripheral areas into central cores. However, the generalization of the observed regionalization is driven largely by industrialization and market forces. This generalization does not necessitate the success of new town's planning goal of being "self-contained". Under the dominance of

the central city, small towns are most likely to attract the level of economic and cultural activities relative to its population scale. Howard and other new town advocates did realize that 'no small city could be wholly self-contained'. Once the ambition of "self-containment" implies the balance of employment and population, the success of it depends largely on the ability of attracting productive sectors, other than daily life services. It seems to be a difficult task, if not impossible.

According to Patrick Geddes's Organic Regions theory (1904, 1915), Saarinen's theory of Organic Decentralization (1918, 1942) and Bertalanffy's General System Theory (1968), the mixed-functional land use is considered necessary for the new urban environment, if the ambition of being self-contained is put aside. Location theories mainly deal with the distribution of industries and service economies. New towns can also make use of the top-down controllable and more foot-loose programs, such as not-for-profit public facilities (universities, medical care) and specialized businesses (high-tech companies, entertainment facilities). Once established, they tend to form their own independent centralities. In any case, the prerequisites of creating a new regional center at least include the aggregation of a proper size of population and maintain a complementary and open relation with the central city.

§ 2.1.3 The achievements and problems of new towns

§ 2.1.3.1 Pre-war Garden City development

Before the Second World War, many garden cities that were built in cities around the world were influenced by Howard's Garden City model. Some of these cities were independent or semi-independent industrial towns; some were not strictly garden cities, but satellite sleeping towns or suburban communities, which were rather antithesis of the garden city idea (Hardy, 2003; Nadin, 2012). The residents of the satellite towns were greatly dependent on the central city for employment and social-cultural activities, the former resulting in a certain amount of inconvenience and sometimes long-distance commuting. At the same time, a number of design innovations were made in connection with community planning, for example the concept of the "Neighborhood Unit" and the "Radburn" model. Clarence Perry (1929) defined the size of a neighborhood unit based on the radius of a five-minute walk from the centre, where major public facilities are located. Clarence Stein expanded the

model by connecting several neighborhoods to form a town (figure 2.8). The Radburn model was characterized by its curvilinear street layout, its segregation of pedestrians and vehicles and its cul-de-sacs (figure 2.9). Pilot projects such as the Sunnyside Garden City (New York, 1924) and Radburn Garden City (New Jersey, 1928) in the United States are highly influential on subsequent new town designs.
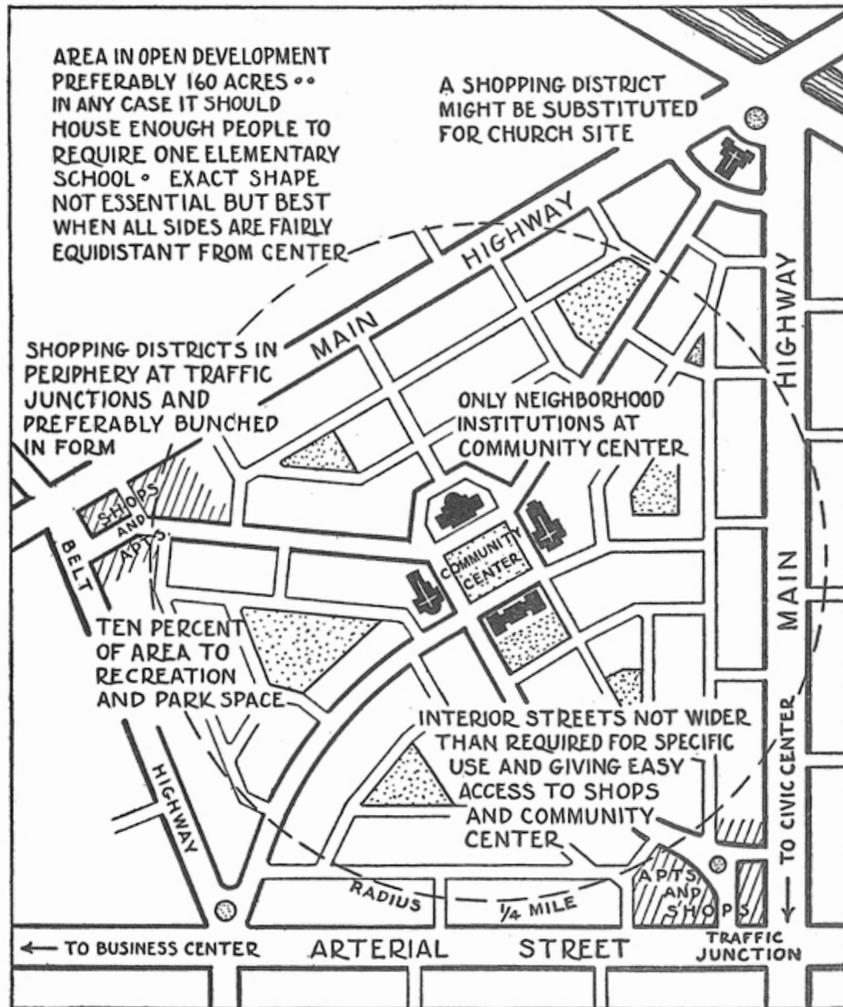
Figure 2.8
Neighborhood Unit model by Clarence Perry. Source: The New York Regional Survey, vol.7, 1929
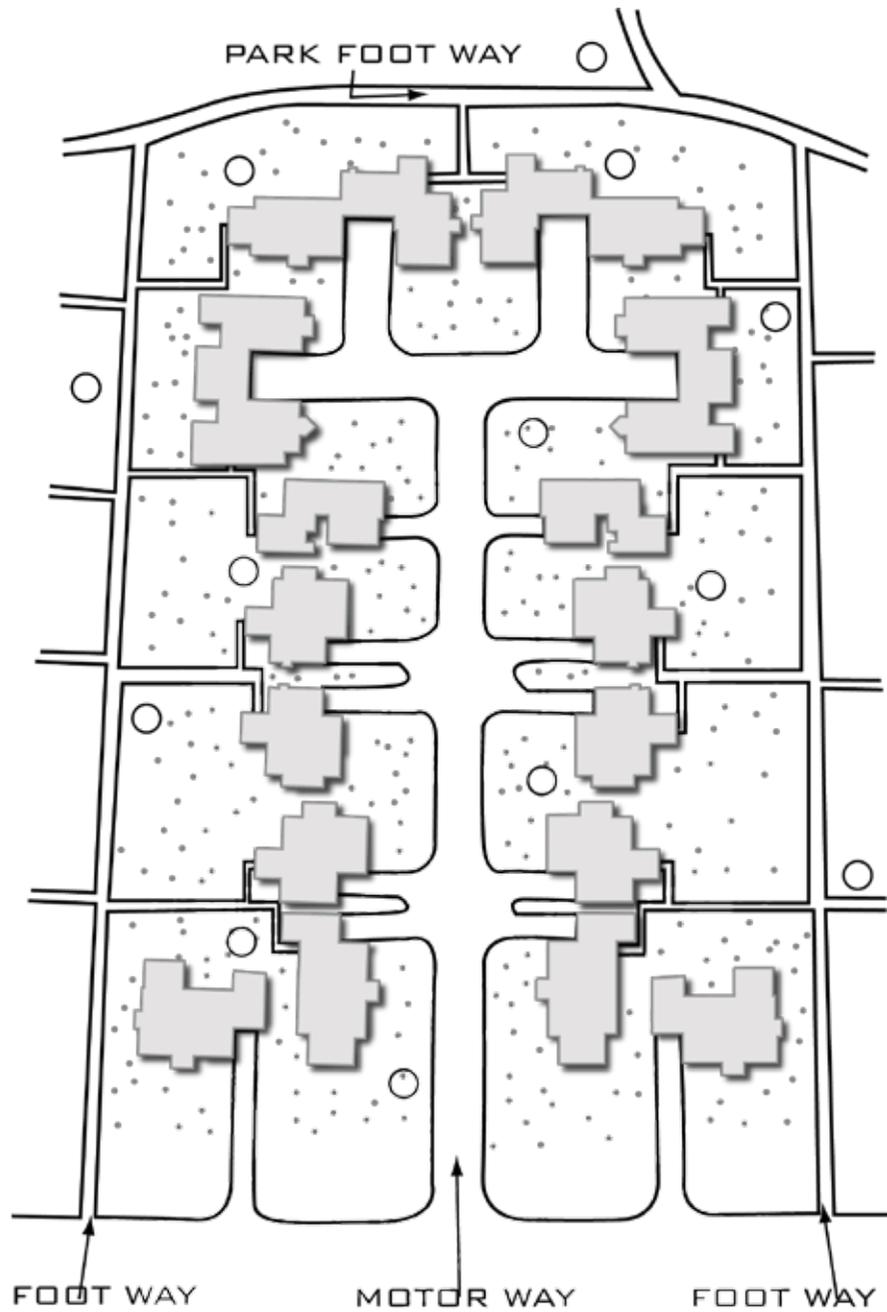
Figure 2.9
Radburn neighborhood design by Clarence Stein (re-draw)

From 1946 up to the end of 1970s, new towns were widely adopted as government policies of many growing metropolises around the world, and important accomplishments had been achieved. In Britain, 28 new towns were built between 1946 and 1977. The construction of the first 14 new towns started just after WWII. The eight second-generation towns were started in the early 1960s, and the six third-generation ones in the period between 1967 and 1970. Eight of these new towns are situated around London. By the end of the 20th century, approximately 2.5 million people were living in new towns. In terms of their achievements (Galantay, Constandse and Ohba, 1985, p.98-105), consistent government policy support and the efficiency of Development Corporations were successfully maintained. In addition, new towns effectively absorbed the overspill population as well as the rapid growth of new industries, facilitating the renewal of the worn-out inner city districts. Since the new towns established sound economic bases, they helped keep economic growth in the city region. Most new towns were reasonably balanced in social terms, with work and leisure close to home. Acceptable amounts of public housing were provided. Some new towns contributed significantly to balancing regional differences by forming new growth poles in relatively poorer regions. Many design innovations were generated, including various compositions of land-use and traffic, introducing public transport as a main urban spine strategy, pedestrian-friendly town center precincts, and neighborhood designs.

French new towns were another example of strong centralist planning based on government initiatives (ibid. p.107-129). A total of nine new towns originated in the 1960s, five of these in the region of Paris according to the strategy of the Greater Paris Plan of 1965, which proposed channeling the growth generated into two growth axes at a distance of about 25 km from the city of Paris. The new towns were defined as complementary, but not satellite or autonomous towns. Employment was largely derived from public sector development (education and welfare). Some notable features in terms of design include various sorts of master-plans (linear, centripetal, grid, dispersed), strong town centers, interesting neighborhood plans and architectural designs by means of international competitions, the integration of public art and quality landscape into the public open space, and the innovative rapid transit system.

Despite their considerable achievements, the new towns also exhibited a number of major common problems with regard to urban governance, socio-economic development and physical design (Galantay, et al, 1985; Constandse, et al, 1989).

First, the new towns required strong consistent leadership; the balance of decision-making powers between the central government on the one hand and the local authority and the public on the other was clearly a problem. Participation and negotiation were in many cases inadequate. Second, the social groups attracted to new towns were often monotonic, mainly families with young children. On one hand, new towns were accused of "creaming off" the creative class from the central city. On the other hand, if the towns were not able to absorb the new population influx, they would face the problem of aging and shrinking. Third, in some cases, there were problems caused by the insufficient use of public transport and social-cultural and even commercial facilities, while in other cases, there was a deficiency in such provisions. Fourth, in terms of economic development, a number of new towns inevitably winded up being sleeping towns, while an overprovision of office space sometimes occurred. Finally, spatial problems can be found in the early modernist new towns (before the mid-1960s), including a lack of diversity and individuality in design, unattractive city centers and streetscapes, safety hazards in public spaces, and an over-separation of functional zones (Tuppen, 1983). In conclusion, it is easy to build affordable housing and greenish living environments, but much more difficult to create the economic and social vitality that attributes real cities. Therefore, social planning and considerations need to be integrated in spatial planning and design for the creation of a lively and sustainable society.

Can new towns be successfully planned? The reasons for failure must be clearly drawn out. The strategy-wise problems are considered to stem from the concept of the Garden City and the fundamental feasibility of "self-containment". The economic and social vitality of new towns was severely hindered by the emphasis on small town size and distant locations (even if rapid transport connections with the central city were provided). Fundamental factors like timing and regional position play important roles as well. The capability of governance was tested in terms of leadership and partnership, sequence of implementation, financing, and land management. A number of problems were caused by the modernist style spatial planning and design. Fordism (massive production) and functionalism (less is more) resulted in homogeneity and banality. The separation of traffic modes and functions led to spatial segregation. Moreover, the blueprint types of plans did not allow much freedom for changes and private initiatives. All these facts have a negative impact on urban vitality of new towns in terms of street life and social diversity. If pursuing real urban quality and vitality of city life is to be

the goal of new new towns, as well as the transformation of existing new towns, it is important to reconsider and adjust the concept of "self-containment" or "self-sustain" under the new context of network cities, and searching for solutions not only from spatial design aspect, but also from the fundamental approach of urban planning and governance in the making of a city.

§ 2.1.3.4   **New town development in contemporary China and key challenges**
....

The industrial revolution commenced in the middle of the eighteenth century in Europe triggered unprecedented changes to the urban landscape. In searching for solutions to cope with fast urbanization and the consequential urban problems, a number of ideal city models were theorized and experimented with as discussed above. Garden City is one of the most influential models. Its adapted form- new towns- has been adopted worldwide as a regional development strategy.

China started the dramatic process of socio-economic reforms from the planned economy to the socialist-market economy in 1978. The land use rights, which used to be exclusively owned by the government, began to privatize in the late 1980s; and the housing finally became a legitimate market commodity since the beginning of the 1990s. From then on, cities in China have been experiencing rapid growth. The urbanization ratio in the country increased from approximately 13 percent in 1978 to 36 percent in 2006 and 46.6 percent in 2009. It is estimated to reach 50 percent by 2020 and 70 percent by 2050 (China Daily, 2010), which implies that 12,000 people per year are expected to migrate from the countryside to the city (People's Daily, 2006). As asserted by the Nobel-prize-winning (2001) economist Joseph Stiglitz, urbanization will be China's biggest challenge in the twenty-first century. Besides being a way of stimulating economic growth, China's urbanization process is trying to provide modern qualities of life to all city dwellers, reduce urban and rural segregation, and regional discrepancy. An increasing number of megacities with multi-million populations are emerging. As Chinese cities have been expanding and condensing in turbulent, market-driven and unplanned manners, similar urban problems that used to trouble former industrial cities and metropolises of the Western countries, are now severely confronting the transitional urban China (J. Friedmann, 2005).
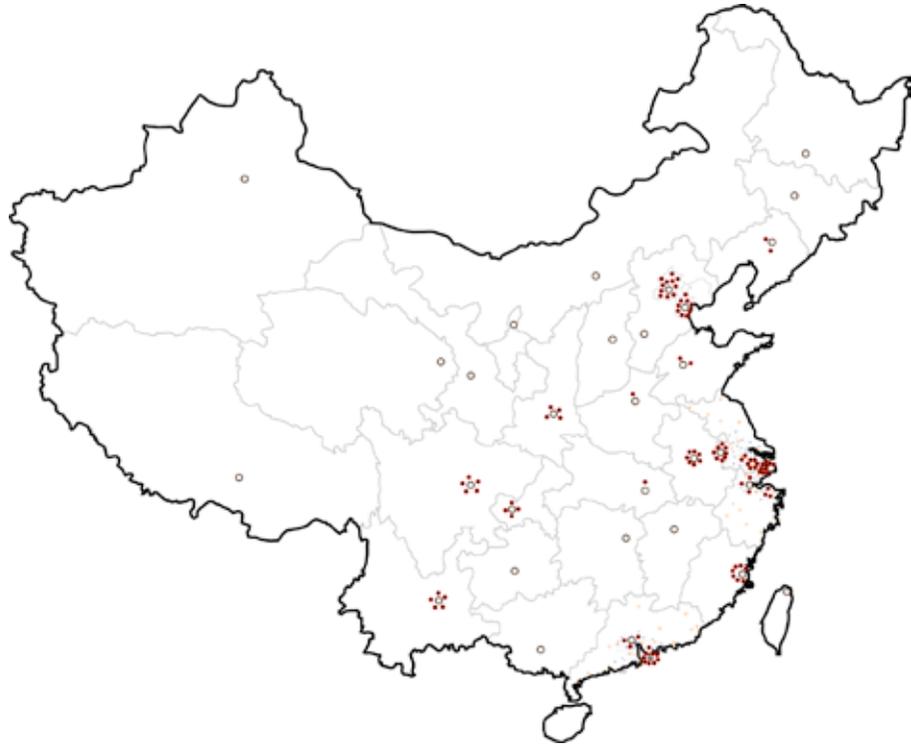
Figure 2.10
China's new town development since the 1990s

City authorities have come to realize that some serious interventions need to be carried out, instead of leaving urban development to the free-market. The development of new towns to decentralize and re-centralize seems to be an obvious regional planning strategy, which can be learned from the Western experiences. New town practice originates in megacities such as Shanghai and Beijing. It has become a widely applied urban policy in the metropolitan or city master plans in China's main economically active cities of diverse provinces. Since the early 1990s, over a hundred "new towns" have emerged throughout urban China, and another hundred of them are planned to be built at the turn¬ of the twenty-first century (figure 2.10). What is happening in urban China can be recognized as a new round of new town movement in an unprecedented scale.

The Chinese new towns that have been planned and built up mainly fall into four categories:

1 Satellite new towns associated with parent cities, with or without a balanced employment provision;
2 Specialized new towns, often the satellite town type, with certain dominant economic activities, such as those based on airport, harbor, science and technology park, university campus park, tourism, conference center or medical care center;
3 New regional growth poles: independent new cities aiming to boost the economy of the less developed regions;
4 New urban centers: a large-scale new urban district is built to form a new city center, usually in cities whose historic center needs to be entirely preserved. The market-driven self-developed new centralities include industrial towns founded by private entrepreneurs and large residential towns created by private real estates.

New town development in China has emerged and blossomed during the last two decades. It presents both great opportunities and challenges. The theoretical model and existing experiences need to be adapted to the new planning and design requirements arising from the changing social cultural conditions. The genius loci of traditional Chinese urban characteristics as well as cultural and social values need to be innovatively integrated into modern city-making. The primary goal of new towns is to create a new regional magnet and centrality, in order to decentralize the pressures of the overly burdened central cities, while also absorbing new growth. The biggest challenge of building new towns, but not suburban dormitory towns, lies in the ambition of being "self-contained" in terms of their social, cultural, and economic qualities. Spatially speaking, the primary goals of new town planners are to provide a combination of ecological-friendly living environments, as well as a satisfactory degree of urbanity and vitality.

A list of issues can be identified from this starting point. First, as Chinese society becomes increasingly market-oriented, the segregation of the urban rich and poor is being exacerbated. It is socially crucial that new town developments achieve better social cohesion and diversity within their own borders and in relation with the larger region. Second, large cities are in a state of transition from an industrial state to a post-industrial state. The location logics of tertiary economic activities are apparently different from the traditional manufacturing industries. As previous research has demonstrated, the phenomenon of spatial agglomeration of large-scale service economies, and the gentrification of certain social classes to central urban areas, is becoming increasingly evident. The economic viability of new towns built in such contexts face certain challenges. Strategic regional positioning becomes a foremost request. Decisions have to be made on specific issues, such as if new towns are able to benefit from the central cities' retreating manufacturing sectors, if they are able to compete with central cities in attracting service economies, and if they are able

to develop new growth sectors, such as the research and development of innovative technologies or green industries. Third, modern urban China is currently subject to an identity crisis. The country has a very long tradition of city planning and construction. However, there has not been a sufficient attempt on modernizing historical planning values and design elements, nor are there enough endeavors to creating new urban characteristics. In addition, the municipality's planning focus is on rapid quantitative growth, rather than the quality of the urban environment.. Fourth, the development of a large-scale long-span project, such as a new town, requires consistent policy support and effective urban governance. As Chinese society becomes an ever increasing liberal market economy, the collaboration between public and private stakeholders is going to play an increasingly important role in determining the viability and vitality of new towns.

As discussed above, it can be realized that the implementation of new town policy is going to have a great impact on many aspects of Chinese society, including its political stability, social integration, economic growth and environmental sustainability. Therefore, the fundamental theories and ideas behind the new town model, as well as the social-economic effects of the implemented new town practices according to this model, must be critically reviewed and analyzed. In doing so, crucial lessons and useful experiences can be synthesized and guide the development of Chinese new towns, as well as those existing new towns which are in need of transformation and improvement.

§ 2.1.3.5 **Conclusions**
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The new town strategy originated as a solution to tackle the urban problems of over-congested and fast-growing large cities. The concentrated decentralization model tended to be theoretically valid, and to have important ecological, economic and social implications. However, one of the biggest challenges for existing and future new towns concerns realizing a solid economic and social vitality. Many new towns retain the characteristics of suburban sleeping towns or peripheral urban villages. In order to tackle this common deficiency of urbanity in new towns, solutions can be developed through spatial planning and design methods, as well as urban governance approaches. There is no doubt that planning interventions are still indispensable in the postmodern era. They can be used to cope with "market failures", under the background of the neo-liberal market economy. However, new planning approaches need to be explored, in order to achieve a balanced dynamic between the planned and the unplanned, and between the fixed and the flexible. Urban designs should focus on improving the quality of life of city residents, from a human-friendly and ecologically sustainable

point of view. Historical cultural traditions should be preserved, while new identities and spatial characteristics need to be created in developing new urban environments. In order to identify concrete solutions for enhancing the urban vitality of new towns, specific urban studies and theories will be explored in the following section.

§ 2.2 Theoretical study on urban vitality and its societal context

§ 2.2.1 An overview of the historical city development and planning theories, and the social, economical, political contexts in China and Europe, in relation to the characteristics of urban life and culture

The Chinese context

The first official document about town planning strategies in China appeared as early as in Dong Zhou Dynasty (also called the Spring and Autumn period and Warring Statement period) from about 770 B.C to 221 B.C. *Kao Gong Ji*, (the Artificers Record), one of the earliest and most important scientific monographs in the history of China, comprehensively recorded more than thirty types of handicraft workshops in ancient China. Among them, town planning principles were also described, which had profound influence on Chinese town planning in the following over a thousand years of Chinese Feudalism society. The main principles stated in the literature can be translated as that "a capital city is to be made in a square of nine *li* (half kilometer) by nine *li*. Each side of the city wall has three gates. The land enclosed by the city wall is divided by nine vertical and nine horizontal streets from north to south and from east to west. Each north-south street is as wide as nine carriages. To the left of the royal palace stands the temple for ancestors; and to the right of the royal palace stands the Land Altar. To the front of the royal palace is the royal court for political meetings; to the back the royal palace are marketplaces and citizen's residence" (Hou, 1962).

Dong Zhou Dynasty is a period of constant warfare between different states within mainland China. Each of the state had their own capital city, and they tried to conquer each other's cities and territories by starting wars. The famous Chinese philosopher *Guan Zhong* from that period gave advice on town planning from the perspective of how to better defense and sustain in a war. He stated in his book *Guan Zi* that it was

important for a (capital) city to build on a defendable site, preferably protected by the mountain in the north and the river in the south (He, 1996). In this way, not only was the city not easy to invade, but it could sustain itself with sufficient agriculture products and water if it was under attack. Such location choice also ensured that the city was protected against the cold wind from north in the winter and was able to develop economic activities for being close to water transport network. Furthermore, water was considered an indispensable element in the making of Royal park landscapes. As a result, this *Feng-Shui* (Wind and Water) principle was widely applied to the planning of many famous capital cities in different dynasties in China (figure 2.11), such as the city of Luoyang, Xi'an, Nanjing and Beijing.
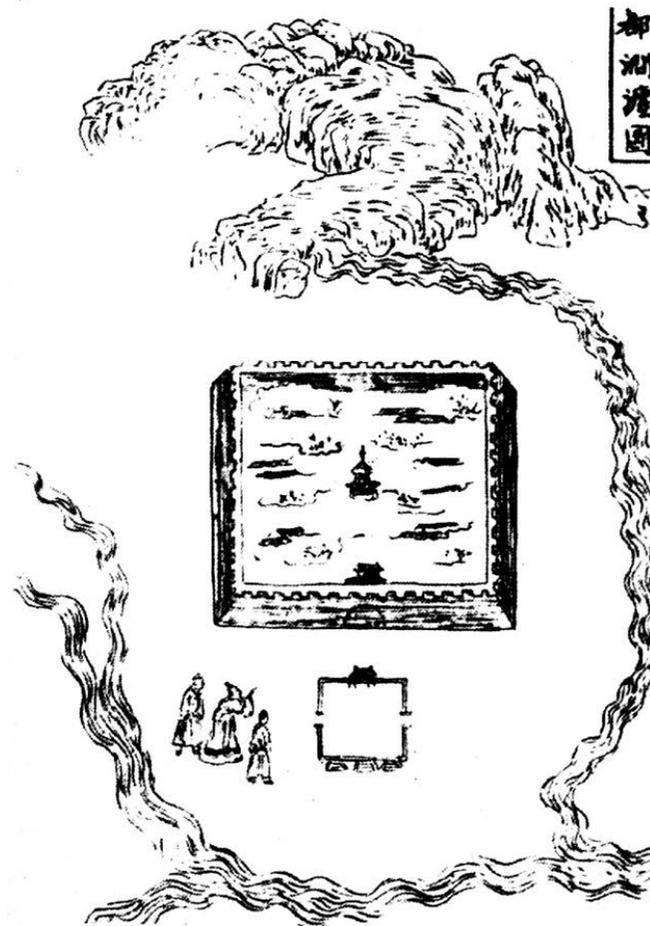
Figure 2.11
The Feng-Shui principles of selecting a city site for self-containment and self-defense source: He, 1996
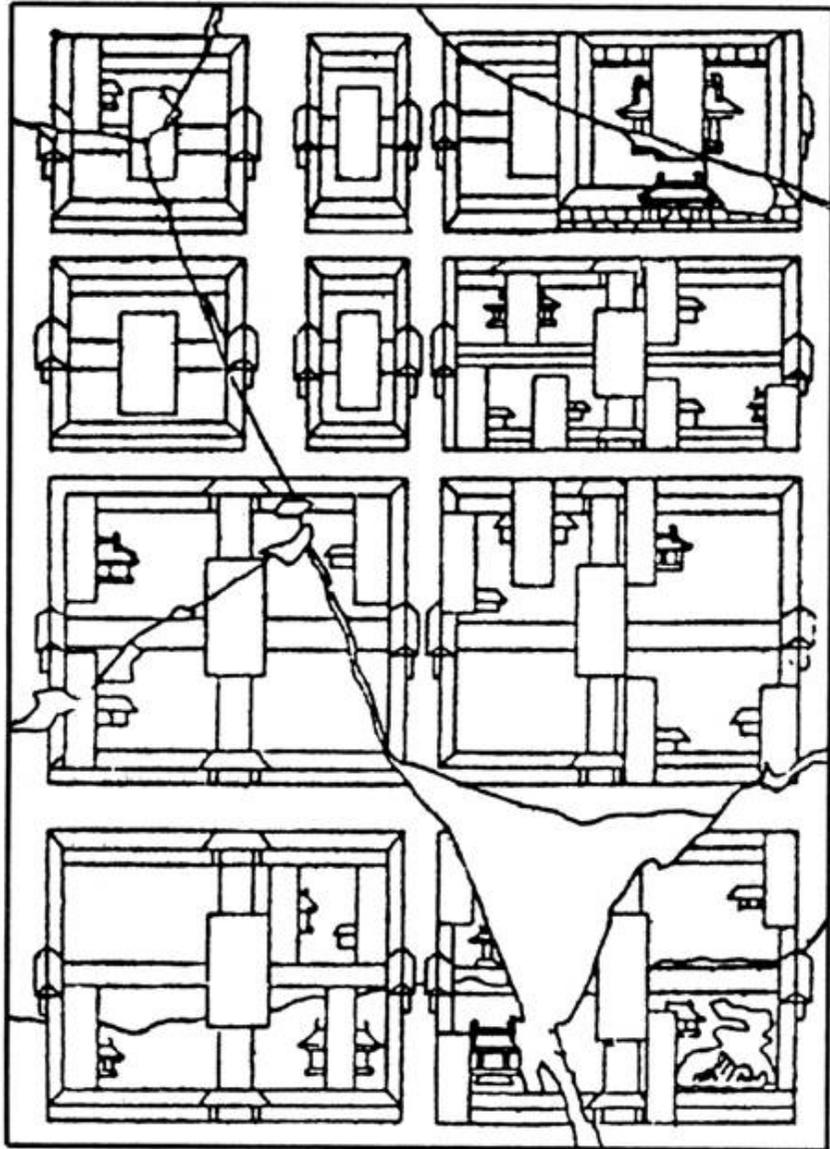
Figure 2.12
Spatial configuration of a Li Fang unit source: Ma & Yu, 1997

The town planning principles set up in *Kao Gong Ji* emphasized on the pursuit of the wholeness, order, geometrical symmetry, as well as strict hierocracies in spatial organization. The spatial form reflects in many ways the centralization of political powers in Chinese long-lasting Feudalism society. First of all, the royal palace is always at the gravity center of a city, associated with a grand central north-south axis/avenue connected to the two middle city gates, which were exclusively used by the royal family. This positioning symbolized the absolute ruling power of the emperor. Ordinary citizens were only allowed to use the side gates. Second, royal palace was strictly separated with the residential areas of citizens in the city, by building a high wall around it. A vivid example is the Forbidden City in Beijing. Third, the residences of citizens were planned as closed camps with strict activity control. Before Song Dynasty (10th to 13th century), gated *Li Fang* was used as an organization unit in the capital cities. A *Li Fang* unit is a square of land of about hundreds of meters in perimeter (figure 2.12). Concrete high walls were built around each *Li Fang*. The inner area was for pure residential use. It was evenly divided by three to four north-south and east-west roads each into nine or sixteen sub-zones. The two central cross roads were directed to the gates at the four sides of the *Li Fang* walls. A *Li Fang* was also a social-political managerial unit, which had its own group of governors and managers. City life in *Li Fang* was controlled. The gates were closed at night. And no business developments were allowed inside. City markets and workshops for handicraft workshops were strictly separated from residential areas. The gated *Li Fang* mechanism reflected the strong political control of the central government on city life. A good example of cities made of *Li Fang* units is the city of Xi'an. It was planned exactly like a chess board with one hundred and eight *Li Fang* units, and two markets in the eastern and western of the city.

Furthermore, providing public space to citizens did not seem to be concern of the ruling class. The emperors built huge landscape parks, summer palaces, and other types of recreational places near the royal palace or in the suburb of the capital city exclusively for their own enjoyment, and forbade the entry of citizens. The squares in ancient Chinese capital cities were usually huge in scale and bond with political activities, such as the square inside the royal palace for summoning political servants. The Tian'an Men square of contemporary China is an example that reflects the political ideology of providing open space for ceremorial purpose. It has a symbolic function as to summon people to the Party's leadership, and to use for parade and other large-scale collective activities. In fact, the emperors of Feudalism were afraid of people's upheavals against their crucial ruling and heavy taxation. People's public gathering was forbidden. Public squares that might accommodate such activities thus did not exist in the cities. Open spaces could be found in front of religious buildings, such as various temples. However, they were not intended for public civic activities. And the domain of a temple was usually enclosed by walls as well. Interestingly, several famous civic revolts were successfully plotted by disguising their activities as being religious group meeting and using the religious space for political activities.

The emperor's power centralization was also reflected in the organization of cities in a region. First, he appointed only his blood-relatives as governors of the secondary cities. Then, a strict control of the size of those cities must be followed. The case of Xi'an city in Tang Dynasty is most interesting. The emperor built seven satellite towns around Xi'an city, and forced wealthy families from the region and even from other places of the country to move to these towns. In this way, he could tightly control these rich people who had the resources to fight against his ruling.

As the country became more stabilized and cities became more affluent in the late Tang and Song Dynasties (the end of 10th Century and early 11th Century), business activities started to emerge inside the residential areas, regardless of the old regulation. Gradually, the *Li Fang* walls were demolished spontaneously. Residential areas were completely opened up and the big or small streets were connected with each other into grid pattern. Street frontages were allowed to open shops. Markets and other productive activities were allowed to mix with housing. During this period, waterborne transportation was in its heyday. Many harbor cities became prosperous. The economic and social position of citizens was strengthened drastically. Recreational activities and places started to appear in the cities. The markets that were once had scheduled open and close time were in Song cities busy until midnight and opened again before dawn. As the old urban governance unit *Li Fang* collapsed, Song government replaced it with a managerial system called *Xiang Fang* system. A "*Xiang*" did not have a physical boundary like walls. They were geographic areas defined by streets within the city and of the near suburb. Each *Xiang* could contain from two to twenty old *Li Fang* units, comparable to the notion of a District that contains several neighborhood units in contemporary urban setting. This spontaneous transformation of city structure and social cultural life was regarded as an important turning point of urban history in China (Ma &Yu, 1997). This marked the beginning of open city and open society in China, as well as the rise of commercial activities in the streets.

Yuan emperor conquered Song and built its capital city in the north of China, where historic Beijing city was located. This "new" city was planned and constructed using all the Chinese city planning principles combined, and was regarded as a culminating product (figure 2.13). The city was planned as a rectangular shape which reflected the old belief of "a dome like sky covering the square like earth". It had a central axis connecting the Forbidden City with the Tower of Drum and Tower of Bell in the north, and Temple of Heaven and Temple of Agriculture in the south as end views. Next to the royal palace, a royal water park was constructed. These designs reflected the key notion of "harmony between the nature and the human". More importantly, the design of residential areas continued with the open grid structure. The city main roads connected to the city gates at four sides were set twenty-five meters in width. Hutong and courtyard housing was a new typology developed in this capital city. These east-west oriented Hutong alleys in the residential area were designed of a standard six to seven

meters in width. Each courtyard housing unit formed an enclosed entity which opened front entrance to the Hutong. As can be seen, even if the city had an open structure, the traditional idea of enclosure still persisted in the organization of family unit in Yuan, Ming and Qing Dynasties of Beijng. The idea of enclosed domain continues to be found in Communist and modern Beijing, where large state-owned organizations, military divisions and university campuses occupying a large piece of land are encircled by walls. They were originally planned in the near suburb of Beijing inner city. However, as the city has expanded to the sixth ring road, these locations become central. And these large enclosed urban blocks bring difficulty for traffic planning.
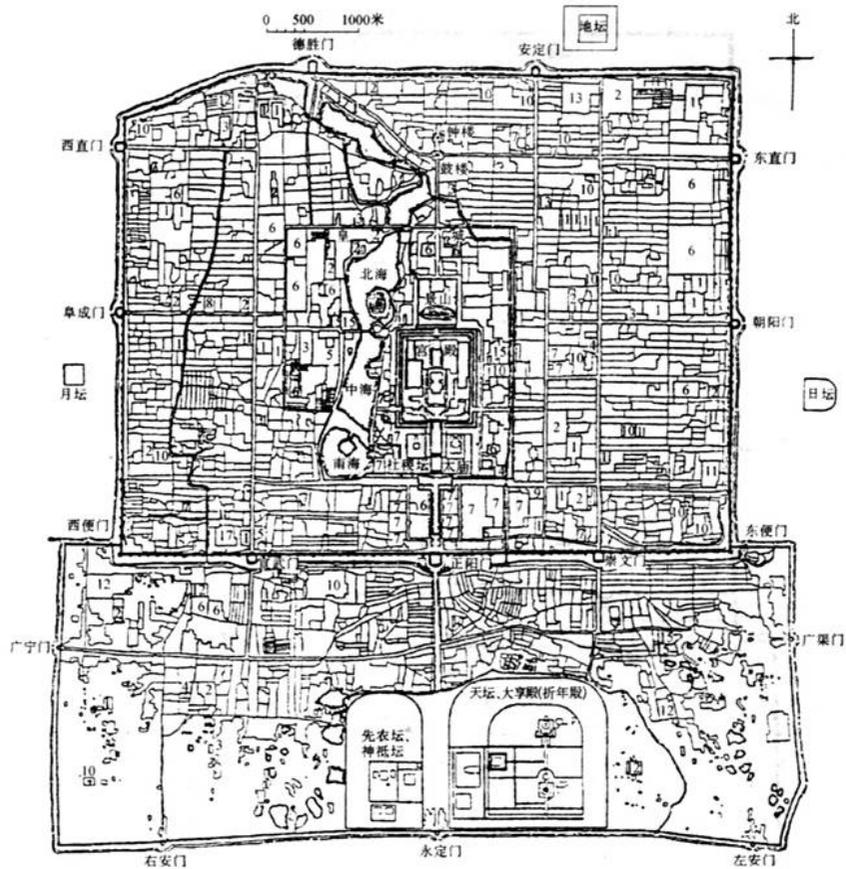
明、清北京城平面

1. 亲王府；2. 佛寺；3. 道观；4. 清真寺；5. 天主教堂；6. 仓库；7. 衙署；8. 历代帝王庙；
9. 满洲堂子；10. 官手工业局及作坊；11. 贡院；12. 八旗营房；13. 文庙、学校；
14. 皇史宬（档案库）；15. 马圈；16. 牛圈；17. 驯象所；18. 义地、养育堂
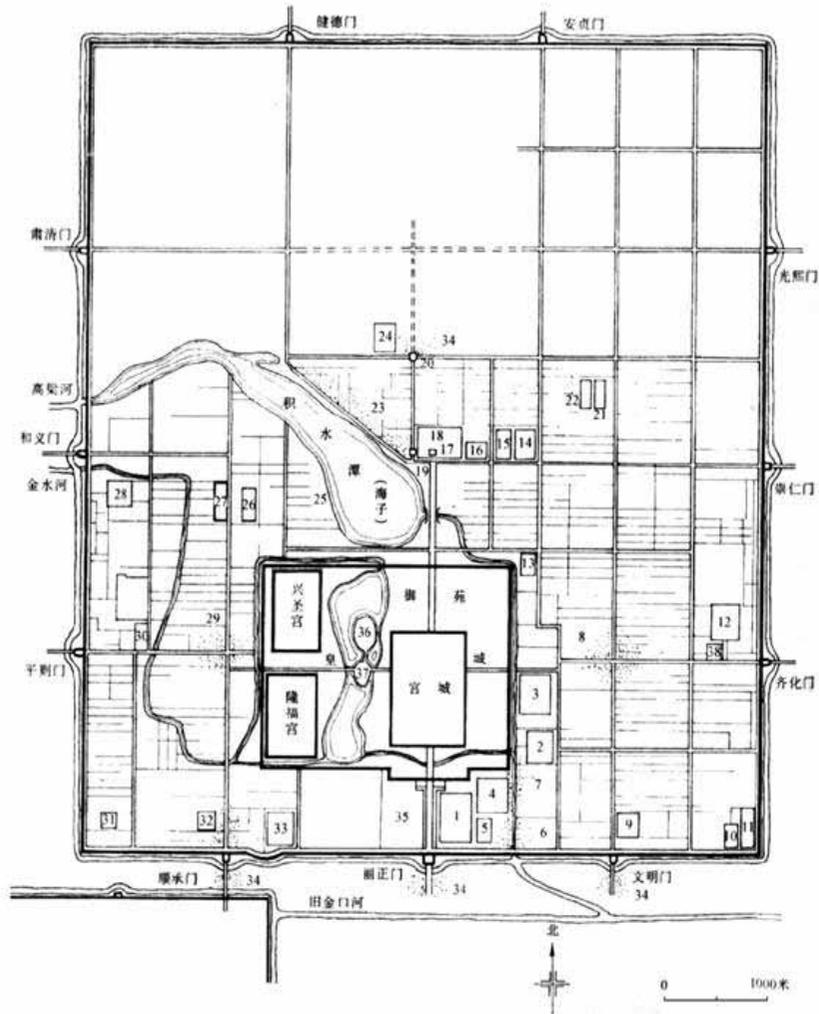
Figure 2.13
Master plan of ancient capital city Beijing, source: Hou, 1962

Hutong and courtyard typology clearly separated the public and private domains. Families of three to four generations lived in the same courtyard housing unit under different roofs. The inner yard served as a common space/garden. City life was very much based on family life in their own enclosure. It has been a social culture of Chinese people to hold personal and family business, especially the inglorious matters, behind

private doors, and not discuss them publicly with others. Hutong alleys had been for long the main public place for social contacts and business activities. It was a public space with intimate human scale where neighbors greet/meet, chat/gossip, sit/stay, play and buy things from street vendors. In the traditional Hutong area, people know neighbors well, like in a village. After the Second World War, acute housing shortage and incapability of building new ones led to people squeezing into the courtyard housings. The once one family property was forced to be shared by many families. Even up till now, many people living in courtyard housing area has barely five square meters living space per person, hardly private sanitation facilities, and not to mention privacy. Since the 1990s, the city government commenced large-scale inner city urban renewal, Hutong areas has been demolished drastically. The debate on this controversial action has been lasted for years. Some argues the physical demolishment eradicated a traditional city life and culture, which cannot be recovered by rebuilt the buildings. Other argues that the seriously deteriorated housing conditions did not worth costly restoration. Improving people's living standard is more important. However, as more and more people moved from the courtyard housing into the multi-story apartment buildings in the 1990s, the complaint about the loss of the traditional neighboring relations and the casual social contact that they were familiar with in the Hutong area was commonly heard. However, this traditional urban typology and way of life was not fully incorporated into modern city planning. In the Communist era, the former Soviet Union planning doctrines were adopted, including the design of neighborhood unit {see more in Chapter 5 Baiwanzhuang}, and placing them near the factories so as to make living close to the work.

In Chinese language, an important meaning in the notion of "city" is the "market". According to *Kao Gong Ji*'s principle, markets were suggested to be placed behind the royal palace. The reason was to hide the noise and chaos to the back side, and not influence the prestige image of the royal. But in Tang Chang'an city, the markets had been placed to the left and right of the royal palace in the middle of the residential *Li Fang*, but still as a gated domain. In Song's cities, mainly in the south of China where economy was developed better than in the north of the country, the businesses activities were mixed in the streets of the residential areas. When it came to the Yuan, Ming and Qing Beijing city, the return to the *Kao Gong Ji* principle was clear. Market activities were not allowed inside the city walls. The biggest market in the city was arranged to the south of the Forbidden City, outside the city gate Qianmen. Gradually, different types of merchandises developed their own territories. As can be recognized from the name of the places, there had been markets for flowers, cattle, meat, coals, rise, jewelry, fish, ceramics, lamps and more, mainly in the area outside the southern city gate. There were also places that certain type of handicraft workshops aggregated, for example, stone products, pickled vegetable, leather products, papers, bean curd, black smith, etc. The city life inside and outside the city wall was contrasting each other. The inside area was highly structured and purified, while the outside urban

fabric was formed spontaneously. They didn not have strict grid-iron pattern, but more of an organically shaped Hutong and courtyard structured based on the course of existing waterways or a frequently used diagonal route (Zhou, 2006). The urban life inside the wall was quiet and rigid, while the life outside was free, vibrant and of diverse commercial developments (see more in § 5.2.2.2). In the late Qing Dynasty and the following colonial time, the four scaled markets (Xidan, Dongdan, Chaowai, Chongwen) mainly selling vegetables and food were formed, two of which were inside the city walls. These places continue to be lively places in modern Beijing city, where big department stores as well as small businesses concentrate. After the founding of new China in 1949, the tradition of (morning) market continues to be popular. People consider them a better place to buy fresh vegetables and fruits than the supermarkets. In the 1990s, for the purpose of tidying up streetscape, the former open-air markets were requested to operate under covered structures in fixed locations, which are usually hidden in less visible areas but are still very busy. Even if there is regulation, informal street vendors are still commonly seen in the streets of Beijing city in the early morning and in the late evening near the neighborhood entrances, in front of supermarket, outside the city park and so on.

Societal culture dramatically changed when the political system abruptly shifted from Feudalism to Communism since 1949. The movement of the public ownership reform eliminated the bourgeoning "bourgeoisie" (private business owners) developd in the nineteenth and early twentieth Century in China. All citizens were equalized in terms of economic conditions and political rights. A planned economy system was applied. Through propaganda and education, people's mentality was unified around the Party's leadership during the 1950s to 1980s. The societal identity and economic sphere and was strongly collectivism rather than individualism. For example, a person's job was not a personal choice but arranged by the authority. People shared unified appearance in the public domain. In the Communism era, frequent large-scale collective activities were organized by the governments as well as by the public organizations or state-owned factories where people were employed. Citizens were organized based on communities where they lived in. Each community had their own administrative unit and was intended to be self-contained in terms of economic, social cultural activities. The legacy of this urban culture can still be seen quite often in the public domain of the twenty-first Century Chinese cities.

In the year 1978, the decision for a radical reform from planned economy to socialist market economy was made by Party Leader Deng Xiaoping. Deng believed that a communist society could not be achieved under the conditions of great poverty. The reform has brought economic liberty to the Chinese society, and has resulted in unprecedented urbanization and economic growth. However, a growing discussion among scholars and the ordinary people alike is about a sense of lacking (political, social and perhaps religious) belief in the modern society, and that all other aspects of

city life are fainting as economic life is put the center of all issues. In the past decade, a wide diversity of people in China has gained substantial extent of freedom of speech over the internet. They can express their personal opinions on the topics like injustice social phenomena, government bureaucracy and corruptions, political policies and foreign affairs, and more. Internet forum has become the new frontier of the real public domain where people debate on social-political issues, although being censored to some extent. In the meantime, the physical public spaces and street frontages are mainly inhabited by commercial and recreational activities.

In short, the Chinese society had been a Feudalism society for over two thousand years. The city planning theories generated under such socio-economic context combined the wisdom of giving order to human-made creations, as well as the desire for political power centralization to the ruling emperor. In Song Dynasty, there were signs of the spatial and socio-economic transformation toward an open society. The internal structure of the city became more integrated, and commercial activities were allowed to mix in housing areas. However, the social transformation and economic development was heavily impeded by the long-lasting Feudalism regimes in different dynasties. The spatial organization of Beijing city, the last capital city of the Imperial China, did not show progress in the direction of an open city and open society. Due to the political centralization, there was no considereation and provision of civic space for citizen›s public activities, such as free gathering and public debate, or for recreation. Hutong alleys were used as the most important public space for social exchange. Therefore, it is a culture characteristic that Chinese people tend to improvise in the use of public space. Various open markets, street shops and mobilized street vendors in the modern cities are signs of the continuation of the traditional city life. However, as the Chinese cities are developed more and more in a car-oriented manner, the condition for traditional street life has been diminishing. A collectivism culture was iron-casted to the society during the Communist era. However, as market liberty has been granted since the 1990s, consumerism becomes increasinglly evident in contemporary Chinese society. At present, the city life in China is still a mixture of the traditional, communist and modern. However, if not properly preserved, the traditional Chinese urban life and culture could vanish soon with the fading of the past political system, as well as the gone of the generations who has lived under the unqiue era.

Cities in ancient Europe emerged spontaneously or planned out of many impulses, including developing a node for trade and market, for religions, for military base, for emperor's residence. According to architecture historian Sprio Kostof, Harold Carter, Ibn Khaldun and others, cities essentially stemmed from the need of "an instrument of authority", "a mechanism by which a society's rulers can consolidate and maintain their power", more than the need for trade. It means that cities from its origin are a product of political activity.

The ancient Hellenistic cities were planned in the form of orthogonal grid pattern, with an *Agora* as an anchor point. An Agora was an open public space intended for people's gathering (figure 2.14). It served as a social-political as well as a commercial space, where male citizens gathered for military duty, to hear or read statements of the ruling class (carved on stones), to learn and discuss social news, and to buy and sell goods (Meier, 1998). Because of the function of marketplace, early Agora was usually built along the bank of the river and facing city port. The Agora was surrounded by Stoaes, a Greek style architecture characterized as having colonnades facing the square. The market activities and shops were sheltered in these colonnades. The civic institutes defining the agora mainly included temples dedicated to the Greek gods, public services like the court, theaters, amphitheaters, gymnasium and baths.

Figure 2.14
Agora in Athens (reconstruction) source: Kostof, 1999

The ancient Western democracy was widely considered originated in ancient Athens in the early sixth Century BC (Rhodes, 2004). It was practiced in the form of direct democracy, whereby all citizens were considered to have equal right to vote and speak, and all participants could directly vote on legislation and national affairs. However, social classes were distinguished. Only adult male Athenian citizens who had completed their military training had the right to vote. Women and free slaves had limited right and not really considered citizens. The most important political organization in the ancient Athens was the *assembly*, the *council* and the *court*. The *Pnyx* hill which looked down on the ancient Agora was where the assemblies participated by over thousands of citizens took place. The Hellenistic civilization and city planning ideas were spread to its colonial cities in Mediterranean Europe and Asia.

Ancient Roman civilization was developed during the Roman Republic (from about 509 BC to 27 BC) and Roman Empire period (from about 27 BC to the mid-15th Century). The Romans preserved many important characters of the Greek social-political cultures. However, the direct democracy system was transited to a representative democracy, whereby the city government was headed by two consuls who were elected by citizens through the assembly and advised by a senate embodying the aristocracy class. However, as cities became more prosperous, the rich and the poor stratified evidently. The political power was gradually dominated by a small group of leaders, and eventually to the Emperor himself. The system fell back to monarchy in imperial period.

The Roman Republic and Empire had a large territorial holding extended around the Mediterranean in Europe, northern Africa and Asia Minor. The expansion had facilitated the spreading of civilization through the building of Roman cities in different territories. The town planning and architecture, the philosophy and political development of the Roman cultures had profound influence on Western European culture. The planned cities in this period continued to use a grid network pattern enclosed by city walls, showing the pursuit of order and control of societal and spatial organization. The important public space of Roman cities is the *Forum*, as equivalence to the Greek Agora. Initially, the function of a forum was a combination of marketplace and a stage for diverse political and civic activities, such as debate. As commercial activities developed, the place for market activities and civic activities tended to be separated. The market squares were in the most accessible but usually edge locations, such as near waterfront, important regional roads, or the city gates. And the forum became an exclusive center for civic and political activities, which was usually located in the crossing of the main north-south and east-west streets in the center of a city (Bacon, 1978).

Since the late Roman Empire, the western section had been divided into smaller political units, ruled by the barbarian tribes that invaded in the early fifth Century (Wickham, 2009, p.79). The early Middle Ages (5th to 10th century) was characterized

as depopulation and de-urbanization and the lost of vitality of small towns. New kingdoms formed through wars. The culture of the new regime had built on Roman intellectual traditions. For example, the popular assemblies allowed free male tribal members to have a say in political matters (ibid.). Cities of Roman origins sometimes reused the ancient forum as the new main town square. However, the economy of the Middle Ages was largely based on agriculture, as trading was disrupted by the barbarian invasions. The social-political system was transformed to Feudalism and Manorialism. The organically grown medieval villages and small towns were the main settlements for the peasants than cities. Markets in the towns were considered a precious asset. Towns were kept small to protect the market and to claim tax for the outsiders who came to use the market (Kostof, 1999). Since the late Roman Empire period (2nd to 5th Century), the society had gradually converted to Christianity (Brown, 1989). Some Roman cities and the Classical civic institutes became gradually defunct. Roman temples were converted into Christian churches and city walls remained in use. Some public monuments and public buildings were even raided for building materials (ibid. p.24).

The High Middle Ages (10th to 13th Century) was a formative period of the Western states (Backman, 2002). It was also a period of great religious movements. Religion was a big part of people's life. Some of the new church made use of the site of the old forum. Many more churches were widely distributed in the residential areas. Churches and the open space in front of them, as well as the cathedral markets became the new anchor points of medieval cities. The street network that was drawn to these destinations spontaneously formed slashing diagonals in the town or city (Kostof, 1999, p.50). Many medieval towns were characterized as organic grown settlements with curvilinear street pattern and picturesque effect.

Since the fourteenth Century (Late Middle Ages), Renaissance (roughly 14th to 17th Century) centered in Florence and Italy spread over the Western Europe to various extents until the seventeenth Century (early modern period). This culture movement had profound influences on literature, philosophy, arts, politics, science, religion and other intellectual aspects. The Renaissance scholars employed the humanist method and learned from the sources of Classical period, shifting attention from spiritual to secular matters. The social-political background of this movement in central Italy was its exit from Feudalism because of the vibrant merchant and commercial activities since the High Middle Ages. The Renaissance art works carried strong message of fairness, justice, republicanism and liberty (Skinner, 1979). During this period, public squares in the city regained its vitality. These new squares were confined by Renaissance architectures designed in similar style, usually public buildings with colonnades facing the open space. The space was also defined by a statue in the middle as a focal point and a flight of stairs at the frontage of a building as the back scene. Such squares can stand on the Roman forum (e.g. Piazza della Signoria in Florence) or medieval church squares (e.g. Low Countries under Spanish rule) (Kostof, 1999, p.124).

The importance of providing public space for people to gather was re-valued by Renaissance scholars and planners. And the idea of separating the public/civic center with the two other main activities in the city, religious and commercial ones, was developed in the Spanish Laws of the Indies (1573), which declared that "the main plaza is to be the starting point of the town" (ibid.). The church and its square was to be located still in the center but at some distance away from the central town square. As a result, the plaza mayor in many Spanish towns has no religious elements (ibid, p.131). The governor's palace or the town hall was the main public building on the civic square. Except for festivals, celebrations, rituals and arena for games, the public square was also a place where citizens outlet their displeasure against the rulers in the form of theater, feasts and masquerades (Deyon, 1996) (figure 2.15). In the design of eighteen Century new towns in Brazil, the simplest scheme would request two squares in the town, one featuring the municipal authority, the other holding the church (Kostof, 1999, p. 136).

Figure 2.15
Piazza del Popolo in Rome (1849), the public square was used for political gathering source: Kostof, 1999
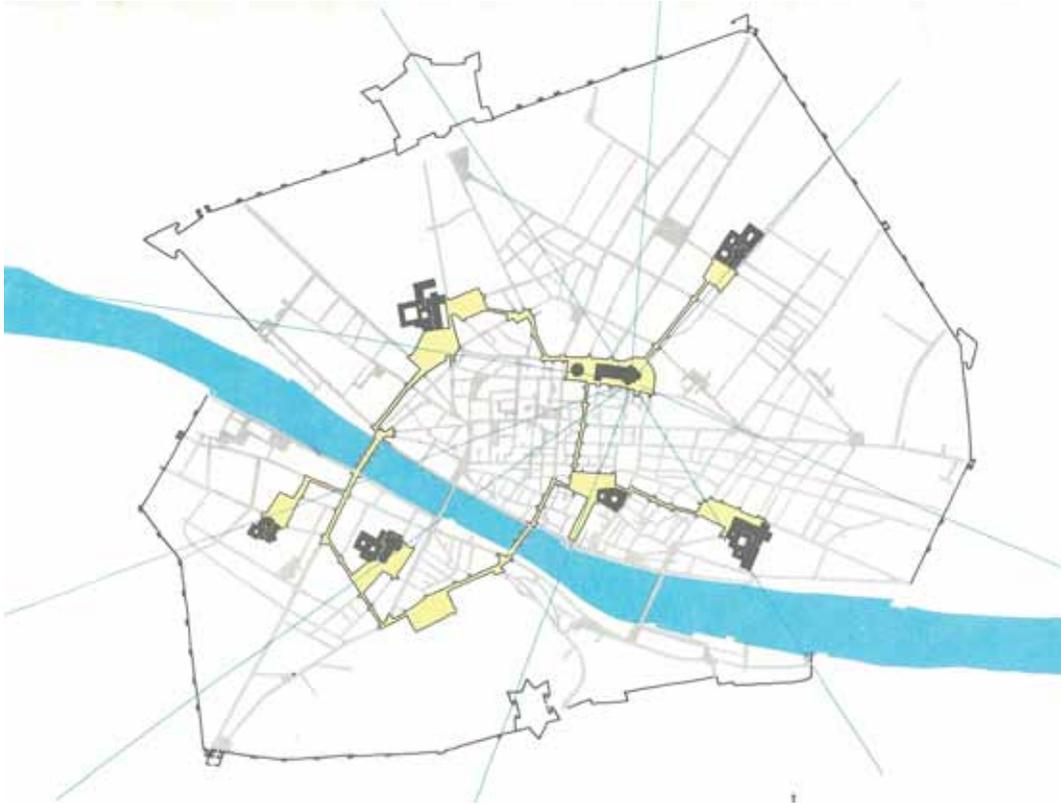
In the Age of Discovery (early 15th to early 17th Century) and European Baroque period (17th Centuries), the city planning gained momentum due to the advances in intellectual, technological, science and economic-political development. The increasing centralized authorization enabled the integrated restructuring of several capital cities of Western Europe. The master plan of Pope Sixtus V and his architect Domenico Fontana on Rome and Florence were clear demonstration of Baroque grand manner urbanism (Bacon, 1978; Kostof, 1999). These important cities had spatial structures and elements from different eras superimposed together. One of the key features of the plan was to coordinate the public spaces of a variety of geometric shapes and functions (e.g. fora, church squares, civic squares, stadiums, markets and other open spaces) into an integrated system connected by the wide, straight and beautifully designed diagonal vista axes (figure 2.16). Each of the square held landmark monument such as public buildings, fountains, statues or obelisks.

The three of more grand axes converted into a trivium or polyvium. A good example is the Arch of Triumph of Paris. A spatial feature of Baroque urban design associated with the monumentality was the pursuit of the uniformity and continuation of streetscape. This visual concert of the street frontage was used to emphasize the vista of the ceremonial anchors.

In fact, early idea of creating uniformed frontage can be dated back to the design of Greek Agora and Roman Forums, where continuous colonnades surrounded the open square. Similar idea can be found in the urban design code of Renaissance period. For example, in the Laws of the Indies for city-making in New Spain, arcades were prescribed for plazas and the four principle street that set out from it (Kostof, 1999, p.255). It was meant not only for visual coherence but also for the convenience to the commercial activities. The building code for Rome in the late sixteenth Century stipulated the requirement of building high walls and long building facade (by eliminating narrow passage between houses). Baroque style urban planning strategies had a profound and lasting influence on the development of Western capital cities. The prominent examples include Haussmann's Paris plan (1853-1870) and Berlage's Amsterdam southern extension plan (1904-1917) (see more in § 4.2.2.2). Both used lines of trees in the boulevards as a unifying element for the streetscape. According to Kostof, this grand manner of urban planning continued to be evident in Modernist urbanism and the city-making during the Second World War by the Fascist and Nazi rulers.

In the late seventeenth Century and the early eighteenth Century, the societal structure underwent drastic changes. Large amount of people from the rural areas migrated into large cities like Paris and London for economic opportunities. And the Bourgeois in the Western society rose as a new social class. Large cities were filled with strangers. People could not be judged by their family or social origins in the public space as in old times. Cities became places where diverse social groups meet. The word «cosmopolitan» was used in eighteenth Century as an expression that «a man who moves comfortably in diversity into situations that he is unfamiliar with» (Sennette, 1974, p.17). It was an era of building massive urban parks, attempting to make the streets a relaxing place, and the coffee houses becoming social centers. It was an era that broader social groups could enjoy urban amenities, but not restricted to a small number of urban elites (ibid.). The high culture of this period was characterized as a divide between public and private lives. It was a confusing time that the «strangers» attempted to establish their behavior codes in the public realm and kept their appearance in the public domain serious, prudent, impersonal, and uniformed with the people out of the same occupations and classes (ibid, p.193). Clothes were an important indicator of the urban life characteristic of this period. For example, the new bourgeoisie›s fancy dresses were as dramatic as costumes used in the theater. People of different professions had the same styles and details (e.g. buttons, badges or colors) of their clothes. People were like actors using streets as the stage. They put on a «mask» in the public domain hiding their personality and emotions, but as the same time, attempted to demonstrate clearly their social identities and scrutinizing others.

The cultural movement of Enlightenment (through 18th Century) had enormous influence on the rediscovering of the social-political notions of life, equality, citizenship and liberty in the modern Western societies (Sennett, 1974, p.89). It promoted intellectual interchanges based on science and reason, and opposed the traditional domination of feudalism, monarchy, autocracy, aristocracy, and the religious intolerance. Cities were place where civility developed. The Industrial Revolution commenced in the mid-18th Century brought about the rise of urban population, economic expansion, and new tools for communication and transportation, which were conditions for the prevailing of the new ideas. According to many scholars (e.g. Jurgen Havermas, Roger Chartier, Dorinda Outram), these forces gave rise to a new public sphere, where people of various classes felt free to have open discussion of the previously exclusive territories such as state politics and religious authority. In public meant open to criticism and scrutiny in this period. Scholars such as Sennett and Habermas observed that the provision of more open and accessible urban public spaces in the city of eighteenth Century conditioned the social political development.

Finally, toward the end of the eighteenth Century, French Revolution (1789-1799) brought an end to feudalism and profoundly influenced the societal transformation in the whole Europe. The notion of liberalism and individualism developed out of the Enlightenment were able to dominate the social culture of the modern Western society. Individuals had growing self-awareness, being more expressive in the public of their personalities and feelings, having freedom of speech and own wills on political and religious matters, and equal right of pursuing happiness through their own choices. According to Richard Sennett, the modern notion of human rights comes from an opposition between nature and culture. Every natural man has certain basic psychic rights, regardless of his or her social, economic, cultural, political and religious belief and background. He points out that the right to be happy is a particular Western concept (ibid.). In the society of great poverty, rigid feudalistic or monarchic hierarchies and autocracy, it is less likely to have personal happiness of the mass as a societal principle.

The mass-production due to the industrialization triggered the creation of large-scale retail organization, such as department stores since the middle of nineteenth Century (Sennett, 1974). They created a new urban life experience in the city. Previously, a person went into a store not buying anything was not welcomed. He could only do such strolling in an open market, on the street or in the public space. And because of the open price system, buyers and sellers went out of their way to bargain. The personal interaction in the economic sphere was intense. In the new department store environment, people could feel free to browsing around without the obligation to buy, and the fixed price system saved negotiations from both sides. It brought the public sphere into buildings and away from the streets. People became passive spectators than actors. The traditional craftsman workshops, street merchants and other small-scale economic activities that aggregated around a public square or in the open market

had a gradual decline due to the competition. Various means were used to stimulate people's desire to consume more than their basic necessity, and encouraged people to invest on their personal feelings and characters through buying goods. As the economy was expanding, consumerism was a growing part of urban life in the capitalistic societies, whereas the political function of the public space was waning compared to eighteenth Century or earlier. In the Netherlands, the authority still attempts to maintain a balance between different spheres of city life. Shops in the medium-sized cities and small towns are closed on Sundays, so that the city is open to the public/civic and religious spheres without the intervening by the economic life.

To conclude, we can see that the notion of equality in social-political rights of individual citizens were a characteristic of Western civilization that could be traced back to Greco-Roman times thousands years ago. And the notion was constantly rediscovered and strengthened as the economic and intellectual aspects of a society grew stronger in different moments of the European history. As the society developed, the economic, public/civic and religious spheres had separated spatial domains in a city. Some planning doctrines stipulated that the public sphere should not be interfered by other spheres. Just as the belief that the basic human rights should be not be compromised because of an individual's social, economic and religious status. Western cities out of different historical eras could always be characterized by their public squares and public buildings. It is demonstrated once again that the urban form goes in accordance with the social political ideology of a society. Although the freedom of speech and open political debate in the public realm used to be phenomenal in the past, the current public life in the capitalism society is evidently more commercial-oriented.

§ 2.2.2   A generalized definition of urban vitality for this research

Various studies have been dedicated to the interrelations between space and society. The question what is good form and what makes or does not make lively urban life are discussed by scholars from the perspectives of economic geography, social geography, physical design, spatial psychology, culture and tourism, or a combination of them. However, urban vitality has not yet been clearly defined through research. Different professional fields, societies of different political system and social-cultural values, or cities of different climate conditions are all factors likely to lead to varied understandings of this concept. In order to be able to compare the two new towns chosen in this research projects, a common ground of what consitutes urban vitality that is meaningful for each other's references must be clarified.

Urban vitality in the context of this research focuses on the economic and social spheres of contemporary city life in the public realm, and not attempting to tackle the full extent of this notion, such as the indications for political sphere or tourism activities. Public realm refers to the domain that passes outside the private sphere of family life and close friends. Public space in the city is places where "diverse, complex social groups are to be brought into ineluctable contact" (Sennett, 1974, p.17). It is places where people encounter the company of strangers, where casual social interactions and economic exchanges take place, where people are both actors and spectators. Outdoor spaces, such as squares, streets, parks and other types of open spaces between buildings, are considered relevant public realm for this research. And the interior public spaces, such as the inside of a large shopping mall or a public building, are not the primary research target.

In this vein, to study urban vitality is to study people's daily city life in the public space of a city. A city's public life feels vibrant or not is apparently a qualitative concept to describe a social phenomenon in the urban environment. Urbanity, urban quality, urban liveliness and urban life all contain a similar meaning with urban vitality. The word "urban" is used to modify that the property of a lively social and economic sphere in the public space is unique to cities, where a wide variety of people gather in a relatively high density. The concept of urban vitality differs from economic vitality and cultural vitality per se in the way that it emphasizes more on the impact of physical qualities of space on the active level of people's public life. However, it fundamentally can not exist without the prosperity of economic and cultural activities.

What constitutes the characteristics of urban quality? Cities offer rich collections of job opportunities, living environments, lifestyles, and cultural and entertainment activities. Cities feature compact spatial settings, higher population densities and sizes, and mixtures of social-cultural values. Urban life suggests meetings, the confrontation of differences, reciprocal knowledge and acknowledgement (Lefebvre, 1982, p.75). Gehl (1971) and others divides the outdoor activities of everyday life into functional, optional and social types. The functional part mainly refers to the obligated work-related routine commutes. It is the optional and social activities that occur in the public realm of cities that are the primary concerns of urban vitality in this research.

Diagram left: Activities / Physical attributes / Places / Physical attributes

= Diversity, Vitality, Street life, People watching, Cafe culture, Events & Local traditions/pastimes, Opening hours, Flow, Attractors, Transaction base, Fine grain economy

Diagram right: ACTIVITY / FORM / PLACE / IMAGE (cognition, perception & information)

= Scale Intensity Permeability Landmarks Space to BLDG Ratios, Stock (Adaptability & Range) Vertical grain, Public Realm (Space systems)

= Symbolism & Memory
Imageability & Legibility
Sensory experiences & associations
Knowledgeability
Receptivity
Psychological access
Cosmopolitan/Sophistication
Fear

Nature of places by Canter 1977   Place making by Montgomery, 1998

Figure 2.17
Diagrams of the elements constituting place (re-draw). Source: Canter, 1977; Montgomery, 1998

An interprepation of urban vitality comes from Howard's idea of "self-containment". He (1898, 1902) defined it as that the township provided a full measures of social life. Lynch (1981) claims a vital city to be the one which successfully fulfills the needs of its inhabitants. John Montgomery (1998) made a specific theoretical inquiry on the notion of urban vitality in relation to urban design. Primarily influenced by Jane Jacobs's work (1961), Montgomery advocates the predominant role of active street life, which includes pedestrian flows in the street, as well as the presence of small-scale business activities. He finds that vitality is what distinguishes successful urban areas and others, and the combination of mixtures of activities is the key to successful urban places. The theories on the sense of place (Relph, 1976; Canter, 1977; Punter, 1991; Montgomery, 1998) indicate that space becomes place when identity, memories and meanings are attached to it, either through the activities happening in there or through the influence of its physical configuration and form (figure 2.15). The corresponding spatial design strategies for improving urban life (e.g. from Jacobs, Lynch, Gehl, Unwin, Sitte) primarily fall within the scale of urban architecture.

For the research on urban vitality of two distinct types of new towns, Jacobs and other's accounts for street life are considered to be one of the main perspectives. In this research, urban vitality is defined as: a city is vital if rich choices of interesting things and places are there for people to experience over different times and seasons. Under this premise, the underlying urban images could be envisaged, such as plenty of people on the streets and public spaces, sufficient participants for public facilities, events and programs, a diversified social composition, and more chance of motivated individuals with self-initiatives. Thus, a primary method of quantifying urban vitality in this research project is the measurement of the number of people, small-scale businesses and various activities on the streets, public spaces and public realms. However, in addition to Jane Jacobs' approach, this research project considers a broader and holistic scope for the influential factors and success indicators for creating a positive quality of urban life. First, research on the physical environment will be expanded from the local to the city and regional scale. The network configurations and the distribution of programs (the level of mixed land use) are considered highly relevant to the level of urban vitality. Accordingly, the notion of activity in this research is not constrained to small-scale businesses, but also includes the top-down and bottom-up social-cultural activities. Third, the way of improving urban vitality will be also be explored by integrating the complexity theory and self-organization theory, where diversity at multiple levels and perspectives is key. Planning and designing for diversity, which could stimulate people's passive interaction with the built environment response, is only one approach. Encouraging natural diversity, by the true involvement of multiple market stakeholders and local inhabitants, is considered a challenging new direction of stimulating urban vitality.

§ 2.3 The spatial design factors on urban vitality

§ 2.3.1 The impact of city structure on urban life

Both the overall urban structure and the local urban elements play important roles in characterizing the urban life of cities. On the city scale, the urban web (Salingaros, 2005, p19) is one of the most important structural elements. It is a system consisting of nodes (programs) and paths (connections), elements that were earlier introduced by Kevin Lynch in his book, The Image of the City. If the urban web is not complex enough, the urban vitality of the city will be poor. Alexander Christopher illustrates, through abstract mathematical methods and contrasting city examples, how the segregation of urban fabrics, programs and connections can lead to the diminishment of the complexity of the physical and social relations in a city (Christopher, 1966). He emphasizes the value of "overlap" in creating urban life (figure 2.11). Salingaros further demonstrates this concept using an analogy of how human brains function. If a part of the neural connections are damaged, the brain still functions and signals are still transmitted, and even new mental abilities can be developed. This is due to the many redundant neural connections that supplement the channels in the brain (Fischler and Firschein, 1987). In spatial terms, a lively urban fabric must also have a large degree of redundancy, in terms of the physical connections between various nodes to keep human flows moving and distributed. After all, our society is built around material and information flows (Castells, 1996). Ample and redundant connections in the complex system allow it to respond to emergence, that is, to repair, to change and to evolve under varied circumstances. It is one of the approaches that can aid urban plans in deriving certain flexibility and adaptability over functional and societal changes.
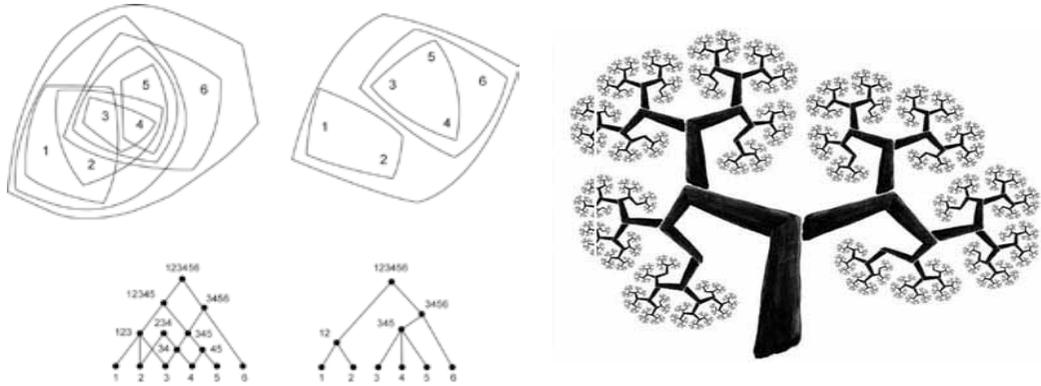
Figure 2.18
Semi-lattice and tree-structure illustrations by Christopher Alexander (re-draw). Source: Alexander, 1965
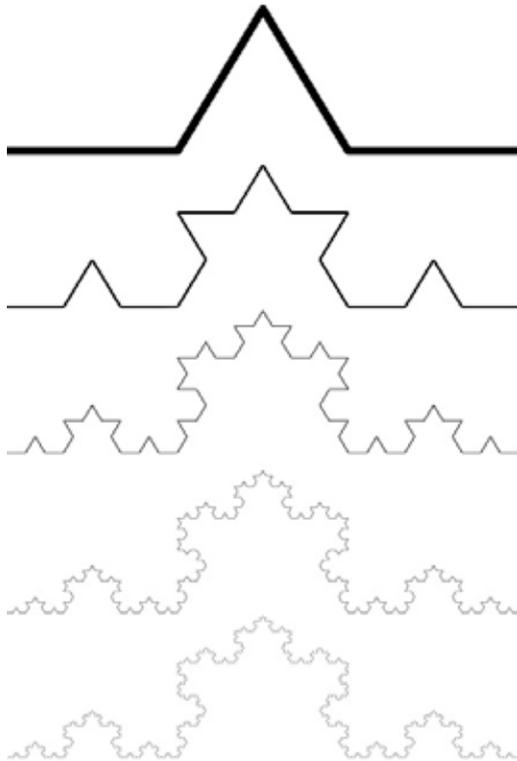

Figure 2.19
Fractal structures: snowflake and Romanesco

Many scholars are trying to derive the topology or configuration of workable urban network structures from successful cities and urban districts. The transportation network largely defines city form. Connectivity is the prerequisite of vitality of urban fabrics. Interestingly, many findings have come down to the value of high density, segmented, irregular and small-scale structures in the urban network. Batty and Xie (1994) claim that the fractal nature of the urban network is essential. Fractal structures that are found in nature (e.g. snowflake) are self-similar on various scales (figure 2.12). A scaling rule (equation) has been discovered by scientists for the analysis of fractal structures. They have found that large elements have a small multiplicity, whereas small elements have a large multiplicity.

$$p = cx^{-m}$$

where x denotes the size or scale of an element, p denotes an element's multiplicity, and c is a constant, m has an empirically determined value between 1 and 2 (Sallingaros, 2005, p166).

The complexity of fractal structures change in detail as they change in scale. The growing process and the structure of successful cities and urban fabrics are found to also have characteristics of geometrical continuity and similarity. There are also a plethora of interconnected, small scale, fine structures at the local scale level (e.g. streets, public spaces and building blocks), and a smaller number of large elements at the city level (e.g. highway, ring road, city squares, rivers, public buildings).

The study of relations between the connections and the success of the retail business by Greenberg (1995) concludes that the more segments a path has, the stronger and tighter the web structure will be. Jacob (1961) suggests the use of shorter urban blocks for the benefit of articulation. Hillier points out that the spatial structure of a city is determined by a long history of small-scale, disorderly and incremental changes (Hillier & Hanson, 1984; Hillier, 1996). The contextual urbanists, a school of French and Italian architects and planners in the 1960s, emphasized the respect for a morphological continuity of the city, and were dedicated to the design of small-scale interventions that were guided by the local context. They proposed that developing "increments" to historical inner cities and postmodern cities was a better solution than a master planning strategy (Crimson, 2007, p19). Cities or urban spaces with strong human activities usually do not look geometrically symmetrical or regular from the air (Gehl, 1987). It is the ground level perspective that affects human spatial behavior. Sitte (1889) proposes a picturesque approach of arranging urban architecture, arguing that the way that the view changes as one walks through the space is the most important characteristics of medieval European towns.

The "overlap" refers to choices of paths, but also the mixture of programs, because "destinations" (Lynch, Gehl) generate flows. The principles of physics are used to explain that flows only happen between contrasting or complementary nodes. For example, electricity and fluid flows occur only between points of differing potential (Salingaros, 2005, p27). In spatial terms, houses in urban tissues can be classified as same-function nodes. Movement between them is not necessary. Other activities other than home life can be classified as contrasting or complementary nodes. Neighborhood streets become lively if plenty of complementary nodes (i.e. functions, programs, and activities) are mixed among like nodes. The more interconnected these nodes are, the more possibility that high quality urban life will emerge in the system. Urban fabrics that have the above mentioned elements and structures are capable of generating organized complexity. By contrast, over concentration of nodes and connections generates singularity (figure 2.13), which is a common problem of new towns and new urban extension areas.
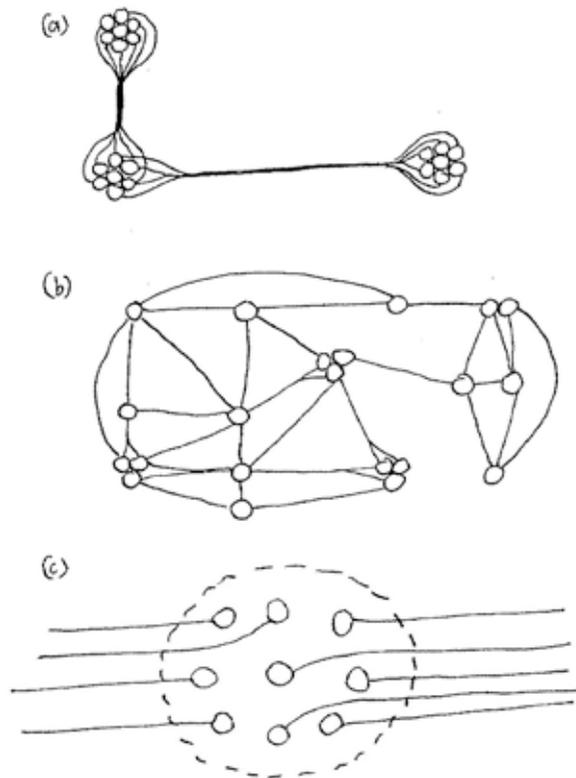

Figure 2.20

Urban web and nodes: (a) single connection-collector route, (b) multiple connections-redundancy, and (c) zoom in of the disconnected modules in (a). Source: Salingaros, 2005

§ 2.3.2   **Network configuration and urban life: Space Syntax theory**

Given that there are plenty of path choices, the decision for a person to choose which ones to follow (e.g. shortcut or detour, quiet or busy, landscape or urban) relies on both global and local spatial connectivity, and local spatial qualities of specific routes. Lynch (1990) suggests that the orientation in cities depends largely on the perception of basic urban elements (namely paths, edges, nodes, districts and landmarks), which describes the intrinsic qualities of space. Mental images and maps of the cit play a key role in guiding movement. From a different viewpoint, Hillier (1993, 1998) claims that the way in which movements are dispersed depends on the network configuration. People orient themselves according to the configuration of the street grid, and therefore, according to extrinsic properties of space (Hillier et al., 1993, p13).

Social scientists interpret the formation of the built environment as the outcome of the social organizations of a society. Space is considered a major, indispensable attribute of human activity by structural sociologists (Van Nes, 2002, p.50). Hillier and Hanson's work was aimed at approaching the understanding of societal organizations from a spatial point of view. They claimed that a limited understanding of the interrelations between space and society had been achieved by anthropologists and social scientists. However, the identification of pattern-forming dimensions of society, e.g. from studying kinship and mythologies, does contribute to the design of a comprehensive theory on space and society. Important principles from the sociology of urban space deal with the relations between the inhabitants and strangers, and among the individual inhabitants in a settlement (Hillier and Hanson, 1984, p.17).

Hillier and Hanson focused on proposing a theory of space that connects the missing link between the two principles of social solidarity and cohesion, defined by functionalist sociologists, such as Emile Durkheim, as the organic and mechanical solidarity. Organic solidarity is based on interdependence through differences, such as those resulting from the division of labor. Mechanical solidarity is based on integration through similarities of belief and group structure (Durkheim, 1984, chapter 2 and 3). The identification of laws on how social relations affect urban forms and vice versa was missing from these theories. They believe that cities are a physical outcome of human activities, and the way a society is organized. In turn, its concrete results condition

human activities in society (Hillier, 1996b, p.149). Such laws can be called functions from society to urban form, and functions from urban form to society (Hillier, 1986, p.1). According to Aldo Rossi, a purely functional classification of the built environment is not sufficient to judge its performance. When correlating social-economic data and urban morphology analysis, an understanding of their mutual influences can be developed (Rossi, 1983, p.49).

Hillier and his associates have developed the Space Syntax theory and mathematical models to analyze network configurations, using axial maps to depict the least number of axial lines covering all the spaces between the buildings and obstacles in a settlement (Van Nes, 2002, p17). The initial purpose of the theory was to understand how built environments work and what they have structurally in common. Also, it was aimed to develop a method to analyze the form and formation of built environments, and to explain the spatial laws of cities which are the biggest artifacts of human beings. The configurative structure of urban space between buildings is represented by shape-free convex spaces and distance-free axial lines. In this way, various built environments, irrespective of their culture, political system, and economic situation, can be measured and compared.

The Space Syntax theory generates a set of languages that are developed to describe the extrinsic properties of the space. All the spaces of an urban fabric can be abstractly represented by linear axial lines on a syntactic map. Each change of direction from one axial line to another is counted as a syntactic step. The number of syntactic steps from one line to all the other lines determines its topological distance (depth). Shallow topological distances (fewer steps) denote a high global integration value, and deep distances denote segregation from this line to the rest of the system. The concept of integration differs from the concept of connectivity, for the former refers to the average steps that one axial line needs to reach the whole system, and the latter describes the number of direct connections to an axial line. Even though, a highly integrated axial line does mostly have high connectivity. The system becomes more intelligible, as more integration values that are on the axial lines of a settlement correlate with the connectivity values (Van Nes, 2002, p.56). The intelligibility of a city, which is considered a generic function of the built environment, depends on the way global structures are understood from the local point of view. In other words, the way people orient themselves by movement from everywhere to everywhere else.

The Space Syntax method is able to quantify and visualize the spatial relations that occur at global and local levels. The analytical results can be compared with other qualitative and quantitative spatial studies. For example, the mapping of diverse urban programs, facilities, and the registration of the usage of space by human activities, can be compared. One of the primary conclusions of the case studies, based on the Space Syntax theory, is a strong correlation between pedestrian and traffic flow, and the

integration value of the street grid of towns and cities (Hillier, et al. 1993, p.61). The configurative feature of a built environment, the extrinsic property of space, has been proven to have an influence on how people orient themselves and move throughout the system. The rationality behind people's choices is typically to look for the shortest routes possible. Therefore, the nature of well-functioning settlements tends to have shallow, intelligible spatial forms rather than maximizing spatial depth of a structure. In other words, such systems allow people to reach any destination with as few turns as possible. Well-connected and spatially integrated streets are more likely to aggregate more flows of movement. In contrast, poorly connected and spatially segregated areas tend to be subject to social nuisance and crime.

The comparative results also found positive correlations between the natural movement of human beings in a physical system and the distribution and aggregation of urban functions, and the secondary generic functions of built environment defined by Space Syntax theory. Classic economic geography theories, such as the Central Place theory, model the distribution of centralities by applying the law of catchment areas of certain metric distances. Many other theories study the centralization and decentralization of economic entities by analyzing the land use values or social-economic interrelations of the economic sectors, through the use of mathematically tools. Space Syntax theory contributes to the understanding of the spatial behavior of urban economic activities of various scales in relation to their spatial configurations. Movement, configuration and attraction (i.e. shops in this context) have independent relations. In the development of natural cities, the places of social-cultural and economic attractors (the destinations) generate traffic flows, thus possibly affecting the development of the street patterns. In planned structures, where grid patterns are fixed, the influence of movement on the network configuration is less likely. In any case, the grid conducting flows to destinations is considered to have its influence on the choice of orientation, and thus the pattern of movement. The spatially highly integrated streets are where most people cross through, and where shops and retails that benefit from traffic flows are preferably located. Empirical studies also show that the central or vital area of a city or district is where street grids of the catchment area of two topological turns are compact, and are within the walkable distance range. Thus, by visualizing the range and compactness of all the axial lines within two to three topological steps from the test lines, the local accessibility of streets can be compared. By adopting the scientific method of validating newly-discovered phenomena proposed by Ian Hacking, the Space Syntax theory is open to tests and consolidation by case studies of cities and settlements throughout the world. According to Hacking, phenomena are on the one hand discovered, and on the other hand, created, produced, refined and stabilized through experiments (Hacking, 1983, p. 226). Therefore, the proposed research subject that explores the relations between urban life and the spatial configurations of both the planned new towns and the naturally grown ones under different social, cultural and economic contexts would be of added value to

the Space Syntax theory. In turn, the Space Syntax method of spatial analysis would be useful in visualizing and explaining spatial problems, and even indicating the performance potential of design proposals for the case studies.

§ 2.3.3 The study of urban blocks and neighborhood unit on urban life

The urban blocks in cities allow relations between the external and internal spaces, as well as a third type of space between the public realm and private space. The grouping and composition of urban blocks in relation to streets and public spaces constitutes the spatial structure of a city. Studies of many scholars from urban architecture and urban morphological perspectives of historical cities provide urban patterns and languages that could be referenced as examples on how to make livable urban spaces in contemporary cities.

In his book The Concise Townscape, Cullen registers the spatial elements one sees nearby and in a distance during each sequence of a series of visions (Cullen, 1971, p17-19). He identifies a series of spatial elements and properties that are considered important to understand a townscape, such as enclosure, exposure, intimacy, details, punctuation, narrows, silhouettes, volumes, lightening, textures, and building walls (Van Nes, 2002, p48). Sitte carried out systematic research on medieval towns and squares using perspective drawings as an analytical tool. One of his main findings is the identification of picturesque qualities of the enchanting, organically developed townscapes that have aesthetic value, as well as develop inviting pedestrian environments and a local social life. The picturesque composition describes the type of urban setting with a number of curved streets converging with a public square, where a taller public building, such as a church or a tower, stands as the end view of those streets. As one moves through the space, the view is constantly changing. The view of the public building is never isolated, but is always associated with the silhouette of other buildings in its vicinity. It is considered a sophisticated design technique to use controlled curves to terminate a vista, but unrelenting curves create an environment that is utterly disorienting (Duany et al., 2000, p.34).

The picturesque composition of vernacular urban architecture inspired the baroque planning, which featured monumental, symmetrical, central radiating axes and perspective effects (Panerai et al., 2004, p.140). Well-known examples include Haussmann's Paris Plan and Berlage's Amsterdam South extension plan. Haussmann treated buildings as monuments, but the details were criticized as monotonous. Berlage's plan was influenced by Sitte, Haussmann and Unwin, as well as a significant contribution by the Amsterdam School architects. It has all the elements of a

picturesque and monumental design (i.e. avenues, squares, monuments, high-density multi-story buildings, arcades, artistic ornaments on building façade and public art in public space). Moreover, the new extension area is well connected and integrated with the urban context by means of morphological and functional connections with the existing urban fabric.

Raymond Unwin used combined these approaches in the planning of British new towns. He described Welwyn's Garden City as "a monumental and classical composition of the whole, and a picturesque rendering of details" (Panerai et al., 2004, p.137), because the urban blocks are not apartment buildings. They mostly consist of terraced housing, which is considered the classical tradition in British urban planning. Influenced by Sitte's research, Unwin widely adopted picturesque elements, and developed his own approach of accentuating the corner of terraced housing, crossroad treatments, as well as the use of "close" as a form of internal space in urban blocks. A "close" is a group of houses enclosing an alley or a small public space in the middle, an adaptation from farm houses or courtyard houses. In his book Town Planning in Practice, Unwin used the role of views in the design of the "close", and made an inventory of its typological variations. A "close" is supposed to function as a social unit, where people are given a sense of spatial grouping and a mutual space for play areas or collective facilities. The patterns of "close" are also widely adopted in the design of Dutch garden villages and new towns. However, empirical evidence has shown that the closed urban blocks do not necessarily guarantee urbanity more than the open blocks (Panerai et al., 2004, p.164).

The idea of grouping housing units was enlarged in scale when Clarence Perry proposed the concept of the Neighborhood Unit in 1929. A Neighborhood Unit is enclosed by city arteries and has a size of between 5-9,000 people, which is considered sufficient to support local facilities. The intension of such organizations is to establish a community as a social unit in modern cities, and to create a relatively safe and pure micro-living environment. This space was meant to be secluded from car traffic and strangers. Although spatially preclusive, the urban blocks in the Neighborhood Unit are open, and the street grid is connected to external arteries. The locations of shops are placed at the corner of the blocks, because the best accessibility was located along the perimeter. Neighborhood units are extensively adopted in new town planning in Britain, but with some mutations. Based on the popular polynulcear urban model, districts were arranged discontinuously from one another, and segregated by green spaces. Neighborhoods became more self-contained and introverted. The primary school, as well as the shops and other social-cultural facilities, were located in the center of the neighborhood unit. The self-protected space is deemed so advantageous that network patterns such as cul-de-sacs, dendrites (treelike), cauliflowers, and gated communities are applied in neighborhood designs throughout the world. Oscar Newman advocates in his book Defensive Space the use of cul-de-sac structures for greater security than a connected street system.

However, it is hotly debated what it means for urbanity. The generated isolation, exclusion and purification of the planning actions seem to be responsible for the diminishment of urban life in the new suburban extensions and neighborhoods in new towns. It is argued that isolation from thru traffic results in isolation from the positive effects of interconnected spaces. Moreover, the neighborhood unit is criticized for not having (social) significance for its inhabitants. Instead, it atomizes the city (Panerai et al., 2004, p.177, 197). It is clear that morphological designs, for the purpose of generating positive visual and social-cultural effects of the physical environment (e.g. picturesque and monumentality, composition of urban block and the design of building façade), are not enough to develop a high quality urban life. The configuration and connectivity of street patterns on the global scale is a more fundamental and crucial prerequisite.

Planners that were aware of this fact demanded the rediscovery of the virtues of the open grid and open urban block. In the book Responsive Environment: A Design Manual, the authors emphasize the importance of perimeter blocks as the key to achieving the quality of the traditional town (Bentley et al., 1985). Jacob suggests mixed-use programs on the ground floor, and shorter blocks to encourage pedestrian flows and circulations. New Urbanists have adjusted the Neighborhood Unit model to advocate for the traditional open street pattern that provides security and privacy without barriers. The main difference of their model lies in the rebuilding of the connection of the unit with its context. The roads of the neighborhood unit are linked to the adjacent neighborhoods. The shops and the community school are placed on the edge of the unit. Office buildings and open spaces flank the arterial roads, contributing to a mixed environment and acting as sound barrier at the same time. The primary goals of the planning of Milton Keynes were the promotion of opportunity and the freedom of choice. It was theorized that if there is to be real freedom of choice, there must be freedom of movement. An iron grid pattern was adopted for the purpose of allowing easy movement and access. The model of the neighborhood unit, and the organization manner based on the defined catchment area, were rejected. Widely overlapping areas of service were favored. The nodal points and bus stops located at the perimeters of the urban blocks are meant to be shared by adjacent areas.

§ 2.3.4 The value of small-scale details on urban life

Jan Gehl believes that urban life takes place on foot. Lynch claims that activities at ground level seem to make places memorable. Vehicle-oriented traffic design has been criticized as depriving modern cities and suburbs of human and pedestrian-friendly environments, as well as the traditional network of small scale footpaths (fractal structure). The set of visual messages on a road need to be able to leave a strong

impression on the drivers in fast moving cars. For example, the innovative new urban aesthetic and system is described in the book Learning from Las Vegas (Venturi et al., 1972). However, as Gehl (1971) argues, people have the need to relax and to see and hear other people in public domains. An interesting example of how much people miss pedestrian environments in the United State is given by the New Urbanism planners:

A disproportionately large number of (American) suburbanites choose to spend their holidays in Disney world. The average visitor spends only three percent of his time on rides or at shows. The remaining time is spent enjoying the precise commodity that people so sorely lack in their suburban hometowns: the pleasant, pedestrian-friendly public space and sociability it engenders. (Duany et al., 2000, p.63)

A primary challenge for private car oriented urban and suburban developments is how to overcome the problems of impersonal scale, long travel distances, and making pedestrian circulation possible and comfortable.. Alexander (1977) argues that the fundamental importance of maintaining car and pedestrian interfaces in urban environments is for the sake of creating possibilities of overlap, and thus, communication. Medieval European towns often serve as inspiration on how to form and organize urban space, as well as being able to generate a positive link between the qualities of pedestrian-friendly space and outdoor activities.

Planning and design at medium and very small scales are decisive factors (Gehl, 1971). Any design strategies that could facilitate longer durations of inhabitation in the public space would help improve urban life. Details on the local scale, such as the scale and dimension of streetscapes, shape, color, building façade ornaments, patterns and pavement materials, and types of vegetation, are crucial factors for people to interact with space (ibid). The space between buildings is composed of edges, interfaces and boundaries between spaces and people. Alexander states in A Pattern Language (1977) that if the edge fails, then the space never becomes lively. Studying from historical cities and urban spaces reveals that a lively city is made up of interactive urban interfaces, which have a fractal nature. They are where many human activities take place. Public space and streets of cities from pre-industrialization and Renaissance times exhibit qualities of intimate scale, organic forms, aesthetic architectural ornaments, and segmented curved interfaces between buildings and streets or public spaces. Individual façades or sections of walls are often angled, so that they form certain spatial relations with each other, and communicate with people standing from different angles and distances in a space.

In contrast, urban space produced out of modernist functionalistic planning are regular or straight in shape and the facades are plain in appearance. The apartment towers are virtually vertical tree-like structures, which reduces the possibility of human interactions inside of it and at the street level. The vast green space is edgeless and

is considered non-place, although they are meant for collective use. Studies show that when lacking information that defines the spatial boundaries and draws the attention of the users, people may experience psychological discomfort and shorten their stay in the empty space. From the point of view of the user, one can receive abundant information when a three-dimensional space is bounded by piecewise concave surfaces (Salingaros, 2005, p63) (figure 2.14). Spatial characteristics that are detrimental to urban life include the absolute regular and symmetrical grid, geometric urban forms, continuous walls at the street level, straight lines, vertical stacking, building setbacks from the streets, and emphasis on the larger scale.
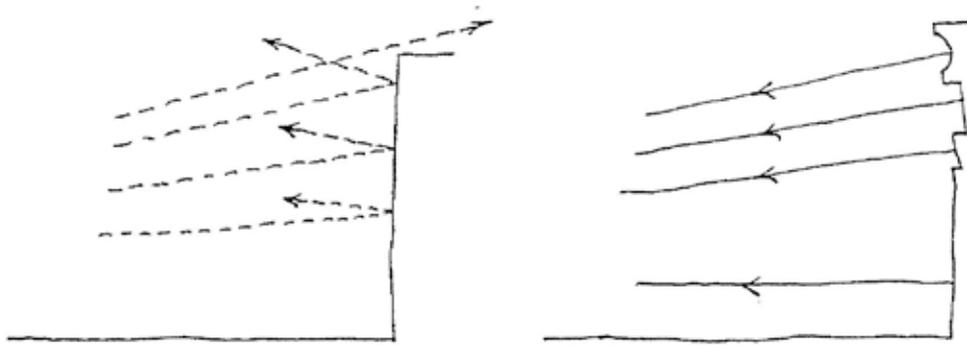
Sensory connections are essential for spatial and human interactions. Kevin Lynch (1990) analyses the role of images perceived by space users in relation to their experience and orientation in the built environment. Both are based on the visual effects of the spatial setting. Lynch's imageablity differs from Sitte's picturesque in the way that it is focused on the interactive relationship between human cognition and space, and the latter emphasizes the aesthetic value of spatial form. Lynch claims that a good environment image gives an important sense of emotional security, satisfaction and pleasure, because space is always experienced in association with past memories. Thus, a vivid and integrated physical setting plays a social role. A good sense of space in itself enhances every human activity that occurs there, and encourages the deposition of a memory trace (Lynch, 197, p.4, 119). Aldo Rossi emphasizes the role of collective memory of places. The topology of urban architecture, which is the geometrical relations between buildings and associated open spaces, is only one aspect of the city. The memory of "the past and future" is also inscribed in the man-made artifact (Rossi, 1983).

According to Lynch, the "good" images have the qualities of being legible, sufficient, true, stimulating, communicable, and most important of all, carrying identity and meaning. Through interviews with citizens, path, edge, landmark, node and district are identified as the five primary elements that define urban images. Paths are the most important. Clarity is required to define the framework of the paths, and a degree of complexity for the parts. If the major paths lack identity, the city as a whole would feel confusing. Local systems are considered flexible and plastic when users have rich choices of routes between focal points (destinations), develop their own mental map of the local area, and can define a selection of spatial images and meaning that they can respond to. For example, some people go out of their way to view particular plants, parks, or bodies of water (Lynch, 197, p.42). Sufficient and well organized information in built environments are needed for people to move-about and orient in space. A diversity of forms and qualities in space are needed to satisfy users of different social-economic status and cultural backgrounds. It is suggested that nodes, landmarks, buildings, open space, vegetation and other spatial elements on the paths be arranged with rhythm (melodic style), continuity and contrast.

§ 2.3.5   The role of diversity on urban life

The single-use and homogenous social-spatial composition of suburban districts and new towns can be described as monocultural. This description is a biological analogy that is meant to characterize its generic poverty (Duany et al., 2000, p.23). An environment of over-simplified and ordered structures is not considered a fertile ground for continuous evolution, from a biological perspective. They are also not considered suitable for improving the quality of urban life from the city perspective as well. Diversity in regard to spatial, social and economic characteristics is increasingly identified as the key to vitality in new urban environments. Planned and designed (artificial) diversity is important, but not necessarily sufficient. The contemporary cities and societies are growing too complex to be predictable and controlled through planning. Scholars are attempting to incorporate complexity theories into urban planning methods, in an attempt to organize the built environment in favor of urban life. These theories were developed from fundamental science domains, such as biology and physics, and applied to city planning. One of the main suggestions pertaining to design practice is to maximize the participation of stakeholders and citizens alike in the process of decision-making, and allow freedom of choice self-organization and even a certain degree of disorder. By doing so, the resultant environment is naturally diversified and responsive to all needs.

Physical plans or strategies that are flexible enough to accommodate freedom, changes and diversity are the primary challenges of these new requirements. Several proposals have been set forth and tested in actual projects. The holiday village Seaside was the archetype of New Urbanism in the 1980s. It did have a detailed site plan. A series of codes were developed, specifying details such as building's setback in a plot and landscape regulations, in order to ensure a formal coherent streetscape. The design of individual buildings was performed by a variety of architects and different developers, developing a sense of diversity in architectonic appearance of the buildings. A pedestrian-friendly environment was also created. The concept of flexibility was also emphasized by the British Urban Village forum. It was proposed that "new developments should be characterized by a diverse architecture, a legible layout, a variety of uses, sustained by an appropriate density of development, a choice of tenures, a strong sense of place and a high level of involvement by local residents in planning and managing the development" (Panerai et al., 2004, p.176). In his book *Planning the New Suburbia: Flexibility by Design*, Avi Friedman proposed that the construction of new, large-scale suburban developments requires a framework and guidelines within which segments of the whole could be designed and built by different development teams over the life of the project. In the scenario of extreme autonomous developments, the role of planning and planners seems indispensable. Portugali (1999) tests the methods of self-organization on city forming by developing a kind of city game where people have the maximum freedom to decide where to locate their buildings as a result of compromise and negotiation with the decisions of the others. The game is to demonstrate that certain spatial orders can be formed without planning, from a seemingly chaotic interaction between individuals. When organizing public participation or public-private partnerships, one should be aware that the involvement of collective wisdom is not merely for the sake of visual variety, but more importantly, to facilitate a mixture of program and social cohesion.

§ 2.4   **Changing contexts and new planning approaches**

§ 2.4.1   **Traditional planning rationality**

The planning profession arose in response to the demands of industrialization as a rational approach to exert control on the fast growing urban environment. According to John Friedmann, planning is a "forward looking activity that selects from the

past those elements that are useful in analyzing existing conditions from a vintage point of future- the changes that are brought to be desirable and how they might be brought about" (Friedmann, 1987, p.11). According to many literatures, planning is considered to be a practical science and a human science, for it is a rational and reflective activity that human beings carry out to create a better living environment and society. Human intentions, actions and reasoning play a central role in this discipline. The unpredictable human will and complex human interactions make planning and its implementation to a certain extent subjective and uncertain. Moreover, planning is a contextual knowledge dependent practice. Planners need to analyze the specific project conditions, and choose appropriate means to reach the goals of desirable social, cultural, and economic values.

According to Peter Hall, blueprint planning prevailed until the 1960s (Hall, 1992, p. 228). It was characterized as the "rational comprehensive" model, which generally includes the steps of problem definition, goal formulation, study of alternatives, and evaluation and policy selection (ibid; Pinilla, 2008, p. 22). Based on this planning tradition, Edward Banfield introduced the Synoptic planning approach in 1959. The process of planning was defined as planners select "a course of actions (a set of means) for the attainment for (the) ends" (Banfield, 1959, p.139). It consists of classical elements: goal-setting, identification of policy alternatives, evaluation of means against ends, and finally, implementation of policy (Hudson 1979, p.388). Each stage allows multiple iterations, feedback loops and elaboration of sub-processes (ibid). Synoptic planning typically relies on conceptual and mathematical models to carry out heavy quantitative analysis. However, since the 1970s, the scientific characteristics of this planning rationality was increasingly questioned for its ability to predict outcomes, manage diverse involved parties, and control urban developments in an orderly manner, especially on large scales. The main criticisms of this approach are focused on its arbitrary control in decision-making, insensitivity to the existing performance and capabilities of various institutes and individuals, and its ignorance to pluralist interests (Hudson, 1979, p.389). According to Peter Hall, criticism toward this planning tradition also include concerns on the notion of planning as value-free and planners as an objective character that determines what is best for society. There is distrust on the planners' capacity to react to rapid growth and changes. In addition, there was also skepticism about the concept that society is a homogeneous aggregate manageable with welfare distribution (Hall, 1992, p.246; Pinilla, 2008, p.25).

Modernism versus postmodern urbanism

From the early 20th century until the early 1960s, modernism was a dominant social and cultural spirit (Ellin, 1996). The notion of ever-greater mastery over the environment, and an absolute belief in science and rationality, were generated during the industrial revolution. Various kinds of scientifically generalized models and mathematical equations were applied to urban studies (see § 2.1.2.1). The symbolic Athens Charter of 1933 (written by Le Corbusier) proclaimed doctrines of modern urbanism, and called for the separation of functions by zoning regulations, new typologies and a better ways of life made possible by an industrial mode of production, modern building techniques and new materials. "Form follows function" (Louise Sullivan) was the succinct expression of the ideology of functionalism. Machine metaphors were often used to describe the modernist pursuit of explicit order and operational perfection. The proponents of Modernism in architecture and urban planning further believed that industrialization would eventually yield a monolithic mass society with widely shared aspirations and tastes.

However, the ideal of social reform fueled by science and technology tended to be utopian, among other things due to the fear of the abuse of technological power demonstrated in the deconstructive wars. In the real urban world, the beautiful scientific-mathematical models were barely able to scratch the surface of the complexity of the urban scenario, and according to David Harvey (1973), were accused of being "incapable of saying anything of depth and profundity about the real problems of society" (Portugali, 1999, p.32). The promise made by mod¬ern urbanism to control the urban monster by its rationalism failed to deliver. Faster privatization, social segregation and polarization, and the decline of the central city and the quality of the public space shattered people's faith in planning (Ellin, 1996, p.290). In response, post¬modern urbanism calls for the merging of separated disciplines and the reconsideration of the meaning and method of planning.

Much of the criticism leveled at modernism pointed out that excessive rational thought and behavior was detrimental. In his article "A City is not a Tree" (1965), Christopher Alexander argued that the over-segregation of pedestrians and vehicles, work and housing, and other functions of new urban areas prohibited the possibility of an overlap of activities, thus reducing the multiplicity of human interaction. Knowing that the intuitive desire to simplify complexity by categorization and grouping was "among the most primitive psychological processes" of the human brain, Alexander's advice can be interpreted as meaning over-planning will not generate the ideal conditions for urbanity. This is due to a system's inherent complexity.

Similar opinions were shared by many urban researchers. Lucien Kroll contended that design should be regarded as a process that should "not want to master everything", and that "to allow things to happen by themselves is much more efficacious than prescribing everything" (Ellin, 1996, p.280). Other studies contributed to revealing the complexity of the city and its apparently irrational but reasonable underlying mechanism, including the chaos theory (e.g. Richard Sennett, Anthony Vidler), the system theories (e.g. Ludwig von Bertalanffy, J. Brian McLoughlin, Michael Batty), and self-organization cities (e.g. Juval Portugali and Hermann Haken).

Modernism was also accused of lacking attention for human needs and a historical local context. The general aesthetic value of post-war housing construction in the United States and Western Europe were disappointing, and described by Edward Relph (1987) as being "repressive, ugly, sterile, antisocial, and generally disliked" (Ellin, 1996, p.211). The modern urban morphology, including the vehicular patterns and the "placeless" urban space, reduced the possibility of social interaction. The differentiation of human tastes and values were replaced by a universal style and form. The variety of genius loci and historical cultural traditions were abruptly wiped out. Postmodernism called for more humanistic research and design methods: from subjective and qualitative to objective and quantitative; individual self-realization, diversity and identity instead of collective uniformity; contextualism rather than isolation. Among others, studies of this kind include social theories of David Harvey, urban philosophy of Henri Lefebvre, time-geography study of Torsten Hagerstrand, space cognition of Kevin Lynch, and place theory of Edward Relph and Yi-fuTuan.

Postmodern urbanism stresses that not only the design results but the processes should be humanistic and expressive, open to dialogue and negotiation. As Western society is becoming more socially and culturally pluralistic and complex, privatized and individualized, the mastery narrative and prescriptive way of planning employed in the former modernist era has been required to become flexible and democratic enough to allow room for different opinions, individual demands, public participation, as well as changes and uncertainties.

The contemporary society has been increasingly viewed and studied as a complex system since the 1960s and 1970s. Social, cultural, economic, and political processes are interacting in intricately related and intertwined ways. The market rationale and social rationale are not always in accordance with each other. The collective interests of certain vulnerable social groups are likely to be ignored and eroded by the profit-oriented market players. Therefore, the duty of planners is at least twofold: to protect and balance the benefits of various social groups, and to develop flexible, adaptive and effective ways to cope with the ever dynamic and unpredictable actors in the market. The notion of social democracy, citizen participation and communicative rationality also gain significant importance in the process of planning and implementation, where the wills and opinions of individuals in the pluralistic society are given accounts. According to Friedmann, democracy and reason are dual legacies bequeathed to us from the eighteenth century. "Democracy meant trust in the capacity of ordinary people for self-governance. It presupposed "a capacity for reasoning in all of us" (Friedmann, 1987, p.3). Richard Sennett also advocates the uses of disorder and conflict in societies brought about by citizen confrontation and self-surveillance (Sennett, 1992).

§ 2.4.3   Human society as a complex eco-system

Human society is considered part of the ecosystems that comprise the earth. An ecosystem is constituted of complex sets of relations among its parts and components. The individuals or groups in the system are mutually interdependent. The change of state of a single part can lead to a chain reaction of other parts, and of the whole system. A well-known demonstration is the removal and reintroduction of wolves in the Yellowstone national park in America. When grey wolves were arbitrarily removed from the environment, scientists surprisingly discovered that a vast web of life that was linked to wolf kills declined in number. The carrion of wolf kills (elk) benefits not only beetles and birds (ravens, eagles, magpies) but also larger animals like wolverines, lynxes and even bears. Moreover, the absence of wolves also changed the feeding pattern of elk herds. Elk moved back to the open grassy meadow and grazed harder on trees, which subsequently affected the population of plant-dependent animals. This example demonstrates how complex the relations in a system are, and how many unexpected and high impact outcomes can be brought by a seemingly small change.

Human society is considered even more complex than the animal and plant kingdom because of the prodigious diversity of populations, activities, specialized functions, and the relations between them. Unlike the patterned and slow-evolving behavior of the other species, human activities and lives in the fast developing modern society are full of changes and serendipities. In the past, the life changing innovations on daily life included the invention or discovery of the steam engine, electricity, telephone and automobile. At present, it is the smart mobile phone, internet, GPS and other information technologies that alter the locational behavior of humans. When making economic-related decisions, evaluating the ratio of costs and benefits is the rational consideration of most people. However, decisions for a wide range of other matters depends on an individual's or groups' own sets of values (influenced by culture background, upbringing, experience, education, etc.), which exhibit great diversity and distinctions. Furthermore, human behaviors often involve irrationality and randomness. The human society is a system full of dynamic interactions, ubiquitous changes and unexpected upheavals.

The relations between humans and the environment are interactive. People not only adapt to the given environment, but more importantly, they try to modify it to suit their own demands. The optimizing actions change the relation between the individual and his environment, and at the same time, change the decision-maker and the environment (McLoughlin, 1969, p.34). Similar to other ecosystems, the changes carried out by individuals or groups affect others, and the whole system. In the system view, the action taken by an individual or group at a particular time has "repercussions which alter the context for decisions to act by other individuals or groups at subsequent

times (ibid). According to time-space theory, a change that happened in the past or in the future can dramatically alter the course of action or the status quo. Stories based on this theory were told in several science fiction movies, such as The Butterfly Effect, Minority Report, Next, Source Code.


A SYSTEM IS A SET OF INTERCONNECTED PARTS

BUT EACH PART MAY BE SEEN AS A SYSTEM ITSELF........

........AND THE WHOLE SYSTEM MAY BE REGARDED AS BUT ONE PART OF A LARGER SYSTEM........
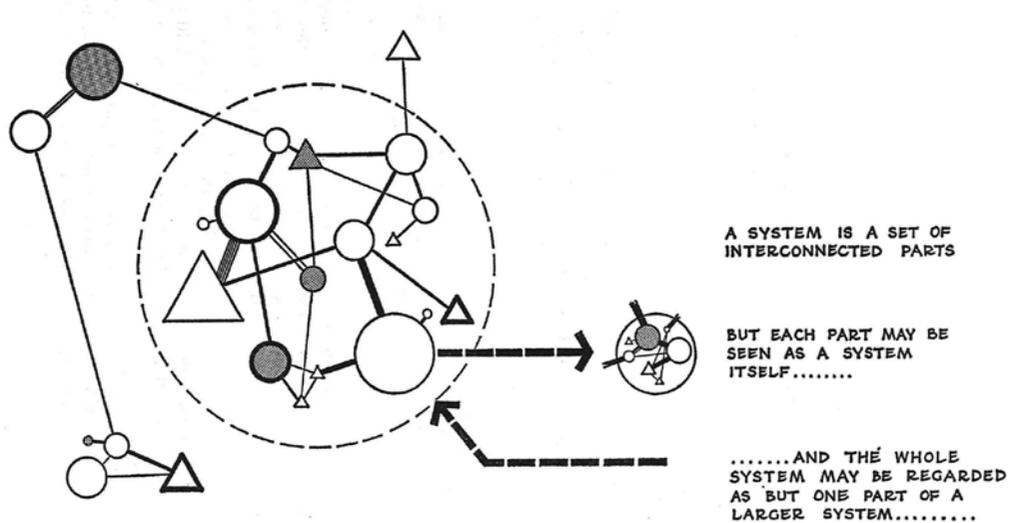
Figure 2.22
The diagram of a system Source: McLoughlin, 1969

A complex system usually contains sets of sub-systems, and it might well be a part of a bigger system (Beer, 1959) (figure 2.16). The effects of a decision or action by an individual actor, no matter how small, affect something else directly or indirectly. In a complex system, a myriad of actions are carried out everywhere at the same time. Their repercussions intertwine and interact over and over again. The complexity is out of the scope of prediction and control. However, the traditional planning methods, which usually made a large number of rigid decisions and scheduled course of actions for a city for a stride of ten to twenty years, failed to allow rooms for interactions, feedback and changes. The other actors in the system were also not fully involved in the relationship. The static and arbitrary action is doomed to hinder the dynamics and the liveliness of the whole system.

Plans for changes, cities for people: systems approach, communicative rationality and citizen participation

Systems approach

In his article "Comparison of Current Planning Theories: Counterparts and Contradictions" (1979), Barclay Hudson made a five-part classification of American planning paradigms, covering Synoptic, Incremental, Transactive, Advocacy and Radical schools of planning thoughts. They were collectively called SITAR by the author by putting together the first letter of each paradigm. The last four theories are countervailing theories that "attempted to fill specific deficiencies in the synoptic tradition" (ibid).

Incremental planning approaches were suggested by Charles Lindblom in 1959. He describes it as "partisan mutual adjustment" or "disjointed incrementalism". He contends that planning goals and decisions are better realized through decentralizing bargaining processes to the established, autonomous working organizations in a free market or democratic political economy system. Incremental planning approaches complement the traditional rational comprehensive planning in the way that it advocates different parties involved in a project freely and fully playing their roles. It also advocates the spontaneous interactions among them so that the means and ends can be promptly adjusted to changes and conflicts during the process of plan-making and implementation. Incremental planning does not deny the usefulness of central planning control, rather, it emphasizes a more realistic, flexible and effective way of reaching planning goals, by giving freedom and power to the responsible institutes.

On the other hand, like what happens in any complex system, certain seemingly chaotic and emergent events may occur at macro level out of the dynamic interactions following the individual logics at micro levels. Lindblom calls it "the science of muddling through" (ibid). It becomes improbable and unnecessary for central planning to control the detailed processes and interactions. However, it is necessary for the central authority to have a grip on the main development direction, and the major changes of the means and ends. Therefore, many discussions have been devoted to establishing a more adaptive, responsive, open and encompassing central (top-down) planning method.
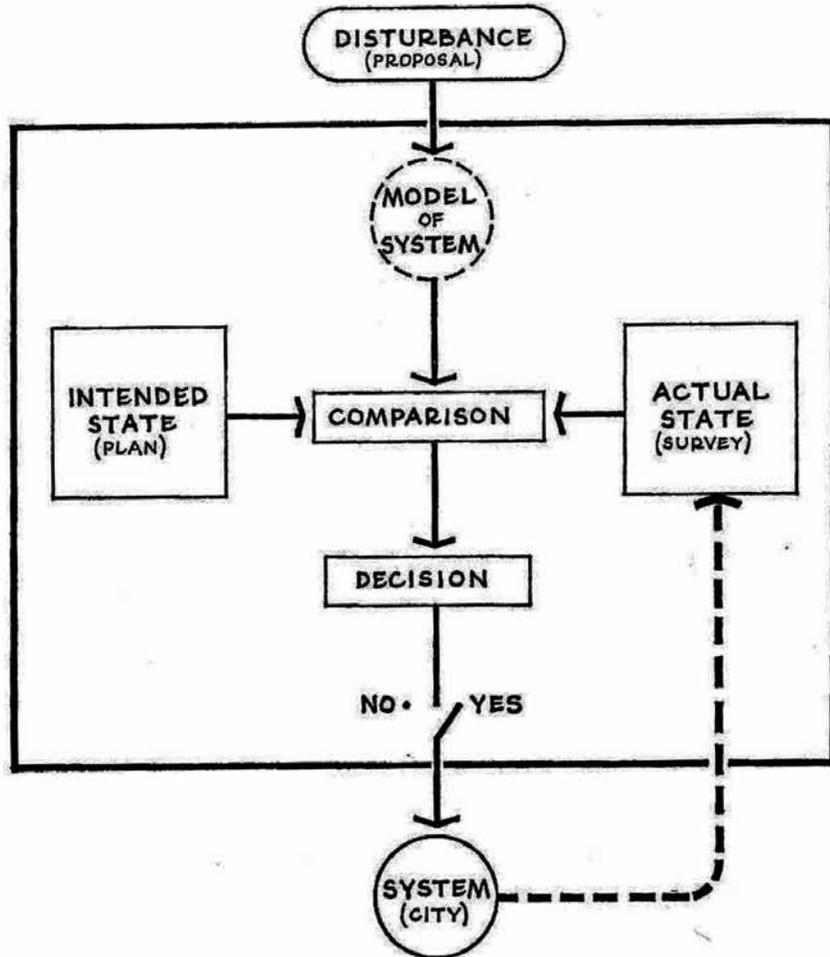
Figure 2.23
Control of Changes. Source: McLoughlin, 1969

Studies aiming to cope with the complexity of human society and built-environment from a systems view started to emerge in the 1950s and 1960s. The new and fashionable planning goals during that time included incorporating changes and flexibility into plans (McLoughlin, 1969, p.118). First, theories on decision and control are pertinent to facilitate planning activity. From a systems view, decision theories (e.g. von Neumann & Morgenstern, 1944; Beer, 1966) take into account the random aspects of human interactions, and develop new understandings of economic behavior and system management based on the notions of gaming, probability, sub-optimal decisions and sequential decision chains using modelling and simulation as means (McLoughlin, 1969, p.65). Cybernetics is the study of control and communication in the animal and the machine (Wiener, 1948). The essential goal of cybernetics is to understand and define the functions and processes of systems that have goals and that participate in circular, causal chains that move from action to sensing to comparison with desired goals, and again to action (wikipedia). From a cybernetic perspective, the action by the system causes certain changes to its environment, and that change is feedback into the system, which causes the system to adapt to these new conditions (figure 2.17). Cybernetics offers a control tool to monitor system changes, so as to respond with proper adaptations and evolutions.

Applying cybernetic principles to urban planning, one of the most important modifications to the synoptic approach is the add-in of the step of integrating feedback to the system and making the planning process cyclic. The first few steps remain to be defining goals, possible courses of actions, and evaluating these possibilities by measuring if goals are reached by means at a reasonable ratio of costs and benefits. In fact, formulating the problem statement constitutes a substantial part of master planning. The generation of the list of possible courses of action relies on the creative work of planners. The choosing of the (sub)optimal option is a matter of negotiation and decision-making based on available information. Building simulation models (Harris, 1965) and (role-playing) gaming are considered effective ways of experimenting with the range of possibilities, so as to determine the most desirable plan. It is unrealistic to experiment with the actual situations in cities. After planning actions are taken, the systems approach emphasizes the constant review of the results against initial goals and objectives. It is believed that actions (planning interventions) bring changes and modifications to the system, to the relation between individuals and the environment, and the situation of individuals or groups. Therefore, after a period of actions, goals may need to be adjusted and a new cycle starts again.

Another important feature of the systems approach is the emphasis of a dynamic plan instead of a static plan. The generation of a plan starts with analyzing the present situation, but is also desired to directing the possible changes of public policies, socio-economic background and others. McLoughlin suggests that the basic form of a dynamic plan should be statements constituting diagrams, statistics and written texts

describing how the city should evolve in a series of equal steps (McLoughlin, 1969, p.83). These statements are analogous to the frames of films. The display of frames in time sequences shows a process of change that the city is planned to undergo. In his article "The New Frontier in Metropolitan Planning", Mitchell (1961) proposes the time-oriented planning process. A plan should be continuous and expressed in short-range and long-range programs of action (figure 2.18). The phasing of the implementation process and provision of the anticipated phased results are useful tools for carrying out regular monitors and reviews of the planning trajectory and applying controls to maintain the variations of the system objectives within allowable limits (Johnson, Kast and Rosenzweig, 1963).
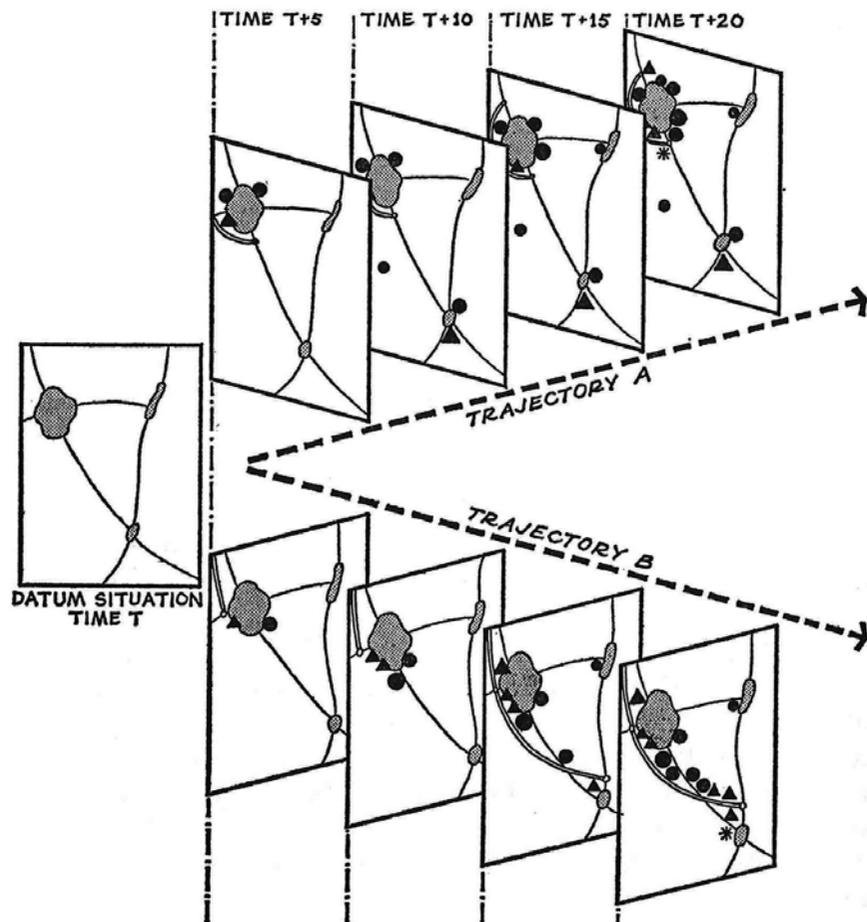

Figure 2.24
Time-oriented trajectory planning approach. Source: McLoughlin, 1969

The concept of strategic planning offers modification to the traditional planning rationality in terms of the plan itself. Means and ends remain to be essential elements in a plan. This strategy is distinct in that the end results to be achieved are shifted from quantitative figures to primarily qualitative visions. The course of action is a framework and an outline guiding the directions and destinations, which is not a step-by- step roadmap. Instead, these plans reserve room for multitudinous pathways and means, and possibilities for the involvement of diverse participants. Strategic planning contains a series of simple rules (which are usually rules considered beneficial to the society and environment as a whole), and allows great design flexibility at subsequent scale levels. The goal of strategic planning is to make the plans more realizable, which is considered an important quality of a successful plan (Needham, 1997, p.278).

Communicative rationality
....

Transactive planning and Advocacy planning approaches are more focused on the communication between planners, authorities and people. Transactive planning, which was introduced by John Friedmann in 1973, views the decentralization of planning institutes and empowerment of people in the social process as an evolution of planning enabled by social actions. It emphasizes the interpersonal dialogues with people affected by decisions, and the benefit of mutual learning during communication. Both aim to decentralize planning and involve a multitude of actors. Incremental planning adheres to the functional objectives, and the pursuit of self-interest of individual institutes and agents, while transactive planning underlines care for the values, opinions and feelings of people.

Advocacy planning was proposed by Paul Darvindoff in 1965. He believed that a democratic process of truth searching should be carried out in the same manner as in law (Darvindoff, 1965, p.280). This school of planning thought has pushed the formulation of social policy from backroom negotiations out into the open (Hudson 1979, p.390). In this way, alternative options of the plan, the benefits of the weaker groups and unintended environmental, social and economic side effects of the decisions are able to be disclosed and debated. Planning is therefore shifted away from value-free and neutral-objectives in viewing social problems. According to Hudson, more explicit, normative principles of social justice were brought about by the advocacy movement (ibid).

In search of democracy in planning, philosopher-sociologist Jugen Habermas's Theory of Communicative Action (1981) is influential. Habermas believes that communicative rationality as a human capacity is inherent within language, especially argumentation. Communicative rationality is distinct from other types of rationalities (i.e. instrumental, normative), by its ability to concern the subjective, objective and inter-

subjective (or social) worlds. Argumentation is used as term "for that type of speech in which participants thematize contested validity claims and attempt to vindicate or criticize them through argumentation" (Habermas, 1984, p.18). Communication actions refer to the cooperative collective act of interacting individuals in search of mutual understanding, mutual learning and self-reflection. To Flyvbjerg, Habermas' theory set forth a normative model of freedom from domination, increasing democracy and hence a well-established civil society. Concerns with this ideal are mainly focused on the probable inequality, in terms of power, among the participants in the dialogue. According to Michel Foucault, power is intrinsic to communication (Flyvbjerg, 1998, p.192). He argues that power produces knowledge, and knowledge produces power. The major concern of the theory of politics should focus on the executives of power.

Many discussions are centered on integrating communicative rationality into planning actions. Tore Sager points out that instrumental rationality is product or goal-oriented, while communicative rationality is process-oriented (Sager, 1994). Language is used to express propositional truths, normative values and subjective self-expressions. Some scholars consider planning as thoroughly a rhetorical activity (e.g. Throgmorton). It is argued that the particular language describing data and results derived from scientific research, such as surveys and mathematical models or the way messages are delivered, has great influence on people's decision-making. Planning is indeed an art of reasoning. The notions of planning as a rhetorical process or communicative action are largely overlapping. However, the former emphasizes the skill of communication and persuasion, while the latter concerns dealing with conflicts and reaching mutual understanding by argumentation. To John Foresters and many others, the accessibility of knowledge, information and truth is crucial in the communicative planning process. Information is viewed as a source of political power and basis for action. Forester claims that the more actors involved in the process, the more miss-information occurs in terms of manipulation and lack of consciousness (Foresters, 1989, p.53). Sager argues that undistorted communications do not exist. Herbert Simon uses "bounded rationality" to describe that rational choices are embedded in the limitations of knowledge acquisition and cognition capacity (Pinilla, 2008, p.25). Therefore, communication and dialogue should be steered to reveal true knowledge and avoid major information distortion.

Citizen participation

Radical planning stands for the last part in Hudson's SITAR. One stream is associated with spontaneous activism, which stresses the importance of personal growth, cooperative spirit and freedom from manipulation by anonymous forces (Hudson 1979, p. 390). Especially concerning the everyday life of local communities, the aim of radical planning is to minimize the intervention from the authorities and maximize

the participation of people in controlling their own living environment. In the same vein, Juval Portugali proposes "self-organized cities", based on the theory of Synergetics generalized by physicist Hermann Haken. The main principle of Synergetics, which is considered to be applicable to systems of many disciplines (e.g. physics, chemistry, sociology, biology, etc.), states that the self-organization of elements in an open system on microscopic scale determines the order and stable mode on the macroscopic scale. Portugali contends that cities should be the result of parallel distributed planning actions, where aggregated values of individuals, firms, planning teams, etc. shape the urban form (Portugali, 2000). This school of thought corresponds with the top rung of Sherry R. Arnstein's ladder of citizen participation (figure 2.19), which is Citizen Control. Under this condition, local residents or participants have the (absolute) power "to govern a problem or an institution, be in full charge of policy and managerial aspects, and be able to negotiate the conditions under which "outsiders" may change them" (Arnstein 1969). People form their own neighborhood corporation with no external managerial forces and having a sufficient source of funds to support its functioning. Another real form of self-governance is that the dominated residence groups have delegated power from the authority to carry out their collective wills. Such examples include signing subcontracts to plan and operate decentralized neighborhood programs. People obtain the majority of decision-making seats. Another example is when they are given the power to make their own strategies and policies, to hire designers, advisors and building contractors, and the right to buy and lease (ibid).

The role of power plays a pivotal role in Arnstein's ladder. She criticized two types of fake participations, in which the real aim is to manipulate people into conceding for the convenience of the power-holders (i.e. authorities, developers and planners). Her critical account on the power distribution based on actual development cases (e.g. Model Cities in the U.S.) allows reflections on the imbalance situations that could happen in the various theoretically formulated communicative planning processes. Rhetorical or Transactive planning that generates actions of informing, presenting, reasoning and persuading from single sides does not really allow people to have the opportunities to influence the decisions for their own benefit. Communicative and advocacy planning approaches are capable of getting opinions and suggestions from people through argumentation, debate, dialogue or survey. However, this it is not real participation (but tokenism according to Arnstein) if there is no follow-through or feedback from the powerful. Only when decision-making power is delegated to grassroots people by allowing either partnership or autonomous self-organization, are there real experiments and practice of social democracy in urban planning.
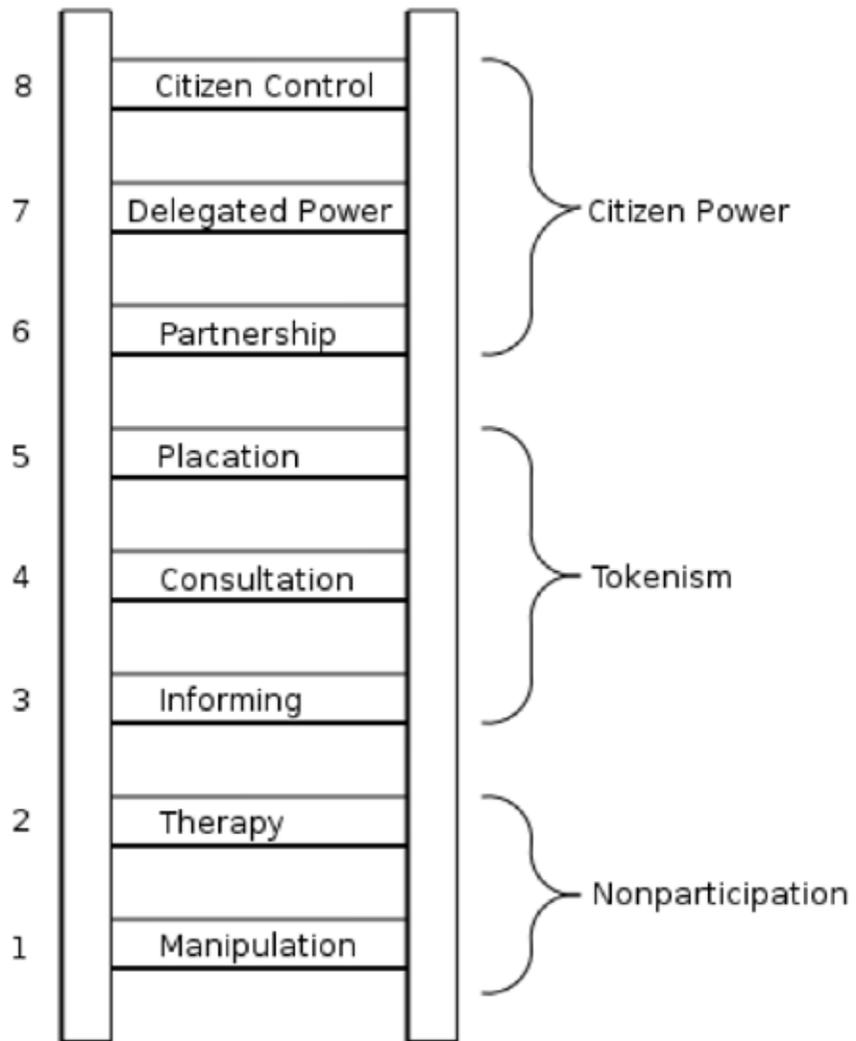
Figure 2.25
Eight rungs on the ladder of citizen participation. Source: Arnstein, 1969

§ 2.4.5   Conclusion: relevance to new town planning and governance

In conclusion, this section gives a concise review of planning theories, and their resultant evolutions, under the changed socio-economic circumstances. In the 1960s and the 1970s, there was a growing awareness and consensus among planning professionals, sociologists and philosophers that the ways of planning and implementation needed to shift from rational-comprehensive, instrumental, quantitative data-based, central control and blueprint to strategic, adaptive, flexible, decentralized, participatory, communicative and quality-oriented. Such a shift is vitally important to a planner's capability of coping with the growing complexity and uncertainty of built environments, as well as the promotion of social justice, democracy and integration in the postmodern pluralistic societies. A key principle is the real involvement of people and organizations. This allows them to gain true information, have their opinions heard through communication and debate, and ultimately apply decision-making power adequately, in order to contribute to the group and public interest as a whole. This planning theory review is meant to serve as background knowledge for studying the processes of new town planning and realization of the two chosen cases in this thesis. The specific contexts are in different stages of their development. This can be reflected and compared with the general background of time. Once this is clarified, the results of the specific planning approaches and their influence on social and urban vitality are able to be investigated. Currently, the two new town cases are both in their critical transformation period. The top-down, centrally controlled case is an experiment with more flexible, organic and participatory development methods, while the spontaneous and market-driven new town exerts more effective planning control and urban governance. It could be fruitful for the planners and decision-makers of these new towns to draw references from the aforementioned planning approaches and rationalities in political, managerial and social terms.

Urban Vitality in Dutch and Chinese New Towns

3 Case Study Methodology

The design of specific case study methodologies is an indispensable part of this research project. The focus of this chapter is on explaining why case studies are used as the primary research method, clarifying what criteria are adopted for selecting individual cases, defining the sources of the empirical data that are analyzed, and describing the main analytical tools that are applied to each case study. The two cases that are developed in this research project have been determined to be suitable case studies because of the comparability of their distinct development methods, spatial planning, and urban governance. Their distinct qualities have led to contrasting town characteristics and problems with regard to the quality of local urban life. A synoptic overview of the different features is provided in this chapter. A rich collection of social and spatial data is derived first-hand through field research and surveys. The analytical results and assumptions identified in the planning documents and maps can be effectively evaluated and adjusted according to the overlapping results of the data from different sources. Space syntax analysis is one of the most important tools applied in this research project for the study of urban network structures and patterns of activities. It is necessary to explain the basic techniques of space syntax analysis in order to clarify the research method for readers who are not familiar with space syntax theory. Furthermore, principles and experiences from the design and practice of social surveys are also summarized.

§ 3.1 The criteria of case selection: comparability

The primary research method of this research project is a comparative case study methodology. According to Robert Yin's Case Study Research, case studies are different from survey and history studies in the way that they are used to systematically investigate the complex causes and effects of a contemporary set of events, and to understand why a decision or a set of decisions are made, how they are implemented and what the results are (Yin, 2003, p.12). There are two types of case studies: exploratory and explanatory / descriptive. The latter is used for this research project.

The main criterion for selecting study cases is to ensure that the planners or decision-makers of the new towns can learn from comparing the different experiences of developing urban vitality, and identifying the specific factors and conditions that have positive or negative contributions to the urban life of the individual new towns. The influential factors for urban vitality can be organized into the following three

general categories: the spatial planning and design, urban development method and urban governance approach. These categories correspond with the main hypothesis of the thesis: the People-Place-Program triangular correlations. It is important for the selected case studies to have varying characteristics in these three categories. The urban development method refers to how the growing process of a new town is organized, how the plans are created and implemented, and who the main power-holders, decision-makers and participants are. Spatial planning and design focuses on the spatial configuration and composition of different scale levels of a new town, which result from particular socio-economic and cultural contexts, planning concepts as well as development methods. The discussion of urban governance approaches mainly includes the public provision and services, the animation of social, cultural activities and citizen participation.

The two major cases chosen in this research project are comparable not in the sense of their similarity, but rather in the ways their characteristics and values contrast and potentially complement each other. The new town Almere, near Amsterdam in the Netherlands, is featured as a cohesively top-down planned, centrally-controlled development. Its construction has started since the middle of the 1970s. The new town of Tongzhou, near Beijing in China, is mainly characterized as a spontaneous, market-driven development. It was first assigned as a satellite town in the middle of the 1950s, but the accelerated growth has commenced since the 1990s. The spatial organization of Almere is designed as a tree-like structure, with inward-looking neighborhood units hanging on the branch roads, while Tongzhou can be recognized as a compact open city, with a grid and radial knitted network structure, with outward-looking gated communities incorporated as development units. The local government of Almere is dedicated to providing public facilities and services to the local community, and organizing various social cultural programs. In contrast, the community in Tongzhou typically self-organize collective group activities, and have opportunities and motivation to develop successful small businesses. Generally speaking, Almere and Tongzhou are respectively the "planned" and "unplanned" development models. The future development strategies of the local governments of these two new towns are both planning to incorporate some of the characteristics of the other contrasting model. Thus, they can function as useful references for each other.

§ 3.2 Data acquisition

The data collection and analysis topics and methods are linked with the defined research questions and theoretical propositions (hypotheses). For each new town case, a similar set of data are selected in order to make them comparable. The research

categories consist of city development methods and processes, spatial structures and design on the city and neighborhood scales, measurement of daily activity patterns, public opinions on urban vitality, and recent planning trends. The data sources used in this research project include planning documents, literature, government statistics, direct observation and participation in the field, face-to-face interviews, and online surveys. Therefore, this research contains large amounts of first-hand information, as well as a contextual review of the historical background for the new town development.

The methodology of individual case studies is the overlapping of morphological analyses from the top-down desk research with the observation and analysis of the actual situation of urban life activities from the bottom-up field study. The multi-scalar spatial analyses mainly deal with the mapping of functional compositions, street networks by the Space Syntax method, the distribution of planned social, cultural and recreational programs and the organized events, and the design of public space. In the case of Dutch cities where information is well archived, organized and made public, information on the planning and development of Almere from literatures, spatial plans and designs of different periods of time from city archives and municipal website are readily available. In addition, the types and locations of most private organizations of various scales (such as hobby clubs, culture facilities, community services, etc.) are available from city guides (Gemeentegids) and the Yellow pages. In the case of the Chinese new town Tongzhou, there were limited town planning activities in the past, as the town has mainly developed in a spontaneous way. Furthermore, these documents are not available to the public. The town seems to lack systematic documentation and research on its urban development in the past several decades. The primary source of the research for this new town is the planning and research documents of the latest Tongzhou master plan. They were obtained by visiting the officials of the Tongzhou planning department, and explaining the pure academic purpose of this research. In both cases, the in-depth interview with officials from the planning departments was a useful method to identify the real problems and concerns at the moment, as well as to learn about the official plan on how to deal with them.

The field studies contain static snapshots of activities and flows of human beings in selected neighborhoods and urban districts, registration of planned and unplanned small-scale businesses, and the mapping of space appropriation and self-organized activities. The overlap of these data layers allows a clear view on how different spatial forms, planning and urban governance methods affect urban life patterns. Finally, the interpretations and insights derived from empirical studies of this research are evaluated with the opinions of the general public, which were collected by conducting in-depth interviews and online questionnaire surveys with local citizens and shop owners. The public opinions help make the planning and design suggestions of this research more objective and far-reaching.

Analytical tools

Space syntax analysis

The main research aim of this thesis is to identify spatial and non-spatial factors that influence the development of urban vitality. As defined in the chapter 2 theory and literature review, urban vitality in this research is to be quantitatively measured in terms of the distribution and aggregation of people and activities in the public domain of new towns. Space syntax techniques are selected as a valid analytical tool because they evaluate the effects of space on people, how people cognize space, and how space and society are interlinked (Hillier, 2011). The essence of space syntax theory is that the spatial configuration of street networks shapes the collective movement flows of the area, and thus the people's co-presence. According to Hillier, this is what space does, and all it does, and everything else space does is based on this basic relation (ibid). This means that the correlation between the spatial configuration and the distribution pattern of certain urban functions, especially spontaneous micro-economic activities, works through the fact that such programs tend to locate themselves in places where a considerable amount of people aggregate or move throughout.

The configurative property is considered the extrinsic property of space. It emphasizes how each space (streets, public spaces, building interiors, visual points, etc.) relates to the other spaces in a given system. According to the study of ancient human settlements and organic cities, cities and street configurations were formed by the step by step addition of individual buildings and urban blocks. The spatial law behind the collective activity is the allocentric, as well as egocentric, behavior of the individuals (Hillier, 2011; Pen, 2003). In other words, each actor makes a spatial decision by interpreting and finding spatial relations with other elements in the surroundings, as well as from their own point of view. Space syntax theory is used to quantitatively explain the interrelations of spaces in a system by the syntactic languages and visualization techniques.
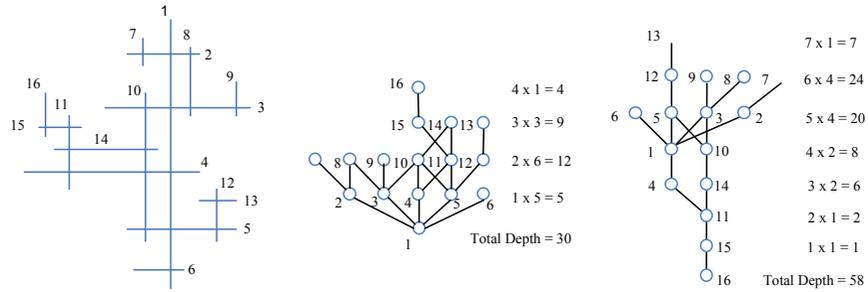
Node-link diagram of a fraction of a street network. The left one shows the relation from central node 1 to all the others, the right one shows the steps from the peripheral node 16 to all the others. The total depth of node 1 is counted 30, while that of node 16 is 58.

As explained in the theory chapter, the key notion of space syntax analysis is the integration value and the intelligibility of individual spaces, as well as the overall system. These two notions are closely related to the concept of connectivity and accessibility, but with extended meaning and emphasis on the extrinsic properties of the space and the interrelations (accessibility) between the spatial elements. The space syntax analysis method regenerates street networks into metric-free and form-free axial lines intersecting with one another. Each of the axial lines is thought of as a node, and each intersection between lines is a link between nodes. In this way, the spatial relation of each street can be represented in a node-link diagram (i.e. justified-graph by Hillier and Hanson). The example diagram shows a fraction of street networks containing sixteen branches (figure 3.1). We first pick line one, the central long line, as the starting node (i.e. root) of the diagram, and align the other nodes in layers above it according to the number of direction changes (turns or steps) needed to get to that node (axial line) from the root. Each node at the first level above the root is given a depth-value of one, which means reaching them requires making one turn at the intersection point. In this vein, the nodes at the second level have a depth-value of two and so on until all nodes are counted. The total number of turns needed from this axial line to reach all the other lines in the system is the total depth value – the integration value of this axial line. If line sixteen is selected as the root, more layers and more turns are needed to reach all the other lines. The total depth value of line sixteen is fifty eight.

From this simple topological analysis, it can be seen that different lines (streets) have different interrelations with all the others in the system. This can be described and illustrated by the Space syntax analysis. Line one in the example is defined as shallow, because fewer steps or turns are required to get to the rest. Therefore, it is called integrated in syntax language. Conversely, this means that it is easier for people from

all the other lines to get to this main line. On the contrary, line sixteen is deep, because it is far from other lines on average. Thus, it is considered segregated. The calculation of integration values is in fact the mathematical measure of closeness (Hillier, 2011). However, in order to make systems with a different number of lines comparable, the total depth value is normalized (by the method described in Hillier & Hanson 1984, chapter3), in order to remove the effect of the number of lines on the measure:

Normalization of integration value: $Global\ integration\ value\ =\ \frac{1}{RRA}$. RRA is real relative asymmetry: $RRA = \frac{RA}{Dk}$. Dk is a kind of variable called diamond value, dependent on the total number of spaces In a system (Hillier & Hanson, 1984, p 112). RA is real asymmetry: $RA = \frac{2(MD-1)}{k-2}$. k is the number of spaces in a system. MD is the mean depth of a particular space: $MD = \frac{\sum_k n}{k-1}$. $\sum_k n$ is the total depth from a particular space (n) to all the others in a system.

The integration value of a whole system is the mean of the integration values of its constituent components. With regard to the relation between the connectivity and integration value, the more a particular line has other lines directly connected to it (one-step), the more likely it is spatially integrated. However, its total depth also depends on how lines are linked and configured after the first step.

Based on these principles, several computer programs for syntax analysis have been developed. This research mainly uses DepthMap, which was developed by Alasdair Turner from UCL. DepthMap can not only make topological calculations (fewest turns), but also geometric (least angle) and metric analysis (shortest length) on both global and local scales. Empirical studies have shown that the geometric (angular) analysis usually identifies the closest correlation with the observed movement of flows in actual urban environments. According to Turner, angular analysis is essentially an extension of visibility graph analysis (VGA) and axial (topological) analysis. It is advantageous because it can add different weights (depth-values) to different angles of direction changes at intersections. The axial analysis counts a turn from one line to another one step with a depth-value of one, regardless of the actual angles of turning. In DepthMap calculations, a turn of 45 degrees is given a value of 0.5 (for example), 90 degrees a value of 1, 180 degrees of 2 and so forth. Unlike axial analysis, the curviness of a continuous line is ignored (considered no direction change). A junction is counted only when three or more lines intersect, which represents real road intersections. In this way, the fewer angles one needs to turn from one street to all the others, the lower the total depth value, and the more integrated this street is in the system. In the program, a range of colors (either from red to blue, or grayscale) are assigned to quantitative values, so that the spatial configuration of the street network in terms of the degree of integration can be understood at a glance.

The emphasis on the specification of angle changes over the simple action of making a turn at intersections stems from the study of human spatial cognition. Visibility is the essential for people to be able to orient themselves in different environments. The inter-visibility from all points to all others in a convex space enclosed by boundaries such as walls, buildings, plantations and street furniture play an important role. According to Turner's visibility graph analysis (VGA), different standing points in space have different visual integration values. These values represent how difficult it is to see all the other visual points in the convex space from a specific standing point. The same calculation can be made for the sight lines radiating from the standing point. A person's angular relation to space affects their movements. The research by Dalton from UCL demonstrated that people tend to conserve their linearity through their routes, with minimal angular deviations (Van Nes, 2008, p.43), thereby maintaining a long, continuous linear direction. By changing directions, people tend to choose orthogonal turns (90 degree). Hillier's study on the formation of organic cities reveals that in the aggregate process, individual buildings avoid visually obstructing each other, in order to reserve space for long, continuous streets. The spatial configuration of the network exhibits the similarity of linearity: there are always several long straight main roads in the system, combined with a large number of shorter lines. As Kevin Lynch points out, a degree of clarity in paths make people feel safe and comfortable. Long and continuous lines play very important roles in bringing clarity. In addition, too many short lines, turns, and view obstructions make the network a disorienting labyrinth.

Based on these guiding principles, this research uses the most comprehensive and reliable method available: the combination of angular and topological analysis on the street networks of two new towns (figure 3.2). The use of the DepthMap program, allows the calculation of the integration values within the radius of certain metric units, rather than the former unit-free method of using the number of steps (turns) as the radius value. Using this method, this research analyzes the network configuration at different scale levels to determine the degree of integration within the region, the city, urban districts, neighborhoods, urban blocks and even open public spaces.

Figure 3.2
Space syntax analyses of Amsterdam, Almere, Beijing and Tongzhou, showing different network configureations

Morphological study

The configurative study of street networks is just one possible way of explaining the behavior pattern of human beings in built environments. Space syntax is mainly a theory of configuration-determinism of spatial behavior of people as well as micro-scale business. Other factors, such as land use pattern, the distribution of attractors, the layout of public open spaces, as well as the quality of urban landscapes, are identified in this research as being affective to people's movement and aggregation in space. Thus, this research project incorporates the morphological study of the spatial composition of new towns of various scales. The analysis of city scale structural elements mainly employs a layer approach, singling out the networks of infrastructure, public transport, green and water, land uses and public facilities, etc. The first step is to examine if the points of attractors are located in spatially integrated places through planning or self-organization. Then, the mapping of spatial patterns, layouts and configurations can be overlapped with the observed movement of flows and use of space in the actual urban environment, with the aim to determine the factors that influence the spatial behaviors and their interrelations.

§ 3.3.3 **Static snapshots and registration of emergent spatial phenomena: small business and spatial appropriation**

In order to register the actual use of space, the static snapshot method, on a manageable scale of neighborhoods, is adopted. This method allows the observer to register all the people he/she encounters in one static moment when walking around a given area within a period of time. When a round of registration is finished, a map of the collage of people's presence and activities in the time span can be generated. Then, the next round of registration follows the same route of the previous round. The number of iterations needed depends on the size of the research area, the desired time period, as well as the walking pace of the observer. Seasons affect the activity levels of people. In order to make the data comparable, the snapshots for different chosen areas should be conducted in similar weather conditions. Weekdays and weekends also have very distinguished activity patterns. When making snapshots, people are categorized by gender and age. Both pedestrians and cyclists are counted. However, the actions of the people are not classified, whether they are standing, sitting, walking, talking, playing games, selling things, etc. This kind of information will be described in texts for each area or neighborhood studied.

The results of this research include the quantitative illustration of the daily life patterns of that particular area or neighborhood in both map and chart form. The static snapshots method is most useful for noting the pattern of density, rather than for precise recording of numbers or movement rates. The graphs can show the rhythm of the ebb and flow of people's presence in public space, streets and shopping areas, as well as the characterized activity time and preferred spaces of women, men, the elderly, teenagers and young children. This empirical evidence gives useful feedbacks to designers, by indicating which space is well or under-used. Moreover, maps of snapshots can be overlapped with other analytical drawings, such as morphological studies of diverse open and public spaces, space syntax analysis of the street networks, mapping of social cultural programs, the distribution of key public facilities, and the registration of small businesses.

Most of the micro-economic activities and private organizations in the new towns are unplanned and self-emergent. The correlation between their spatial distribution and movement of flows, network configurations, as well as their pattern of centrality is essential to the study of urban vitality. Unlike public facilities, these emergent businesses and organizations are usually not (spatially) recorded in planning documents or city guides. In order to obtain a relatively complete picture of how they locate themselves in space, the researcher needs to generate the maps largely through field observations. Just like the snapshots method, the researcher walks around all the streets in a chosen area to register various shops, bars, clubs, private schools and so forth on the site. They can be visually identified by the exterior decorations and signs, which can sometimes be low-profile and unintelligible from a distance. Google maps is also a useful source for tracking small businesses. This program offers the possibility for business owners to spatially register themselves in order to be visible in the map. Google street view even allows researchers to obtain spatial information without going out to the field. However, the information on Google maps is subject to time delay. It cannot promptly reflect the latest spatial changes due to its updating frequency. The status of small businesses is also capricious: there are constantly old ones shutting down and new ones opening. The information on the internet is, however, not updated in a timely manner. Therefore, a reliable mapping of the emergent businesses and organizations can be made by comparing the field data with the information obtained from the internet.

Finally, spatial appropriation by citizens is also an important emergent phenomenon to consider for both planned and spontaneous cities. The registration of such phenomena can be performed during the process of static snapshots and small businesses mapping. Traces of spatial appropriation identified include the personalized use of semi-public and public space, wall paintings, unexpected footpaths, and even surveillance devices and warning signs.

Surveys: in-depth interview and online questionnaire

Survey research is one of the most important areas of measurement in applied social research. This research is carried out both through in-depth interviews and online questionnaires to citizens, shop owners and city officials of both new towns. In the case of Almere, in-depth interviews were given to a dozen of citizens. The interviews provided a deeper understanding of the issues that the researcher is interested in, and at the same time, they broaden the knowledge of the resources, serve as sources of inspiration, and help improve the questionnaire for the later online survey. Face-to-face interviews are far more personal, spontaneous and resource intensive than questionnaires. It is easier for respondents to understand the questions being asked, because the interviewer has the opportunity to explain them. However, interviews are very time consuming for both parties. However, these interviews require excessive amounts of time, because this type of interactions can lead to extended questions and answers. It is generally more difficult to find people who will agree to take interviews, but not impossible. In the case of Almere, citizens from a hobby group were successfully approached. Officials in the planning departments were invited via formal contacts. The interviews conducted with shop owners in both Tongzhou and Almere, and neighborhood committees in Tongzhou were made possible by door-to-door visits.

Using online questionnaire survey methodology for this research project is relatively new and experimental. The questionnaire was developed digitally on a webpage. A web link was then made available to provide people online access. Similar to a mail survey, the questionnaire can reach a large amount of people, if placed in a popular platform. In the case of Almere, the link was made public both via the official municipality website and the website of the city newspaper. A short introduction of the author and her research contents and purpose was published associated with the link, which made the survey more personal. In the case of Tongzhou, the link was posted on the main community website of the new town. The researcher developed a self-introduction on the online forum, and received support from the web administrators. The post and link were shown on the headlines of the front page for a short period of time, and obtained substantial publicity. In both cases, the questionnaire received a satisfactory number of responses (over 150 from Almere and over 200 from Tongzhou). The advantage of conducting an online survey is that it is convenient and efficient for both researchers and respondents. The digital format of the questionnaire reaches the citizens of new towns instantaneously, saving cost, energy and waiting time, when compared to traditional methods, such as by mail or by phone. The instantaneous responses from the participants required no extra effort, as opposed to other methods which require the participants to return the survey by mail or attend a meeting. Based on the feedback, the researcher is able to make prompt adjustments to the online questionnaire and not affect the overall consistency. These conveniences

might well lead to an increase in the response rate. However, the disadvantage is that the researcher has less control who (in terms of social groups, types of household, age, origins, etc.) will respond to the survey. The source of respondents is generally dependent on those who use internet, and who regularly visit the specific website where the link is posted.

Designing a questionnaire can be considered both a scientific and artistic work. When formulating the questions, the primary considerations include constructing questions that are focused on the core questions of the research project and lead to valid results. The researcher must also determine whether the wording of the questions are clear, too general, too complicated, repetitious, biased, or loaded, and if the respondents have enough information or knowledge to answer the questions accurately. When taking these guiding principles into account, it is clear that the questionnaires for this research should be concise and precise. The questions for this research project are oriented around issues concerning a town's urban vitality. Some of the analyzed performance indicators are the general satisfaction rate of the liveliness of the town, people's suggestions in spatial, social, cultural and managerial terms. Several background questions about the personal information of the respondents, such as location, age, city of origin, etc. were also included. Several important lessons were learned during the process with regard to conducting questionnaire survey methodology. For example, the researcher should avoid using ambiguous terminology in the questions, review the questions for common spelling and grammar mistakes, and make sure the questions are cohesive in language and style. In addition, the answers for the multi-option questions that attempt to cover every potential alternative need to be kept simple in structure and content, and always allow space for people to write additional answers.

4   Case Study of Almere

Almere is the largest and most successful new town in the Netherlands. The planning of the city started in the late 1960s and 1970s, and the new town has been growing for over 35 years. The primary ambition for the town was to create an untraditional city characterized as low density, one-family housing in a spacious, vegetated setting. The new town planning concept was derived from the Garden City model, and largely influenced by the socio-economic context of the country during the time when the initial plans were developed. Due to its favorable regional location, Almere greatly contributes to decentralizing the population from the overcrowded big cities and regions in the Randstad area, especially Amsterdam, Het Gooi as well as Utrecht. The development of Almere can be divided into three phases: national-driven from the 1960s to 1984; municipality-directed development from 1984 to 1995; and the theme of "scale leap" from 1995 up to now. Since 2007, the ambition of doubling Almere in terms of its population and employment by 2030 has become an important national strategy. As a new town starting from scratch, top-down planning has always been the primary factor in determining the shape and the nature of the city. However, in response to the changes of the socio-economic conditions in the past several decades, the urban planning approach and its role has evolved from being prescriptive and focusing on mass production to becoming flexible and generating diversity-oriented developments. The influence of special planning features of the new town of Almere on its urban vitality at different scale levels is the main topic under discussion in this chapter.

The contents of this chapter are divided into three general sections. Section 1 provides a background overview of the planning history and city development of the new town. It is important to identify the lessons that can be learned from analyzing the differences between the planning intentions and the actual development results. Section 2 analyses the spatial characteristics of the planned city, by looking at its structural elements, composition and distribution pattern of centralities and main public facilities, as well as neighborhood design. These factors have been found to significantly affect the local community's activity patterns. Special emphasis is placed on analyzing the changes in design over time. Several examples of traditional urban fabrics are also studied to make further comparisons with the new towns. The use of space, street life, spatial appropriation, as well as emerging bottom-up local economic activities are mapped and analyzed by means of field observations and snapshots. This approach is useful in identifying the relation between local activities and spatial configurations, and revealing spatial problems and potentials. The discussion about the latest planning actions demonstrates the top-down efforts of diversifying living environments, and empowering people with the aim of achieving real urbanity. Section 3 analyzes the public opinions on the current status of urban vitality to evaluate the effectiveness of spatial and non-spatial factors. Suggestions for spatial interventions on city and local scales are developed in the final conclusion.

§ 4.1.1 First plans of IJsselmeerpolders and new town Almere: 1960s-1984

The reclamation of IJsselmeerpolders is recognized as a grand national project in the Dutch urban history. The activity started in May 1919, led by a specially created authority – the Zuiderzee Project Department (Dienst der Zuiderzeewerken, or ZZW) – within the Minister of Transport and Water Management. The project was intended to provide new land for agricultural use and urbanization, as well as to collect fresh water by the new lake basin. The new water landscape would also generate new opportunities for public and private water recreation activities. The concept of the Garden City (1898) and the English new town movement had obvious influence on the Dutch professionals. In 1924, the international conference of the International Federation for Housing and Town Planning and Garden Cities was held in Amsterdam. By the 1920s, several garden villages (tuindorpen) had been built in Amsterdam and Rotterdam, but there was not yet an independent new town in the Netherlands. The issues of the feasibility and necessity of building Garden Cities in this country were discussed during the conference among the experts, including Ebenezer Howard and Raymond Unwin. Questions such as the difficulty in available land area and the relocation of job opportunities were raised, and most city council members believed that there was still enough space to build new neighborhoods within municipal boundaries at a considerably lower financial investment (Van Der Wal, 1997, p.41). As a result, the Garden city concept was not much implemented at this time in the Netherlands.

From the 1920s until the 1940s, Europe had an energy crisis, an economic recession, and was engaged in World War II. After World War II, a national housing shortage was a major issue in the Netherlands. The postwar reconstruction was tightly controlled by the national government by means of central budgeting and regulations. However, a common problem encountered in the Western Netherlands was "insufficient expansion possibilities for the cities" (Van der Cammen & de Klerk, 2003, p.116). The uncontrolled (sub)urban development threatened to overtake the countryside in and near the Randstad (Van der Wal, 1997, p.43). Finally in 1958, the cornerstone report that is in every document on the planning history of IJsselmeerpolders, the Development Scheme for the Western Part of the Country 1980 (Ontwikkelingsschema Westen des Lands 1980), was published. The authors of the report proposed controlled growth of the Randstad cities, in order to keep the central countryside open. This concept was later established as a national goal and was incorporated into the Dutch

planning doctrine in the first Report on National Spatial Planning (Nota inzake de Ruimtelijke Ordening, or so-called 1st Nota) (Faludi & van der Valk 1994). As a consequence of the Green Heart policy, the growth of the Randstad was directed outwards by the bundled decentralization model. Building new towns in the polders was considered a useful means to alleviate the great housing shortage. During the same time the national development strategies were being developed, the southern IJsselmeerpolders were being reclaimed (Wieringermeerpolder and Noordoostpolder had been done). The projects for eastern Flevoland started in 1950, and southern Flevoland in 1959.

Shortly after the first Nota, the official plan of the southern Flevoland – Een Structuurplan voor de Zuidelijke IJsselmeerpolders (1961) – was published by the Zuiderzee project department, in which methods to integrate the new land with the Randstad were discussed (figure 4.1). A finger model was proposed, and one of the fingers was stretching through the Flevoland polders (Brouwer, 1997, p.114). The urban areas of future new towns Lelystad and Almere were indicated. The planning goals of the second Nota (1966) were more optimistic, due to the flourishing economy and baby boom. The government advised that more attention should be paid to people's wish to live in single family houses in peaceful environments, with good accessibility to urban ambiance at the same time. Suburbanization was accepted and four types of spatial expansion units were categorized, the densities of which ranged from thirty to sixty houses per hectare (Brouwer, 1997, p.111). The second Nota suggested that a quarter to half million people would overspill to the southern IJsselmeerpolder. By 1967, the southern Flevoland polder had been pumped dry and was ready for cultivation. In 1969, the bridge between the old and the new land, the Hollandse Brug, was opened.

Under the euphoric socio-economic condition, the IJsselmeerpolders Development Authority (Rijksdienst voor de IJsselmeerpolders or RIJP), which was in charge of making the polders habitable, worked out the important report 'Explorations regarding the Development of the New City Almere' (Verkeningen omtrent de ontwikkeling van de nieuwe stad Almere in Flevoland) by early 1971. Two important starting points were proposed: the polynuclear structure of the new town and the location of the first urban nucleus on the side of Gooimeer (Brouwer, 1997, p.133). The planned population would be 125.000-250.000 in 20 years, and ninety percent of the housing in this new town was to be composed of single family houses. The Projectbureau Almere, which was chaired by the D.H. Frieling, published the report "Design of Almere-Haven" (Ontwerp Almere-Haven) in late 1973 (figure 4.2) and the report "Almere 1985" (Aanzet tot een ontwikkelingsstrategie 1970-1985-2000) in early 1974, in which both long-term goals and tasks to be finished in the first phase were elaborated. Special attention was paid in these reports on creating design flexibility for future uncertainties, opportunities for diverse social groups, and a sense of urbanity in the

new town. These planning strategies were also translated into spatial terms, in order to create differentiations in living environments, to integrate diverse functions and to mix urban and green characters under the polynuclear structure. Several alternative plans on how to position the first three urban nuclei were illustrated.

The planning and development of Almere began to accelerate. At the national level, the third Nota (1977) appointed Almere as one of the ten growth nodes. Several project groups were formed within the Projectbureau Almere: Almere-General, Almere-Haven, Almere-Stad and Almere-Buiten (D.H.Frieling, interview, 2009). They worked parallel on their own subjects, but the personnel were interchangeable. The construction of Almere-Haven already started in 1976. On the city scale, the structural plan for inter-nuclei landscape and outer open space (de Buitenruimte Almere) was worked out between 1976 and 1978 based on a model developed by T. Koolhaas (Van der Wal, 1997, p.239). The plan aimed to develop a physical structure and functions to the otherwise undefined territory, but keep it as an open plan that is capable of dealing with uncertainty of future urban nuclei. Also in 1978, the first (draft) structure plan of Almere was published where the main infrastructure and green network of the new town were more clearly defined (figure 4.3). The node pattern and size, urban density and the location of employments were the main variables in determining the spatial structure of the town. Social aims, such as maximizing the differentiation of the environment and the choices of housing, facilities, green and jobs, would also have important spatial impacts (RIJP, 1984, p.32). The final proposal contained one central node of 90.000 inhabitants, two nodes of 50.000, and three nodes of 20.000. The gross density (including urban and green area) was set to be 25 dwellings or 60 inhabitants per hectare on average, and the net density varied between 35 and 45 dwellings per hectare. The characters of the first three urban nuclei were differentiated. Almere-Stad would have more of an urban atmosphere with high quality facilities and concentrations of employment; Almere-Haven would be a small town/village by Gooimeer, which would have more water-related recreational activities and tourism; and Almere-Buiten would take advantage of being near the nature and the large industrial zone of De Vaart, and aimed for an even lower urban density than Stad and Haven. A nature education center and exhibition center was also planned to be located in this node. In 1983, a newer version of the structure plan appeared, in which the first three urban nodes were emphasized and the landscape plan was integrated.

Meanwhile, at the urban node level, the structure plan for Almere-Stad was made during 1976 and 1977 (figure 4.4). An axial growth model was chosen for the initial urban development, in order to connect the first node (Almere-Haven) to the southwest, and the first industrial area (De Vaart) to the northeast (Structuurplan Almere-Stad, p.54). The construction of the first neighborhood in Almere-Stad started in 1979. The structure plan of Almere-Buiten was prepared between 1977 and 1982 (figure 4.5). The RIJP faced a personnel capacity problem due to the large

amount of work (Van der Wal, 1997, p.235). However, they were devoted to ensure the formation of the polynuclear structure before handing over the jobs to the future municipality. Thus, the RIJP invited external design companies to facilitate the making of the structure plan, and the detailed plans of the first three neighborhoods. A rural living environment was intended for this node. However, the rules set up in the third Nota required the density of new housing districts to be 45 dwellings per hectare (Van der Wal, 1997, p.237). The overall density was altered from 35 to 40 dwellings per hectare (Structuurplan Almere-Buiten, p.153). Finally, the construction of the first neighborhood of Almere-Buiten began in 1983.

The world economy was hit again by the energy crisis in 1979. Since the beginning of 1980s, the national subsidy was drastically reduced and state-owned housing corporations began to privatize. Due to budgets cuts and pressure on finishing construction projects on time, the quality of first houses built in the early 1980s in Almere Stad was unsatisfactory (Canon van Almere, 2008). The ratio of social housing had decreased from 76 percent in the 1970s to 48 percent in 1980s. It went further down to less than 25 percent in the 1990s (Van der Wal, 1997, p.47). Owner-occupied houses became more in demand.
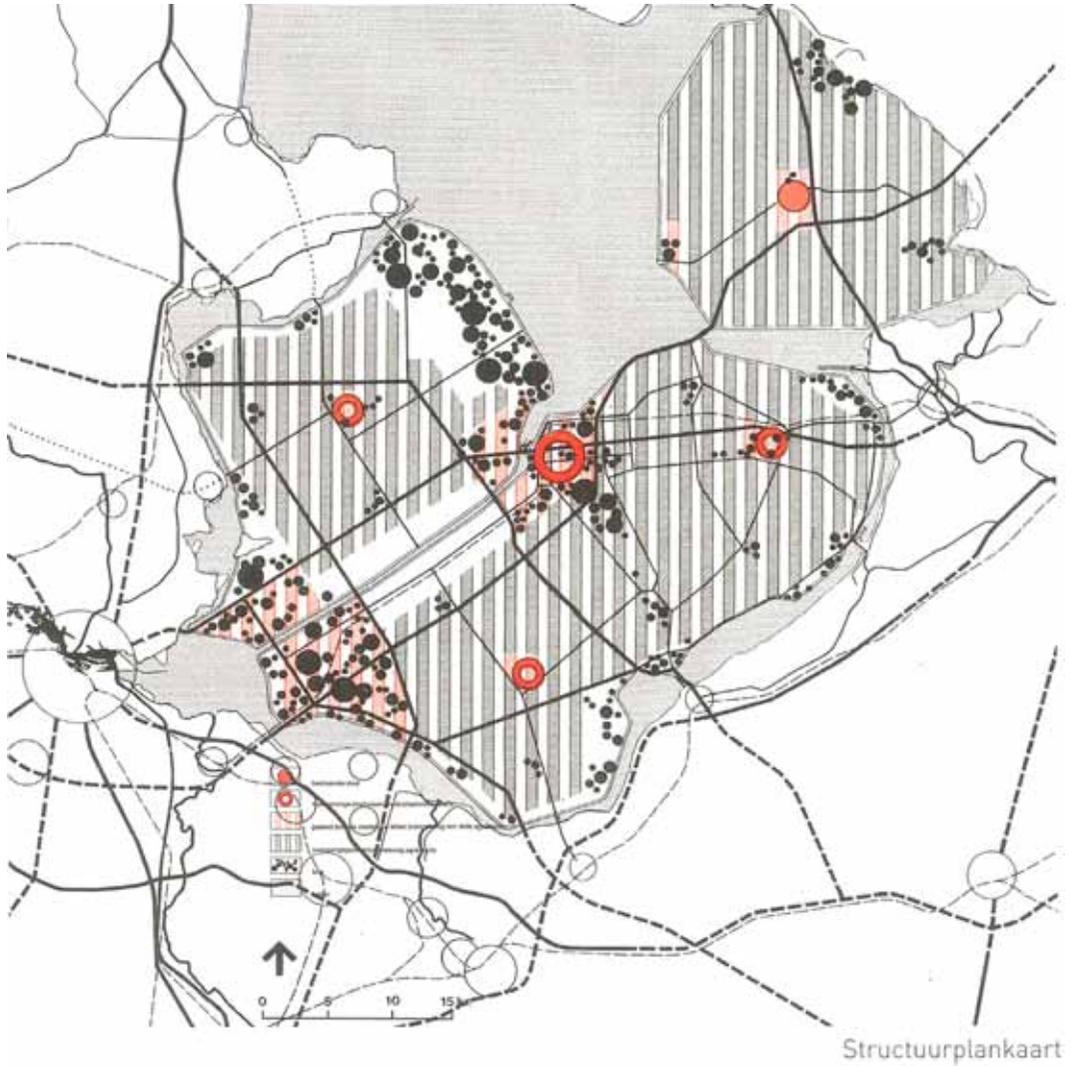
Figure 4.1
The structural plan for the southern IJsselmeerpolders, 1961. Source: Gemeente Archive

Figure 4.2
The structure plan of Almere-Haven, 1973

Figure 4.3
The structure plan of Almere, 1978
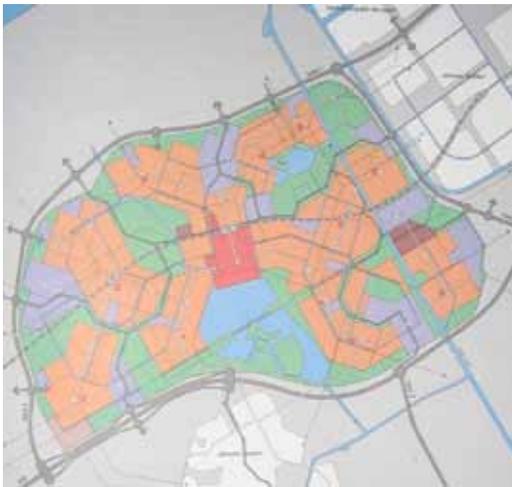
Figure 4.4
The structure plan of Almere-Stad, 1977

Figure 4.5
The structure plan of Almere-Buiten

The beginning of the municipality era: 1984-1995

The municipality of Almere was founded in 1984. The mayor at that time made sure that Almere as a whole became one entity, although it consisted of separate urban nodes. The responsibility of developments was moved from the national government to the local authority, but with a huge national program to subsidize the new town for the period from 1984 to 1994. Many RIJP employees were gradually transferred to serve the planning department in the municipality. The urban planning assistance from the national authority continued until 1987, after the train started operating between Amsterdam and Almere. The development strategy plan for Almere Oost and West was also worked out by 1987. A grid structure was proposed for the reserved area, for the sake of flexibility. Just as the case of Almere-Buiten, the plantation of trees started earlier than the urbanization. Since the structure of the city and the first three nodes were already settled, the construction, including the main infrastructure network, landscape as well as neighborhoods, was busily carried out in the 1980s and 1990s. During this period, public authorities worked closely with private parties.

The fourth Nota came out in 1988 with the main scheme of controlling urban sprawl. The concept of a compact city was adopted in order to reduce the distance between living, work and other activities. The density of new urban areas was requested to be sufficient to support good and varied facilities. Among others, the creation of a diversity of living environment (against monotony) was emphasized. In line with that, Almere held NWR BouwRai outdoor expositions in neighborhood Muziekwijk (1990) and Filmwijk (1992). Architectural design was used as a tool to improve the quality and diversity of the town. Flexibility and adaptability of floor plans (both rental and market housing) were key design considerations to accommodate changes in life styles. As the economy was gradually bouncing back, an additional document VINEX (Vierde Nota Ruimtelijke Ordening Extra, 1992) was published. The intention of this document was to give a spatial guide on the nation-wide urbanization locations, which were principally the places near an existing city and next to highways. Almere also tried to orient its development in accordance with the national trend. In 1995, the Spatial Development Strategy Almere 2015 (ROSA) discussed the possibility of accommodating VINEX projects in Almere Buiten and Almere Poort. The direct result was a slight increase in density in neighborhood design, but the overall urban structure remained unchanged. The urban development of this period was a consistent continuation of the plans by the former national authorities.

§ 4.1.3   **The discussion of scale leap (schaalsprong): 1995 – now**

Since 1995, the Almere municipality has begun to finance and manage its urban development independently. A new series of studies and plans on a variety of scales have been made to cope with the changed social, cultural and economic conditions of the society. The main direction of new thinking is focused on how to better integrate Almere into the regional context and make it a real balanced city. Therefore, the scheme is called scale leap (schaalsprong). The research on regional, city and district scales has been performed in parallel with each other.

Figure 4.6
The master plan of Stadhart, 1996

The foremost step was to build a new city center next to the old one to give the city a twenty-first century modern atmosphere and quality facilities that match the need of the fast growing population. The first plans of the central area were prepared as early as 1976. A primarily orthogonal grid pattern (referencing Barcelona) formed the main structure. The keywords behind the spatial design are choice, variety and change (Nawijn, 1988, 4.2.). An area was reserved to accommodate the expansion of the city center. In 1996, design competitions were held for the Masterplan Stadscentrum. The winning urban design from OMA consisted of a plan for the business area to the north of the railway station, and a plan for the multi-functional area in the southern part of the city center close to the lake Weerwater. A larger scale (compared to the original grid block size) rotated mass structure formed the center of the new center, with some playful and free-form mutation of the grid structure surrounding it (figure 4.6). The ground-floor of the shopping area is lifted with the parking garages and traffic passage underneath. Cultural and recreational programs are concentrated at the waterfront and a group of modern architecture buildings constitute the dynamic of the lake skyline. A diverse range of architects from within the Netherlands and abroad were invited to design the individual landmark buildings within the framework of the urban design. The construction was completed to a large extent around the year 2000.

From the late 1990s to the early 2000s, the structure plans and studies for the reserved urban nodes of Almere Oost and West: Almere-Poort, Almere-Hout, Overgooi, Noorderplassen and Almere-Pampus were made one by one by the municipality. Creating diversity, dynamicism and individuality in terms of the living environment, as well as finding connections with the regional requirements, are the main emphasis of urban planning and design since the turn of the twenty-first century. Noorderplassen and Overgooi areas are low density water living communities with freedom for private initiatives and building construction projects. New neighborhoods in Almere-Buiten (e.g. Regenboogbuurt and Eilandenbuurt) searched for special design schemes and identity. Easily accessible by train and by cars, Almere-Poort will be developed into a strong mixed-functional new node close to Amsterdam, with varied urban and suburban settings, integrated living and working, as well as tourism-oriented recreational facilities. The detailed plans for the sub-divided neighborhoods in this node have been developed since 2003. Many of them are being constructed at this moment.

On the other hand, the development plans for the nodes Almere-Pampus and new Almere-Hout are under extensive discussion because of their strategic locations in the scale leap in the region. The concept of Deltametropool appeared in the fifth Nota in 2001. The national development strategy of the north wing (Noorvleugel) concerns the future development of Almere. The municipality also put a lot of effort in outlining its own regional position. The Integration Development Plan Almere 2030 (Integraal Ontwikkelingsplan, IOP, 2002) marks the beginning of the campaign of a new city

ambition (H. Meijer, interview, 2010). It was a collective effort by the municipality and the national and provincial partners. The plan envisioned how the city can grow to accommodate 400.000 inhabitants in 2030, and become spatially, socially, and economically competitive in the north wing region. The main urbanization directions are northwest (Pampus) to connect Amsterdam, and southeast (Hout and Oosterwold) to link Utrecht and the Gooi region (figure 4.7). The plan was not immediately approved by the national government, and a series of research by design initiatives by various parties on this subject followed. The plans and discussions include the structure plan Almere 2010 (2003), the future of IJmeer (Toekomstvisie IJmeer, 2005; EO-Wijersprijsvraag IJmeer, 2006; Atelier IJmeer, 2006), the vision of Markermeer region (Visie Markermeer, Palmesino en Lonsdale, 2005), the development method of Almere-Hout (Studies Meervoudige ontwerpopdracht Almere Hout, 2006) and the infrastructure upgrade (Dutch Moutains, 2006; Visie A6-zone, 2007). At the same time, the regional planning and strategy of the north wing continue to be a heated topic. Different versions were made by the national government, province Flevoland, province Utrecht, Amsterdam region, Almere municipality with certain collaboration of other public authorities and private partners. They illustrate how to enhance green/water, urban and infrastructure connections from Almere to the surrounding regions to realize the scale leap. In several proposals, IJmeer is positioned as a water park between Amsterdam and Almere, and a group of islands is designed on it as new form of habitat.

Around 2007, the national government has affirmatively directed Almere to expand with 60.000 new dwellings and 100,000 new jobs in the period of 2010 to 2030. Various concepts and inspirations are finally synthesized in the latest draft structural vision Almere 2.0 in 2009. The ambitious plan is to transform the suburban new town to a balanced and sustainable city by doubling its size by 2030 (figure 4.8). Facing this great opportunity and challenge, several new planning strategies that are meant to reflect the spirits and trends of the contemporary urban planning discipline have appeared among the Seven Almere Principles (2008). In order to combat the monotony and embrace the increasing complexity in society, the Principles aim to stimulate diversity and sustainability in social, spatial, and economical aspects, flexibility and innovation in physical planning and development. Currently, some concepts, such as the "organic city" and "people make the city" (initiated by city alderman A. Duivesteijn), are already being experimented with neighborhood projects (e.g. Noorderplassen, Homeruskwartier). In 2012, the projects of the new higher education Almere Hoogschool and the expansion of highway A6 will begin, which will demonstrate the first results of scale leap. Now the municipality is busy negotiating with the national government for pre-investment in the leading large urban projects. The future transformation of new town Almere is now once again a national question.
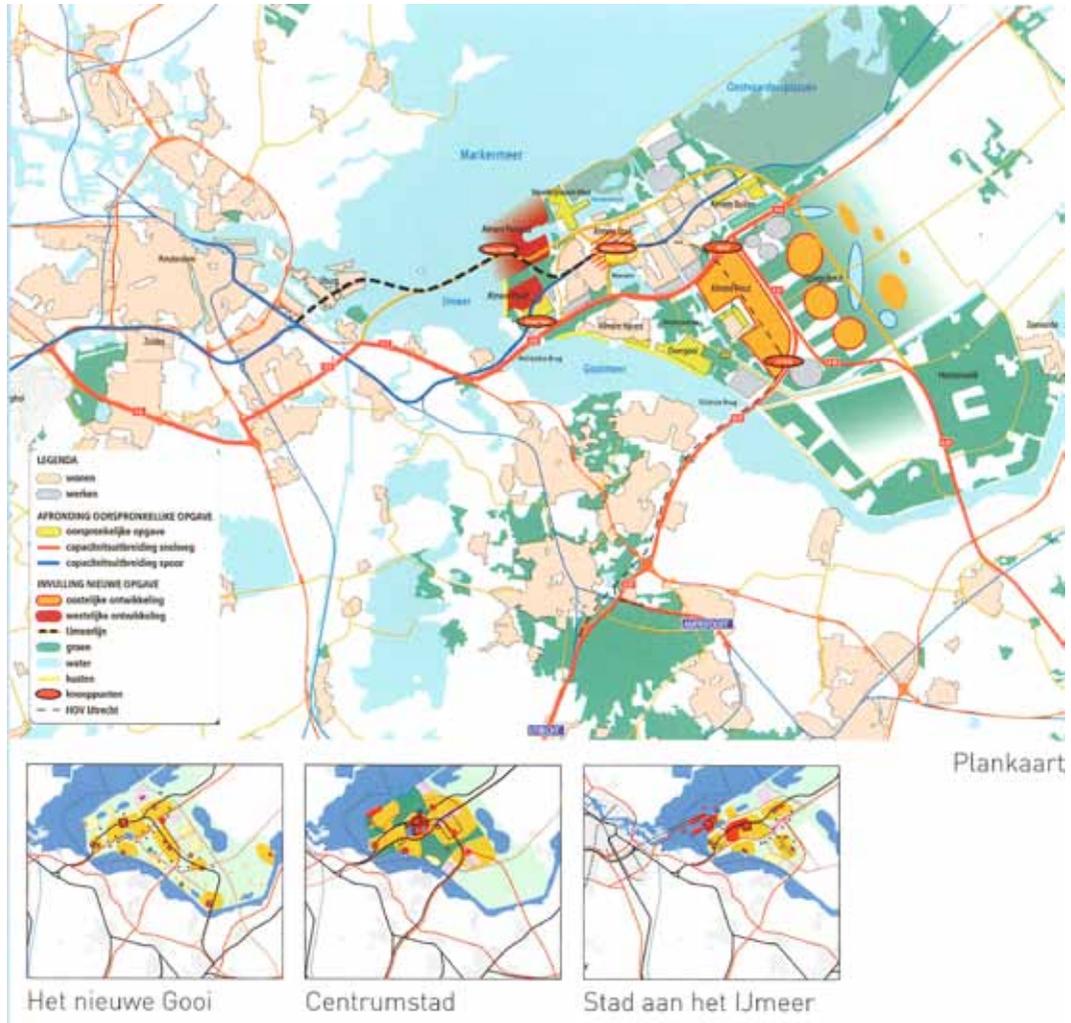
Figure 4.7
Integration development plan Almere 2030, 2002

Figure 4.8
The structure plan vision Almere 2.0, 2009

Concise overview of current social demographics

By the middle of year 2011, the total population of Almere is over 191.000, growing with 2-3.000 inhabitants per year. It is now the seventh largest city in the Netherlands. The current population of the first three urban nodes has grown a bit higher than initially planned: Almere-Stad with over 110.000 inhabitants, Almere-Buiten 54.900, and Almere-Haven 22.300. There are still some small scale developments in these nodes, but they have generally reached their limits. Beginning with mainly social rental housing in the 1970s, the city has a higher percentage of owner-occupied housing (over 60%) than the national average (under 54%).

Bevolkingspiramides van Almere en Nederland (% leeftijd naar geslacht), 1 januari 2010.
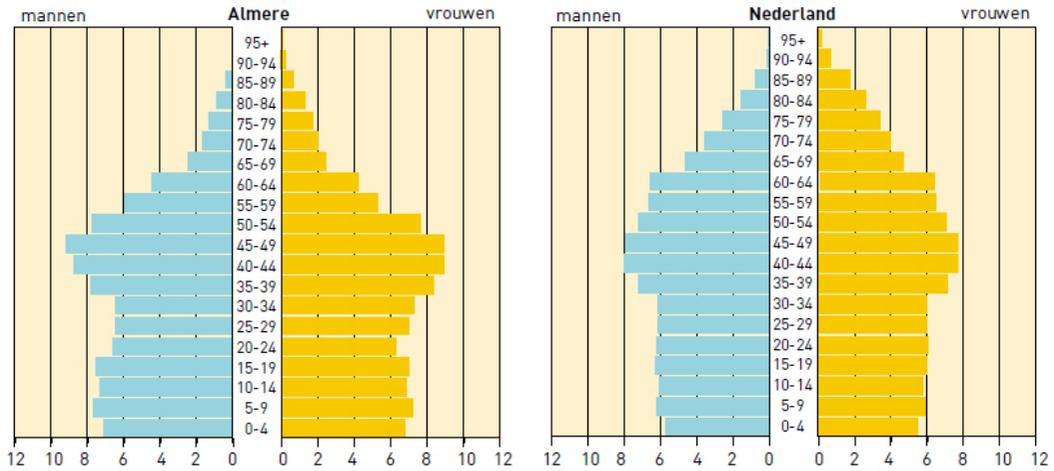
Figure 4.9
Age pyramid. Source: sociale atlas Almere 2010
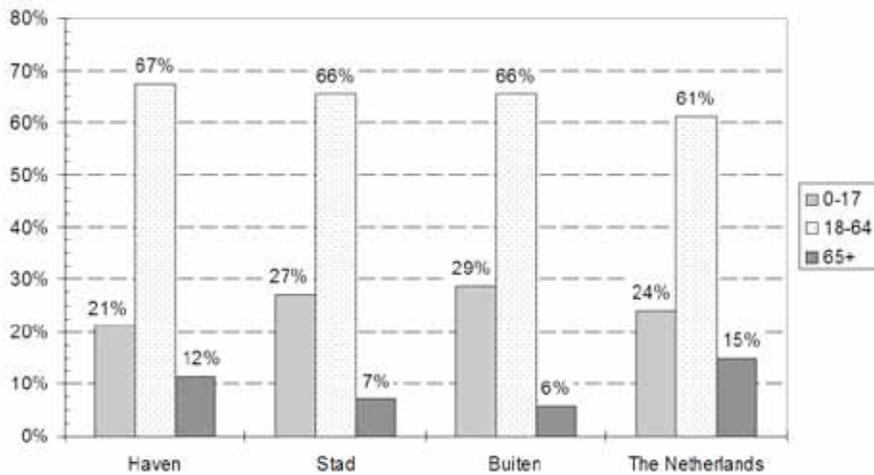
Figure 4.10
Age composition in the three urban nodes of Almere. Source: CBS
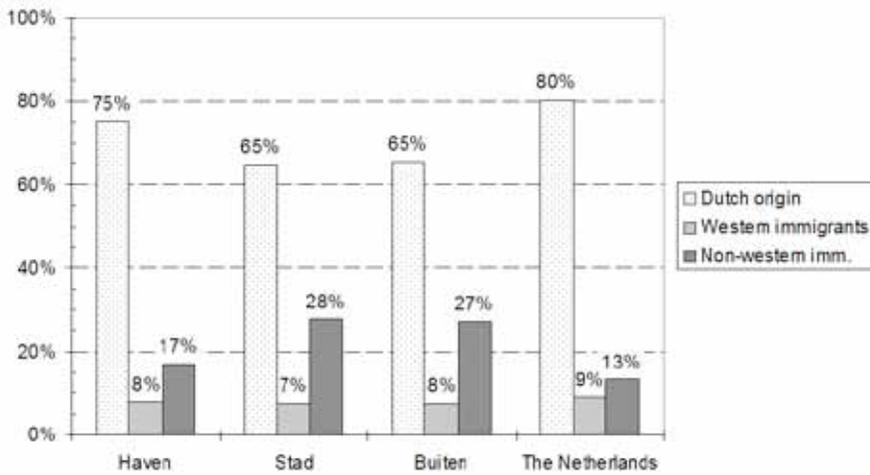
Figure 4.11
Ethnicity groups in Almere. Source: CBS

Opleidingsniveau bevolking 15 t/m 64 jaar; Almere, 1996-2009 en Flevoland/ Nederland 2008

	lager	midden	hoger
Almere 1996-1998	37,1%	42,4%	20,5%
Almere 1998-2000	35,9%	42,9%	21,2%
Almere 2000-2002	39,1%	40,0%	20,9%
Almere 2002-2004	36,8%	41,2%	22,0%
Almere 2003-2005	35,7%	41,9%	22,4%
Almere 2004-2006	34,4%	43,4%	22,2%
Almere 2005-2007	34,2%	45,0%	20,8%
Almere 2007-2009	34,4%	44,0%	21,6%
Flevoland 2008	33,7%	44,3%	22,0%
Nederland 2008	32,3%	41,2%	26,6%
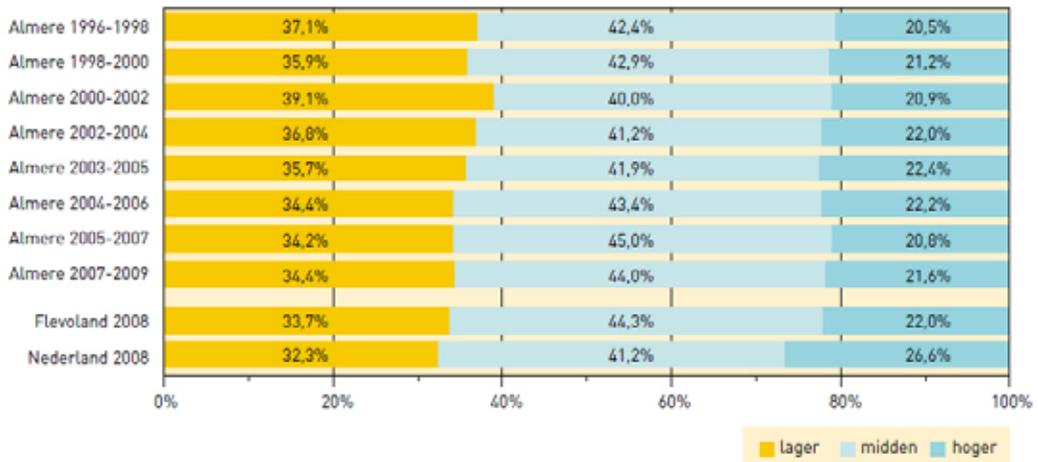
Figure 4.12
Educational levels in Almere. Source: sociale atlas Almere 2010

It was the intention of Almere to attract a varied population, a mixture comparable to the rest of the Netherlands. Priority was given to businesses and their employees. In the attempt to attract the average Dutch population, people were assigned a home by selection of their age, income and having a job in Almere. However, it appeared that the interested employees mainly consisted of young families, rather than singles and elderly (Nawijn, 1998). According to the Social Agenda (Almere, Mensen Maken De Stad-De Social Agenda, 2009), the population composition of Almere in 2008 is similar to the average level of the twenty-seven biggest cities in the country. However, Almere does have more families with children and less elderly people (figure 4.9 & 4.10). Almere has a large percentage (60%) of middle class, but they are in the lower position of the income pyramid of the national average level. They are stressed by mortgage and investments in family developments. The city lacks young singles (e.g. students) and the elderly who are able to spend more time and money in social cultural activities and volunteer work. Over one third of the population are foreigners (26% of them is non-western), a considerable difference than the average city of the Netherlands (figure 4.11). Only the four major cities in the Randstad have a higher percentage than Almere. The new town is popular among immigrants, especially Surinamese people. They are well integrated into the Dutch society, buying homes with a garden and feeling happy in the city. The municipality is proud of the high degree of social mixtures and the level of cultural integration (T. Van der Steeg, interview, 2010). The educational level of the population of Almere is below the national average (figure 4.12). There are more middle and lower educated people, and less highly educated ones (Almere 21% vs. Netherlands 25%). Children have poorer performance at school than in other big cities. Young people (especially young immigrants) are leaving Almere to study or find a job in big cities. The unemployment rate increased in recent years, and is slightly higher than national average in 2010 (6.8% compared to 6.3%). The problem is bigger among young ethnic groups. Moreover, through door to door interviews, Progammabureau Stad discovered that attention is needed to motivate inactive young people to improve their socio-economic position and develop personal ambitions (T. Van der Steeg, interview, 2010). About a quarter of the lower income population, and less educated groups, are concentrated in the rental housing areas in the older neighborhoods. The number of jobs in Almere is growing fast, but the jobs per 100 inhabitants is lower than the average of the Netherlands (43 vs. 48.7) (Social Atlas Almere 2010). About half of the working class of Almere has a job outside of the city. People living outside the city makeup over one quarter of the jobs in Almere (27%) Time and energy spent on commuting is considered another stress factor that affects the vitality of the urban cultural life.

Almere is the largest top-down planned new town in the Netherlands. The main principles of the structure and character of the town were formed in the late 1960s and early 1970s, during what was called the "Heyday" of Dutch spatial planning (Faludi & van der Valk, 1994, p.113). The fundamental decision of developing a "non-traditional" city was influenced by the concept of the Garden City, the socio-economic context, and the national planning strategies of that period. The Green Heart policy, generated since the first Nota (1961), resulted in the request of assigning growth centers outside the Randstad area as alternative solutions to uncontrolled urban sprawl, and urgently needed urban renewal. The second Nota (1966) advocated the ideal living environment that the general public desired at the time, which is a single family home in quiet and green surroundings. As a result, 90 percent of housing in Almere constitutes low-rise single family houses with a net density between 35 to 45 dwellings per hectare.

Since the beginning of Almere's planning, there has been a higher ambition than just creating another suburban community like het Gooi region. The ideas of creating urban culture, providing enough choices and opportunities to diverse social groups, and making the plans open to future changes were claimed. The polynuclear urban structure was considered the spatial answer, for its potential and flexibility to accommodate different types of development under different socio-economic contexts over time. The central public programs of the first three urban nuclei manifest differentiation in character: the harbor in Almere-Haven, the city center in Almere-Stad and the nature education center in Almere-Buiten. However, the major part of the urban nodes which are housing areas ended up sharing similar building typologies, neighborhood designs, urban density and construction time. Before the 1990s, the task of urban planning and neighborhood design was mainly performed by public authorities, the RIJP or municipality planners. Private partners were occasionally involved, but the plans were unexceptionally consistent with the rules set up by the early structure plans. Overall, the variations in the planned "urban, rural and village" styled living environments and changes in design over time are there, but not yet sufficient to support a wholesome social composition. The spatial settings, especially the monotony of building typologies, tend to compromise the development of social diversity. Compared to the national average, there are more middle-low income groups, families with children and less young singles and elderly in Almere, which is considered problematic to the vitality of urban life.

However, Almere is evolving. Increasing emphasis is being given to creating diversity in living environments and empowering people to participate in the making of the city. Since the mid-1990s, the question of how to become a balanced city, and how to better integrate with the north wing region has become increasingly concerned by the new town authority. A large amount of research and design have been developed on a regional, city and local scale to explore and identify potential solutions. Now, Almere is on a mission to double its size by 2030. The "scale leap" is not merely urban expansion, but to upgrade public facilities and to create more local jobs. This opportunity is thought of as the second start of Almere. It is believed that with the support of the national government, Almere 2.0 will become an ecologically, socially and economically sustainable city. In the short history of the new town of Almere, top-down planning has always been the determining factor in shaping the city. However, over time, there are increasingly direct opportunities for people to involve in the process of city development.

§ 4.2 Urban vitality

§ 4.2.1 Spatial structure and vitality on the city scale

§ 4.2.1.1 Characteristics of a top-down planned town: structural elements and changes in design

City structure

Similar to the model of the Garden City, the primary social-spatial aim of new town Almere was oriented to people, by providing a variety of social groups, a suburban green and healthy living environment, and at the same time accessibility to a diverse choice of jobs and quality urban facilities. The starting points include minimizing the distance from living to working, green space and various facilities, and maximizing the differentiation in living environment. The polynuclear city structure with ground-binding single family housing as the predominant building typology was considered a strong spatial solution to the planning criteria. Implemented as planned, each urban node is separated and surrounded by buffer zones (green space), and strung together by a ring road. Large scale industrial and business zones are separated from residential areas and placed at the edge of each urban node easily accessible from the ring. Different layers of the structural elements, including urban areas, landscapes, infrastructure networks, and facilities all have a clear structure, order and hierarchy. The urban nodes are differentiated by size, position and featured functions. Each of them is divided into a number of neighborhoods. Green parks, wedges, and canals extend from the outer landscape, in between neighborhoods connecting to the smaller-scale green and water networks in each neighborhood. The green landscape is thus interwoven and integrated with the urban area on various scales (figure 4.13-14-15).

Figure 4.13
Footprint of built-up area

Figure 4.14
Green and Water systems

residential area
industrial area
public buildings

0   1   2 km

Figure 4.15
Land use composition

Infrastructure network

The infrastructure network of each urban node is specially designed with the same principle as to maximize a safe and quiet living environment. The separation of traffic modes is a strong feature of Almere. Priority is given to public transport commuters and cyclists, who have exclusive bus lanes or bike paths. The bus system in this new town is convenient, as the bus lanes go through nearly every neighborhood, and the service is frequent and punctual. It is actually a strong structural element of the new town. One cannot see much of the city by bus because the view is most often obstructed by tall trees, green shrubs and the back or side walls of people's homes (figure 4.16). Each neighborhood has at least one shortcut bike path that allows easy passage through the whole area. Such relatively long paths were planned in a way to avoid intersecting with car traffic as much as possible. Thus, the independent bike paths rarely have connections with the main roads. Almere has an extensive network of bike routes. However, they do not form a structural system on the city scale.

Figure 4.16:
Bus lanes: isolated view access; bike lanes: separated from car traffic

The vehicular traffic follows the hierarchy from highways to city main roads (dreven in Dutch) to neighborhood main streets and local streets (figure 4.17). The east-west highway A6 and part of the main roads form a ring road encircling Almere-Stad and Almere-Buiten for high-speed traffic. However, the connections between the networks

Infrastructure network: car traffic in black, bike routes in red

in different hierarchies (e.g. from neighborhood main streets to city main roads, from city main roads to the ring) are deliberately limited. The through traffic at the local level is discouraged by the cul-de-sac (dead-end or pocket) street patterns, which is a ubiquitous design feature throughout different neighborhoods of Almere. On the one hand, this kind of network pattern concentrates traffic flows to certain routes and reduces traffic in residential areas. However, this scheme also causes traffic jams on these routes, and the main junctions. In most cases, it is easier to go to other neighborhoods by bike than by car, because bike paths function as direct links, whilst roads function as detours: one has to go up several hierarchies to meet the main roads, and then go down the hierarchies again to a local destination.

The infrastructure network is further analyzed using space syntax Depthmap. The results of the single network of car traffic versus the complete network of different traffic modes (isolated bus lanes not included) show considerable differences on various scales (figure 4.18). The analysis on the scale of urban nodes (radius of about 6.75 kilometers) highlights the most integrated routes that one can travel most conveniently around all neighborhoods within that node. For car users, such routes mostly consist of city main roads (dreven), but not necessarily the entire ring road. For cyclists or pedestrians, a number of the most dominant and connecting bike paths in and between urban nodes are furthermore revealed in the result. In both cases, certain loops for continuous movements could be identified. The next scale can be defined as an urban cluster (at a radius of about 2.7 kilometers), which encompasses the group of neighborhoods separated by large landscape areas within an urban node. For example, Almere-Stad and Almere-Buiten are both subdivided into three clusters, which is equivalent to the size of the smallest urban node Almere-Haven. The car network analysis highlights the relatively continuous long lines that connect adjacent neighborhoods, which consists in part of main roads and of neighborhood main streets. The whole network analysis depicts a very different set of lines that are mainly composed of long straight bike paths. However, not all long bike paths are spatially well connected, such as the bike paths at the perimeter of different neighborhoods or in the landscape. When cycling on those peripheral exclusive bike paths, one can hardly feel like in an urban environment. Moreover, one can see that the dominant bike paths could form certain inexplicit loops within urban clusters. However, they are rather fractional and not structurally connected. Finally, both analyses at the neighborhood scale (at the radius of about 1.35 kilometers) highlight the local backbones in more detail. It is interesting to see that for the neighborhoods built before the mid-1990s, especially the ones planned by IJDA (e.g. Almere-Haven, Almere-Buiten west, and Waterwijk, Stedenwijk in Almere-Stad), the space syntax highlights are strong (warmer in color); while clear central lines are missing for the latest developments (e.g. Almere-Buiten midden and oost). This reflects changes in the design: the network patterns of the early neighborhoods are more semi-lattic and hierarchical, whereas the later ones are more orthogonal and even.

Overall, it is phenomenal that the most accessible sets of routes at different scale levels in Almere theoretically identified by space syntax analysis tend to be very different for drivers and cyclists to orient. The separation of space occupation is evidently illustrated. Travelling between different urban nodes and urban clusters by car is only convenient through the planned main road and ring road system, while bike paths offer alternate route options. Loops for traffic circulation only exist on a city scale. The spatially integrated streets within an urban cluster are tree-like structured and less interconnected. It means that the city does not have a secondary traffic system at the intermediate scale level.

Road network Space Syntax analysis
Radius = 6.75 km (inter-urban node connections)

0   1   2 km

Road network + bike & foot paths Space Syntax analysis
Radius = 6.75 km (inter-urban node connections)

0   1   2 km

Figure 4.18
Space syntax analysis of street network

Figure 4.19
Population density: inhabitant per hectare

1980

1985

1990

1995

2000
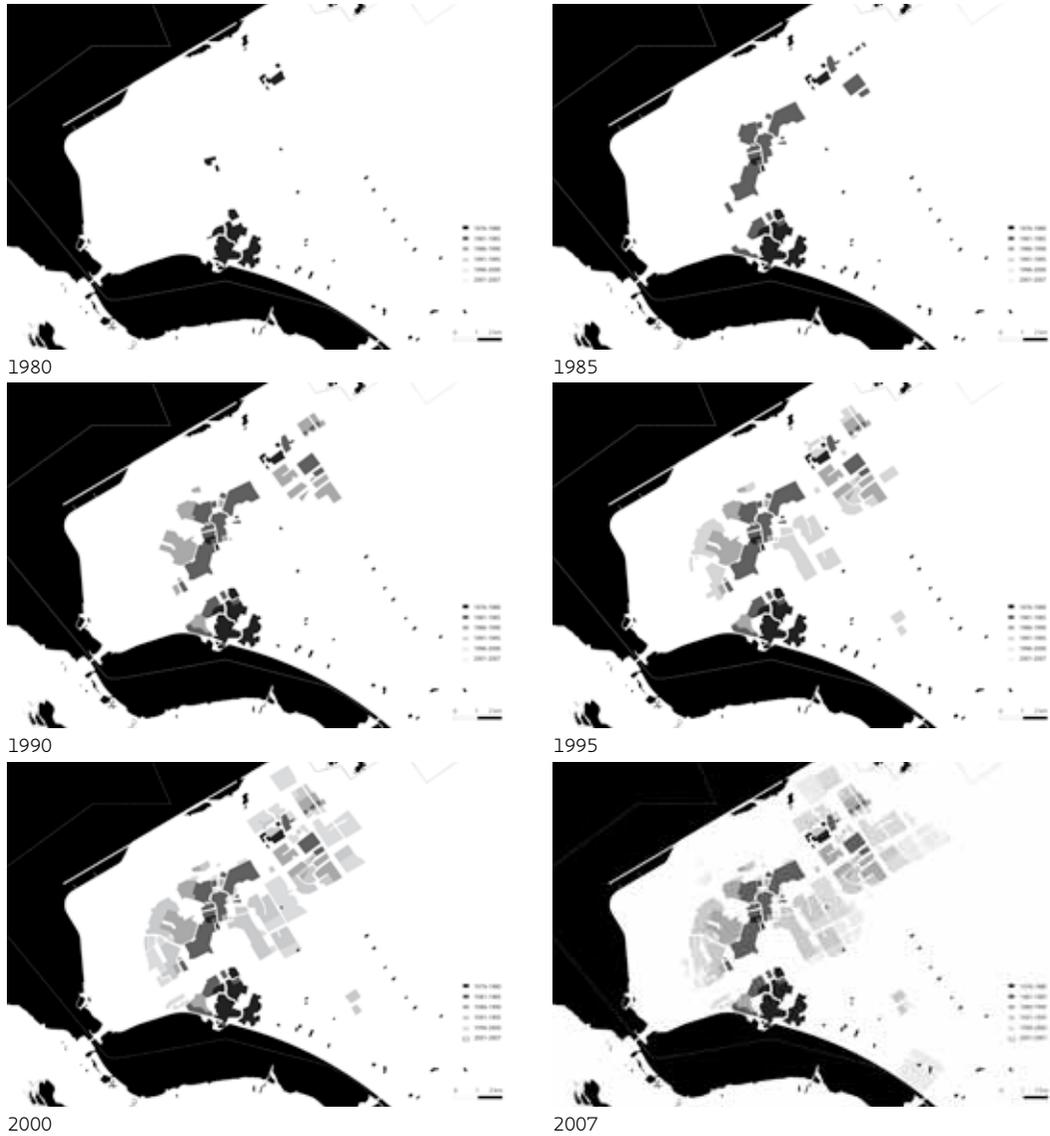
2007

Figure 4.20
Almere growing process: 1976 – 2007

Changes in design

The polynuclear urban structure allows the different nodes to be designed and developed over time. It is not only economically and socially efficient, but more importantly this model is capable of accommodating changes and variations in design in different time periods. After the structure of each node is planned and fixed, variety in the design of neighborhoods within the nodes is welcomed and encouraged. However, there are many planning constraints that make the actual flexibility limited for the first three urban nodes. First, ninety percent of housing is planned to be low-rise, single family house. Then, the net density for most part of the new town can only vary between thirty five and forty five dwellings per hectare (gross density 25 dwellings/ha, including green area) (figure 4.19). Third, the constraint to thru-traffic, and the separation of traffic modes must be followed. As a result, even the former city chief planner Hans Laumanns admitted that it is not a small task to have variation and innovation in neighborhood design (Building Expo Almere 2001, p.10). In addition, the first three nodes are built up within a short span of thirty-five years (starting from 1976), in a top-down manner. Although the rapid population rise is beneficial for the social-cultural development of the new town, the quick, large scale housing construction by limited involving agents, especially in the early stages, might have led to a certain degree of monotony, despite the claimed good planning intentions for diversity.

On the positive side, changes and evolution in design do occur over 30 years. The completion of the first three urban nodes was sequential according to the master plans. However, neighborhood developments within different nodes were also overlapped each other (figure 4.20). Almere-Haven was developed from the mid-1970s to the late 1980s. Construction began in the Almere-Stad region in the late 1970s, starting with neighborhoods near the center along a southwest-northeast axis, and then expanding further to the northwest and southeast direction. Most parts had been built up by the year 2000. Almere-Buiten was developed from west to east in three clusters. The first phase, the western part, was constructed between the early 1980s and the mid-1990s; the four neighborhoods in the middle part were finished by the early 2000s; and finally, the small eastern area appeared by year 2007. There are still small scale new housing projects in each of the urban nodes, but they have basically reached their limits and entered into a stable phase.

Almere-Haven has the most coherent and characteristic design. The urban node, which consists of nine small neighborhood units (between 600 and 1700 households), is centered from the harbor at the edge of Gooimeer lake and forms a semi-circle. Planners realized that the new district was prone to lacking a natural diversity related to time periods, and that a solution could only be achieved if it was created purposely. Thus, a variety of designers were involved in the neighborhood designs. The character

of a traditional and harmonious small town as a whole was achieved. All neighborhoods share the same principles of traffic design and public space typologies, although they have distinct spatial layouts and architectural appearances. A minimum of straight lines were used. Local streets are curvilinear and semi-latticed, like organic cauliflower pattern. In this way, the view is picturesque, because it is ever changing as the street meanders. This special design feature also makes orientation more difficult. The other distinct characteristic is the social cohesion and sense of community the design promotes. Rows of housing enclose a common courtyard space. A group of small scale enclosures embrace a larger semi-public community green space or playground in the center. Cars can only approach from the side; parking is concentrated in parking squares around a housing cluster. The enclosed public space only allows pedestrian and cyclists, which can be seen as an adaptation from the Radburn model.

Almere-Stad and Almere-Buiten show mixtures and variations in terms of their design characteristics, from the 1980s up to the present. The continuation of enclosure patterns can be found in the early 1980s' neighborhoods in Almere-Stad, but they are more orthogonal in shape. The blocks close to the city center along the main streets are designed with higher densities. A marginal zone, Oscar Newman's "defensible space", was introduced at the front side of such buildings. The one-meter-wide space is purposed to separate the public and private domain. Road networks were still denied as a structural element in the planning of the first two neighborhoods (Stedenwijk and Waterwijk). The design of the third neighborhood (Kruidenwijk) stands out because a simplified traffic plan was applied. Its spatial layout was referenced with the Barcelona grid pattern (proposed by the project leader, D.H.Frieling), which is considered to have the quality of combining the rigidity of the standard grid and the flexibility of different building patterns. Longer straight lines were used, but the idea of minimizing thru traffic was as consistent as before. The freedom in traffic design has been increased since then. The network of most neighborhoods built in the northwestern part of Almere-Stad and the first five neighborhoods of Almere-Buiten from the mid-1980s to the early 1990s, is a mixture of short and long straight lines, but not as rigid as grids. Instead of seeking special urban designs, attention was gradually shifted to the architectural design. In the early 1990s, two outdoor architecture expositions were held in Muziekwijk (1990) and Filmwijk (1992) of Almere-Stad. The first designs aimed to explore the functional flexibility and adaptability to changes in life style that building floor plans could provide. The second designs encouraged the expression of modernity and the individuality of architecture. Design was used as a tool to represent higher living quality, thus attracting higher income classes.

Almere-Buiten differentiated itself from the first two nodes by its orthogonal spatial structure of urban and green. Urban areas are evenly divided into twelve neighborhoods, with around 2000 households each. The landscape design was inspired by the agricultural parcellation of land. Straight green strips vertically separate

urban areas. The green structure determined the urban structure, whilst in the plans of Almere-Haven and Almere-Stad, the in-between green wedges extending from the surrounding landscape were actually shaped by the forms of the neighborhoods. A large portion (middle and east parts) of Almere-Buiten, as well as the southeastern part of Almere-Stad, was built after 1990. The urban layout demonstrated a comeback to the functional rational form. The traffic network is further simplified to predominantly parallel continuous lines. Respectively, the building pattern is a repetition of parallel long rows. There was also change in the arrangement of parking spaces. In the early 1980s design, collective parking spaces were located next to the housing clusters or at the ends of the local streets. Planners considered it acceptable, and in favor of street life, to let people walk a short distance between their parking spaces and their front doors (Jan Gehl). However, it showed in Almere that most people prefer to be able to see their car from their homes (Van der Wal, 1997, p.221). As a result, street parking and front door parking are common in later designs. A higher percentage of owner occupied housing (about 70%) has been planned in every h neighborhood since the 1990s. Ground space is used in a way to produce more houses under a liberalized market development. Public green space is, on the other hand, reduced in quantity and diversity. The mass production aesthetic can be seen again in the new development. In the meantime, an increasing number of neighborhoods have become experimentsfor distinctive design themes since the year 2000. They include the use of colors in Regenboogbuurt, the celebration of individualism and design flexibility of the NWR BouwRai outdoor exposition in Eilandenbuurt (2001), the sustainable community development of De Buitenkans in the green strip of Almere-Buiten, the possibility of private initiatives, the design and building construction in Noorderplassen (Almere-Stad) and Homeruskwartier (Almere-Poort).

The urban development strategies in Almere have been changing. Before, the masterplan, structure plans and detailed neighborhood plans were all made by the designers from the national authority RIJP or the municipality, with occasional assistance from external partners. The detailed plans were considered definitive and did not allow many changes. The contracted housing corporations or private developers were only commissioned to realize the program. The freedom they had was the architectonic style of the buildings. According to the head of the planning department Almere, Henk Meijer, a much more flexible development plan is adopted for Almere-Poort, the newest urban node. Municipal planners only decided the programs (i.e. quantifying the numbers and requirements), leaving the design of urban form open to the various developments involved. In some experimental neighborhoods, there aren't any urban design rules attached.

Moreover, the number of agents that participate in making the city has been increasing over time. In the beginning, there was only one housing corporation in Almere who developed the entire Almere-Haven. The project scale was large: one project contained

600 units of houses to be made in one production line. Then, there were three housing corporations since the early development of Almere-Stad (waterwijk). Starting from the municipality era (1984), the project size for each developer was intentionally reduced. The difference can be recognized when walking around neighborhoods such as Faunabuurt, Landgoedenbuurt and Muziekwijk Noord. As the housing market becomes more liberalized, any public or private developers in the country can develop part of Almere. The project size continues to become smaller, now only about twenty to thirty housing units per project. Moreover, people and their needs are increasing the center of attention. They are encouraged to build their own houses and realize their dreams and ambitions. Developers will be hired only if they maximize the wishes of future residents. Breaking from the past, even public programs are now possible to be developed by private companies.

§ 4.2.1.2   **Distribution of facilities and polycentric centralities**

As a thoroughly planned new town, the facilities and centralities in Almere are established in clear hierarchies: the neighborhood level – urban node level – city level – regional level. The main shopping center in each of the first three urban nodes was built simultaneously in the early phase of neighborhood development. The new city center in Almere-Stad, which is oriented towards the whole city and larger region, was up and running around the year 2000. It concentrates the big facilities like the city hospital, city library, museum, theater, cinema, vocational school, and various big brand chain stores. The sub-centers in Almere-Haven and Almere-Buiten are mainly for shopping, but each has a district library, a medical center and a church. These two centers do not allow much growth, because the first planners of Almere believed that there is only certain amount of shops and facilities that the population can support. The dominant position of the center in Almere-Stad should be ensured.

On a local scale, it was planned that each neighborhood received a package of public facilities. The six categories defined in the 1978's report Ontwerp Structuurplan Almere include shopping and dining, medical care, community, education, art and culture and recreation. Precise standards were planned (e.g. dining and drinking: 0.18 m² per inhabitant, community center: 0.1 m² / inh., total social-cultural facilities: 0.15-0.2 m² / inh.). In reality, the educational facilities are the most evenly distributed public amenities in the new town (figure 4.21). Every neighborhood has a primary school as a basic element. It is meant to admit students from an area of about 1000-1500 people. Middle schools are mainly located next to the main roads of the city, at the interface of several neighborhoods; each of them serves an area of approximately 10,000-12,000 people. The number of kindergarten and children's play centers per

neighborhood varies, because private initiatives are common. The provision of medical care facilities is also fairly balanced, but spatial differentiation can be detected. There is one large-scale medical center in Almere-Haven and two in Almere-Buiten. They serve an area of about 23,000 and 27,000 inhabitants respectively. The provision in Almere-Stad is relatively more generous, about 18,000 inhabitants covered in the radius of a large medical center. Generally speaking, every one or two neighborhood units own a local health center/pharmacy. Overall, the neighborhoods built before the 1990s apparently have access to more medical services. A larger discrepancy appears when analyzing the supply of social-cultural and recreational facilities per neighborhood over different time periods. The neighborhoods built by RIJP and the early municipality are equipped with a standard set of amenities, including a community center, a youth center and a sports hall. These public facilities can no longer be found in neighborhoods built later than the mid-1990s, due to the end of national subsidies for the new town.

In order to understand how public facilities are spatially organized in the neighborhood of Almere, we will first review some normative models. The principle of the Neighborhood Unit, formulated by Clarence Perry in 1929, suggests placing the community school and the associated large play areas at the center of a neighborhood. They should be located within 400 to 800 meters walking distance from every household, and restrict local shopping areas to the perimeters or to the main entrance of the neighborhood. In this way, unwanted thru-traffic coming from the shops would not need to enter the neighborhood. Later, the New Urbanism designers altered the model in a way that not only the shops, but the school and offices are located at the edge of the neighborhood, or flanking the arterial roads. Housing in most British new towns (e.g. Stevenage) was arranged as distinct neighborhoods. Shopping centers and primary schools were both placed in the heart of a neighborhood, a stark contrast from the American model (Osborn, 1977). In some experimental cases, such as Harlow, Cumbernauld and Milton Keynes, the neighborhood idea was rejected and replaced by either hierarchical layouts of housing groups or open grid structures (Evans ed., 1972). One of Milton Keynes' key principles was to allow people to have the freedom of choice. The locations of facilities were possible at widely and evenly distributed nodal points (i.e. traffic junctions of the grid), so that they can provide widely overlapping areas of services for people to choose from (ibid.).
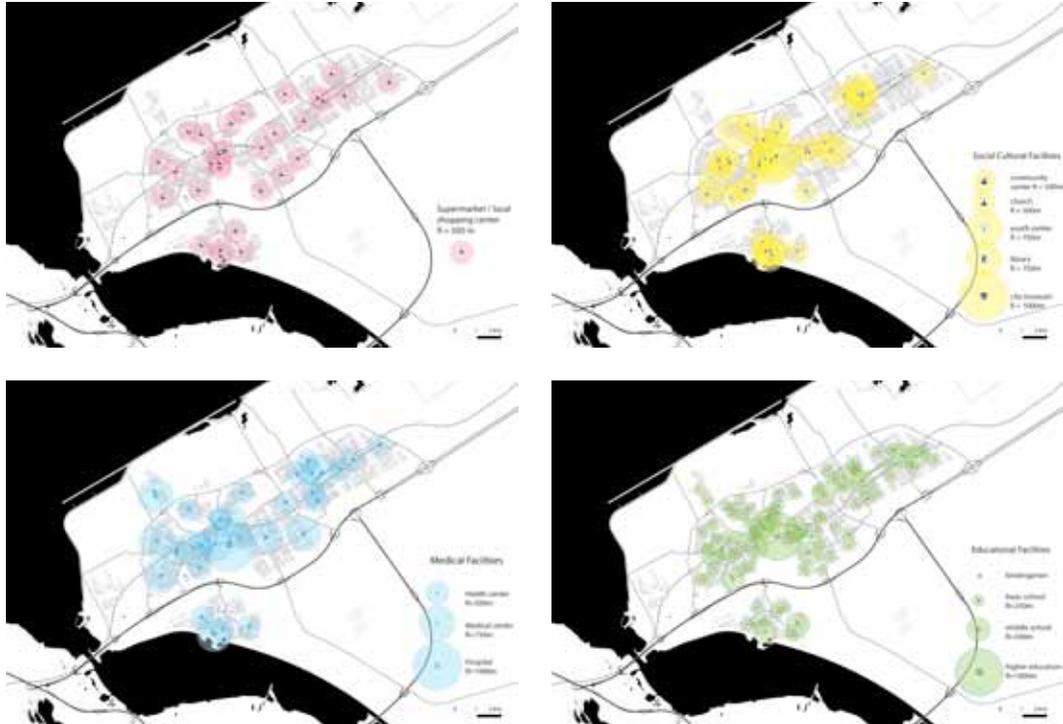
Educational, social-cultural, medical facilities and commercial facilities (supermarket)

The spatial pattern of the facilities in Almere is neither concentrated nor placed in the perimeters of a neighborhood. Their distribution pattern is dispersed within a neighborhood, which does not comply with any of the Neighborhood Unit models. The concentration of the facilities was in fact deliberately avoided by the planners in order to avoid any dramatic rise of land (rental) prices (Ontwerp Structuurplan Almere, 1978). Since neighborhoods are surrounded by either open landscape or isolated high-speed traffic, it does not make much sense to locate facilities in the perimeters of the neighborhood. However, there are some rules for the location choice. Except for some recreational and sports facilities, most public facilities are located near bus stops, as bus lanes function as the spines of urban areas (figure 4.22). Meanwhile, there is no intention of aggregating them along the main roads of the city, or long bike paths (figure 4.23). These routes are predominantly lined or blocked with greenery. The facilities are mostly accessible by bike, but sometimes not easily accessible by car. Especially in Almere-Haven, many facilities are situated away from both the main roads and neighborhood main streets. However, the majority of facilities in later neighborhoods are located at the crossroads of main traffic routes

and bike paths. Specifically speaking, facilities with large catchment areas are prone to extravert locations. For instance, large-scale medical centers and middle schools are mostly (6 out of 10) located along the main roads of the city (dreven). Supermarkets, local medical services and social-cultural amenities are located along neighborhood main streets, possibly to share with adjacent neighborhoods. Primary schools are the most introverted and flexible program types. They are typically situated on very local streets, and distant from bus stops. Overall, it is clear that the facilities are planned in a hierarchical manner. Previous space syntax analyses have shown that spatially integrated streets at different scale levels are identical to the planned main traffic network, along with a number of dominant bike paths. Therefore, it is no surprise to see that public facilities (except for peripheral recreational/sports facilities) are all located along the most well connected routes (figure 4.24).

As mentioned earlier, the commercial centers are planned in the following hierarchy strategy: city level, urban node level and neighborhood level. Almere's first generation of planners believed that retail businesses have shown a tendency of aggregation in location in the last few decades. They were not inclined to plan small neighborhood shopping centers to compete with urban node centers or the city center. Local supermarkets, with several small shops in its vicinity, are considered the centers of the individual neighborhoods. The Central Place model can be considered a tool to measure the geographic economy of existing cities (figure4.25). The spatial principle of allocating businesses of different scales in Almere is in accordance with that of the Central Place model, and the population density is relatively even in different urban areas. Therefore, Christaller's ideal orthogonal hexagon model can be fitted with the centrality pattern of Almere with some tweaks. The centers of each urban node provide a variety of shops and services. However, the local neighborhood centers are mostly small-scale, composed of a big supermarket and several small shops.

The first planners of Almere decided not to develop many street shops. RIJP's research concluded that "... the neighborhood convenience store and the corner shop to take a different position within retail sector. For years, this type is no longer in new building plans. In existing residential areas, the number is greatly reduced due to economies of scale, increased mobility etc…. the demand for local shops remains while also stressed by the social utility of them. Such forms of settlement need to be taken into account for certain groups such as elderly people with limited mobility in general, for example, inclusion of small business space in residential buildings but only if they are not too extensive in space, not generating traffic and economically exploitable" (Ontwerp Structuurplan Almere, 1978).

Distribution of facilities in relation to bus stops
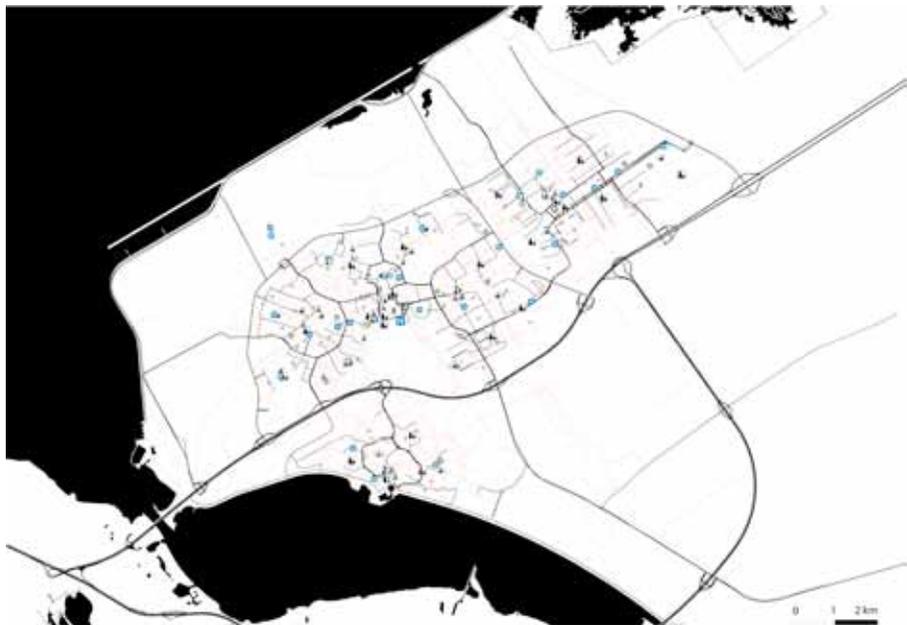
Distribution of facilities in relation to street network

Figure 4.24
Distribution of facilities in relation to the spatially integrated streets (Radius=2.7km)
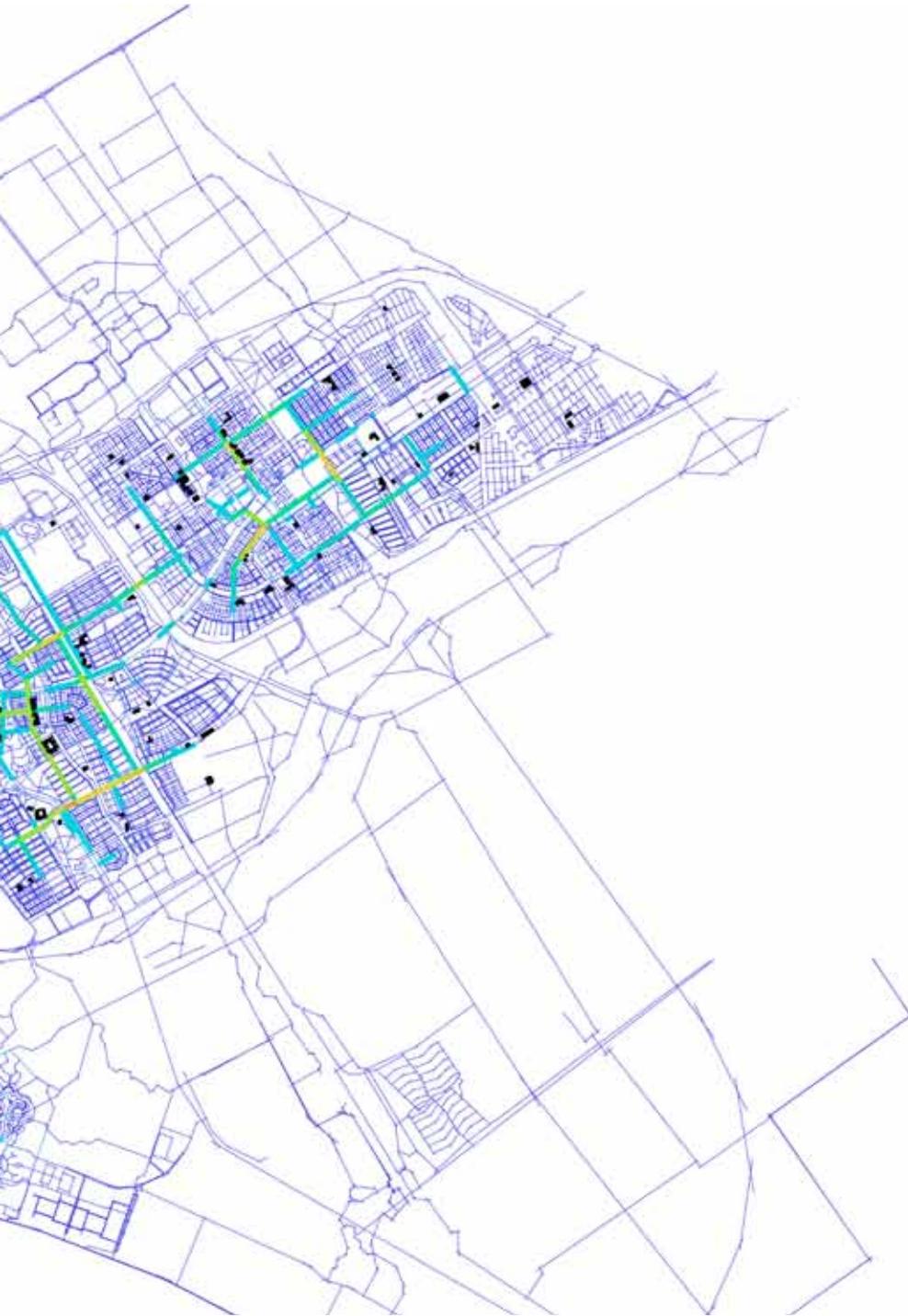
Apply of Central Place model to Almere's commercial facilities

R = 1,7 km

R = 600 m

⊙ major centrality

⊙ neighborhood centrality

● small businesses

0   1   2 km

Figure 4.26
Distribution of commercial facilities, Amsterdam. Source: 4 maal Amsterdam

In the early neighborhoods designed by RIJP, interesting corner shops or offices are sporadically provided at the perimeter of the neighborhoods, or inside the residential areas. They exist in three forms: one-level small buildings, free-standing, or attached to a house. There is also a special corner house where business is possible on the ground floor, while the owner lives upstairs. The corner space program is flexible, and could also be used as extra living space, household storage space, or as a workshop. The general rejection of traditional multi-functional building floor plans by top-down plans may have held back the development of micro-scale economies in the new town. Interestingly enough, bottom-up dynamics thrived through the uprising of home-based businesses in Almere. At a preliminary glance, they appear to be randomly distributed. The traditionally linear spread pattern, which is comprised of city or local main streets full of ground-floor shops, such as the organically-grown urban fabrics in Amsterdam (figure 4.26), do not exist here. Even though spatially untraditional, it does not influence their growth. According to city statistics, there were over 8.300 small enterprises in 2009, which is twenty-five percent more than the average of other big cities (Steeg, interview, 2009), and counts for over sixty-one percent of the total number of businesses in the city (Social Atlas Almere 2010). The phenomenon of small business will be analyzed in more detail in the next section.

After analyzing the spatial patterns of public spaces and facilities, their use rates can be revealed by the survey of people's social-cultural activity pattern (figure 4.27). The results show that homes are the most important center of everyday social-cultural activities in the new town Almere. Over seventy percent of respondents have social-cultural activities daily (44%) or weekly (29%) at home or at a friend's house. About half of the people often use public spaces in their neighborhoods (daily or weekly), but surprisingly, about 44 percent rarely use them. About a third (33.4%) of people make use of the public amenities in their own neighborhood at least once a week, such as a community center, sports center, youth center However, the majority seldom visit them. The new city center is clearly a focal point. One third of people visit it weekly; and an equal amount of people on a monthly basis. However, about 30 percent of people only go there a few times per year. The centers of Almere-Haven and Almere-Buiten seem to be less attractive to people from a social and cultural perspective. Most people (62%) seldom join activities there. People travel to other parts of the city for cultural activities more than expected: over thirty five percent of the respondents do it monthly or more often. To use the public facilities in another neighborhood is one of the reasons for the travelling. Large landscape and recreational areas at the peripheries of the city, such as Oostvaardersplassen, Noorderplassenstrand, Almerederstrand, have reasonable weekly (17.5%) and monthly (24.1%) visitors. However, they are the places where most people (58%) only visit a few times per year or less. People suggest that such places could be more appreciated if more interesting programs can be combined with the open space and landscape. The data also indicates that people in Almere are not relying on other cities for recreational activities as much as was expected. Only

sixteen percent of people who live in Almere go to the surrounding big cities weekly for entertainment, and about thirty seven percent do it on monthly basis. Several people pointed out that they first look for activities or facilities they are interested in within Almere. They only go outside and travel long distances when certain things are not available in town. They feel that traveling outside the city is not good for the environment. With regard to the influence of seasons, outdoor activities are most vibrant during summer months, when nature is very enjoyable, and there are many cultural and sports events organized by the municipality.

Waar vinden uw sociaal-culturele of recreatieve activiteiten plaats?
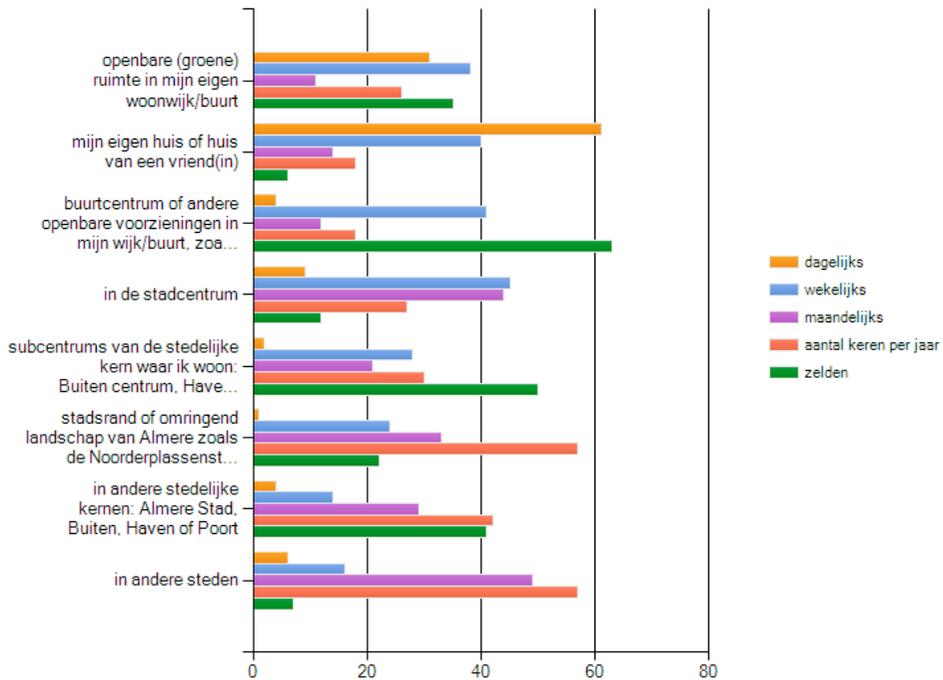
Figure 4.27
Survey result of the social-cultural activity pattern of people in Almere

In conclusion, people's homes, the new city center and neighborhood public spaces are the places most frequently used by a majority of people for social, cultural and recreational activities. Peripheral large landscape and recreational areas are also reasonably popular. Neighborhood amenities and sub urban centers are less visited. It is safe to say that at least a third of the respondents are active in one way or another. However, if the quality and variety of facilities and programs is further improved, more people would stay in the city or be more active. People's daily use of the city is also concentrated near their workplace. If Almere can provide more jobs in the city (centers), probably more people will be seen on the streets and in the public space.

§ 4.2.2 Design and vitality on neighborhood scale

§ 4.2.2.1 Case study of neighborhood designs

A neighborhood is the basic component in the suburban setting of a new town. The neighborhoods in Almere are intended to be self-contained, in regards to their organization. Spatially, they are confined and separated by structural elements, such as city main roads, railway lines, industrial and business zones, and green open spaces. They are quite uniform in terms of their housing typologies, but are also differentiated with regard to street networks, morphological layouts, architectonic designs and public space typologies. In order to better understand the characteristics and the evolution of neighborhood designs over time, five representative examples are chosen for further empirical study and comparison (figure 4.28-29-30 & table 4.1). They were built in different periods of new town development by different designers and developers. Each neighborhood has special characteristics in terms of their location, spatial morphology and social demographics. The dynamics of the local economic activities and the use of public space will be investigated, so that an understanding of the relation between the spatial social composition and activity patterns can be achieved.

	Meenten	Waterwijk
	1975-1980	1980-1985
morphology		
building layout		
public space		

Muziekwijk Zuid	Danswijk	Regenboogbuurt
1985-1990	1990-1995	1990-2000
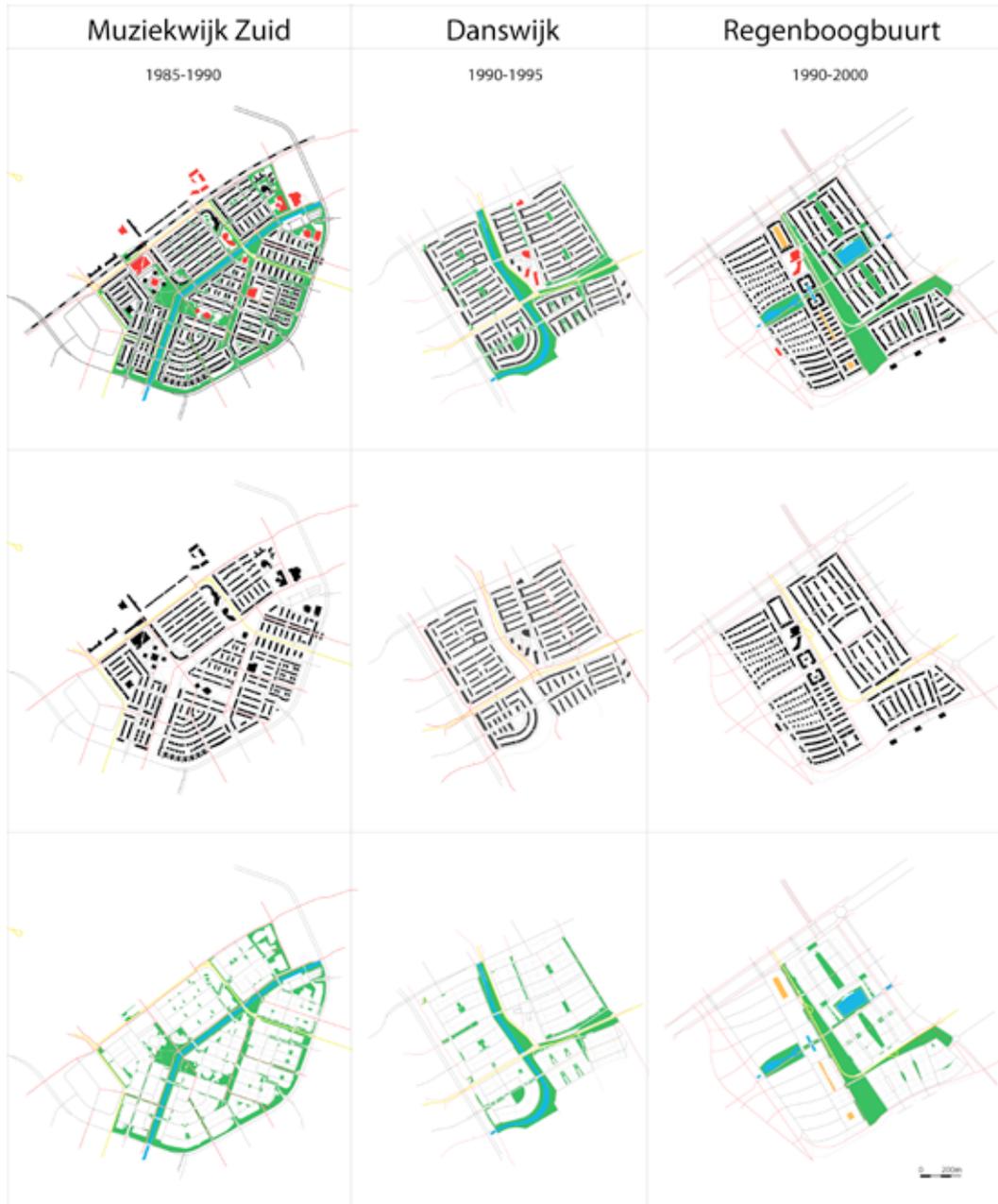
Figure 4.28

Five cases of neighborhood design in Almere

	Meenten	Waterwijk
Topology		
Parking		
Typology	1975-1980	1980-1985
Typology II	Gouwen 1975-1980	Kruidenwijk 1980-1985

Muziekwijk Zuid	Danswijk	Regenboogbuurt
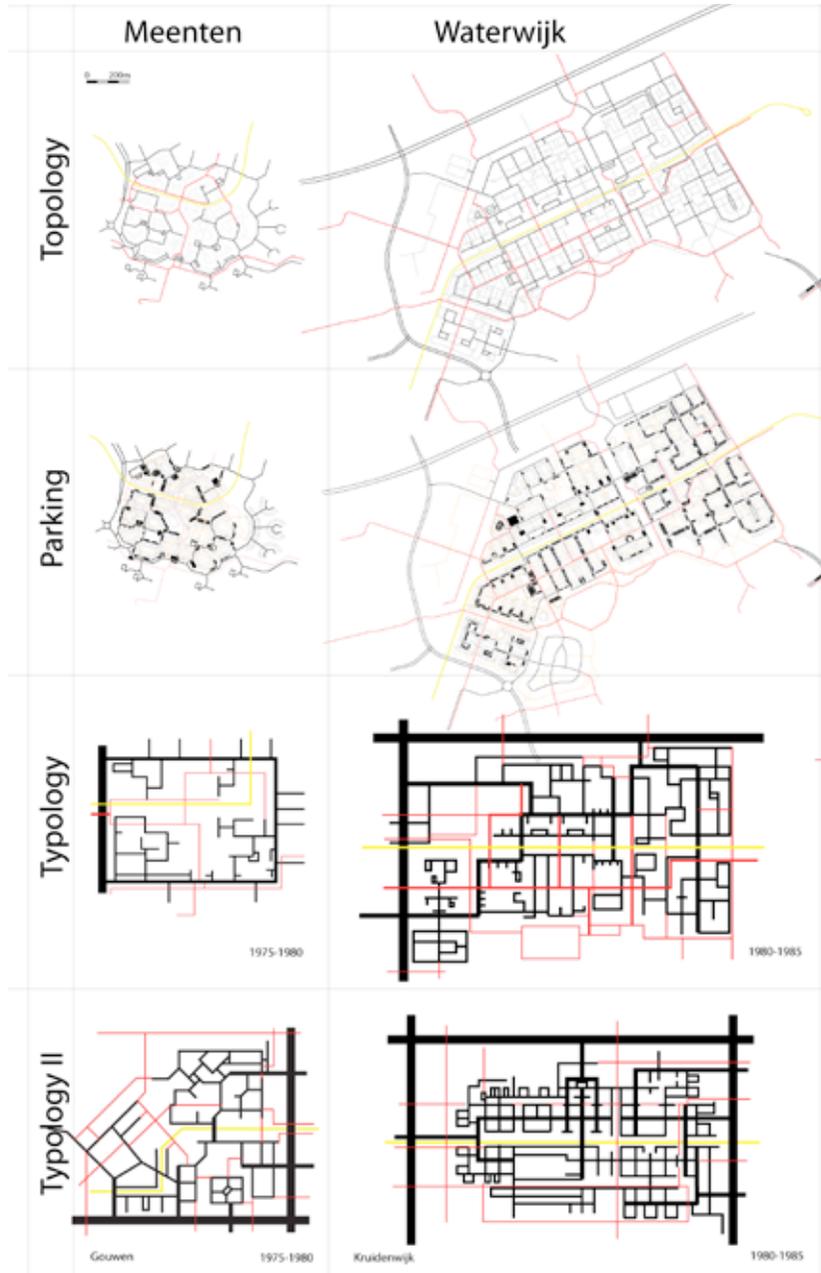
Figure 4.29
Comparison of network designs of the chosen neighborhoods in Almere

Almere-Stad-East: Waterwijk
composed of orthogonal semi-enclosed small
urban blocks with diverse small public spaces

Almere-Stad-East: Danswijk (up right corner)
urban blocks as simple long-box pattern

Almere-Stad-West: Muziekwijk (middle)
composed of semi-enclosed small urban blocks
less diversity in terms of public space

Almere-Haven: Meenten
composed of groupings of semi-enclosures
with public space in the courtyards

Almere-Buiten: Regenboogbuurt
parallel long rows, colors as a scheme
public space is more concentrated

Almere-Buiten: Eilandbuurt
customer-oriented adaptable archiectural design
high percentage of free standing villas

Figure 4.30
Aerial images of the five selected neighborhoods in Almere. Source: Almere from Air

Selected cases	Gross density (inh./ha)	Net density (inh./ha)	Social/private housing (%)	Dutch/non-western (%)	Average age
Almere-Haven	39,3	137,4	42/58	72/18	40
Meenten	30	143	23/77	78/11	40
Almere-Stad	55	158,5	26/73	61/29	34
Waterwijk	55,3	160	21/79	69/20	35
Muziekwijk Zuid	66,6	163	22/78	67/23	38
Danswijk	92,5	206	31/69	55/36	30
Almere-Buiten	47,2	146,5	25/75	62/28	33
Regenboog-buurt	54,1	161	24/76	58/32	32
Almere-Total	10,6	150	28/72	63/27	35

Table 4.1
An overview of the specifications of the five neighborhoods. Source: Social Atlas 2010, Almere Gemeente

Meenten (Almere-Haven)

The neighborhood de Meenten was built between 1975 and 1980. It is one of the earliest neighborhoods in Almere-Haven. Like the rest of the neighborhoods in this village-style urban node, Meenten is smaller in scale (76 hectares), and lower in population density (gross: 30 inh./ha, net 143 inh./ha). The neighborhood had a population of 2281 people (1047 households) in January 2010. Typical of Almere-Haven, the average age in Meenten (40 years old) is older than the rest of the city. Its inhabitants constitute a higher percentage of Dutch (78%) nationalities and a lower percentage of non-western immigrants (11%), compared to the situations in Almere-Stad and Almere-Buiten. The ratio between social rental and owner-occupied housing is about 2:8 in 2010, while the average of Almere-Haven is about 4:6.

The design of Meenten is quite characteristic in terms of the grouping of buildings and arrangement of a series of public spaces with different public-private attributes. First, several rows of terraced homes form a polygon shaped enclosure, which usually embraces a small to medium-sized semi-private green space with children's play amenities. High household back-garden fences are shielding the private open spaces from the collective space, which is visible from the back windows of the local inhabitants. Then, three to five such enclosures form a housing cluster, which is bordered by the main bike paths. There are many semi-public green open spaces in and around the housing clusters, which have interesting shape variations. This is due to the irregular configuration of the grouping patterns. The street network is made of

cauliflower-like curvilinear routes, which follow the layout of the housing enclosures. The vehicle traffic approaches from the perimeters, extending through the collective parking spaces, and culminating as dead-ends. The bus lane and the exclusive bike paths intersect in the middle of the neighborhood. Parking spaces are available on the front streets, except for the households situated along the main bike paths. Many of the streets in-between enclosures are pedestrian friendly: they are narrow in width and lined with well-decorated small front gardens and comfortable sidewalks. On the other hand, there are not enough parking spaces on the streets. Some cars have to use the nearby collective parking squares, which are designed to be surrounded by people's front entrances. Parking squares are not necessarily dead zones. British new town planners have observed that kids actually use them as playgrounds. However, in Meenten, the views from the personalized front gardens are blocked by cars.

The neighborhood does not have a center. Public facilities are distributed according to different spatial requirements, and are easily accessible by bike. The supermarket is situated near the main ring road in Almere-Haven, so it is easily reachable by people from the nearby neighborhoods. The community center, youth center and local care center are close to each other, and are near the peripheral green space. They can be shared by the adjacent neighborhood. The location of the primary school is more locally-oriented, situated in the geographic center, close to the bus stop. It is interesting to point out that the dispersed distribution pattern is associated with the separation of traffic modes. A traditional "main street" that is occupied simultaneously by private cars, buses, cyclists and pedestrians, or a pedestrian precinct, is not seen here.

The atmosphere in Almere-Haven's neighborhoods is often characterized as being village-like and nostalgic. Besides its pedestrian friendly streets, the housing style is also deterministic. The whole area is harmonious in color theme and architectural appearance, and they resemble traditional Dutch (farm) houses. The terraced houses have large, pitched roofs (usually covering one and a half or two floors), with dark brown tiles, dark red brick-decorated façades, and deep back gardens. Overall, the environment is peaceful and vegetated; the streetscape is intimate, and the street view is constantly changing and rich in details. Moreover, people are acquainted with each other in the small community, as in a traditional village.

Waterwijk (Almere-Stad)

Waterwijk is the second neighborhood in Almere-Stad, which was built between 1982 and 1986. Due to a personnel capacity problem, the design task was commissioned to a private planning company (Stad en Landschap) under the supervision of the Almere-Stad project group (Van der Wal, 1997, p.224). As a result, the design principles and

forms have a strong resemblance with the first neighborhood Stedenwijk. Waterwijk is almost twice as large as Meenten. It occupies an area of over 142 hectares, and had a population of over 7870 people (3264 households) in January 2010. As the district northeast of the main city center, it has a higher net density (160 inh./ha), but medium gross density (55 inh./ha), because it has a lot of greenery within its boundary. The ratio between social rentals and owner occupied housing was planned to be 4:6, but by 2010 it had developed to 2:8. The average age (36 year) is a bit older than the average of the whole urban node (34 year). A significant difference lies in its social composition, compared to Meenten and Almere-Haven. There are a higher percentage of households inhabited by families with children (40% vs. 30%), as well as a higher ratio of non-western ethnic immigrants (20% vs. 11%).

Although situated in a central location, Waterwijk does not distinguish itself from the characteristics of a typical suburb. As a matter of fact, it has the luxury of being surrounded by green and water from three sides, including the city's main canal, the "Hoge Vaart", and large sports park to the east, water resort Noordenplassen to the north, and the city park Leeghwaterplas to the south. The housing here is organized in smaller orthogonal blocks or square patterns. It was originally intended to create an urban-quality environment using the spatial typology related to the traditional urban blocks of European cities. However, the dominant housing typology remains to be the terraced single family house. The forms of urban blocks and their grouping patterns are varied. This strategy enables public spaces of diverse sizes and shapes.

The neighborhood is divided into four parts by the perpendicular canal and bus lane intersection. The layouts of the two eastern areas are coherent with the design of Meenten. They include small enclosed semi-private green spaces within each urban block, and several blocks are grouped around a semi-open green square. The inner courtyard typologies are not incorporated in the two western areas. Instead, bigger back gardens are only separated with a narrow alley in between. Green space is more concentrated in the green wedges that extend from the inter-neighborhood city park and peripheral landscape. The network design is a continuation of the earlier principles, but with some adaptations. Unlike in Meenten, the bus lane and exclusive bike paths are no longer barriers separating the neighborhoods. The traffic routes of the individual four areas are interconnected, but through limited crossings. There are increasingly long straight lines for cars, but thru-traffic is still intentionally avoided by making additional turns from one street to another. This route pattern is known as the "sneak routes". There is a long dominant bike path running through the two southern areas of the neighborhoods. However, it is intersected by vehicle routes in several different places. Furthermore, shorter bike connects the dead ends of the car routes, thereby interconnecting the network. The rear façades of the homes along the bus lane make the view from the bus cold and dreary. Overall, the separation of different traffic modes is somewhat reduced, but the street network is more complicated.

Abundant public facilities can be found in this neighborhood, including five primary schools, two small shopping centers (supermarkets), a health center, two sport centers, a community center, a church and several kindergartens. The logic of their locations is still to be placed near bike paths. The health center, supermarkets and sport centers are situated close to the intersections between the urban areas. This large neighborhood is isolated from the adjacent residential areas. Therefore, nearly all the facilities are embedded inside the neighborhood. There is increasing variation in the design of housing, such as a lighter color theme, portico or plat roofs. The traditional pitch-roofed, red-brick façade terraced house is still the dominant housing typology. The streetscape here is more spacious, open, and lined with public vegetation, compared to Meenten's narrow streets. In other words, more vegetation is seen from the streets, instead of hidden in the building enclosures. In addition to street parking and collective parking squares, extra parking spaces are also widely available at both ends of the street between the two urban blocks, beneath the side walls. Planners such as Jan Gehl found that walking a distance of about 50 meters from one's car to the front door is acceptable, and even good for street life. However, research surveys conducted on Almere indicated that most residents preferred to have their car within the sight of their dwelling (Coen, p221).

Muziekwijk Zuid (Almere-Stad)

Muziekwijk is composed of two parts: the Noord and Zuid. Muziekwijk Zuid was built between 1985 and 1990, which was the first neighborhood developed by the newly established municipality (in 1984), with assistance from RIJP's planners. The size of the typical neighborhood unit in Almere continued to be large in this phase. Muziekwijk Zuid has an area of about a hundred hectares, and a population of 6640 people in January 2010. Muziekwijk Zuid has its own train station. The gross population density (66.6 inh./ha) is higher than Waterwijk, while the net density is similar (163 inh./ha), which indicates less public green space. The average age in this neighborhood (38), is almost the highest in the Almere-Stad, except for the city center area. Just as Waterwijk, thirty-nine percent of households are made up of families with children. The proportion of native Dutch residents is lower than the city average, around sixty-seven percent, whereas the non-western ethnic population is higher than the city average at twenty-three percent.

Muziekwijk Zuid has a bowl shape. The spatial layouts in this area are evidentially simplified than before. The housing is divided by structural elements such as bus lanes, canals, green belts and squares. The typologies of the enclosures and urban blocks were replaced by the grouping of dozens of row house. The grouping patterns were configured in short rows, in an orthogonal manner. However, unlike the Waterwijk design, there is not any provision of alternating building and block positions in order

to create a variety of public spaces. Instead, the row houses are neatly arranged shoulder to shoulder next to or parallel to each other. A characteristic canal runs through the neighborhood in a triangular form and connects many of the green, public space. Plenty of small-scale green spaces are carefully embedded in each of the housing groups, either along the building corners, in-between side walls, along main pedestrian or bike paths, or at the entry points of local main streets. The traffic routes are more smoothly connected than earlier designs. There are more long, continuous lines, and less arbitrary change of directions. The bowl shape of the main city road that runs along the boundary of the neighborhood largely determined the interesting local network pattern. Most houses are accessible within three turns from the main city road. Exclusive bike paths conveniently link in all directions, and with adjacent neighborhoods. These paths are different from the other regions because they are associated with the concentrated landscape areas like canals, green belts and parks. The bus lane does not penetrate the neighborhood in the center, but rather along the sides, and sometimes with apartment buildings and schools in view.

As a neighborhood built before the middle of the 1990s, it has sufficient public facilities. There are four primary schools, a middle school, two health service centers, a youth center and a swimming pool. A community center, church and sports park can be found across the railway in Muziekwijk Noord. The small shopping mall in front of the train station serves as a focal point. The public facilities are distributed in the same way as the other areas. They are dispersed, associated with large green open spaces, easily accessible by bike, but they are not necessarily linked with local main streets or city main roads directly. In terms of architectural design, lighter colors are mostly used, sending out a signal of modern sensibility. Despite the fact that the majority of housing still consists of pitch-roofed terrace homes, there are some variations in building typologies, apartment towers and buildings located near the train station, free standing modern villas, bungalows, and two-under-one-cap houses can be found at the peripheries near the main city road.

Danswijk (Almere-Stad)

Danswijk is a small remote neighborhood in the eastern part of Almere-Stad. It was built between 1990 and 1995 on an area of 64 hectares, and has a population of 5925 inhabitants (2240 households) in January 2010. This neighborhood has the highest gross and net population density (92.5 inh./ha and 206 inh./ha respectively), and youngest average age (31 year) in Almere-Stad. Moreover, it has a higher level of social rental housing than the city average (31% vs 28%), which is possibly associated with the well above city-average-level of non-western ethnics (36% vs 27%). The main household type is designed for families with children (44%).

Danswijk is directly adjacent to the neighborhood Parkwijk to its north, and the industrial zone to its south. It is separated from the neighborhoods in east and west by the green wedge, and the main city canal, Hoge Vaart. The design continued the signature structure of Almere's neighborhoods, that is, quartering the area by the perpendicular intersecting bus lanes and main bike paths, and in the case of Danswijk, also by a canal. A straightforward street network structure has been applied to Danswijk as well as other neighborhood designs in Almere since the early 1990s. Cars can easily reach every front door. Parking is available on every street, and additional space can be found at both ends of most streets. At the same time, the building layout is also simplified to a mainly long box pattern. However, the buildings do not enclose any inner space. The buildings at the short perimeters of the "box" are typically facing local main streets, so many of them are specially designed. For example, they are modern, bigger in volume, with convex balconies, or with ground-floor shops. The rows of houses facing south have large front gardens (2 meters), while the opposite rows facing north have less than one meter space between their front doors and the public pedestrian path. However, a line of trees combined with low bushes is planted next to the alley. The path along the street greenery and under the shade of the buildings is comfortable to walk on.

The variety of building appearances is obviously greater in this 1990's neighborhood. Relatively uniform features are light yellow-tone façades and red-tile roofs. Similar to Muziekwijk Zuid, the green space is concentrated along the linear structural elements, like the canal and bus lanes. The green space forms the shape of a green cross. Since the early 1990s, the housing market in the Netherlands was increasingly privatized. Higher building densities were desired by developers. It is clear that the diversity and quantity of green public spaces is less here. The design of the public spaces within the housing clusters is interesting. The long box pattern is actually made of short-length row houses, so that the pedestrian or bike paths can slice through the "boxes" in the middle and be linked together. In the northern two quarters, a medium-sized green square or playground is embedded in every cluster of every three "boxes", and aligned with the intersecting, north-south pedestrian or bike paths. In the southeastern quarter, the housing rows are tiled at angles, so that a ladder-shaped public space, plus a collective parking space, is formed. The provision of public facilities is also sharply reduced, because of the size of the neighborhood. There is a primary school and a supermarket in this neighborhood, both of which are located close to the bus stop. Medical services, sports facilities and a community center are located at considerable distances in nearby neighborhoods.

Regenboogbuurt (Almere-Buiten)

Regenboogbuurt is one of the four neighborhoods in the middle section of Almere-Buiten, which was primarily developed between 1990 and 2000. There are over 5527 people (2180 households) living in the area, which is made up of 102 hectares. The gross and net population density is similar to the surrounding neighborhoods (54 inh./ha and 161 inh./ha respectively), which is higher than the average of Almere-Buiten (47.2) but similar to that of Almere-Stad (55). An increasing number of non-western inhabitants can be found in many of the post-1990's neighborhoods, including the eastern district of Almere-Stad and the middle section of Almere-Buiten. Although Regenboogbuurt does not have a particularly high percentage of social housing (24%), its ethnic groups are above the average of the urban node (32% vs 28%). The dominant household typology here is composed of young family with children (40%).

Since the early 1990s, the general trend in neighborhood development in Almere is that the network and urban layout are increasingly simplified and plain. The focus of designers has shifted to diversity and quality of the living environment, adaptability and flexibility of architecture, as well as the participation of perspective inhabitants. Regenboogbuurt, and its neighbor Eilandbuurt, are good examples of such changes. The former, as its name indicates, uses color as an urban design theme, while the latter manifests individuality and modernity of architecture. Buildings and their roofs in Regenboogbuurt are painted in a variety of bright and lively colors, much like the spectrum of a rainbow. The visual effect can be seen from both street level and from an aerial view.

Almere-Buiten is distinguished by its agricultural styled parcellation of land. The strap formed green landscape is surrounding, and also penetrating Regenboogbuurt. The neighborhood is divided into two halves by the green wedge and bus lane running from north to south. Then, there are both water-related central public spaces in the middle of the eastern and western areas, which are linked by a horizontal bike path running from east to west. It is clearly noticeable that the two halves are contrasting with each other, with regard to the quality of the living environment. The western half, which is next to the inter-neighborhood urban park, predominantly constitutes owner occupied housing, a large proportion of which is semi-detached modern houses and free-standing villas. There is plenty of diversity and individuality in the housing typologies and building design, despite that the buildings are mostly organized in parallel. An interesting highlight is the prize-winning residential cluster 'Klein India' (also named Hennahof), which is at the geographic center of the neighborhood, and linked by the central bike path. It is close to the central green park, with organically shaped water features. Public facilities are also located on this side, near the bus stop. On the other hand, the eastern half mainly consists of 2 to 3 storage row houses, a large percentage of which functions as social rental housing.

Just as in Danswijk, the duplication of the long box pattern is used as the standard urban layout. The repetition of long streets generates a sense of singularity. The architectural design of the row houses is rather monotonous and plain in the social housing area. There is also a lack of personalization in the front door areas, partly because no front yards or small defensive space were designed in this area. Sometimes, façade colors are the only way of distinguishing different households and streets. Moreover, the street views are not attractive because the public greenery is rather limited. The thin young trees cannot offer proper visual camouflage to the broad parking spaces in the middle of the streets. The public space is mainly concentrated in the central park, with geometrically shaped water squares, and two green straps. However, there are positive design features on this side. The positive design features in this area include corner buildings typically being accentuated by contrasting colors, raised heights, enlarged volumes, or changing shapes. The buildings near the public space, especially the central park, also have delicate details, such as the Amsterdam School styled art work of bricks, wave formed roof rims, encrypted texts or paintings on side walls. Double lines of trees, which have beautiful pink flowers in the spring and summer, are located along the main city road at the eastern border of Regenboogbuurt. Another important spatial characteristic of the area is the open view of traffic arteries, which does not occur often in other areas of Almere. Unlike the design of earlier neighborhoods, where views along city main roads (dreven) are blocked by trees, there is a 50 meter-wide open green space in between the traffic lines from two directions (called Evenaar). It is obviously designed to be a public space, where lined trees, pedestrian/bike paths, hard-ground squares and benches can be found. It is also where the big scale, annual city festival "kermis" is held in Almere Buiten. Moreover, the open view has a positive effect on the areas orientation and visual communication. The high-rise apartment buildings, big office and restaurant buildings on the one side of Evenaar, and the colorful residential buildings on the other side are identifiable landmarks. Passengers can have a good view of the city and urban life at both sides of the neighborhood, when they are traveling by bus through the heart of the neighborhood. The area near the bus stop is a concentrated focal point, as the supermarket and school are located nearby, and two of the links between the western and eastern halves are nearby.

§ 4.2.2.2   Comparison with traditional typologies: Berlage's Amsterdam Zuid and Dudok's neighborhood plan

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Berlage's Amsterdam Zuid

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Amsterdam Nieuw Zuid (figure 4.31) is the first planned urban district in the urban history of the city. The extension plan was made by the famous Dutch architect and urban planner in the twentieth century, Hendrik Petrus Berlage. Influenced by Camillo Sitte's approach derived from studying the medieval European towns, Berlage's first master plan (1904) adopted many picturesque elements: curved streets, squares and large urban parks. However, this idealistic plan was not implemented. A decade later, he was commissioned again for the same extension plan. Berlage's second and final plan (1915) of Amsterdam Zuid was largely inspired by the sense of monumentality of urban space manifested in Haussmann's Paris model and Burnham's City Beautiful Chicago plan. He used four-story apartment buildings to create a sense of scale and mass, wide boulevards and avenues in the form of radials and diagonals as the structure of the district, and diverse squares and monuments as landmarks. The entrance of the eastern part of Amsterdam Zuid from Amstel river via the Berlage bridge is the highlight of monumentality. The modernistic tweak of the design is that the end view of the avenue is a tall and modern apartment building (Wolkenkrabber) on Victorieplein, instead of the commonly expected public buildings in the traditional European towns. A statue of the planner himself (Berlage) is also standing at the end of this axis.

Figure 4.31
Berlage's Amsterdam-Zuid plan, aerial view and main axis street view

Besides the impressive visual effect, design attention was paid to detail at all scale levels in order to create a liveable urban environment for the working class. The urban space is beautified by the design details and diversity of building facades. The design philosophy of Berlage advocated honesty in form and the use of material. This philosophy was in pursuit of purity, clarity in the exterior, and placed space and its purpose as foremost considerations. The involvement of many Amsterdam School architects endowed the district with a creative, artistic atmosphere. The art of the brick sculptures, organic forms, shapes, and corner stone ornaments made building facades, and the faces of urban public spaces and streetscapes, visually attractive. Second, the abundant greenery on streets and various public spaces made the environment friendly. Double lines of tall trees give shade to the streets and sidewalks. Public art, especially Amsterdam School style sculptures and statues, decorate the squares and urban parks. Most important of all, the neighborhood districts are lively because of the widely incorporated small scale economic activities in the residential area in the form of street shops.

Berlage's master plan paid respect to the urban context, by extending the existing main streets to the new district, as structural elements in north-south direction. As shown in the city map of Amsterdam, the shops aggregated linearly on the main streets over a long period of time. This spatial characteristic was preserved in the southern extension area. Multi-functional building floor spaces were widely deployed along those inherited streets, especially in the two important ones that are connected to the famous open air market "Albert Cuyp markt", in the old south neighborhood "de Pijp". Because of the urban block composition, the district developed an open structure that connects the surroundings and between different neighborhoods. Such spatial configurations facilitated the natural growth and extension of commercial activities into new urban areas. The neighborhood unit model of concentrating public facilities and shops in the neighborhood center (as the design of the British new towns) was not applied here. Dudok's neighborhood plan

In order to generate a better comparison, we are going to take a look at the suburban developments from the early twentieth century of the existing cities in the Netherlands. Het Gooi, which is located nearby Almere on the opposite side of Gooi meer, is an area of low density, low-rise housing agglomeration. The important Dutch architect Willem Dudok was the city architect and urban planner for Hilversum, one of the major cities in het Gooi, from 1915 to 1954. He designed many urban extension areas for the city before and after WWII. Dudok has versatile styles. He was influenced by famous Dutch architects and styles over the early 20th century, for example H.P. Berlage, J.J.P. Oud, as well as the works of the British urban theorist sir Raymond Unwin, Italian architect Camillo Sitte and American architect Frank Lloyd Wright.

As a result, Dudok was dedicated to designing social housing complexes (mainly one family houses) for the working class (volkswoningen), and developed his own style, using rich urban and architectural languages (figure 4.32). In Hilversum, his urban projects were small in scale. An urban extension of the city was developed through the build-up of one housing complex after another. Dudok's design approach was therefore very much from an urban architectural perspective. In terms of the form and layout of the urban fabric, he favored flower shapes, where an area is divided by green zones into different segments. The green spaces also form a continuous network, so that different areas are interlinked by them. Monumental public buildings, mainly schools and sometimes public baths, libraries, and churches, are the focal point at the center of the area (see Figure 4.32). The Amsterdam School style was often applied to those stand-out buildings. He cared for the liveliness of the local streets and the urban life, by orienting the streets to the sun, and designing them in a picturesque approach. Public squares are essential elements in this design strategy, and corner shops were provided at important intersections. In his opinion, building blocks are used to create a repetitive rhythm. They should be designed in an economical and functional way, and at the same time aesthetically enjoyable. The characteristics of his housing design include the asymmetrically pitched red-tile roof, brick facade, sun-through (doorzon) windows, and circular shaped windows. The sense of unity in material use and architectural style was his primary pursuit, but meanwhile, there was plenty of variation in the exterior appearances and typologies within the housing complexes. This enlivened the street views. Extra attention was paid to corner buildings of a row and street entrances, similar to the treatment of British terraced housing.

Due to the special architectural style and urban settings, Dudok's urban blocks are at present particularly lively, and the inhabitants have a strong bond to the community. Compared with the monumental style and the degree of urban activity of Amsterdam Zuid, Dudok's Garden-City-styled housing complexes possess much more purity and quietness suburban attributes. From the overall city point of view, groups of open urban blocks (from different architects and planners) are usually connected with each other and sometimes intertwined with existing urban fabrics, so that a natural diversity and urban density is formed.

Street life and use of space: mapping of home-based small businesses, snapshots of pedestrian flows, effective public space designs

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After analyzing the spatial designs of Almere's neighborhoods, the actual use and appropriation of living environments is investigated by the methods of real-time observation and interviews. The snapshots of pedestrian and cyclist flows over a day were conducted in order to indicate the activity patterns of the individual neighborhoods, the choice of circulation routes, and the usage of public spaces. Planned corner shops, as well as self-emerged home-based small businesses were mapped and analyzed. In addition, some of the owners were interviewed. After conducting both vertical and horizontal comparison studies, an evaluation of neighborhood design and its influence on local urban vitality can be derived. Vertical comparison allows the researcher to identify the differences between the top-down planning intentions, and the bottom-up realities within a specific neighborhood. Horizontal comparisons are expected to identify the differences in the activity patterns of the selected cases, which result from the evolution and changes in neighborhood designs over times.

Traditional building floor plans, which could be transformed into ground-floor shops, were generally abandoned by Almere's early planners, because contemporary research revealed that commercial activities show a tendency of aggregation. Especially since cars are widely used, the demand from local shops is largely reduced. Planning too many of them was thought to jeopardize the vitality of urban centers at higher levels. A small number of neighborhood shops were still provided for the consideration of less mobilized groups, such as the elderly and disabled. The most interesting bottom-up phenomenon in Almere is the widely emerged home-based small business in the neighborhood, which is contradictory to the typical planning presumptions. This phenomenon will be explored in detail in the following analysis:

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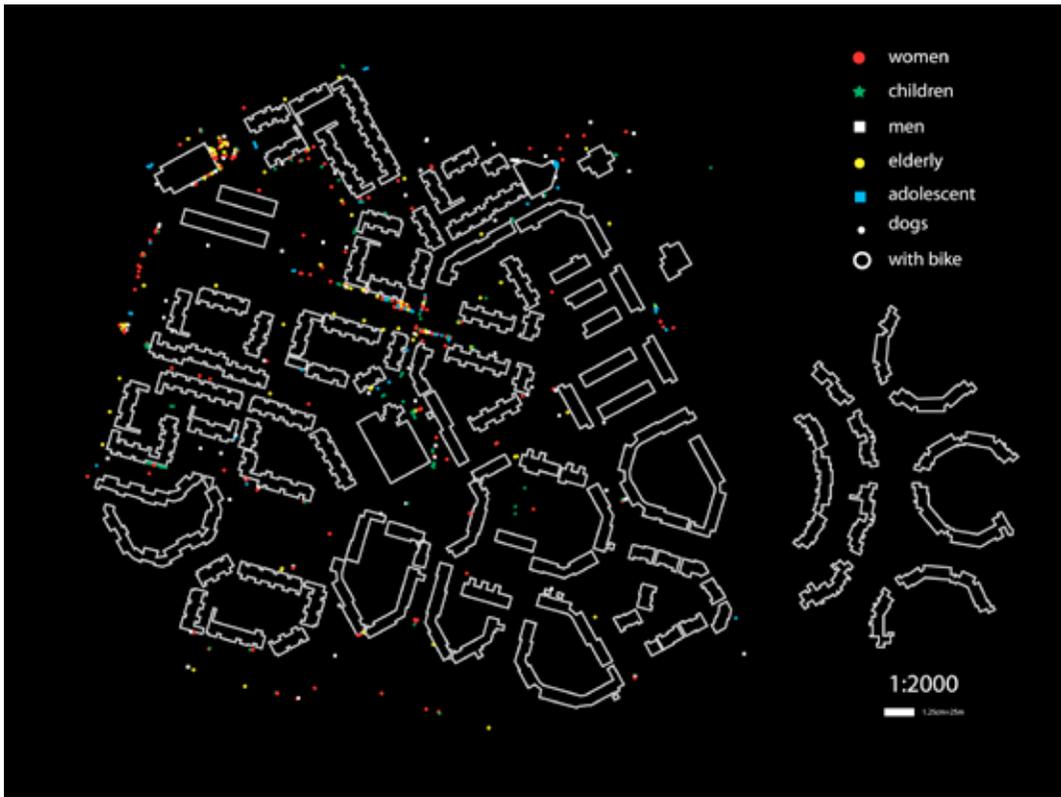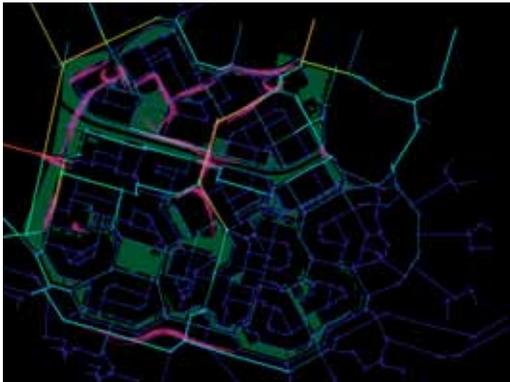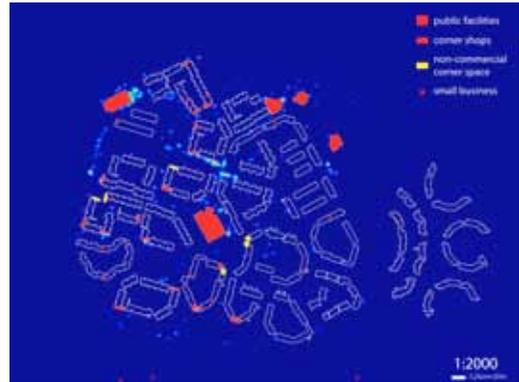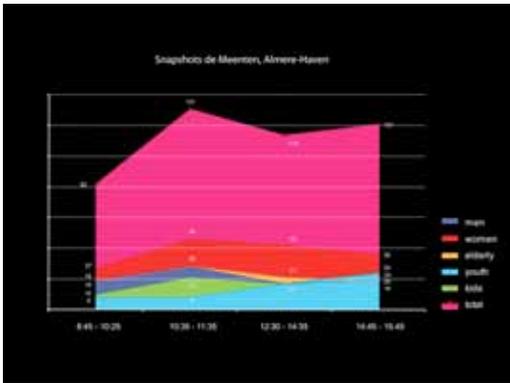
Figure 4.33
(1) Snapshots of people's movement of flows and activities in de Meenten, Almere-Haven. Data of observation: 6-May-2010 (2) Main concentration of people (3) The presence of people in relation to the distribution of city facilities, small businesses and the analysis of the streets' integration values (4) Statistics of the snapshots results

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Snapshots (figure 4.33)

When looking at time and user factors, an overall peak moment of outdoor activities takes place from 10:30 to 11:30 in the morning, while the level of outdoor activities is decreasing in mid-afternoon Women are the dominant group on streets at any section during the day time. By contrast, an increasing number of small children and teenagers can be seen playing in the public space after around three o'clock in the afternoon. Men and the elderly are present in about half to two thirds of the number of women at each time section.

As predicted, public facilities are the biggest attracters for human flows in planned urban environments. Since they are distributed at different locations in Meenten, the snapshots of flows show a pattern of decentralization in the neighborhood as a

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whole, but small concentrations at diverse points. Since the supermarket is located at a shared intersection by three adjacent neighborhoods, it has the most aggregation of people during a day. Small groups of people constantly visit the community center or local care service, which are located on the imaginary border between two neighborhoods. Primary school only attracts specific groups of people, that is, children and their parents. It is the liveliest center in the residential area. Naturally, the two bus stops across the bus lane are also where people meet each other. As can be seen on the registration map, the routes that connect in between the main attracters are particularly popular. When overlapping the flow map with both local and regional space syntax analysis of this neighborhood, it can be determined that the concentrations do not always coincide with the highlighted spatially integrated routes calculated based on the principles of connectivity and visibility. The most apparent example is the way from south and west to the supermarket at the northwest corner. There are two crossings over the bus lane. One of them is a highlighted central bike path, but is directed to the northeast to the community center. Traveling to the supermarket from this route require a detour in the housing area. Another option is to take the narrow alley along the bus lane. This route does not seem to be an inviting connection, because it is a space in-between the fence of the bus lane and the fences of people's back gardens (figure 4.34). However, many people use it as a shortcut. The other cross-bus lane connection is next to the main city road (dreven). In fact, it is quite a peripheral path in the green buffer zone along the fast-speed traffic route. However, many people coming from the neighboring area through the tunnel underneath the main road by bike or on foot are relying on this connection. Furthermore, there are not many pedestrians through the large public green square near the supermarket, which could have been the gathering point of people from different neighborhoods.

Figure 4.34
The narrow bike lane between bus lane and people's backyard is a commonly used route to the supermarket.

Figure 4.35
Characteristic public spaces in Meenten

Main bike paths run past public facilities - a main intersection is at the bus stops they connect surrounding landscape

several 'enclosure' embraced parking spaces bigger scale inner collective space has more users it feels more public and open minimum 8 meter distance is British new town urban design code

Figure 4.36
Small businesses in Meenten

Public spaces (figure 4.35)

According to the researcher's personal experience, it is easy to lose one's orientation in the neighborhood of Meenten, which is also often mentioned by the interviewed people who do not live in Almere-Haven. Thus, the factors that make people confused include frequent turns of directions, and the uniform appearance of buildings and street views. Public space design is featured for its multiple scale levels and diversity in size and shape. Open spaces are generally helpful for orientation. The two large green squares in the north and south part of the neighborhood are the most identifiable places, but they are not necessarily busy with people all the time. Each inner yard in a housing enclosure has several narrow alleys that are linked to the front streets. At least one of the openings of the alleyways is designed to be wider so as to invite passers-by. However, due to the small scale of most housing enclosures, the inner spaces feel very private and uncomfortable for outsiders to traverse or stay. The researcher observed that people do use the inner cross as a shortcut when the housing enclosure is large enough and the inner space feels more open and public (about 50x75 meters from back yard to back yard). Very few activities happen in the enclosed collective space, except for some recreational activities by small children. Field observations indicate that bigger kids tend to play in more open public places, like on the streets, street corners, and open playground, so that they can see and be seen by others. Elderly people tend to walk dogs and bathe in the sun in more open spaces as well. The usefulness of the seemingly interesting inner yards is therefore doubtful.

Small business (figure 4.36)

There is a relatively high ratio of planned multi-functional corner space in Meenten (23 out of 1050 households). Most of them were planned in the western part of the neighborhood, where they connect with another neighborhood (de Werven). Three types of corner spaces can be found here: one-level small buildings, free standing, or attached to a house, and corner houses where the ground floor can be used as a shop and the owner can live upstairs. The free-standing ones are just for rent; the other two types are for sale. The conversion rate of the corner spaces to commercial use is about eighty percent (18 out of 23). Those turned into home use at the moment are mainly situated along exclusive bike routes or bus lanes. The commercial corner shops are dispersed in different housing enclosures, rather than concentrating on certain main streets. Over half of them (10 out of 18) are located along highly spatially integrated streets. The others are topologically deeper inside the housing area. Most of the corner shops are not near public facilities, neither do they necessarily surround central public spaces. Only about thirty percent of them (5 out of 18) are located on the routes where concentrated pedestrian flows were observed. However, they themselves become small gathering points of activities and flows. Overall, the intention of locating corner space is apparently to compensate the area that is relatively remote from public facilities so that activities can be evenly distributed. There are also an equal number of home-based small businesses in Meenten (17). Their locations display a rather random pattern, and

seem to require less for high accessibility and visibility. Only five of them are near public facilities or main public spaces; three along the main bike paths; and two are close to the highlighted vehicle routes. In addition, less than a quarter of them (4 out of 17) have intensive pedestrian flows passing through them. The small businesses here have a fair range of variety, which are not limited to daily services.

Planned corner spaces offer people opportunities to develop their ambitions, and indeed contribute to a greater diversity and liveliness in the residential areas. Due to the longer history of this neighborhood, many shops have been running for quite some time. For example, the thirty-year old Italian restaurant is the first restaurant in Almere. The owner of a clothing and accessory store has also been working and living in the same building for almost thirty years. Many others, like the hair salon, photo studio, music record shop, cable store, driving school, sun-tan studio and more, all have been there at least five years. Some people started at home and moved to a corner shop when the business grew bigger. For instance, after twelve years of successful home-based driving school, the owner moved to a free-standing corner building, where larger spaces are available for fitting in more equipment for theory exams.

The local shops have stayed in the neighborhood long enough to establish reputations. Some shops mainly depend on a stable group of frequent clients from the locals. Others (e.g. driving school, cable TV shop) use internet, newspaper, and other professional channels as media to reach potential customers. In both cases, the survival of their business is not location sensitive, for they do not necessarily depend on passengers to drop in by chance, especially the home-based ones. Although Almere-Haven's neighborhoods are known for its easy-to-be-lost labyrinth-like street network, it is not considered a hindrance for business. According to the shop owners, if people find the provided service suits them, they will find a way to get there, no matter what kind of transportation method. Even if the shop is at the periphery of this neighborhood, it is still reachable within walking distance from the bus stop. However, there is a discernible tendency that the corner spaces with good car accessibility have a better chance of being used for commercial activities. The rent of commercial floor spaces in the center of Almere-Haven is seven times higher than the local floor space (5000 euros compared to 700 euros per month). The shop owners believe the neighborhood has a better business environment, where they can offer lower priced products, free parking in the shop vicinity, and friendly and personal service, which is appreciated by the locals in this village-like community. Even though some shops are more local-bound (e.g. the hair salon), and some are more global oriented (e.g. the restaurant), all of the interviewed shop owners say that they receive clients not merely from the local neighborhood, but from the whole city, nearby cities (e.g. het Gooi, Hilversum) and even from neighboring countries. The client groups are not restrained to the elderly either, although Meenten is in fact one of the oldest aged communities in Almere.

Generally, Meenten is a quiet neighborhood with small concentrations of activities and flows spread throughout the area. The distribution pattern of planned corner shops is in consistency with the separation of traffic modes. There is not a central mixed-use street or precinct, and thus, there is not a concentration of corner shops. The stretched-out pedestrian trajectories are largely determined by the locations of public facilities, and the network configurations play a weaker role in the planned environment. Unlike traditional urban fabrics, there is also a lack of evident interactive dynamics between human flows and the locations of spontaneous home-based businesses. The reasons are multi-faceted, involving the building floor plan, ownership, street network, and new information technology.

In conclusion, it is suggested to draw attention to the urban design to make the bus lane zone and popular pedestrian paths livelier. Further efforts could be put into adjusting the configuration of central public space in relation to the busy human flows. Additional corner shops might be arranged, preferably at the locations where busy pedestrian/bike flows are passing by, and close to public facilities. By doing so, activities could be gathered rather than dispersed. It can be hard to change the street network, but the community could use more spatial clarity and diversity in streetscapes, if they do not conflict with the peaceful and cozy quality of the neighborhood as it has now. As a matter of fact, what can be learned from Meenten is how to make an attractive village atmosphere community. The spatial factors may include a modest density of ground-binding pitched roof houses, narrower streets lined with personalized front gardens, harmonious sober color schemes, local corner shops, abundant trees and green spaces, and all combined in a small-sized community.
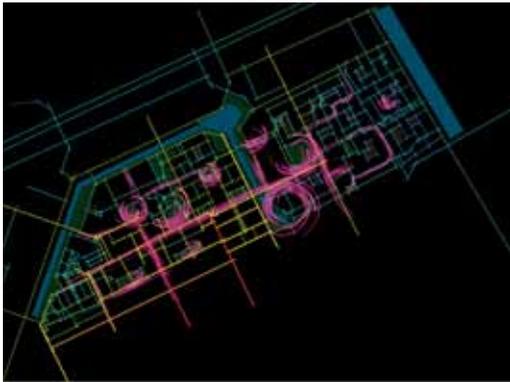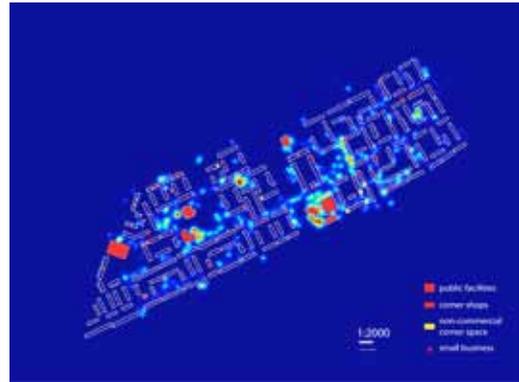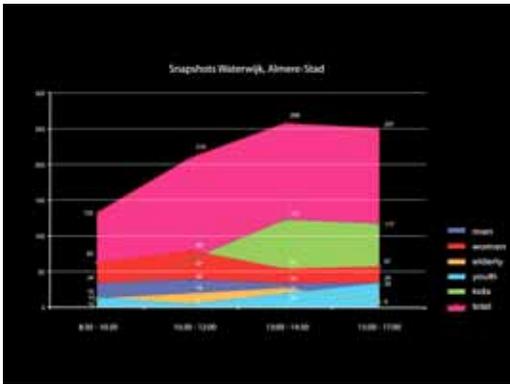
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Snapshots (figure 4.37)

Static snapshots were conducted in the northern half of Waterwijk, which has an equivalent size as Meenten. However, the number of people outdoors during the daytime is much higher than that of Meenten, especially in peak hours (13:00-14:30). There are almost twice as many people in public spaces. Waterwijk has a higher percentage of families with children, and it is clearly seen that children make an important contributor to neighborhood vitality. They finish class around 11:30. Many parents have been waiting outside the school to pick their children up, and perhaps also help bring back their friends' children. Groups of small kids led by one or two adults are often seen. Most of them are on foot or by bike, a few also by car. Noon time is not quiet in this neighborhood, because children start to play outdoors after about 12:00. Some play on the street, others in the school's playground or public open spaces. The girls

seem to prefer to ride bicycles, while the boys prefer to play ball games in small groups. There are also many children that play near their homes, and sometimes parents sit outside to watch them. Similarly, women are most active in public spaces in the late morning, and teenagers in the late afternoon. The quantity of elderly people and men is relatively constant. Consistent with social demographic figures, there is indeed less elderly people observed here than in Meenten.

Waterwijk is a lively neighborhood. Pedestrian are widely distributed in the network. The most characteristic pattern is the dominant concentration of flows and activities along the continuous street that links the left and right areas crossing the central canal, and stringing most of the public facilities (supermarket, medical center, schools, and sports center) and key public spaces. According to the space-syntax analysis, we can see that this street is part of the single most important inner loop connecting the four quarters of the neighborhood, and the most integrated one within the northern half. There is no exclusive bike path running the same direction as a central line in this area. And there are evidently benefits from the increased mixture of different traffic modes. The association of the dominant street with main neighborhood facilities and public green spaces has created a sense of clarity and centrality in the neighborhood spatial structure. And this has facilitated the use of public spaces because of the concentrated movement of flows.
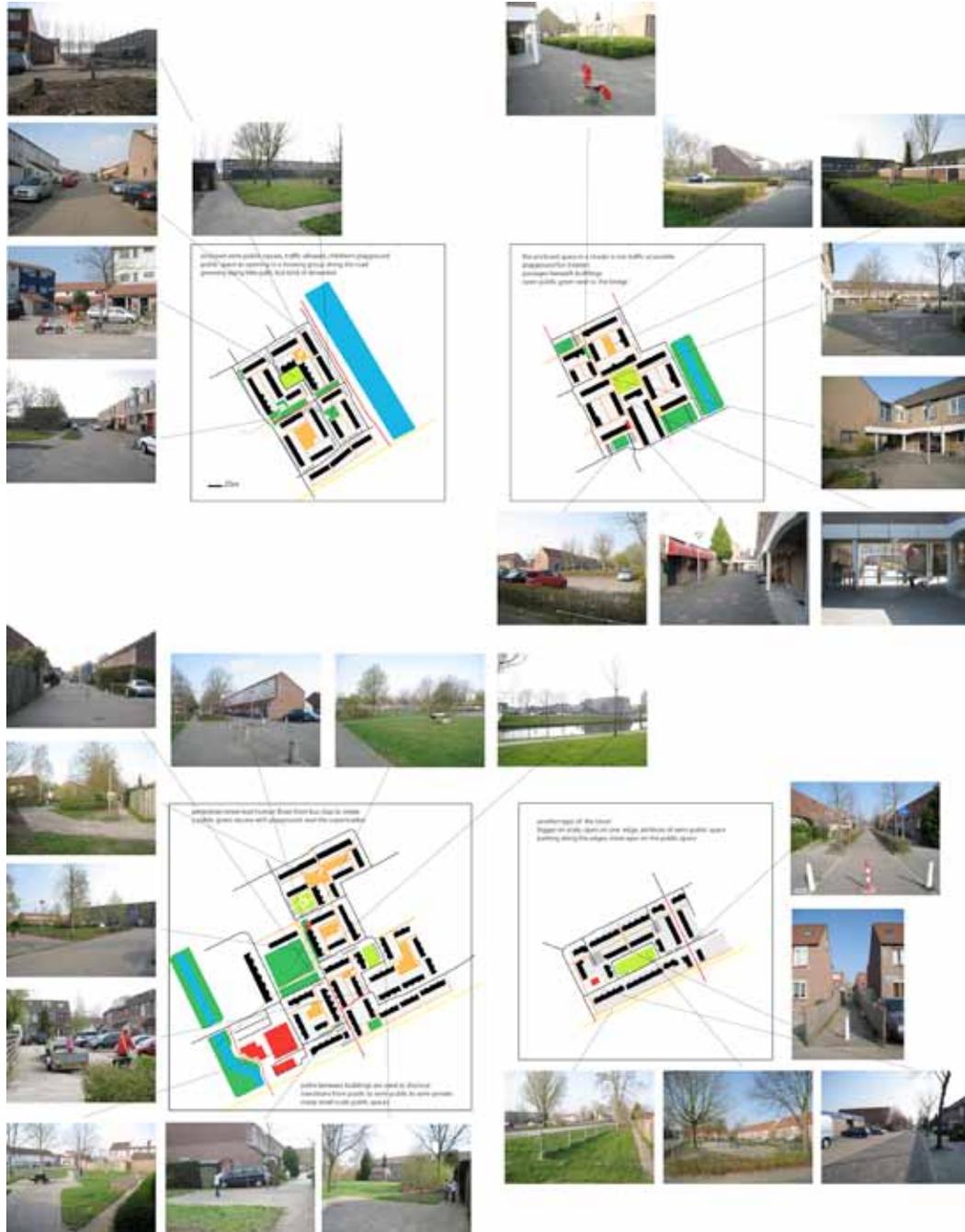
Figure 4.38
Characteristic public spaces in Waterwijk

Public space (figure 4.38)

Despite the fact that the network design of Waterwijk somewhat inherited the idea of circuitous routes, it is not easy to get lost. There is a wider range of variety in building forms, appearances and grouping patterns. The greenery that is sporadically located in the middle or side of the streets makes the orientation easier. There is also a noticeable unexpected choice of routes in this neighborhood: the narrow path between the sidewalls of the buildings near the bus stop, which is clearly not meant for a formal street, is in fact busy with pedestrians and cyclists. Like in Meenten, the public spaces are organized in different sizes with different levels of publicity. A new typology can be found here. That is a type of modest-sized, semi-open squares surrounded by the front doors of the terraced houses. They are usually furnished with the playing toys of children in either hard or grass surfaces. This space has plenty of users, as it is collectively owned by the immediate neighbors, but at the same time, not rejecting visitors and passers-by.

By contrast, the semi-private inner green spaces enclosed by the back garden fences are pretty much deserted. Sometimes, some small children ride bicycles in the back garden alleys. Many of them are unused, hidden public spaces in the northeastern quarter of Waterwijk. They are poorly maintained, and sometimes become garbage dumps. Compared to the pure grass land in Meenten, the two central green spaces here are given functions, i.e. one has a small football field and a basketball field, and the other has a small forest for recreational walks. Moreover, the notion of "streets as public space" is well manifested in this neighborhood. A good example is that many children play (e.g. street football) in the pedestrian-only entry street connecting the bus stop with the central street in the neighborhood. Deep in the housing area, a small square with a tree at the corner of a winding road functions as a fun playground for nearby children. There aren't any public paths along the bus lane, so blocked views are not an issue.

Conversely, there seems to be a safety concern in this neighborhood. Many families have dog warning signs attached to the windows along the street. Some corner houses have warning signs about home-use surveillance cameras. Although Waterwijk is an early-phase neighborhood in Almere, built in the early 1980s, it does not seem stable. This is because of the frequent moving in and out of residents. Quite a few households are working on their gardens, and sometimes interiors, too. There are also some small public projects located in various public spaces. Trailers with building materials in large plastic bags are frequently observed.

Small business

There are in total eight planned corner spaces and six (75%) are in business use. They include two small kindergartens, a bike and accessory shop, a beauty salon, a restaurant, and a small architecture office. Most of them are along or near the spatially integrated central street. There are twenty home-based businesses at the moment. Over half of them are located near the central street, which is also where the human flows are concentrated.

Location does not seem to be a major concern for the home-based small business owners. Many of them have lived in the neighborhood for some time before they started their own business. Therefore, they did not consider the influence of the location on their business when they bought the house. However, all the interviewed entrepreneurs do not find their current locations inconvenient. They have their own way of reaching to and attracting clients. For example, medical practitioners register themselves at the house doctor's official recommendation list, and treatment costs can be officially reimbursed by the insurance company. The owner of a beauty salon took over an existing business, and the existing clients came with it. New clients are usually friends of old clients, attracted by word of mouth recommendations. Both the ship designer and the guitar teacher have established good professional reputations and business connections, so that they can work independently at home after retirement. The visual appearance of the home-based business is quite low-key. Most often, there is only a small sign attached to the window or wall, and some are completely invisible. Modern communication platforms (i.e. internet) enable the online retail businesses to become much less location-dependent. They depend little on passing flows or local patrons, but have clients beyond the neighborhood and city borders. When physical transportation is necessary, it is not a problem for potential clients to find the service providers (and vice versa), with the help of GPS devices. Although not spatially constrained, they all consider the growing population of Almere as a positive factor for their business. They can both enjoy a good living environment and a good business environment.

women
children
men
elderly
adolescent
dogs
with bike

1:2000
25m

1

2

3
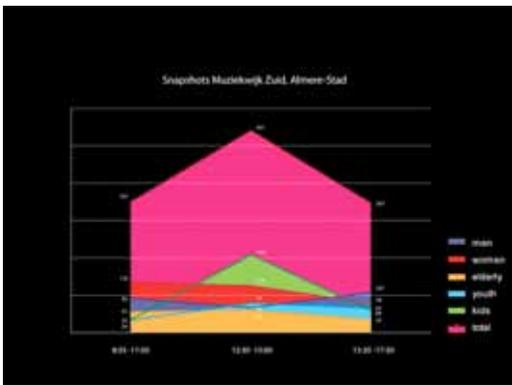
4

Figure 4.39
(1) Snapshots of people's movement of flows and activities in Muziekwijk Zuid, Almere-Stad. Data of observation: 13-September-2010 (2) Main concentration of people (3) The presence of people in relation to the distribution of city facilities, small businesses and the analysis of the streets' integration values (4) Statistics of the snapshots results

green corridors
associated with bike paths
concentration of human flows

Figure 4.40
Characteristic public spaces in Muziekwijk Zuid

corner green space

Muziekwijk Zuid

in-between space

planned corner shops
bike path and urban square

"radburn"
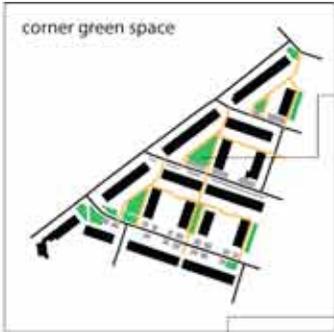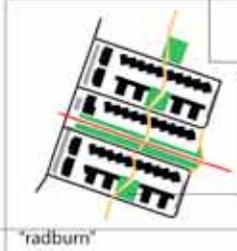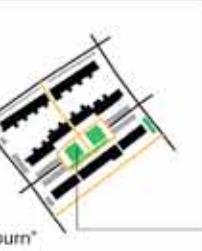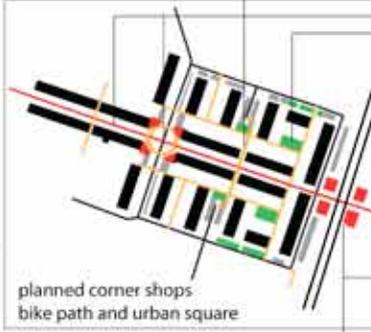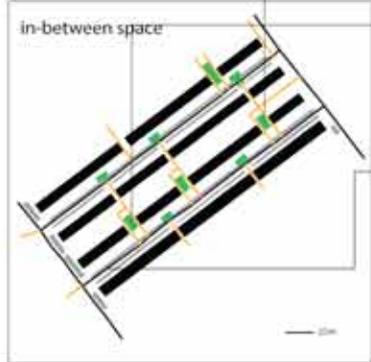
Snapshots and public spaces (figure 4.39-40)

The train station area at the north border of Muziekwijk Zuid is obviously the focal point of the neighborhood. Right outside the station, one can find the bus stop and bike parking area. Across the open bus lane, there is the shopping center with a glass-roofed passage. In the morning, there are mainly people hurrying to catch a train or waiting for a bus. In the middle of the day, young students gather to buy lunch snacks and eat nearby. In the afternoon, more people do shopping or sit in the outdoor café besides the building. Late afternoon and evening is the busiest time for the restaurant at the corner of the shopping complex. The long bike and pedestrian path running parallel to the railway is an important and convenient route connecting nearby neighborhoods, and have plenty of users during the day. However, they are in between the railway dyke, the fenced bus lane and the fenced backyards. The environment feels cold and hostile, which might be scary for passengers on foot and by bike when it is dark.

The design of the public space in Muziekwijk is departed from a pattern of evenly distributed green squares of various sizes to a linear concentration. The small greens in the housing area are reduced. Starting from the station area, the open green space, and the canal form a triangle-shaped corridor at the heart of the neighborhood. It is quite characteristic that the concentration of human flow is closely associated with the open landscape network. As there are only bike and pedestrian paths along the green water space, the separation of low and high speed traffic in this neighborhood is inherent in the area layout. The main crossing points of the bike paths and the canal are provided with green parks, which are important meeting points. In addition to busy movement of flows, recreational activities, such as children playing and dog walking, take place in the green area. The primary schools embedded in the green zone also contribute to the liveliness of the area. During the busiest hours of the day (late morning and early afternoon), the green corridors are filled with after school parents and children, sun bathing elderly people, shoppers, exercisers and teenagers.

Small business

There are a very small number of planned corner shops (8) for the size of a neighborhood like Muziekwijk Zuid. Moreover, they aggregate along a bike path connecting to the adjacent neighborhood Stedenwijk, which is the closest neighborhood to the city center. Four of them are corner buildings around a small hard ground square, which can be described as urban and cozy. The other four small businesses are in independent small buildings at the corners of the city road intersections. Such spatial typologies could be more generously deployed to increase the urbanity of the area. Muziekwijk is rich in spontaneous home-based businesses (34). This may be because of its convenient location near the train station, as well as the presence of a wide variety of public facilities and abundant vegetation landscapes. High income residents probably prefer to live here. Over half of the home-based businesses are situated near or along spatially integrated streets and busy human flows. However, overall, they are distributed in a scattered pattern. The spatial trend for this area is that there are much more private businesses in owner occupied housing areas than in social rental housing areas.

Legend:
- ● women
- ★ children
- ■ men
- ● elderly
- ■ adolescent
- · dogs
- ○ with bike

1:2000
— 25m

1

2

3
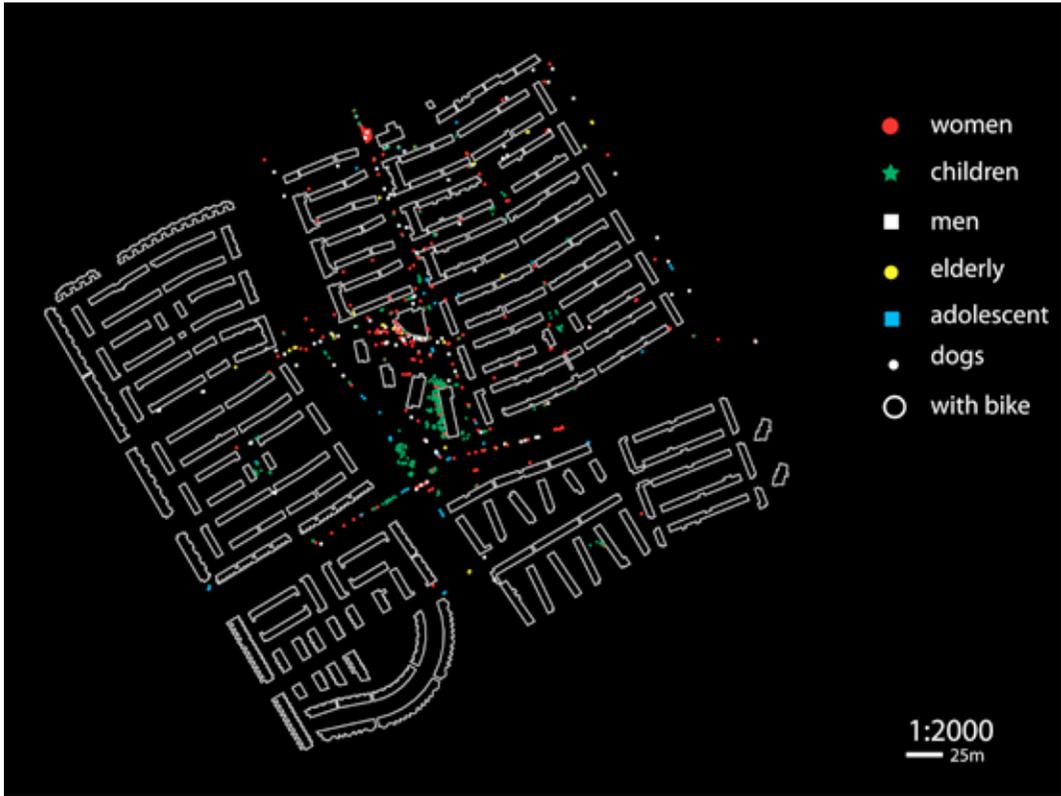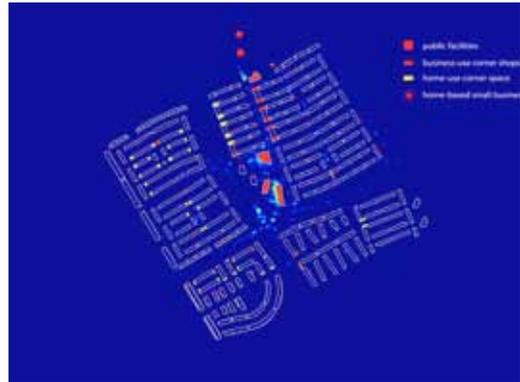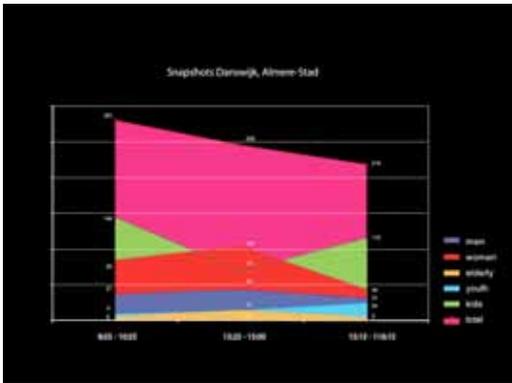
Figure 4.41

(1) Snapshots of people's movement of flows and activities in Danswijk, Almere-Stad. Data of observation: 25-June-2010
(2) Main concentration of people (3) The presence of people in relation to the distribution of city facilities, small businesses and the analysis of the streets' integration values (4) Statistics of the snapshots results

4

semi-open, semi-public, open view

semi-close, semi-pu...

25m

corner, semi-open, public, open view

semi-close, semi-...

enclosed, semi-private, permeable view

open, public

Figure 4.42
Characteristic public spaces in Danswijk

blic, permeable view

semi-close, semi-private, open view

-private, open view

semi-close, semi-public, open view

open, public
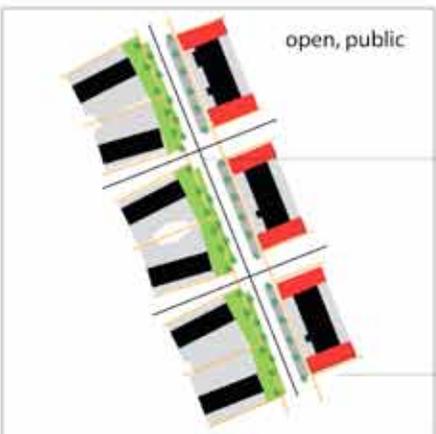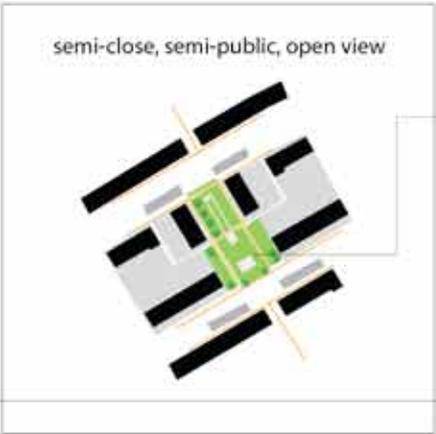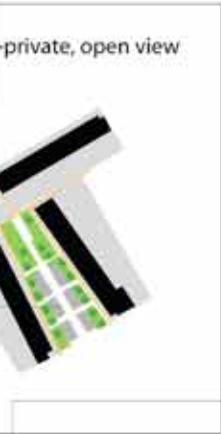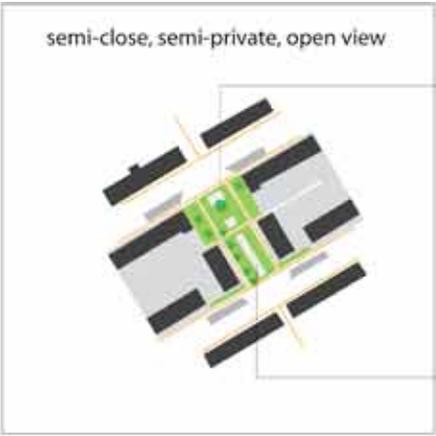
Figure 4.43
Spatial appropriation and signs of small businesses in Danswijk

The peak hour of activity in Danswijk is in the morning, and it primarily consists of school children's outdoor activities. Women are the main active group during the day, especially before 15:00 in the afternoon. As the local school and supermarket are located right next to the bus stop, this area is the most open, public, and active center of this neighborhood. The surrounding streets form the main pedestrian/cyclist loops. The green space is located opposite of the school, at the intersection of the bus lanes and the central canal. The green space is filled with children's play furniture, and a small multi-sport play court. During school hours, children cross the street and bus lanes to play in this place, under the supervision of their teachers. The local vegetation provides both a sense of public space and privacy to this green space. In the early morning and late afternoon, it functions as a gathering point for teenager. However, besides the previously described central loop, there is very little street life in the housing area. Children rarely inhabit the long, car dominated streets.

This highly dense neighborhood does not have collective, green open spaces where people can occupy, see and be seen. The boulevard near the big canal (de Vaart) at the eastern border is rarely occupied. Neither is the green zone along the central canal. However, the carefully designed small scale, semi-public green square and playground square, which are located in the middle of the rows of terraced houses, are successful in attracting recreational activities of different age groups. The shortcut pedestrian/ bike paths connecting them have frequent passengers, even though speed reducing obstacles have been installed. Different design strategies are used to achieve varied spatial feelings of privacy and openness. When the space is surrounded by side walls of back gardens, the visitors feel free to stay. When two specially designed buildings are facing each other, they generate an in between space that feels like a semi-private domain with many "eyes" watching from the windows. In some cases, the architectural design of the edge building is too contrasting with the other buildings, and its mass is also too large in relation to the scale of the public space. These edge space characteristics detract from the public feeling of the space. It has been observed that teenagers and adults only occupy the edge of these types of spaces. This is because the edge condition is the only space where they do not feel overexposed to others. Public squares which have a balanced sense of publicity are more popular with the residents. These spaces generally have a balanced proportion of surrounding building heights and space widths, they have trees and bushes that protect the privacy of the occupants, and the front gardens of the surrounding homes are larger, in order to protect the privacy of the residents. In addition, the aesthetics of the surrounding buildings are relatively low profile, blending in with the architectural aesthetics of the surrounding area.
Small business

Danswijk has the highest small business density of the entire city. It seems that the corner shop concept has returned to the neighborhood design. In total, there are fifty-two transformable corner spaces that are located at the end of the housing rows. Fifteen of these are currently occupied for commercial use (29%). Nearly all of them are located along the local main streets, which have good external accessibility. The shops in the less spatially integrated locations are usually used as extra home space, storage or a personal workshop. The larger corner shops that are only suitable for commercial use are located along the main route, linking to the neighborhood above Danswijk. They are currently occupied by a kindergarten, several pet clinics, a grocery store, a flower shop, and a hair salon. The urban street has been brought to life by the mixed activities and concentrated pedestrian flows. By contrast, few of the corner spaces that are located on a parallel cross-neighborhood street, along the fenced bus lane, are converted to business use.

Some types of small, online retail businesses require considerable storage space. For example, there is a young couple that has been selling toys to clients all over Europe for ten years. They used to use the attic of their house as a storage/working space, until they found a house with an attached work space. This house provided a more optimal combination of living and working environment. They believe that there are a lot of multi-functional spaces in Almere, if one knows to look for the information from sources like a housing agency. However, it is difficult to find an affordable space for small-scale business like theirs, because the corner spaces available are often large in size, thus expensive in rent. They moved to this neighborhood, because there are small-sized corner spaces here that suit their needs. They suggested that there should be much cheaper rental space available for small businesses in Almere. The middle-aged couple running an online shop for children's clothing rent a warehouse in one of the industry zones in Almere-Stad. According to them, renting a warehouse is easy and inexpensive. They registered their home address as the office address. However, most transactions are done through internet and by TNT post service. If the clients want to pick up their purchases by themselves, it is also possible to visit the business owners at their home or the warehouse. They have established clients from a number of European countries in five years' time. The success lies in that they provide the latest models with controlled quality at a low price.

women
children
men
elderly
adolescent
dogs
with bike

1:2000

1

2

3
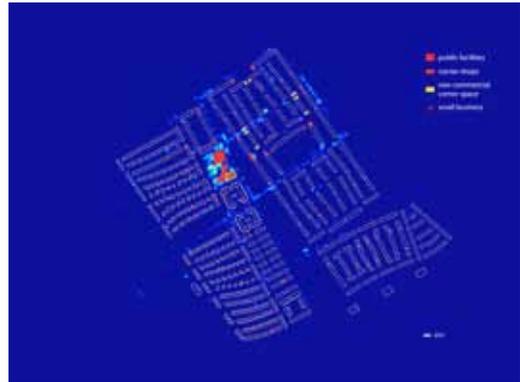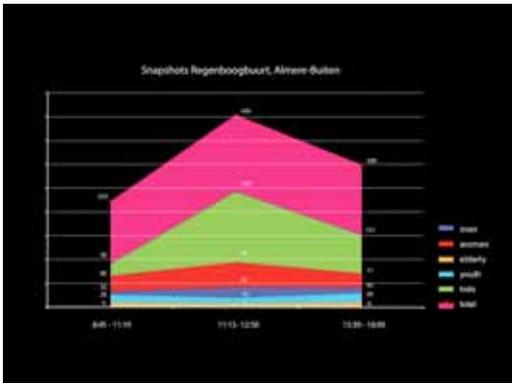
Figure 4.44

(1) Snapshots of people's movement of flows and activities in Regenboogbuurt, Almere-Buiten. Data of observation: 14-April-2010 (2) Main concentration of people (3) The presence of people in relation to the distribution of city facilities, small businesses and the analysis of the streets' integration values (4) Statistics of the snapshots results

4

central green strap
open view visually connected

crisscross central bike paths as axes
linking water park at both sides
architecture as highlight

Figure 4.45
Characteristic public spaces in Regenboogbuurt

Regenboogbuurt
Almere-Buiten

— 25m
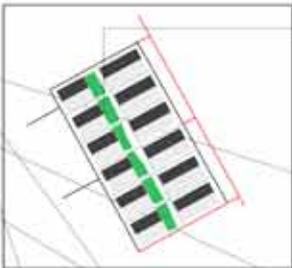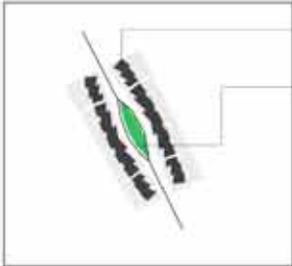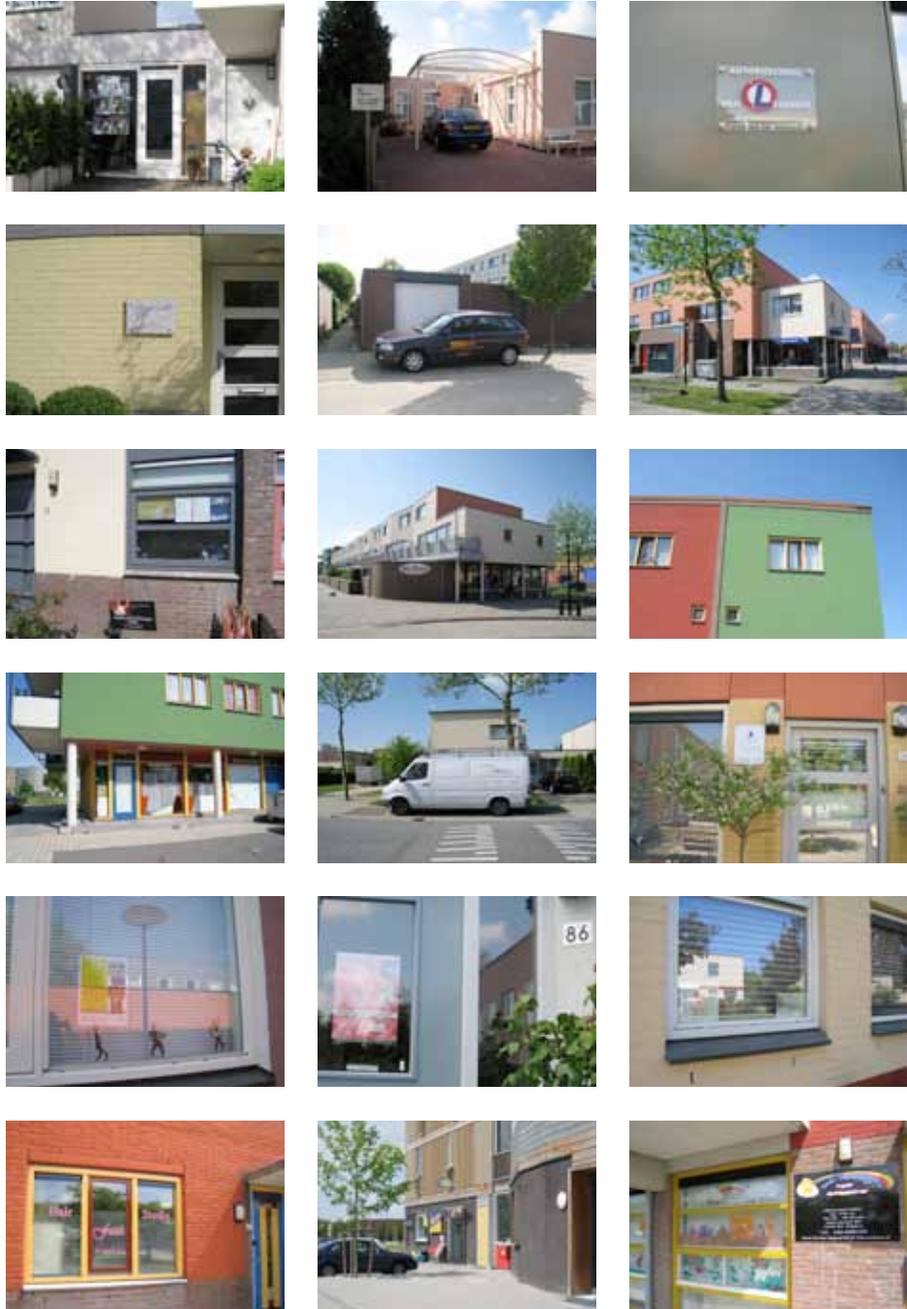
Figure 4.47
Signs of small businesses in Regenboogbuurt

Snapshots and public space (figure 4.44-45-46)

Regenboogbuurt is a lively neighborhood, mainly due to the large quantities of active young children that can be seen in the school playground, as well as on the streets between their school and their homes, with and without parental supervision. The sounds of children can be heard from far away. Similar to Danswijk, the main facilities, i.e. the supermarket and the school, are located next to each other, next to the bus stop. They form the most dominant activity center in the area. The peak hour of activity is noon. Due to the open view of the bus lane, which is associated with the central green strip, the housing areas on two sides of this zone are no longer physically segregated as in many of the neighborhoods in Almere. Clearly, more people are seen comfortably traveling along the urban and landscape edges and at the crossings over the green strip. The long, horizontal bike path connecting the Regenboogbuurt with neighborhoods on its left and right is busy with passengers, because it is not only a convenient shortcut, but also is decorated with water landscape.

The edges of the water parks are popular places for relaxing activities, such as fishing, feeding ducks, teenagers hanging out after school, sitting on the benches, etc. One end of this bike path runs through a large inter-neighborhood landscape zone, where people do exercise and walk dogs. The other end of the path meets the north-south bike path with double lines of blossoming trees on the eastern edge of Regenboogbuurt. Groups of pupils from the local and adjacent schools, and their parents use this route to get to the neighboring area through a tunnel. The landscape design makes the bike paths in this neighborhood an enjoyable environment to ride a bike through. On the other hand, due to the absence of small-scale semi-public spaces, fewer children are seen playing together on the streets in the housing areas than in the neighborhoods like Waterwijk and Danswijk.

Small business (figure 4.47)

Regenboogbuurt has one of the highest densities of small businesses in Almere-Buiten. They mainly consist of home-based businesses. There are only ten planned special corner spaces. And they are all concentrated in the social housing dominated district, especially near the water square. Half of them are now in commercial use, including a children care center, a hair salon, a snack bar, a dentist clinic and a café. In total, there are thirty-two home-based businesses, twenty-two of which are in the villa dominated district, which is more than twice as many as in the social housing district. The influence of people's social-economic status on their possibility of starting a private business can be identified.

When asked about whether they have the intention to move to another place for their business, most people who run a home-based business, like beauty salons and medical cares, are content with transforming a part of their house for business use, since their home is large enough to accommodate it. The quantity of customers has

been managed to balance with the size of their business space. Finding a house with an appropriate floor plan is important. Home-based business owners want a working space to treat the customers, but at the same time, to have adequate privacy for their family. Therefore, separation in spatial arrangement for public and private activities in a house is required. Some people transform the guest room next to the front door, while others use the garage space in the rear of the house. In any case, the public space has to be on the ground floor, but does not necessarily need to have a big window with a view to the streets. In certain cases, a degree of privacy is appreciated by the customers.

Some people used to manage a shop in the city center or sub-centers, but once the business did not go well, they retreated to their own neighborhood or home to continue with their businesses in a smaller scale, flexible, relaxed, but also viable manner. However, a large, collective space is necessary for some practices. For example, the lady who teaches Tai Chi rents space in a Dance center, Yoga center or schools for her classes. Such spaces are easy to find in older neighborhoods (from RIJP and early municipality eras), but hardly exist in the latest implemented neighborhoods such as Regenboogbuurt. It is easy to find a space for rent for a short period of a day, but difficult to find space for group lessons or physical activities for long term lease in the neighborhoods, according to the Karate coach who is looking for a regular space to open his own school. He is not so fond of the industrial/business zones, because traffic organization there is confusing and not easily accessible by visitors. The new town also does not have old factories and warehouses which can be transformed to multi-functional new uses as in the historical cities.

No one in the interview considers Almere to have a less favorable business environment than other cities. They have no problem with getting customers. When they move to a new neighborhood, the regular customers often follow them there, even if it means that they need to drive there instead of travel on foot or by bike. It is interesting to note that social connections have been found to overcome spatial inconvenience. However, this phenomenon is not entirely unconditional. The Tai Chi teacher observed that people are more willing to travel to a city center or sub-centers than to other urban nodes (e.g. from Almere-Haven to Buiten). In some other cases, it is the entrepreneurs who have to travel a long distance to where their services are needed. As one of them pointed out, "if you invest time and money and work hard on providing good quality service, you will not need to worry about lacking customers".
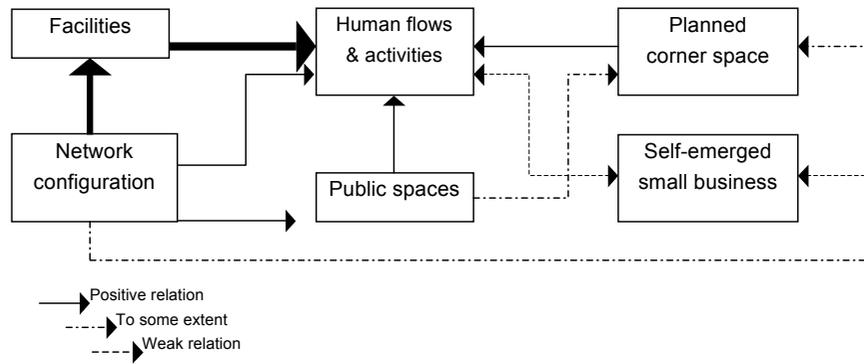
Figure 4.48
Diverse influential factors on people's movement of flows and activities

According to the analytical results of the neighborhood snapshots in Almere, it can be determined that local facilities (mainly supermarkets and schools) are the most important activity centers in a neighborhood (figure 4.48). If they are separately located, such as older neighborhoods Meenten, Waterwijk and Muziekwijk Zuid, then the dispersal of human activities is scattered or stretched out over the neighborhood area. If the facilities are clustered, as in the cases of the later neighborhoods Danswijk and Regenboogbuurt, then a concentrated activity pattern can be observed. It was probably the intention of the earlier neighborhood planners to distribute facilities and planned corner spaces relatively evenly. The later design clearly went back to the idea of centralization and locating supermarkets and schools in more visible locations from public transportation hubs, as the view of bus lane is more open than previous designs. The main slow-speed traffic flows (pedestrian and cyclists) generally coincide with space syntax highlighted routes, especially the ones connecting to facilities or the ones with inter-neighborhood accessibility. This is true except for the case of Meenten, where the network is a semi-lattice pattern. However, flows and activities also gather around corner shops and public spaces, which are dispersed in various quieter locations in a neighborhood. In most cases in Almere, the neighborhood main streets or dominant bike paths are associated with open landscape and public space, which provides people with enjoyable walking and cycling environments, as well as opportunities for people watching However people sometimes make use of the most convenient but unintended shortcut, even if the streetscape is not attractive. This is where future design attention is needed.

Besides public facilities, small businesses are playing an important role in increasing the dynamics and vitality of a neighborhood, which was unforeseen by Almere early planners. The planned corner space is designed to be multi-functional, so they are rarely unoccupied. In the study cases, there are about thirty to fifty percent of such corner spaces converted to diverse business use. Home-based small businesses make even greater contributions, although they are usually spatially implicit. Small businesses can be categorized into three general types with regard to their function: (1) "local daily service". This is the type of business which is the most sensitive to location. Some example business types are beauty salons, restaurants and cafés, snack bars, pet stores, and grocery stores; (2) "services out of professional skills and personal hobbies". These people are experts of particular fields and are able to work independently full time, part time or after retirement on their subject of interest. The types of businesses found are very diverse, such as medical practices, education and training, computer service, design office, consultant, driving school, funeral/wedding planner, travel agency, transport service, music store, art studio, catering, etc; and (3) "retailers". For example, hardware shops, furniture shops, clothes shops, toy shops, and equipment and instrument selling shops.

The planned corner spaces are not concentrated along a central street or on the most spatially highlighted locations, except for the case of Danswijk. The distribution of home-based businesses is pretty random, as most of them do not show any evident relation to the network configuration, public transport, public spaces or facilities. And all the interviewed shop owners claim that they do not depend very much on passing flows, even the local daily service type of business. Business is maintained and extended by the established customer network, mouth to mouth recommendations and advertisement through various media. Complaints about the difficulty in finding a shop's location have not been mentioned by customers, not even for the disorienting Almere-Haven's network. It is impressive that in Almere, the number of home-based small businesses is much larger than that of planned corner shops. However, it is difficult to determine if planning more corner spaces would result in increased business occupation. This is because the advantages of having a larger house in the suburbs enables people the opportunity to spare some floor space to accommodate small business settings, and also because retail businesses have increasingly shifted to being more dependent on internet sales than physical in store purchases. Communication throughout the entire process, including advertisement, contact, business transaction and delivery, can be done online. Face-to-face communication is usually not necessary. In this way, they are not location-dependent, and their locations are not constrained by the places with high public visibility. They can reside in local suburban areas, and they receive clients regionally, that is not only from the entire city, but also from nearby cities and from even neighboring countries. This type of small business comprises a large proportion of the home-based businesses in Almere.

The analysis of the current status and the underlying conditions of small businesses, especially the home-based ones in Almere indicates that small-scale economic activities will continue to be active and develop in this town. However, suggestions can be concluded out of the research analysis. They include providing a range of multi-functional rental space of different sizes with an affordable price, and making the environment of the industrial and business zones more attractive.

§ 4.2.3 Social-cultural activities

§ 4.2.3.1 Top-down organized activities

Similar to most of the other Dutch cities and towns, the Almere municipality organizes a number of social cultural, and sports events and festivals throughout the year. Almere is promoting itself as a city that provides diverse, engaging events throughout the year. The schedule and concise descriptions of the events are published in advance, on the municipal website. The venues are usually located in various city squares and public spaces, landscape resorts, and major cultural and sports facilities. The most important events of the year include the Queen's day festival, the summer carnival, the arrival of Sinterklaas (mid-November) and the Christmas market, parade and circus. There are also regular music festivals, sports competitions, foreign culture festivals, and excursions, as well as the traditional weekly open markets. The city museums, libraries, tourism office and city marketing group also contribute to city activities. Besides recreational events, there is also a level of public participation in city development, management and politics. This is an essential part of all Western democratic societies. Such events can be as small as naming streets together, group discussions about public space management or local politics, and as large as building one's own home. Invitations are usually posted online, in Almere's free newspaper (Almere Vandaag), and through flyers.

Besides the organized events, the municipality also encourages private initiatives, by providing a number of subsidy funds. For example, funds are established to facilitate the activity and performance of amateur artists in the fields of instrumental music and literature, talented athletes, institutes who organize large pop music festivals, stage performances, and sports events for the general public and school tournaments. There are both yearly subsidies available for cultural and sports institutes, or project-

based, one-time activity subsidies. In addition, there are also funds for encouraging the participation of particular social groups, including immigrants, poorly educated residents, the elderly from "attention neighborhoods" (where inhabitants are in lower socio-economic status), as well as disabled people who participate in sports. Neighborhood budgets are the tool to facilitate bottom-up initiatives for a community party, neighbor's barbecue event, children's collective activity, and more. These available subsidies are made public to the inhabitants. Several people interviewed mentioned that they have made use of or at least know about the possibilities.

In regards to public participation, the social study by the Progammabureau Stad department identified specific problematic issues. According to the social atlas 2010, most families in Almere are working families. The adults are investing their energy, time and money in their work and children. Commuting stress is probably also another negative lifestyle factor. Therefore, the residents' time and investment to build a society exists, but is vulnerable (Van der Steeg, interview). The study of the new town's population composition shows that there is a lack of two important age groups in Almere: single young people and students, as well as people older than fifty years old. It is believed that they are the social groups that are able to spend more time and money in various activities and facilities, including volunteer work for environmental organizations, cultural institutes, mental care facilities and community centers. In addition, the study of the municipality shows that these two groups are leaving the new town. The elderly are either going back to the big cities where they were from, like Amsterdam and Utrecht, or to more rural areas like het Gooi and Lelystad. Young people are leaving to study, or to find suitable housing and job opportunities for social starters in other cities and regions.

Overall, the Almere municipality is dedicated to organizing a diversity of city events and activities. They are also trying to make the local urban life of this young city as lively as other Dutch historical cities. The government is playing the role of activating and facilitating the interest and ambition of the general public. However, the city's regional position, its spatial setting and the current population composition all exert some pressure on the development of its urban vitality. In the author's opinion, the solutions for making improvement can be attempted through spatial planning and design interventions.

In-between organizations

There are generally three types of non-profit, semi-public organizations bridging the local government and inhabitants. First, each of Almere's neighborhoods has a community committee made of several volunteer inhabitants. They work in a flexible way, but not full time. They offer walk-in hours for public visits, and periodically organize collective meetings or community activities. Large social and cultural organizations, such as Stichting De Schoor and Bombarie, work in similar ways. De Schoor, for example, has about 300 professional workers, and hundreds of volunteers. They have branches in each urban node, and they are trying to improve the social and cultural lives of the young children, teenagers and seniors, and the integration of the communities in Almere as a whole. In addition, large housing cooperations, such as Ymere, are playing an active role in organizing public participation and social meetings among inhabitants (figure 4.49).

Figure 4.49
Community activities: Ymere Bombarie Festival 2010, Regenboogbuurt. Source: www.stichtingbombarie.nl

The home-based small business can be regarded as one type of the bottom-up activities. Almere has enacted a top-down policy, which allows the residents to use the maximum national limit (50%) on the quantity of floor space they are allowed to use as a business in a single house. The city municipality also allows the construction of extensional space outside a house. However, neighbors have the right to deny approval of these types of constructions. There are also other social welfare organizations and funds in the Netherlands that help people with special needs establish their business.

As a planned new town, there are abundant public facilities that are provided for people's recreational life (figure 4.50). Information is well organized and easily accessible in Dutch society. The best way to find the information about local social, cultural, sports and other hobby clubs is to look at the municipal guide (Gemeentegids), and there are diverse and plentiful clubs. Sports and recreational activities in the green and water areas are the most dominant types in Almere, which is reflected in the cultural map. The various urban nightlife venues, such as the bars and cafés, dancing clubs, as well as history and art related activities, are not comparable to the venues in the larger cities. There are significantly less private sector businesses in the entertainment and recreational activity business sectors. According to the enthusiastic artists Klaar & Bart, the reason for this is because the new town municipality does not allow private investors build any building program that is not included in the urban plan. It is difficult to attain a (temporary) building permit. From a spatial perspective, the fact that the venues of activities are either concentrated in the planned city center and sub-centers, or dispersed inside neighborhoods, dictates that there are not any traditional main streets where private initiated businesses (such as restaurants), can aggregate.

People say that "Almereders" have their own spirit because of the special land they are living on. According to Klaar&Bart, "Almere is a testing ground. People come here with an experimental spirit. They try to invent new rules and a unique culture". For example, a new doctor-patient system (7 doctors per patient) initiated by a house doctor, and the fact that the night before Queen's day is the real Almere citizen's festival. Children are proud to have a recognizable Almere accent, which is characterized by a kind of loud, open and direct way of speaking. This accent can be compared to the spirit of the open new land. The cemetery in Almere Haven was designed as a circle, not as a traditional grid, with the aim to bring people closer together as a community, because the new land can feel cold and alien for people from the "old land". People need to feel connected, bonded and affiliated. The ethnic groups in Almere also gather together and form their own communities, but in more private (and sometimes secretive) locations. If something is missing, the people of Almere will make it themselves. The social bonding is especially intense when people move into a new neighborhood. For example, the inhabitants of the newest neighborhood Sieradenbuurt are making solar panels collectively.

1

2

Figure 4.50
(1) Places for social-cultural activities in Almere (2) Cultural geography of Almere: distribution of social, cultural and recreational programs

§ 4.2.4   Recent planning and development

■	particuliere kavels	■	groen	1	Homeruskwartier West	5	Woontoren
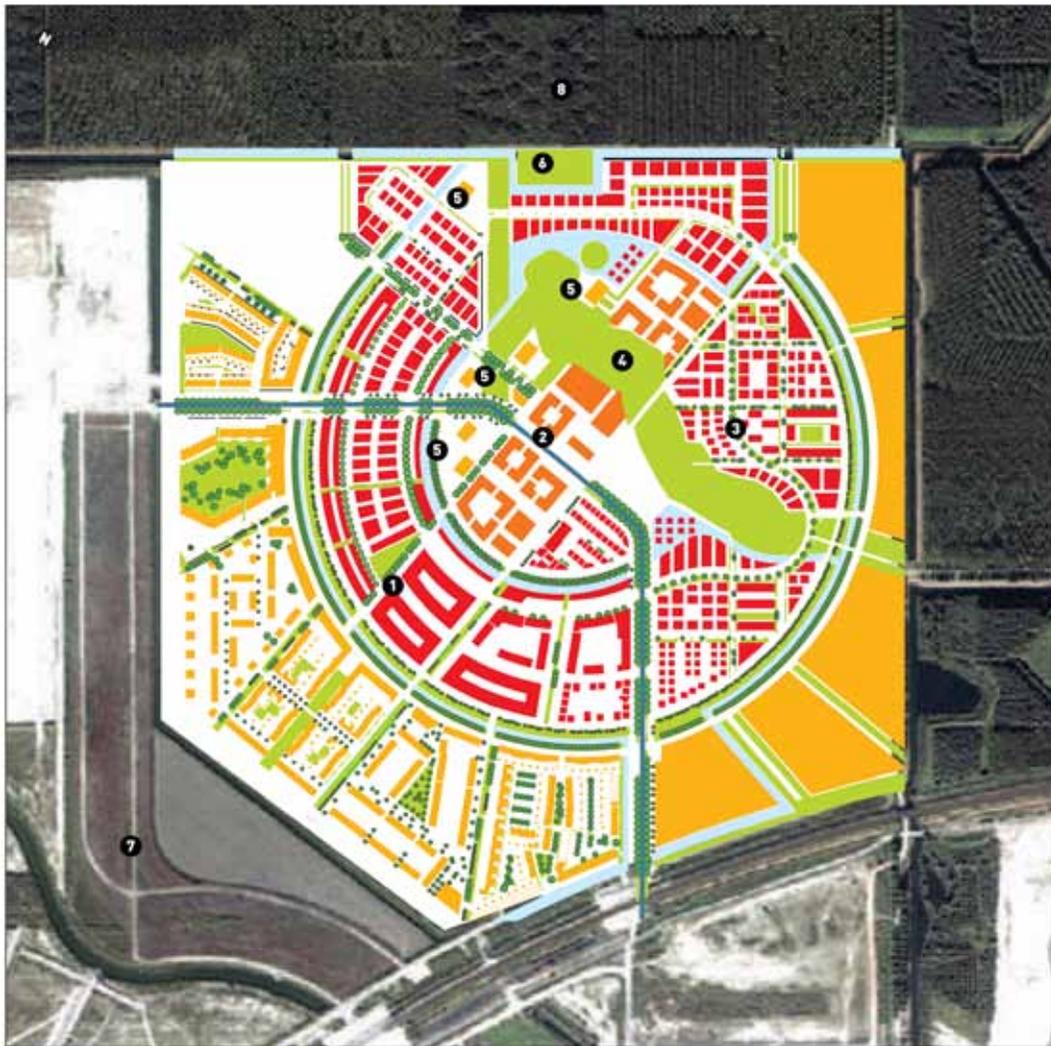
particuliere kavels
bebouwing centrum
velden
medeopdrachtgeverschap

groen
water
busbaan

1 Homeruskwartier West
2 Homeruskwartier Centrum
3 Homeruskwartier Oost
4 Wijkpark De Green

5 Woontoren
6 Scheepswrak
7 Cascadepark
8 Pampushout

1

2

Since the 1970s, Almere is labelled as a top-down planned, monotonous suburban new town. In the beginning of the twenty-first century, public participation in architectural design has been experimented with in Almere-Buiten's neighborhood, Eilandenbuurt. However, the ambitious extension plan Almere 2.0, which is aimed to upgrade the new town to an ecologically, socially and economically balanced and sustainable city, will be the biggest leap in Almere's planning history. The plan is also meant to empower the prospective inhabitants as much as possible in the process of city making. The program is led by the new authority of urban planning and development of Almere, which has been in operation since 2006. It is directed by the city alderman, Adri Duivesteijn. The "build by yourself" (ik bouw mijn huis in almere) urban development method is also known as an "organic growth" method.

The urban node, Almere-Poort, plays an important role in the Almere 2.0 structure plan. It is aimed to develop Almere into a multi-functional urban district, with better connections beteween Almere and Amsterdam, both physically and spiritually. The design of the urban node will take a radical departure from the traditional urban planning. Maximum freedom will be given to people, and planning constraints and regulations will be minimized. It was also agreed during the "people make the city" debate in 2007 (major external participants include MVRDV, Neutelings Riedijk Architects, MaO-emmeazero and MUST stedebouw) that a "robust urban planning scheme", which contains a strong and clear structure, and can easily accommodate changes in use over time, is an dispensable base for organic growth of an urban area. The city alderman speculated that such a new urban development permits "organic growth along pre-determined lines, and constitutes the result of a beautiful synthesis of collective planning at the global level".

The Dutch design company OMA won the competition for the structure plan of the pioneer neighborhood Homeruskwartier of Almere-Poort (figure 4.51). The plan intends to recall memories of Amsterdam's historical canal zones, which are considered an excellent example for organic urban growth that results in harmonious diversity in appearance and functional mixture. Homeruskwartier is easily identifiable in aerial maps by its strong geometrical form. The development is scheduled in two phases. Homeruskwartier West, which is located in the southwestern half of the circular area, and the area beneath the ring canal, are being developed in the first phase. The pilot area, where there are not currently any housing developers contracted by the government, is enclosed by the ring The responsibility of the design and construction of the individual houses has been given to the future residents of the area, who will play the role of private commissioner and developer . They will do this by choosing their own architects and construction company, or completely DIY. The housing typologies inside the ring are planned to be free-standing villas and semi-detached houses. The land parcel divisions in the structural plan are not typical, due to the wide variety of plot sizes and flexible footprints (the position of a house in a plot). Besides that, there are not any prescribed or obligatory architectural styles or building codes. The eighty four reserved plots were sold out quickly after they appeared on the market in 2007.

Besides the standard "free" zones are three other types of zones are planned for social groups with special demands or conditions. For example, one zone will only be sold to architects. This allows the architects to use their maximum creativity, by freeing them of their typical constraints. The residents of the city are interested to see how this freedom will lead to an area with diverse architectural styles. The intriguing part of the concept is that one will not know the final effects of this project before it is finished. This zone was listed for sale in 2008, and so far eighty percent of the plots have been sold. The authority believes everyone should have the opportunity

to build a house of their own in Almere. Thus, another special zone is planned for lower income people who have an annual gross income between 20,000 to 36,500 Euros (ikbouwbetaalbaarAlmere, or ibbA). The project manager, Jacqueline Tellinga, is proud that in the current financial crisis, the 400 plots for private commission in Homeruskwartier West are mostly sold, and the building plans have been submitted to the authority. The rest of Homeruskwartier West, the 1150 units of housing outside the ring and the six building towers (about 250 apartments) in the central area, are to be developed in a co-commission method (i.e. housing corporations are involved, but individuals have the right to give special requests). Row housing is the main typology in these areas. Homeruskwartier Oost is in the second phase of development. It contains a little less than 800 dwellings. 300 plots are planned for private initiatives, and five districts and two building towers are planned for being co-commissioned. The spatial setting for Homeruskwartier West and Oost are different in the way that the latter only contains free standing villas in diverse types and sizes. The design is meant to create a garden village ambience, with only a couple of buildings giving the sense of urbanity, such as the small business buildings.

There are in total thirteen different living environment schemes in Homeruskwartier. The themes (housing typologies) defined in the West part include freestanding villas, villas combining living and working spaces, canal houses, mansions, collective group buildings, row houses and apartment towers. Several new themes have been integrated into the plan for Oost. These themes include sustainable building, housing in forests and parks, small buildings with large gardens, building with greenhouses, houses in the water, housing for equestrians, and bungalows. Sixty-five affordable plots for middle-low income people are also reserved in the zones. Due to the popularity of the villas for living and working in the first phase, the Oost area has reserved more plots for this building type, with varied potential building sizes (from 130m2 to 1500m2). The plots are distributed in five different zones. The business programs they accommodate must provide services that are suitable for residential areas, for example, a ballet school, art gallery, children's play center, and physical therapy practice, while catering and retailing are not allowed. A catalogue of acceptable building typologies, and the development and program rules, is available to future residents and architects. Besides providing variations in the plot size, flexibility in plot development is granted in some of the theme zones in the second phase. For example, two to three people can share one plot by splitting the building horizontally or vertically; two households can build "two-buildings-under-one-roof" in two adjacent plots; or one can buy two adjacent plots to build a larger building. Due to the limited group building initiatives in the West region of Almere, there are not any specific zones explicitly allocated for group building initiatives on the planning map. However, it is still possible to develop these initiatives through a supply-and-demand-based strategy.
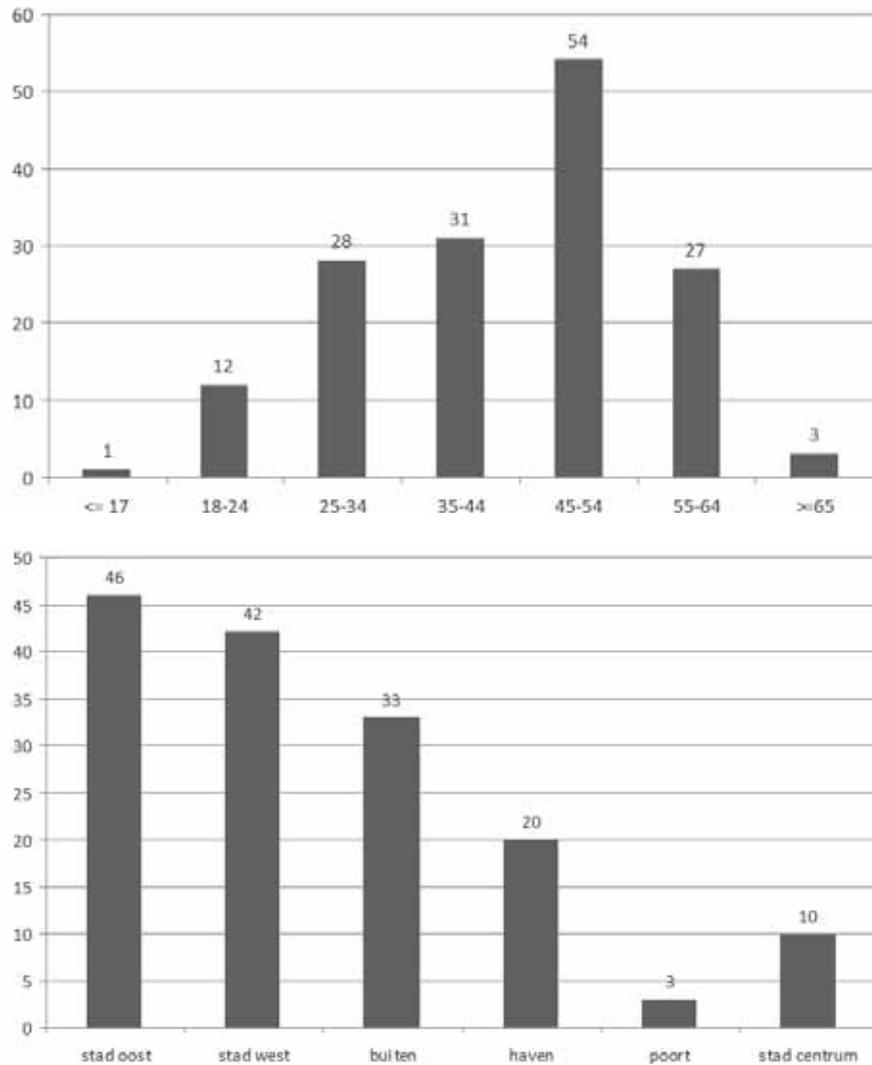
Figure 4.52
Age composition and locations of the survey respondents

By investigating the relation between the spatial planning and design, and urban vitality on multiple scales, it has become clear to the researcher that it is worthwhile to determine if the new town has created a satisfactory level of liveliness, from the public's point of view. In order to evaluate this hypothesis, both face-to-face interviews and online questionnaires were conducted. The hospitality of the community of Almere is impressive. The online survey was made public in November 2010 with the help of Almere Vandaag and the municipality's website, as well as through friends voluntarily spreading the information through their networks. This led to the participation of a total of 156 respondents. 141 of them completed the questionnaire, and forty three people provided comments and suggestions.

The majority of respondents are between twenty-five and sixty-four years old (figure 4.52). Among them, the largest age group (34.6%) was people between the age of forty five and fifty four years old. The local minors (<17) and elderly people with pension (>65) are rarely involved in this survey study. In terms of geographic distribution, the amount of participants from Almere-Haven, Buiten, Stad Oost, Stad West are generally in proportion to the size of the population in these areas (each area has about six to nine representatives out of 10,000 inhabitants). With regards to the absolute values, about sixty-four percent of the respondents were from Almere-Stad, a little over twenty percent were from Almere-Buiten, and thirteen percent were from Almere-Haven. In addition, a few active residents from Almere-Poort, the new urban node that is under construction, also participated.
In-depth analysis

The recording of a participants' vivid mental image of the city can provide a general indication of how well people are binding with the city. The urban planner Kevin Lynch also used the mental image inquiry research strategy as a research approach in his book "The Image of the City". The most common mental pictures that first come into people's mind (29.6% of participants) was that Almere is a spacious place rich in green and water. People are able to have a good view of the polder landscape when entering from the old land via the Hollandsebrug on highway A6 or Stichtse Brug on A27. As shown in the city structural analysis, the landscape is not merely located along the urban perimeters, but it is integrated within the urban area at various scales. No wonder some people describe Almere as "a big city with village characteristic" or as a "vacation land". In addition, people's strongest impressions about the city are quite positive, such as the city providing plenty of freedom and possibilities, being vibrant and dynamic, unique, modern and new, multicultural, young and developing, pleasant for cyclists, etc.

According to the results, the most memorable and impressive locations in Almere were mainly concentrated in the new city center (17%), people's own houses, streets or living area (15.5%), as well as the skyline along the bank of Weerwater (9.6%). Some other interesting places that were mentioned include the deserted castle, city hall, DIY shopping center Domere in Almere Buiten, the harbor, and the urban center of Almere Haven. In a sense, the survey results reflect that the enjoyment or engagement of individual residences and personal life is a dominant part of city life here. The places of interest in people's minds are lacking in diversity. The city center is not as attractive as was expected. Some (7.4%) find the city environment boring because of the uniformity, and consider it having the characteristics of a sleeping town, thus resembling other major new towns, such as Lelystad in Flevoland or any VINEX development in other big cities.

A central question for researchers, Almere's planners and decision-makers to know is that if the new town has grown to a lively city after more than three decades of development, and if there are enough interesting activities to engage in and to experience for the residents (figure 4.53). 45.3 % of the respondents (68 people) hold a positive attitude; whereas almost the same amount of people (67 people) considers it reasonably OK. The other ten percent (15 people) is not content with current situation.

Another important question to consider is what qualitative activities and programs can be added to improve the urban vitality of Almere (figure 4.54). A number of preset choices are given based on the popular remarks about the city, opinions received from the previous face-to-face interviews, and the assumptions derived from the social spatial analysis, which was developed from an urban planner point of view. The scope of the answers were further detailed and extended with the help of additional comments from the respondents.

The two most common responses are that Almere needs more students and creative residents (52.7%). In addition, more nice cafés, restaurants, and diverse shops in the housing areas (52.7%) are considered to be beneficial. The next most important issue is the need for more cultural and recreational facilities, such as museums, galleries, sports stadiums (40.7%), and more dynamic nightlife in the city center or sub-centers (38%). It is interesting to notice that more people demand to have their immediate living environment (neighborhoods) more vitalized than in the city center areas. 47.3 % of people wish to see more tourists and visitors from other cities (probably in the city center), but relatively less (32.7%) are interested in the idea of having more people in the streets and public spaces (in the residential area).
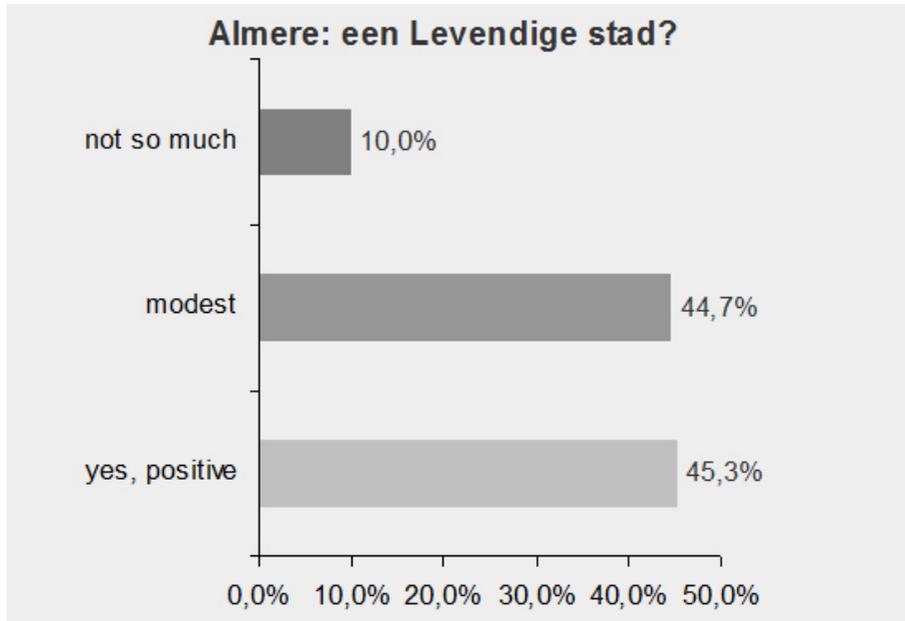
Figure 4.53
Is Almere already a lively city?
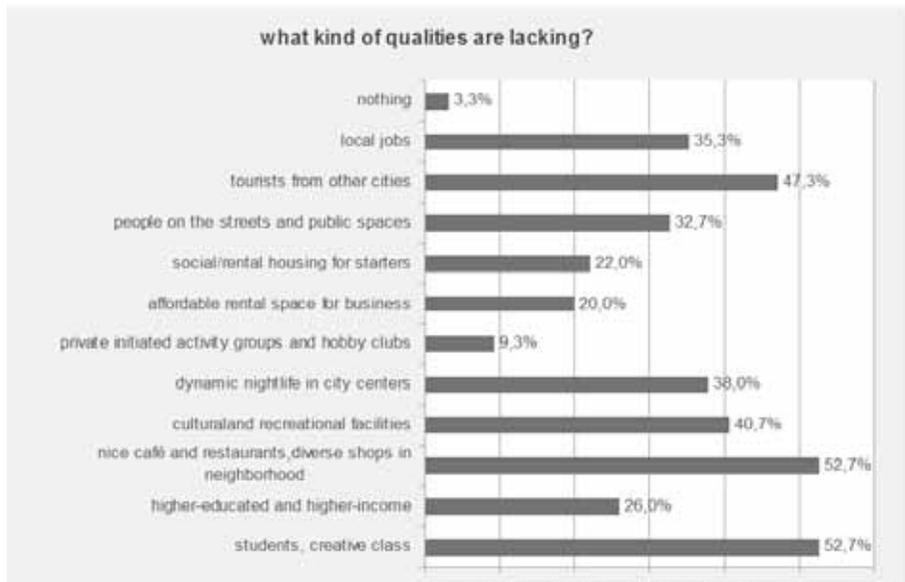
Figure 4.54
Missing qualities in Almere

According to city demographic statistics, the majority of Almere's population belongs to the middle income class. Although city planners consider it necessary to increase the mixture of diverse social groups, only around one quarter of respondents agree that having more higher-educated and higher-income people (26%), or more social rental housing for starters or short stays (22%), are ways to make the city livelier. It is an often-heard statement from the professionals that top-down planned new towns are prone to lacking bottom-up initiatives. However, the proposed solutions to promote more bottom-up activities by the local inhabitants and in the same respect, more affordable rental space for small businesses and activities, both in the city centers and the neighborhoods, do not raise much consensus (9.3% and 20% respectively).

It is widely agreed that Almere has provided most of the necessary facilities and has been organizing plenty of activities. Factors like age and social status definitely have influenced the varied interpretations of urban vitality. People in their 40s and 50s seem to be more content with city life than young people. There are only minor complaints about the information on what is possible in this city is not communicated well to the citizens. However, many say "if you are searching, there is enough supply". If this is true, then what additional facilities or programs could be desirable? The most commonly mentioned are sports facilities. Specifically, an ice skating rink, water sports facilities, open-air swimming pool, ski hall and a bowling center. There is also a desire for more active policy and investment for local cultural development. Simply adding a large museum is not the solution. The goal is to organize "more activities that could emphasize the collectiveness or increase the social-cultural diversity of the city". Specific suggestions include "more space for experimental cultural expression", a "jazz festival", "education for classical music and a wide range of instruments", and "varied programs in relation to a more diverse population".

Despite the general consensus on that the living environment of Almere is nice, and that there are adequate public facilities, a significant minority feel that somehow the city is still "lacking of a soul, the atmosphere of coziness (gezellig) and warmth". According to the theory of network cities, cities and towns that are well connected by fast traffic routes could complement each other with their own comparative advantages. Almere should feel comfortable to the residents, even though it is not as vibrant as the s big cities in Randstad region (at the moment), because the perceived lack of facilities are available in nearby areas. "People should stop asking Almere to become Amsterdam", some people argue. It is more important for Almere to value its own characteristics and identity, and continue to strengthen them. Among others, the fundamental Garden City quality, the unique quality for living, is what many inhabitants are so fond of and has been the primary reason they have moved to Almere However, it has not yet lived up to everyone's expectations. The fact that some residents do not feel cozy is an urgent problem that needs to be solved. The new city center "Stadhart" is an example. Some residents consider there are too many

chain stores, too few interesting shops, night life venues, and fun recreational and catering facilities. There are also several complaints about its design flaws: the sloping ground makes it difficult to walk for elderly and the physically handicapped, strong winds between buildings, and safety issues that appear when the shops close. In addition, quite a few people expect more diverse programs and a livelier atmosphere in their own urban node center or in the neighborhood. Young people want more nice meeting places and interesting local shops. On the other hand, there are also some strong opinions from residents that there should not be any additional program in the neighborhood. The green space is an important quality of Almere, and some people suggest that the green open space could be better in use if the "parks contain more opportunities for recreational activities, instead of just being a visually pleasant space".

The research hypothesis theorizes that urban vitality is mainly determined by the 3Ps: Place, Program and People. It is now important to consider the public's point of view on what spatial problems are hindering urban vitality.
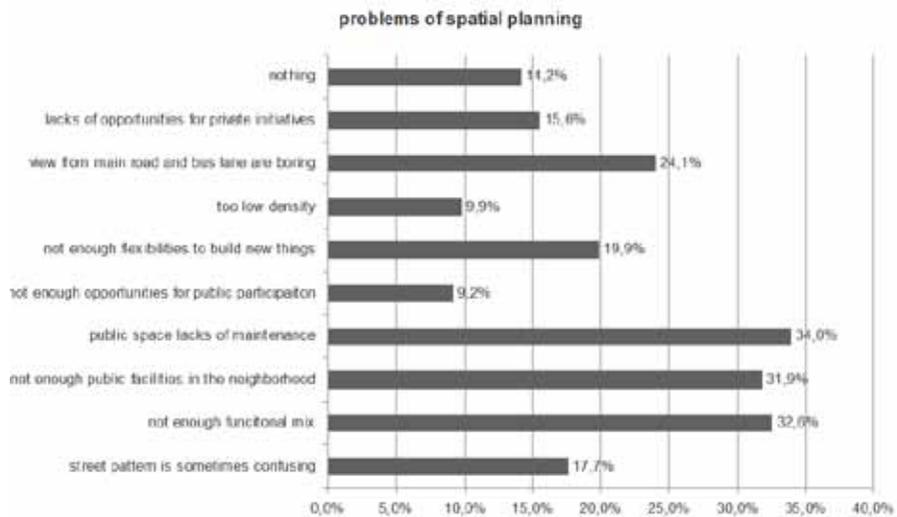
Figure 4.55
Problems of spatial planning

As shown in the chart (figure 4.55), the biggest issue is the maintenance of public space (34%). People are not happy about "a piece of green in their neighborhood being replaced by new buildings"; or "green hedges being removed for ugly fences instead". They claim that "people in Almere find the combination of greenery and housing important", and there seems to be "too little respect for the existing city". Field observations have confirmed that some semi-public green space in housing enclosures and on the streets in certain neighborhoods are indeed deteriorating. Furthermore, there are also safety concerns of the public space. For example, insufficient lighting along the bike paths (some are mentioned as being not female-friendly in the evening), and loitering young people under the bridges, around train stations, and at social housing aggregated areas. The "Progammabureau Stad", which was founded in 2006, has been carrying out social, cultural and spatial programs in the neighborhoods of the first three urban nodes. One of the bureau's primary goals is to reinvest in the public space in the older parts of the new town. However, the restoration budget is quite low. The municipality (mayor and city alderman) has invited the Almere residents for thematic meetings (from October to December, 2011) in different urban nodes and districts to discuss how to manage the public spaces.

The suggestions of mixing functions and providing more facilities in the neighborhoods are also agreed upon by many respondents (32.6% and 31.9%). Some residents believe that "the mix of living and working would make people more active in the city". An increase in the mixture of housing typologies and diversity in design and construction methods, have already been applied as spatial strategies in the development of the new urban node, Almere-Poort. However, this issue has not been addressed sufficiently in the existing urban areas. As mentioned above, more local shops, small businesses, and nice meeting places could be integrated into the neighborhood. These are the elements found in old urban neighborhoods in big cities. Furthermore, some residents suggested that the public facilities and programs should be better accessible by (public) transport. Although low density is considered a hindrance for coziness from a planning perspective, it is apparent that Almere people do not want to give up this quality of their living environment.

One of the most debated issues about Almere is the traffic planning. The main road system is considered a clear structure by the respondents, although they are getting busier and busier. The main problem with "dreven" is that the views to the neighborhood are mostly obstructed. The network in the neighborhoods is significantly more complicated. There were several remarks about different design problems in the neighborhoods, such as unnecessary detours, polluted areas, dangerous situations, lack of parking spaces, too many cramped streets, and traffic impeding factors. Only visitors perceive the transportation network as confusing. For the people who live there, the street pattern is easy to become familiarized with. Unfortunately, the traffic design in the city center is problematic. It is described as a series of "bad routes with many bottlenecks".

Ninety percent of the respondents consider Almere a lively city to a good or modest extent; the other ten percent believe there is still a large gap from the real urbanity. Most participants agreed that there are necessary facilities, and a satisfactory number of organized activities in Almere. Not so many people frequently go to other cities for recreational activities. The greenery and public space in the city is substantially utilized by the residents. People are willing to travel to other parts of the city or urban peripheries for recreational activities. However, the public facilities are not used as much. Generally speaking, about one third of the respondents are reasonably active, and more people could be further encouraged and motivated.

Interestingly, the most popular suggestion (over 50%) on how to enhance urban vitality is to improve the liveliness and coziness in local neighborhoods by having a more diverse range of building and outdoor space programs, such as interesting small shops, café, restaurant and nice outdoor meeting places. However, it should be done in a way that does not interrupt the current sense of peace in the neighborhoods. Additional (water) sports and cultural facilities and programs are also desired (41%). There should be a diverse array of small scale activates that gather people with particular interests, as well as large, collective events that can really bring the local community together. The city center is no doubt a focal point of activities, but it needs to be changed and adapted, with respect to the diversity of interesting shops and design flaws.
Living with green and water in the peaceful and spacious environment is a spatial quality that many residents appreciate. Thus, the maintenance of the public spaces and living environments are the most common issue concerning people (34%). It is hoped that more care is given to the existing city, and that new building projects do not use the green space. Diversifying programs in the neighborhoods, as well as encouraging bottom-up building initiatives in the existing urban areas, would be beneficial for the city. Private commissioners (particulier opdrachtgever) tend to have good contacts with their neighbors, and a stronger sense of belonging to the place. About one third of the respondents do wish to see more people on the street or in the public spaces. However, increasing population density or urban density is not accepted by the majority. In addition, allowing more direct network connections (thus through traffic) means changing the fundamentals of Almere's network design.

§ 4.3.2 Conclusions

In less than forty years, Almere has become the seventh largest city in the Netherlands. It has created a medium level of urban vitality for the inhabitants, and provided a large quantity of affordable one family housing in a garden city environment. The provision of public amenities in the city centers and residential areas are considered sufficient, and there are plenty of city events and diverse activities organized for public participation. The top-down efforts of the local municipality should be credited for this success. There is of course room for improvement in terms of developing more exciting cultural and recreational facilities. However, given the ambition of the authority and their attention to public opinion, it is believed that requests in line with boosting urban vitality are highly likely to be fulfilled step by step in the near future.

The neighborhoods of Almere have developed their own organizations, as well as a sense of community and social bonding, similar to other suburban areas of cities and towns across the country. A primary school full of children, combined with a supermarket with frequent client flows, is usually the main activity center at the local scale. The provision of green and public space in and near a neighborhood is generous, but not always in use. It depends on their location in the network, as well as their public and private attributes. Field observations revealed that the semi-private enclosed small inner yards are mostly empty, and the semi-open fields along the local main streets with mixed human flows are popular. The results of the research suggest that, except for very small children, people would like to stay or play at a place where they can watch others and be watched. Some seemingly empty large open spaces allow the possibility for large, collective community activities to occasionally take place.

The most interesting bottom-up phenomenon in Almere is the burgeoning of home-based small businesses. The small scale economy entities are not dependent on their location for success. This is largely due to the availability of convenient information infrastructure (internet platform), as well as the availability of large home spaces in the new town. The traditional street full of ground floor shops hardly exists in Almere, because the possibility was not provided in the city plans. However, these small-scale economic activities have found a new (maybe better) way of establishing themselves, largely through a self-emergent process. The businesses do not depend on passing flows and spontaneous visitors, which makes them more efficient. New technology developments, such as GPS and Google maps, help people pinpoint and plan their trips. Even the separation of traffic modes and labyrinth-like street network, are not much of hindrance.

It is clear that the major obstacle for the new town to achieve real urbanity comes from its special spatial planning features. There is simply too much separation and monotony. The monotony mainly stems from the repetition of the same urban settings and spheres throughout the existing three urban nodes. The similarity in the building appearance is a less significant issue. The primary structural element, the road network, is a tree-like structure with a semi-lattice pattern. The system follows clear hierarchies, and the branches end at each neighborhood as pocket-like, cal-de-sac dead ends. The neighborhoods are like isolated islands, surrounded by vast green spaces, and they have very limited connections between them. The neighborhoods in Almere are not composed of traditional open urban blocks, like in the urban and even suburban areas of the Dutch and European cities; nor do they resemble the Neighborhood Unit proposed by C. Perry and the New Urbanism designers, which is designed to fit into urban contexts. British Mark II new town Cumbernauld and Mark III Milton Keynes had attempted to abandon the idea of a neighborhood as a planning organization unit in their master plans. The latter adopted the grid-iron pattern. The locations for a variety of facilities and services had possibilities at every road intersection, as well as in the middle of the urban block perimeters, because the locations were evenly accessible. The planning of Almere which began around the same time as Milton Keynes adopted a rather American suburban style neighborhood model. The goal was to create a self-contained, protected, safe, pure, quiet and green living environment.

The original Garden City model by Ebenezer was planned for a small town for a capacity of 30-50.000 inhabitants. British new towns, except for Milton Keynes, had planned populations under 100.000. The Almere new town is in many ways an amplified Garden City model. The self-centered, low density (gross density: 25 houses per hectare), single-family house typology dominated (77% of all housing properties) neighborhoods were duplicated as the basic planning unit in an area of about one hundred and thirty square kilometers for a population of about 190.000, distributed over Almere-Haven, Stad and Buiten. The amount of green space in the urban nodes and neighborhoods is large enough to improve the residents' well-being and foster an enjoyable ecological and recreational environment. At the same time, these spaces accentuate the separation of the urban fabric. The scale of these spaces exaggerates all the plausible suburban problems. The polynuclear urban structure, which was supposed to allow flexibility and changes in design over time, did not result in much differentiation in urban development and atmosphere among the first three urban nodes. Looking back, some key planning decisions were in fact paradoxical to the original aim of cultivating a real city and a real sense of urbanity.

According to the survey, Almere people enjoy the suburban qualities in this new town and they have demonstrated great capability of adapting themselves to the artificially planned environment with some unusual characteristics in the traffic and landscape designs. On the other hand, some of the residents do miss a sense of urban coziness,

nice meeting places and interesting things to experience in their local neighborhood or in the city centers. The exclusive industrial and business zones are also lacking attractiveness. Due to the monotony of the urban environment and housing typologies, it is already evident that certain age groups (social starter and pension people) are leaving the city. As family households continue to move in to the city, the diversity of household typologies is not improved, making it increasingly harder for the new town to develop into a balanced society. The Almere municipality has been alerted to this problem. The Almere 2.0 vision is responding to it by providing a variety of urban environments that are attractive to diverse social groups. However, the remaining question about the existing urban areas is that if they need to be transformed and to what extent. Based on the research analysis, the author believes that the improving urban vitality in the local neighborhoods through modest spatial interventions is necessary and potentially possible. And that is also in line with the municipality's ambition, and is considered desirable by the local people. Large-scale demolition or altering of the peaceful quality of the existing neighborhood does not seem to be a feasible approach in the young city. Urbanizing green space or increasing local neighborhood density radically are not going to be well received by the inhabitants.

A schematic design proposal is resulted from the research analysis (figure 4.56). It is suggested that the vast landscape areas between the neighborhoods have the potential to accommodate new programs and new spatial spheres. In order to reduce the impact of monotony and separation to urban life, it is advised that future urban planning and design activity adopt a modest urban renovation approach. This approach is not meant to alter the entire spatial configurations, but mainly focus on creating traditional urban streets that gather mixed programs and diverse flows. Almere has centralities on the city and urban node scale, along with small focal points in each neighborhood. However, the middle scale linear centrality linking large centers and people's daily center, like that in the traditional cities and towns, is missing. The characteristics of the middle scale routes should be in-between the main road system (dreven) express ways and local semi-lattice branches. However, creating urban streets in the current urban context can be tricky.

The proposed urban streets are composed of sections of existing spatially integrated, (space syntax analysis) local main streets, bike paths and occasionally city main roads. Streets are denied to be a structural element in the new town's early master plans. And the bus lane network is the one that systematically connects all of the neighborhoods. The proposed interlocked urban street loops and radials can function as the new structural element within and inter-urban nodes. They are mainly concentrated in the urban areas close to the city centers, which allows the remote areas to remain unchanged and therefore accentuates the different urban spheres that are situated in different locations. Breaking the tree-like network structure, allowing thru-traffic between neighborhoods, opening up urban and landscape peripheries and borders,

adding new building typologies, and filling in new programs that fit into the suburban environment in certain green spaces will be the next research and design tasks according to this design proposal. These changes will be focused on the newly created interfaces and streetscape transformations. At a neighborhood level, the main task need be addressed is to maintain and improve the quality of public green spaces. Some examples that have been discussed in the previous analysis include improving the unexpectedly busy, backside-felt alleyways for pedestrian and cyclists, re-programing the under-used public spaces, and mediating the contrast between social and owner-occupied housing areas.

DIAGRAMS

SPATIAL PROPOSAL FOR URBAN

Tree-Like Structure

⬇

New Middle Links: Urban Streets

LEGENDS

- 🟢 urban area
- ⬜ new middle link
- ⬛ existing main network
- ⫶⫶ new programs
- ||||| highways

The aim is to build a middle scale loop system th
urban streets. The approach is to combine existin
streets and key bike paths to form continuous ro
of traffic modes. The system is in-between the ex
(dreven) and the separated and disconnected loc

Figure 4.56

Spatial transformation proposal for the existing urban nodes: creating urban streets to form circulation routes for mixed traffics in the areas near the city centers, as a different layer between dreven and tree-structure local streets.

ⓘ

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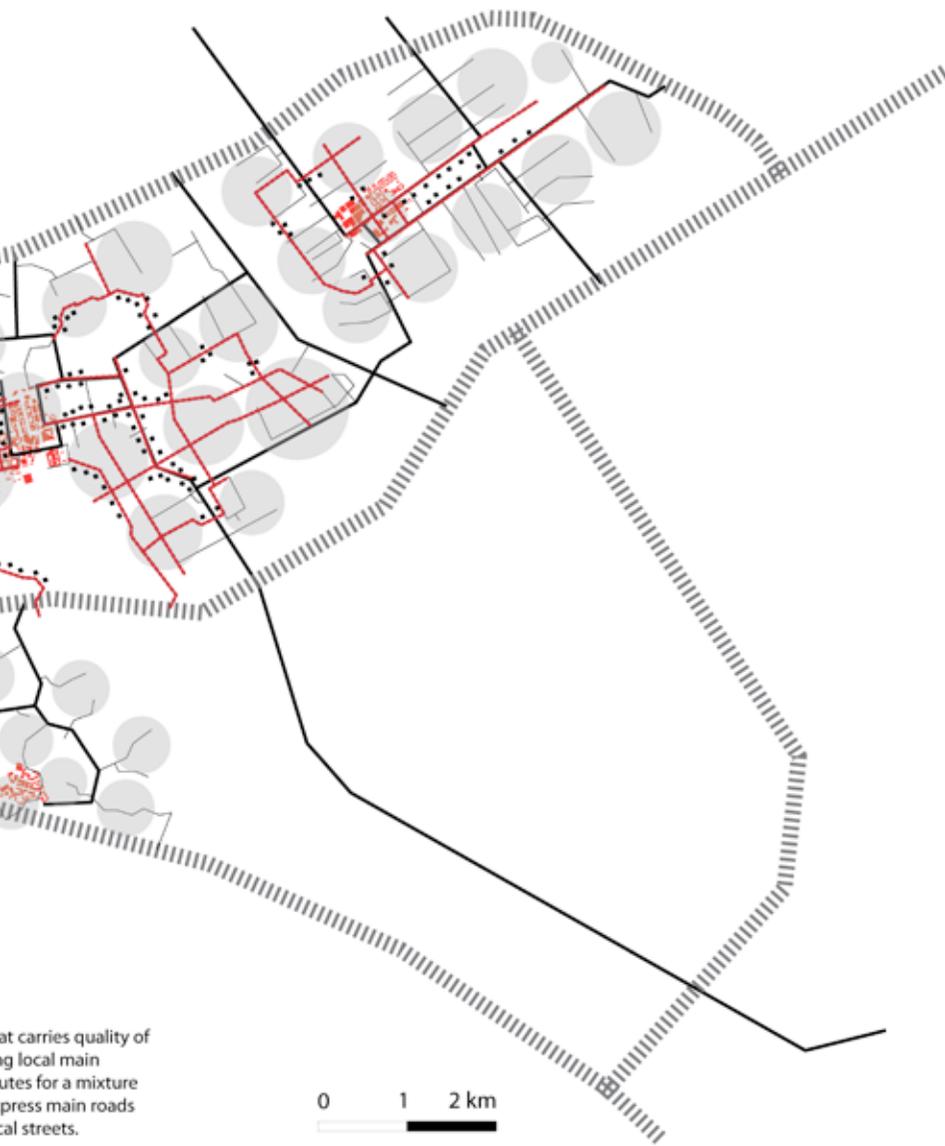
5 Case Study of Tongzhou

Tongzhou is currently the largest new town in the Greater Beijing Region. It used to be a prosperous harbor city in the Ming and Qing Dynasties (15th - early 19th century), and was designated as one of the industrial satellite towns during the planned economy era (1950s - 1970s). Since the opening of the market in China in 1978, especially after 1992, the real estate housing development in Tongzhou has been the main growth pole. Tongzhou's inhabitants have a diverse composition. They include young white collar workers who are employed in the Beijing central city, people relocated to the new town because of the Beijing inner city urban renewal projects, immigrants from other parts of the country, as well as the former peasants who previously occupied the land which is now used for new town constructions. Several master plans have been made over the past decades. However, Tongzhou developed largely in a market-driven, spontaneous manner during its booming period in the 1990s and early 2000s. This makes it an interesting case to study and compare with the Dutch new town Almere, which was planned and developed in an orderly manner.

For the sake of comparison, this chapter is structured quite similarly to the previous one. The first section concisely discusses the city development of Tongzhou throughout different historical periods. The specific socio-economic contexts, planning goals and the actual development have been analyzed to explain and measure the city's spontaneous growing process. The current social demographic is also included. The second section examines the urban vitality of the new town from spatial and non-spatial aspects, from bottom-up to top-down, unplanned and planned perspectives. The spatial analyses are applied to the city scale, urban district scale and neighborhood scale. Considerable empirical research has been developed, including the mapping of small businesses, street activities, pedestrian flows, as well as the interviews of shop managers, community committee members and the new town inhabitants. The spatial characteristics of a market-driven, self-developed Chinese new town, as well as the urban life and activity patterns, are identified and evaluated. The positive factors that make the town lively are drawn out. Finally, the latest top-down large urban projects which concern improving economic, social and cultural vitality are described. In the third section, the spatial analysis is confronted with public opinion. Useful proposals on how to make the new town a real city, and how to improve the planning system, are reflected. Final conclusions of the research on Tongzhou are provided at the end of this chapter.

§ 5.1 City development

§ 5.1.1 History of Tongzhou town: harbor city in strategic location

As a historical town, the proliferation and prosperity of Tongzhou was closely associated with the famous Grand Canal in China, which is one of the earliest and longest man-made water courses in the world (figure 5.1). During the Ming Dynasty (15th – 18th century), waterborne transport was in intensive use, carrying tributes from the south of the country, especially from the Yangtze River Delta region, to the northern political power center. Big ships of grain, salt, timber, other food supplies and construction material, tributes from neighboring countries, as well as passengers were transported via the Grand Canal. The shipments were transferred at the port of Tongzhou before entering the capital city (figure 5.2). In order to protect this crucial eastern gateway, the Ming emperor authorized the construction of the Tongzhou town in 1368, based on the historical settlements. In 1499, a new town expansion was carried out to the west of the existing area (Tongzhou local history office, 2003). The township was situated on the west bank of the Grand Canal, at the intersection with the branch canal to Beijing in the north (figure 5.3). Besides providing important transportation and storage services, the town was also crucial to defending the country from invaders from the sea. Records in various historical documents and poems indicate that Tongzhou was a densely populated and prosperous town, with a diversity of activities and culture. Tongzhou continued to be a busy port city until the middle of the Qing Dynasty (early 19th century). During that time, the nation was in decline, and failed to maintain the water courses. Since the early twentieth century, the railway replaced the water transportation network as the main method of transportation between the north and south of China. The Grand Canal was completely deserted. As the town lost its role as the transit hub, its prosperity gradually faded.

Figure 5.2
Historic drawings of the scenes of the Grand Canal and Tongzhou town in Qing Dynasty. Source: Tongzhou Zhi, Tongzhou municipality, 2003

城池圖
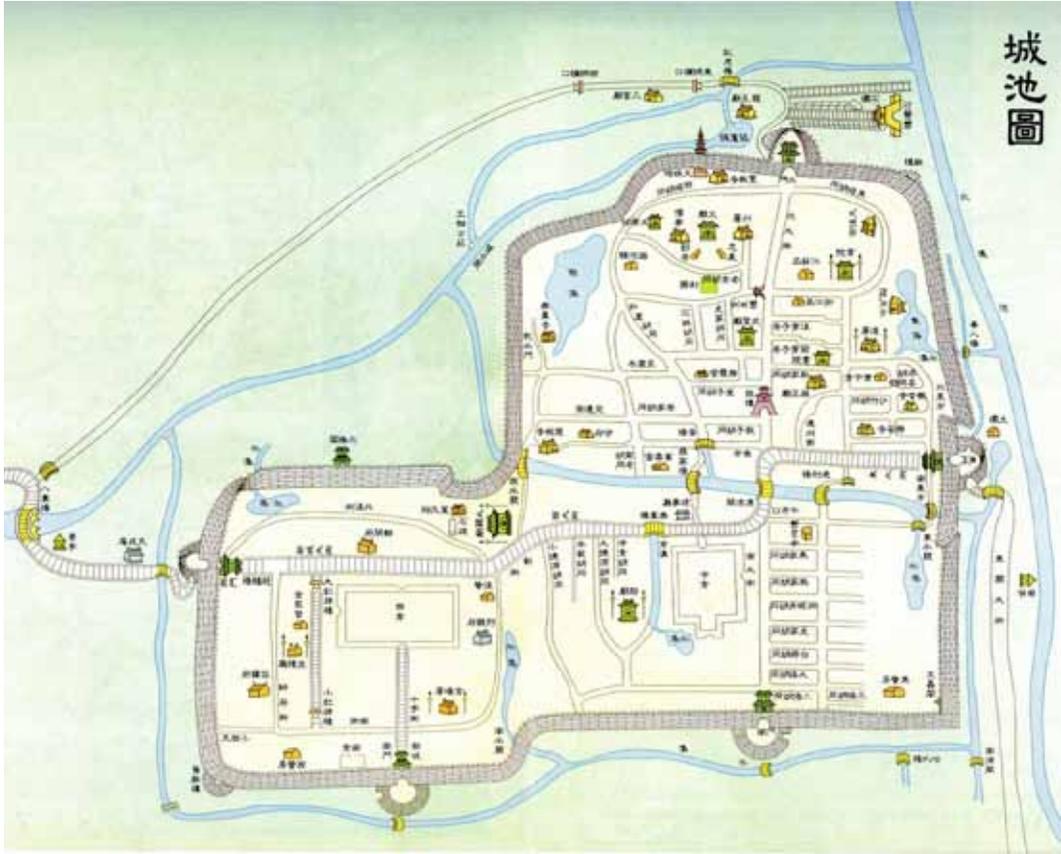
清 代 通 州 城 池 图 （1883年）

Figure 5.3
Historic town map Tongzhou in Qing Dynasty, year 1883. Source: Tongzhou Zhi, Tongzhou municipality, 2003

Figure 5.4
The first regional plan of Beijing city in 1958: forty rural satellite towns. Source: Beijing Urban Planning Bureau

The era of planned economy: 1949 – early 1980s

When new China was founded in 1949 in Beijing, the capital city, one of the major challenges was to repair the devastated urban economy for the war-torn country. The first few blue prints for the Beijing region profoundly influenced the urban development of the city for the following decades. The first two working plans in 1953 and 1954 were very contradictory. One plan suggested that Beijing should follow the example of Washington D.C. or Paris, in order to function as the political and cultural center of the nation. However, Russian experts stressed that the capital of the communist country should be developed into an industrial city for the working class, which was approved by Chairman Mao (Zhou, 2008). As a result, industrialization became the priority of city and regional development in the following decades. The first official regional plan of the Greater Beijing Region was made in 1957. Forty rural satellite towns were designated in this plan as centers for accommodating new large-scale and heavy industries (figure 5.4). Political considerations were also a decisive factor for the regional development plans, which is that the capital city should avoid the over concentration of industries and facilities in order to prevent a massive destruction and sudden loss of production power if another war was waged in the city. The regional development strategy had made reference to Saarinen's "theory of organic decentralization" and Abercrombie's "Greater London Plan of 1944".

About forty state-owned and city-owned, large-scale factories and enterprises were deployed to Tongzhou by the state command, which mainly encompassed the sectors of chemical, machinery, electro-mechanism, textile, printing, medicine, and food industries (Beijing & Tongzhou Party history office, 2008). Their existence greatly facilitated the urban economy of Tongzhou. By 1985, Tongzhou had received nearly a hundred decentralized factories and industrial projects from Beijing city. However, due to the lack of planning guidance and effective urban governance, new industrial areas were scattered in the town and villages in the municipal territory. On the other hand, city construction was slow. Efforts were focused on building a road network. After the beginning of the socio-economic reform to a socialistic market economic mechanism in China in 1978, the first two neighborhoods of multi-story housing in Tongzhou were built. And the first department store had opened on the main street of the town.

The transitional period and the first Tongzhou master plan: 1984-1994

In order to cope with the new changes after 1978, a new master plan for Beijing city and the region was made in 1982. Among others, the plan emphasized the reduction of heavily polluting industries in the city, controlling the size of the city, and focusing new industrial growth in the satellite towns in the far suburbs. Tongzhou was again designated as one of the growth centers. Following these regional development policies, the first Tongzhou master plan (1984-2000) was formulated in 1984 (figure 5.5). The overall goal was to develop the town into an economic and trade center, as a self-sustained, comprehensive satellite town in the east of the Greater Beijing Region (Tongzhou local history office, 2003). Based on the historical town, the main direction of urban expansion was to the south of the railway line. The historical center was to become the new commercial center. The value of the Grand Canal was to be rediscovered. Another new urban center was planned at the key traffic junction in the urban expansion area. New research and education facilities, as well as government offices were planned to be developed in the north of the town. Heavy industries would be located in the southern periphery of the planning area. Protective green buffers would be planted between the boundaries of the satellite town and Beijing central city.

In the middle of the 1980s, several important land policies were legalized in China, including the commercialization of land-use rights, the beginning of mortgage systems in the banks, the resumption of private property ownership, and the permission of foreign investments in the Chinese market (Zhou, 2008). Due to the opening of the market, urban development in Tongzhou had been activated at a whole new level, mainly in the sectors of infrastructure, housing and industry. Road networks had extended to the south of the railway line, which used to be a large spatial barrier. Twenty-eight neighborhoods had been built or were under construction by 1995 (figure 5.6), including the urban renewal of the historical town, the urbanization of the existing villages, as well as the commercial projects that were built on the empty land (Tongzhou local history office, 2003). Several commercial neighborhoods were actually built outside the planned boundary. Beginning in 1992, a new industrial land-use model was adopted in Tongzhou, which was very popular throughout the country in the 1990s. The so-called specialized economic and industrial zone (SEIZ) is a specialized zone in the urban peripheries and rural areas. It is meant for encouraging innovative technologies and modern manufacturing, and organizing the land and infrastructure in a compact and economical manner.

The reform to the market economy since 1978 has triggered accelerated economic and urban development in Tongzhou. It was one of the most successful industrial towns in the country during this time period (Beijing & Tongzhou Party history office, 2008). The enhanced urban economy allowed new housing, infrastructure, commercial and public facilities to be developed faster. However, new challenges appeared in this phase of socio-economic transition. On the one hand, multiple stakeholders, especially various sub-divided collective authorities in the town, were motivated and participated in urban development. On the other hand, a proper manner of top-down control in the new market economy system was absent. As a result, although the master plan (1984-2000) was formulated to guide the changes, the local government actually started to lose control over the market-oriented development of the town.

Figure 5.5
The scheme of Tongzhou master plan 1984-2000 (by author)
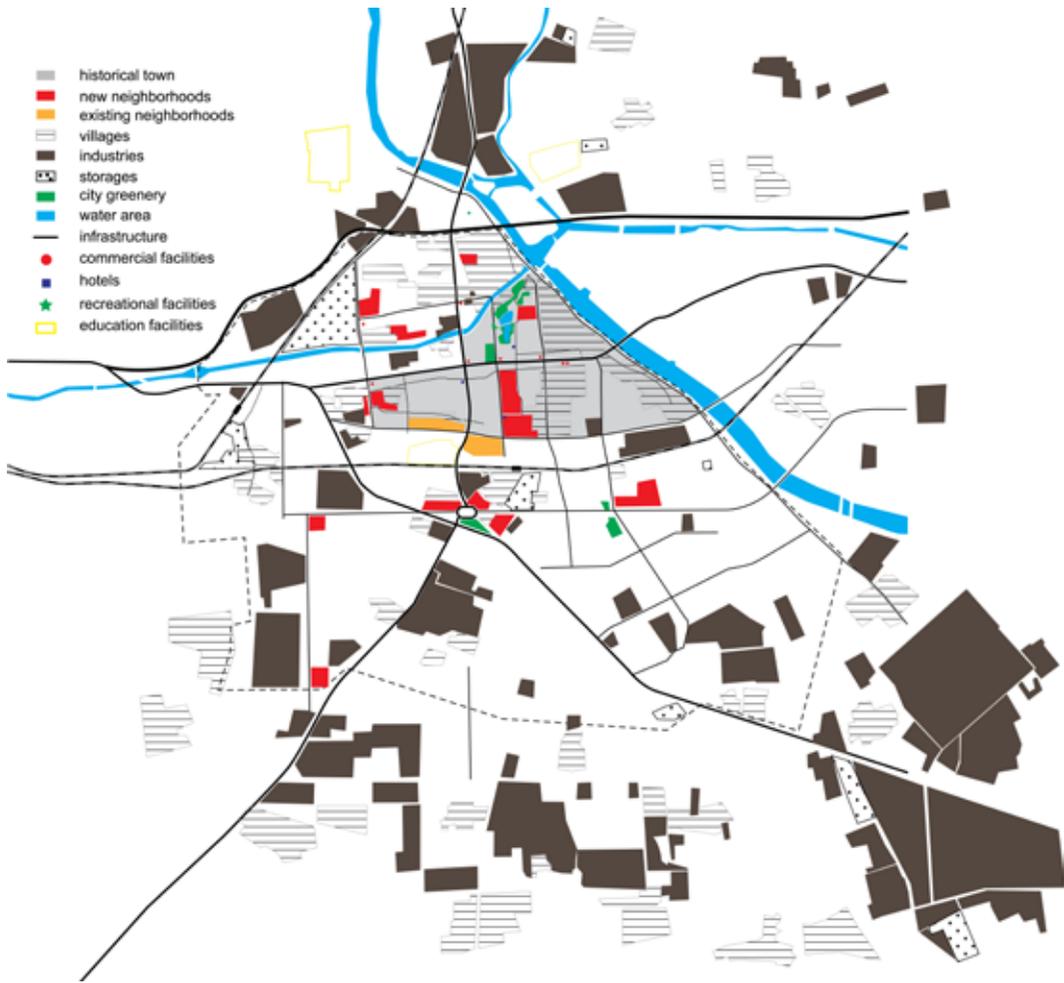
Figure 5.6
Progress of city development by 1995 (by author)

§ 5.1.4 The second Tongzhou master plan and booming real estate development: 1995 – 2005

The 1993 version of the Beijing master plan was continued with the poly-nuclei regional model, but the number of satellite towns was reduced from forty to fourteen (Zhou, 2008). While the vision for Beijing central city was aimed at a thorough transformation from an industrial society to a service society by removing heavy industries and promoting high-tech and tertiary industries, new growth was mainly planned to be diverted to the satellite towns in the southeast of Beijing. These towns were located along the highway corridor to Tianjin city (figure 5.7). Since Tongzhou was the nearest satellite town to Beijing central city, and it had a strategic location near the regional corridor, Tongzhou was endowed with a new opportunity for growth. In response to the new Beijing master plan, the second Tongzhou master plan was released to the public in 1996.The plan kept Tongzhou as an important economic center, and a wholesome balanced satellite town in the east of the Greater Beijing Region. The plan also suggested adjusting the economic structure to the less polluting and land-consuming, but technology-intensive types of modern industries. Urban structures had not changed much, except that the planned area was enlarged further to the south, reaching almost three times further than the previous plan.

Market-oriented real estate development was booming. However, top-down land management was still poor. Land purchases were sometimes directly made with local village authorities and other agents. A number of projects were built outside the planned urban area. The uncoordinated and unregulated use of land resulted in many problems, such as the insufficient provision of proper infrastructure and utilities to the new areas, poor building quality and community services. In order to deal with these problems, the municipality finally carried out a thorough inspection of private developers and projects from 1998 to 1999, so as to regain certain control in the market (Beijing & Tongzhou Party history office, 2008).

The most rapid acceleration of real estate development in Tongzhou took place after 2001 (Xu & Li, 2007). It was linked directly with several large urban projects in Beijing central city. The planning and construction of the Central Business District (CBD) since 2000, which is situated only thirteen kilometers away from the center of Tongzhou, has the foremost influence. Being considered as the "back garden" of the new job center, the town became popular with young white collar workers who were looking for affordable housing that was close to work. Meanwhile, in order to consolidate the regional plan, Beijing city invested extensively on regional infrastructure networks. Thus, the traffic connections between Tongzhou and the central city were significantly improved. Besides the existing highway, two more expressways and a light-rail

connection (the first in the region) were opened in 2004 (figure 5.8). The "tenth five-year plan" (2001-2005) of the Tongzhou municipality promoted the real estate industry as the main pillar of economic growth. During this period, deindustrialization transformed the local vacant land into urban developments. Since the late 1990s, the old Danwei welfare housing system was officially terminated. Housing was then completely commercialized in China. Satellite towns in the far suburbs became new frontiers, where large quantities of new housing at affordable prices were possible.

The joint forces from both top-down and bottom-up approaches triggered the burst in the housing market in Tongzhou in the early 2000s (figure 5.9). For example, in 2001 alone, the built-up floor area for housing projects was the same as the total sum of the built-up floor area for housing that was developed during the previous "five-year plan" period (1996-2000) (Xu & Li, 2007). In the peak year, 2003, the amount of housing on-sale in Tongzhou accounted for half of the total quantity of housing on sale in the whole Beijing metropolitan region, which made it one of the most productive satellite towns (Tongzhou Bureau of Statistics, 2009). The average price was less than fifty percent of that in central city. Since 2005, the number of new housing projects in Tongzhou has gone down sharply. It is partly due to the decrease of available land in favorable locations in the town, but is also largely influenced by the changed land policies from the national government. These policies became more conservative in an effort to control the growing real estate bubble. Furthermore, spatial planning and regulations have finally become more strict and effective.

Tongzhou's mono-functionality and exponential growth in housing development has made it increasingly a dormitory town attached to the Beijing central city. However, the goal of achieving a balanced satellite town was not realized. 93.6 percent of the total constructed floor areas between 2001 and 2008 was for housing; 5.5 percent was for retail and commercial entertainment use; and only 0.4 percent was for office space (Xiao, 2007). The most common housing typology (93%) in Tongzhou is mid-rise apartments (6-9 floors), the rest are mostly villas and townhouses. Most of the new developments since 2001 have taken place in former farm land. The urban regeneration of the historical town area has been sluggish, which has resulted in an increasing contrast in urban quality and image between the old and the newly developed areas in the town.

Jing-Jin-Ji Regional Network, China
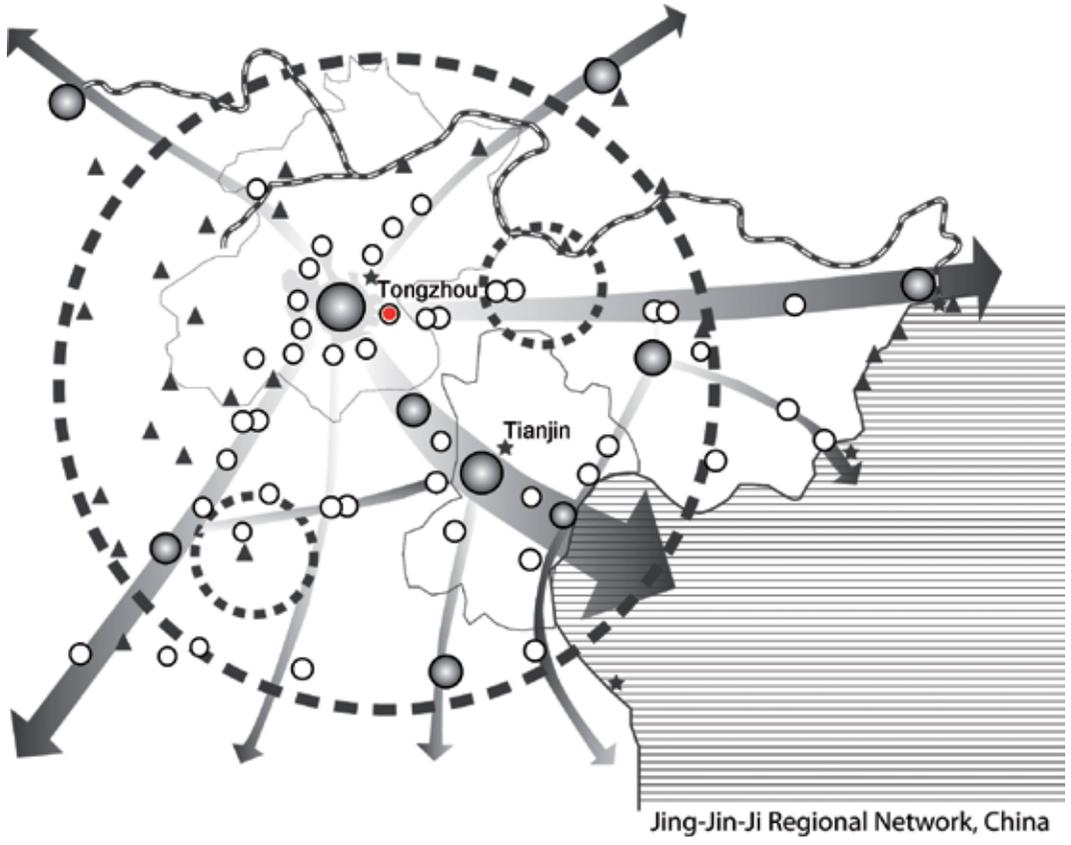
Figure 5.7
Regional Development Vision: Beijing-Tianjin regional bond

Figure 5.8
Light-rail station in Tongzhou

Price of Market Housing
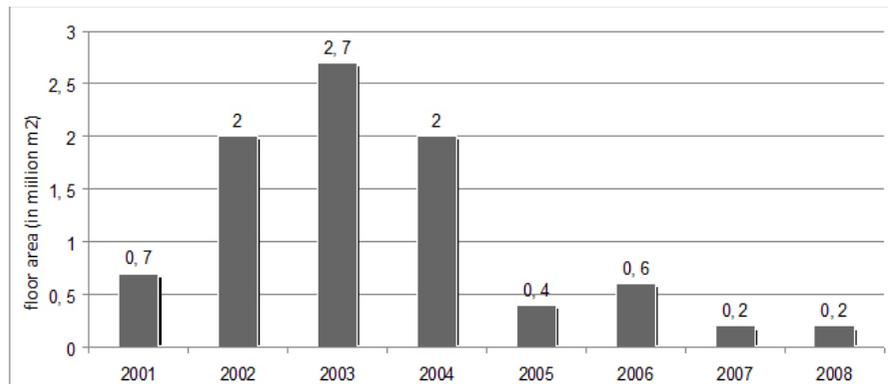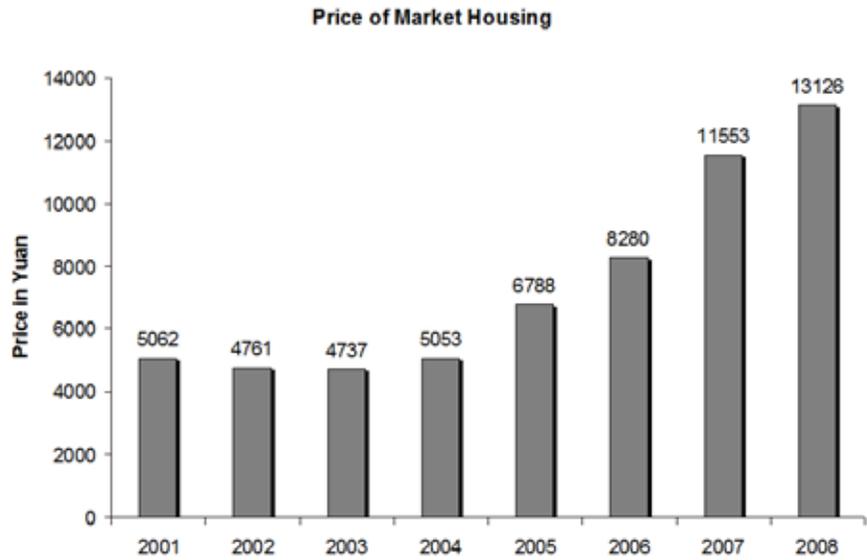
Figure 5.9
(1) Tongzhou on-sale real estate property from 2001 to 2008, (2) The increase of market housing prices from 2001 to 2008. Source: Tongzhou Bureau of Statistics, illustrated by author

New town in post-Olympic time: the third Tongzhou master plan (2004-2020)

After about fifteen years of exponential growth, the Beijing master plan was revised and updated in 2004. The 1982 and 1993 master plans were focused on controlling urban sprawl and population growth, but they turned out to be ineffective. The urbanized area has grown too large and dense. The environmental quality has been drastically downgraded. The primary solution laid down in the new master plan was to continue to strengthen regional development, and release the pressure of the central city. The scheme of "two urban axes and two development corridors" (figure 5.10) and the "central city-new towns-towns-new villages" regional urban network are proposed. The new town concept replaced the concept of the satellite town in the new master plan. However, these new towns are in fact to be developed based on the existing satellite towns that were designated in the 1950s. The intention of giving these towns a new name, the new towns, demonstrated the strong ambition of city planners and decision-makers to upgrade these towns into a self-sustained, medium-sized city with real modern urban qualities. Tongzhou is one of the three major new towns in the main development corridor to the east of Beijing central city. The regional plan indicates that Tongzhou would be developed into a multi-faceted service center, by establishing competitive finance and business sectors, cultural industries, and exhibition and conference programs. In the long run, the town reserves the possibility of accommodating the decentralized government bureaus from the Beijing central city.

The local government of Tongzhou formulated a comprehensive master plan in 2005, with the collaboration of thirteen national and international professional institutes and design companies. They developed research studies for the subjects of regional structures, urban economics, social demographics, ecological systems, traffic and real estate development. The spatial plans and development strategies were laid out after the research process was concluded. The planning area was enlarged to 155 square kilometers (figure 5.11), with a projected population of one million by 2020. One of the development priorities was set to consolidate promising economic growth sectors. Thus, each of the sub-divided zones is arranged with at least one specialized economic sector (figure 5.12). The northern two zones are focused on attracting business and office development, especially the creative industries. The southern new area will be characterized by conferences and exhibitions. The eastern new land will be reserved for the development of a central government department district, as well as a regional medical center. The general city spatial structure is defined by infrastructure and public transportation networks, public space and public facility networks, green and water networks (figure 5.13), and other strategic urban nodes. However, the master plan was not focused on the intended urban quality. The land use plan is still quite rigid like a blue print plan (figure 5.14). The design for the middle scale, that is between the master plan and architectural design, is still weak.
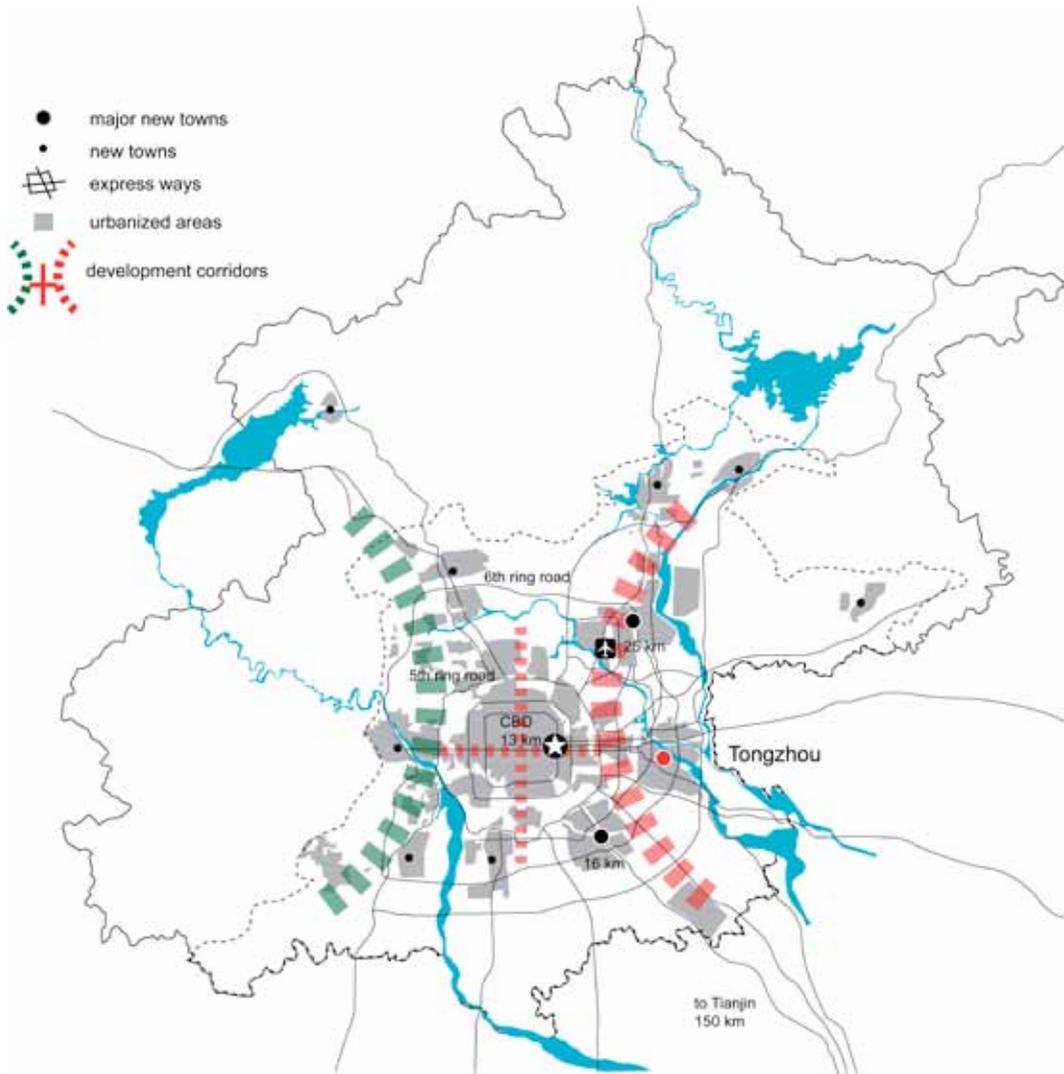
Figure 5.10
Regional position of Tongzhou new town in Greater Beijing Region
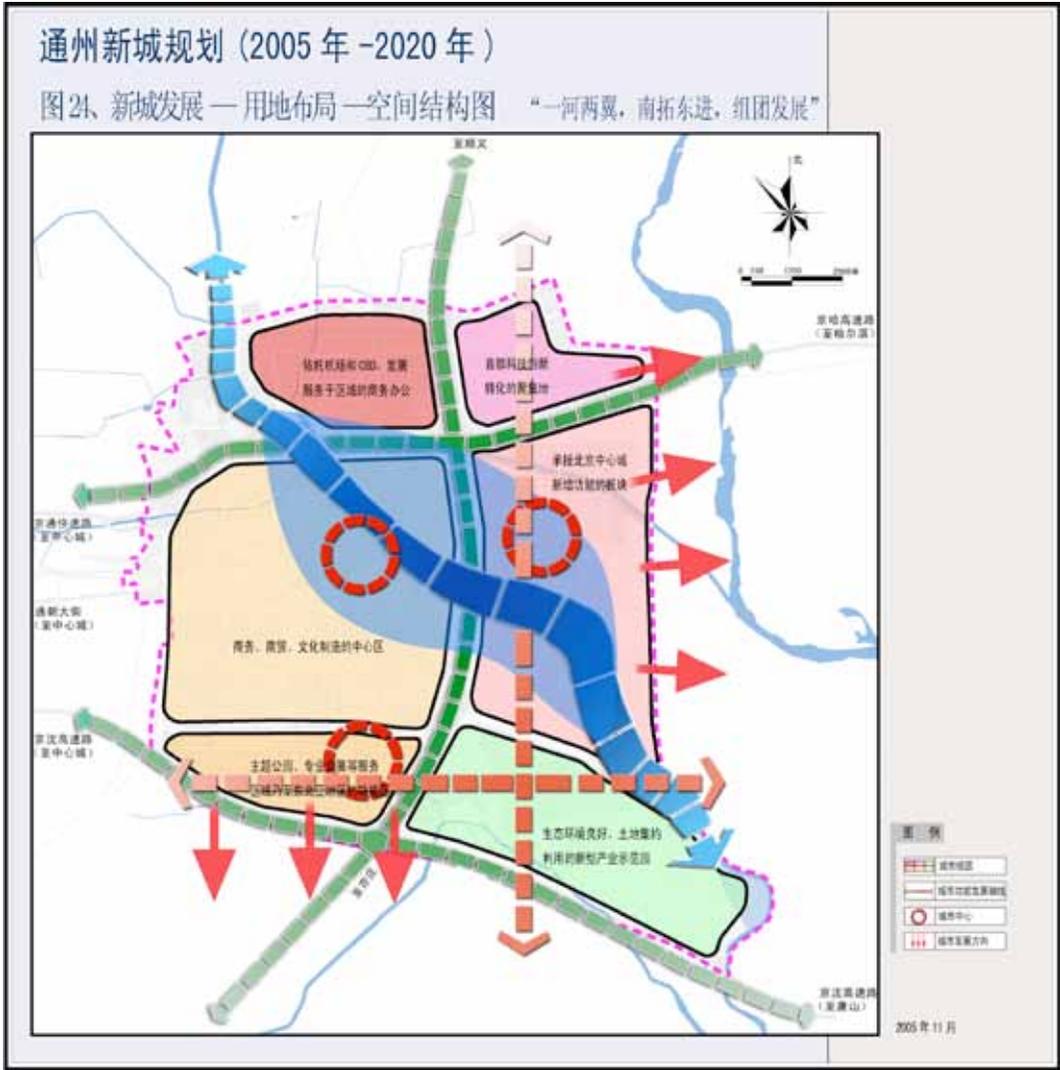
Figure 5.11
Tongzhou master plan 2005-2020: structural plan, source: Tongzhou municipality

Figure 5.12
Tongzhou master plan 2005-2020: main urban centers and public spaces
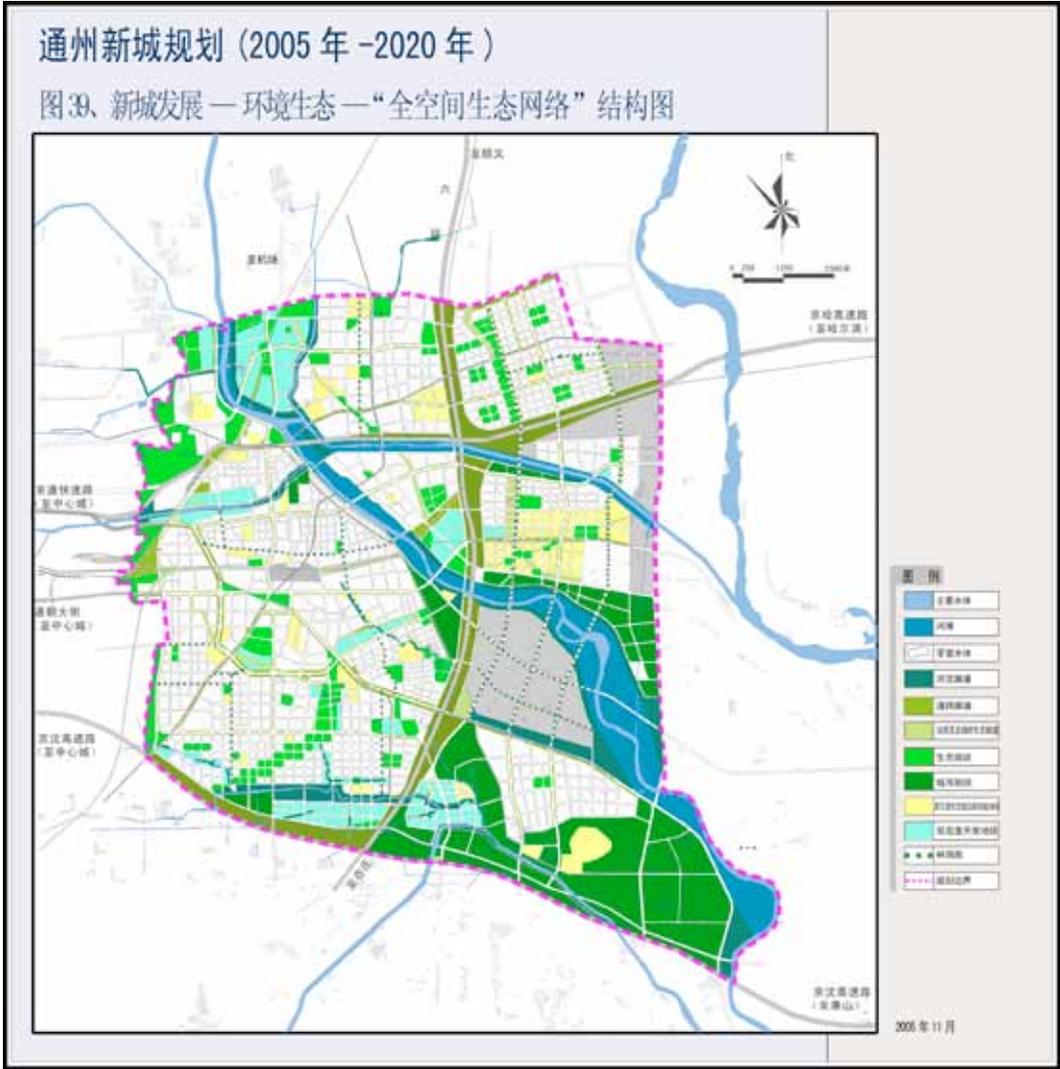
Figure 5.13
Tongzhou master plan 2005-2020: green and water networks
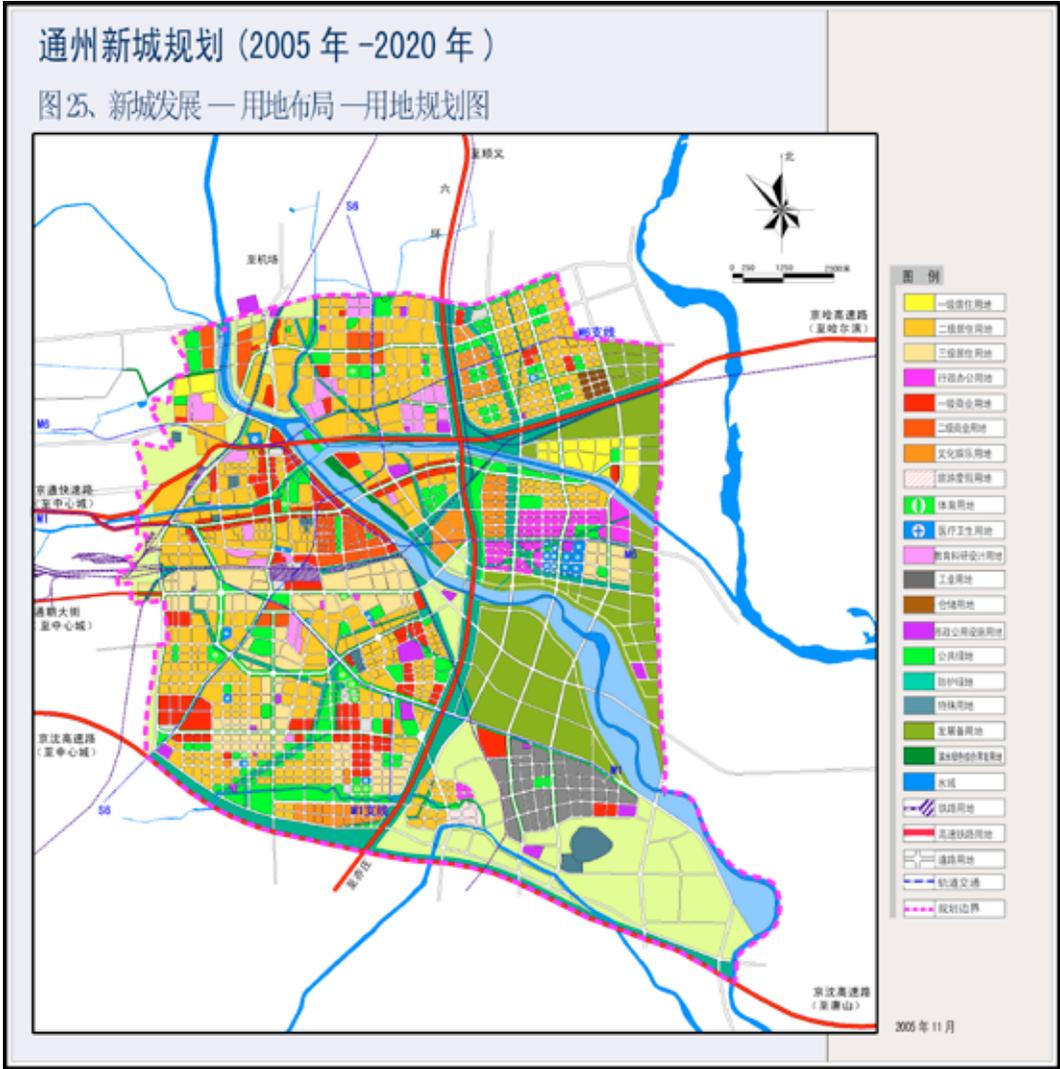
Figure 5.14
Tongzhou master plan 2005-2020: land use zoning plan
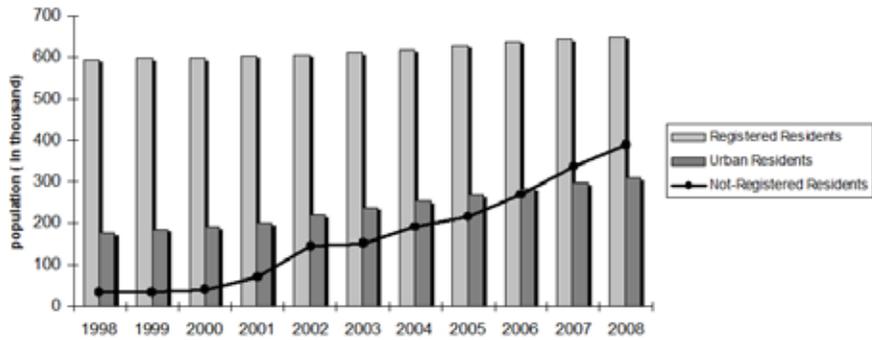
Figure 5.15
Population increase in Tongzhou from 1998 to 2008. Source: Tongzhou Bureau of Statistics, charted by author
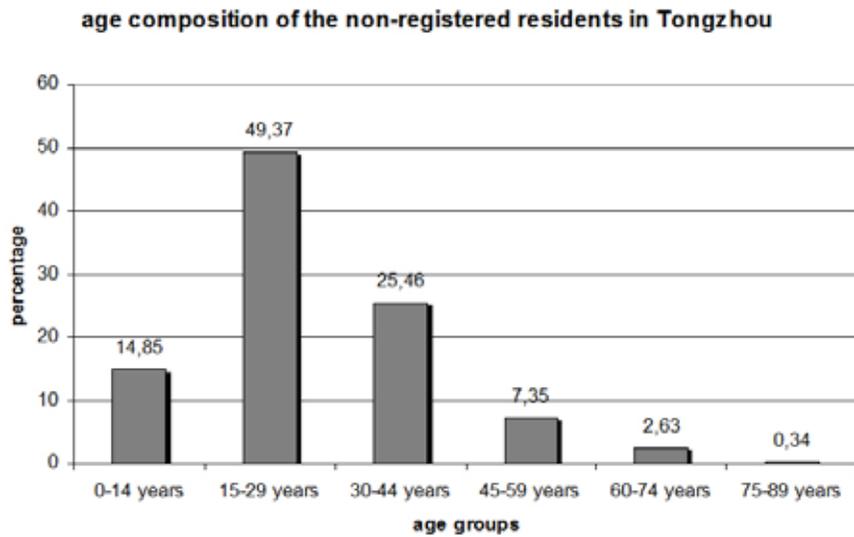
Figure 5.16
Age composition of the non-registered residents in Tongzhou

Social demographics and urban economy

Currently, the Tongzhou District encloses an area of 677 square kilometers. The municipality governs a central town and ten counties. The Tongzhou New Town refers to the central town, which was about 42 square kilometers in 2008. The population of the new town has been officially categorized into registered and non-registered, urban and non-urban, as well as long-term and short-term (floating) residents. It is estimated that the rapid urbanization process is transitioning about 10,000 local farmers into urban dwellers each year. The Tongzhou new town has in total about 420,000 long-term residents and 220,000 short-term ones in 2004 (CAUPD, 2004). About 300,000 (71.4%) long-term residents are registered in Tongzhou. The non-registered resident population has been rising rapidly (figure 5.15). These are the people who live or own an apartment in Tongzhou, but officially register (Hukou in Chinese) in another municipality. The new town "immigrants" mainly come from other provinces (45%), and Beijing central city (48%). They use the new town either as a gateway to enter into Beijing city, or as an affordable, suburban, secondary home. Another important characteristic of the town is that it has a large amount of commuting population. According to the official estimates, there are about 270,000 commuters living in the Tongzhou new town, and working in Beijing central city, mainly in the CBD area (Xiao, 2007). During peak hours, both the road networks and public transportation system are seriously congested or over crowded.

The education level of the registered residents is much lower than the average in Beijing central city. Primary and middle school education was the highest education level achieved by about eighty percent of the residents. This is similar to that of other far suburban towns (CAUPD, 2004). The majority of the non-registered residents are mainly between twenty and forty years old (figure 5.16). They are also better educated. About half of them have a college degree. However, the ratio between males and females is unbalanced, about 2:1. Nevertheless, since around 2000, the fresh infill of newcomers is certainly bringing a new cultural dimension to the new town.

Until the middle of the 1990s, Tongzhou was a successful industrial town. Then, it began to de-industrialize. The growing real estate industry then became the dominant economic engine of the town. Moreover, there are five planned specialized economic industrial zones (SEIZ) in the Tongzhou District, which occupy a total area of 32 square kilometers. This is the largest district among all the suburban districts in Beijing. However, not all of them are successful in attracting competitive modern enterprises. The productivity is quite low compared to other satellite towns within the SEIZ (Tongzhou Planning Bureau, 2005). The main employment opportunities in the new town are mainly in the low-end sectors, such as manufacturing, building construction, retail and catering businesses, etc. These sectors, however, are not appealing to highly-skilled or well-educated people. Tongzhou is now labeled as a dormitory town, without competitive industry sectors.

On the other hand, the increasing amount of new town inhabitants, especially the young white-collar workers, has led to the blossoming of market-driven commercial activities in Tongzhou. Big chain stores, supermarkets and shopping malls have spontaneously opened branch stores in the new town. The revenue from the retail and wholesale sectors in Tongzhou is the highest among the suburban districts in Beijing region (Zhang, 2009). However, both the quantity and quality of urban services and public leisure facilities cannot match the level of Beijing central city.

§ 5.1.7 Conclusions

The analysis of Tongzhou indicates that a strong and characteristic urban economy is one of the fundamental bases for the city's urban vitality. During the fifteenth and nineteenth century, waterborne transportation and storage was the main economic engine; between the 1950s and the early 1990s it was the manufacturing industries; and since the mid-1990s, it has been the real estate housing development. The opportunity for growth throughout history has been aided by its strategic location in relation to the national transportation networks, and its proximity to Beijing central city. In each time period, Tongzhou has stood out in the region as an important and prosperous transit hub, a successful industrial town, and the most popular satellite town for housing development.

The town was developed in a multi-stakeholder decision-making manner in the planned economy era and in a market-driven, spontaneous manner in the socialistic market economy era. This was probably due to the general economic-growth-driven urban development ambition of the country at that time and the lack of experience in spatial planning and urban governance. It is evident that the regional and town economic drivers are the predominant factors that have motivated and directed Tongzhou's urban development. The two previous spatial master plans were made in 1984 and 1996. However, they only provided general layouts for the road network and rough guidelines for the direction of urban expansion. Many private development plans were developed. In other words, the local authority could only control the public elements in the city, but lacked an effective method to cope with the market-driven development.

The multi-stakeholder and market-driven, spontaneous development has positively contributed to the rapid and large-scale growth of the city, especially between 1992 and 2008. Now, the town offers diverse choices of living environments, and retail services have established themselves in the newly urbanized areas. However, there are obvious downsides: the built-up area exhibits a rather unordered, porous and scattered

spatial pattern and inconsistent spatial qualities. It is important to realize that the free market is not capable of creating a balanced city. For example, the local authority neglected to provide sufficient, high quality public facilities and spaces, as well as to modernize its industrial and business sectors. The new town has been labeled the largest sleeping town in the region. Therefore, the main aims of the recent master plan of Tongzhou (2004-2020) are set forth to implement the missing public provisions, attract modern businesses, and upgrade spatial qualities. Despite currently being a sleeping town, Tongzhou is still one of the most urban and liveliest new towns in the region. The following section will take a closer look at the spatial character and activity patterns of the self-developed new town, and analyzes the conditions that contribute to its urban vitality.
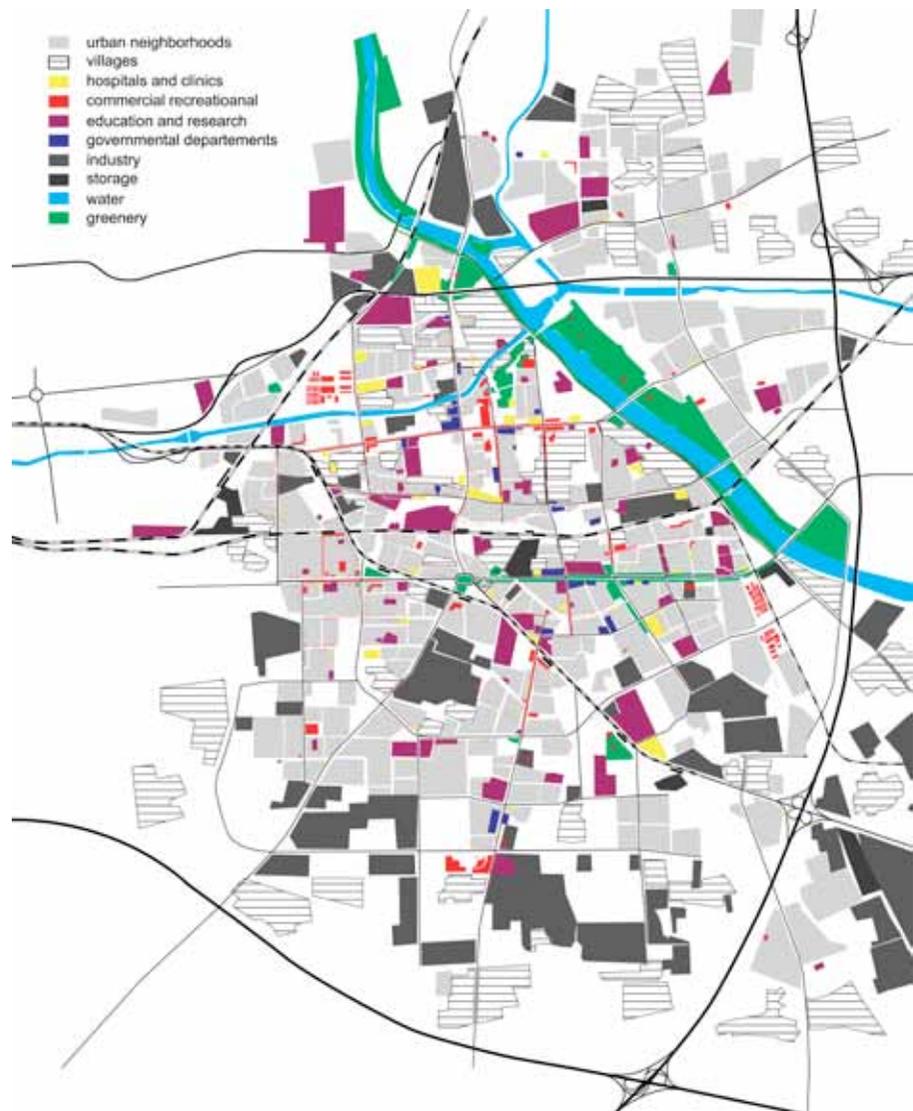
Figure 5.17
Tongzhou land use composition by 2011

Figure 5.18
Urban developments in the light-rail zones in Tongzhou

1995

2000

2005

2011

new housing 1978-1995

1996-2000

2001-2005

2006-2011
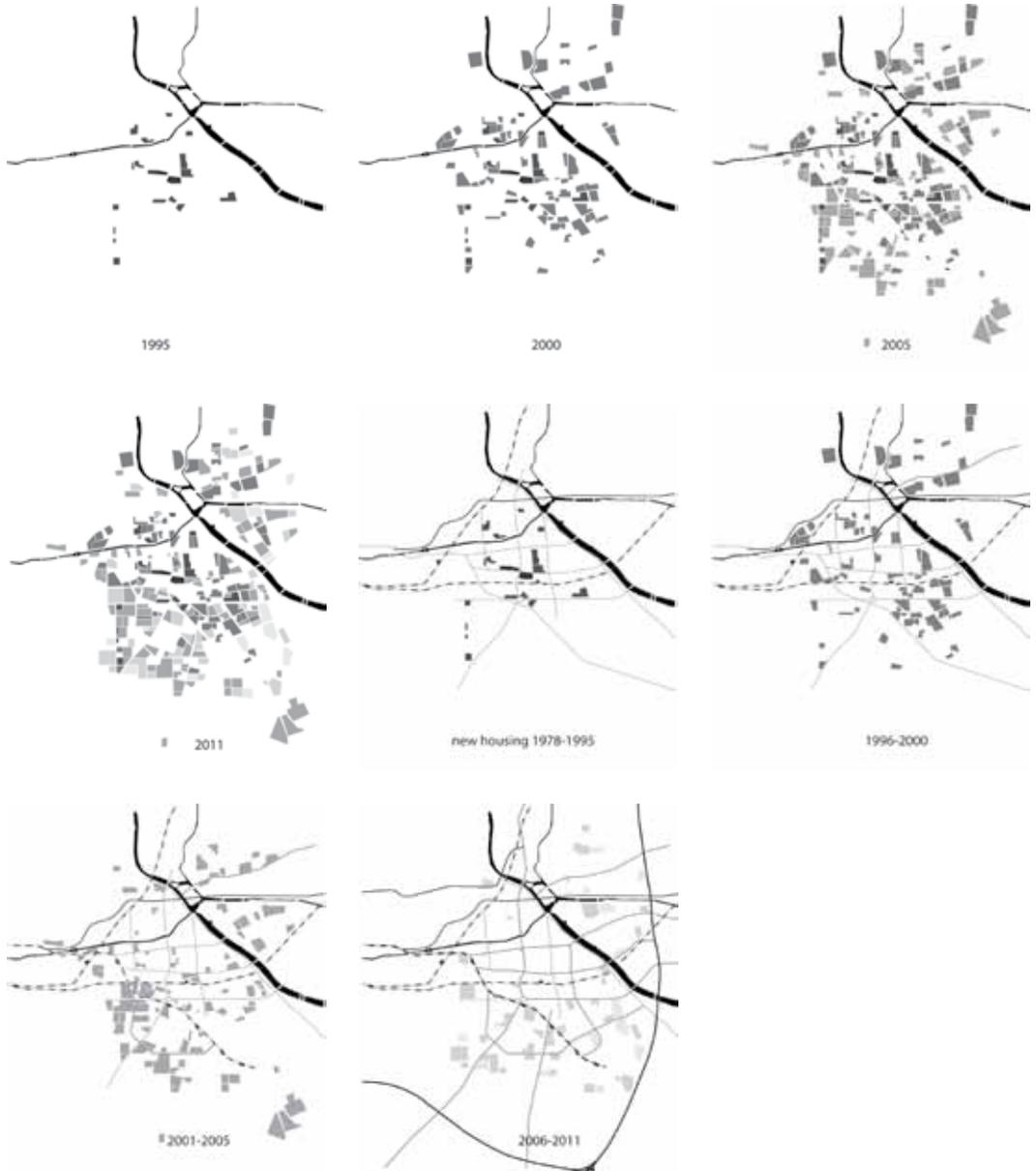
Figure 5.19
Almere growing process: 1976 – 2007
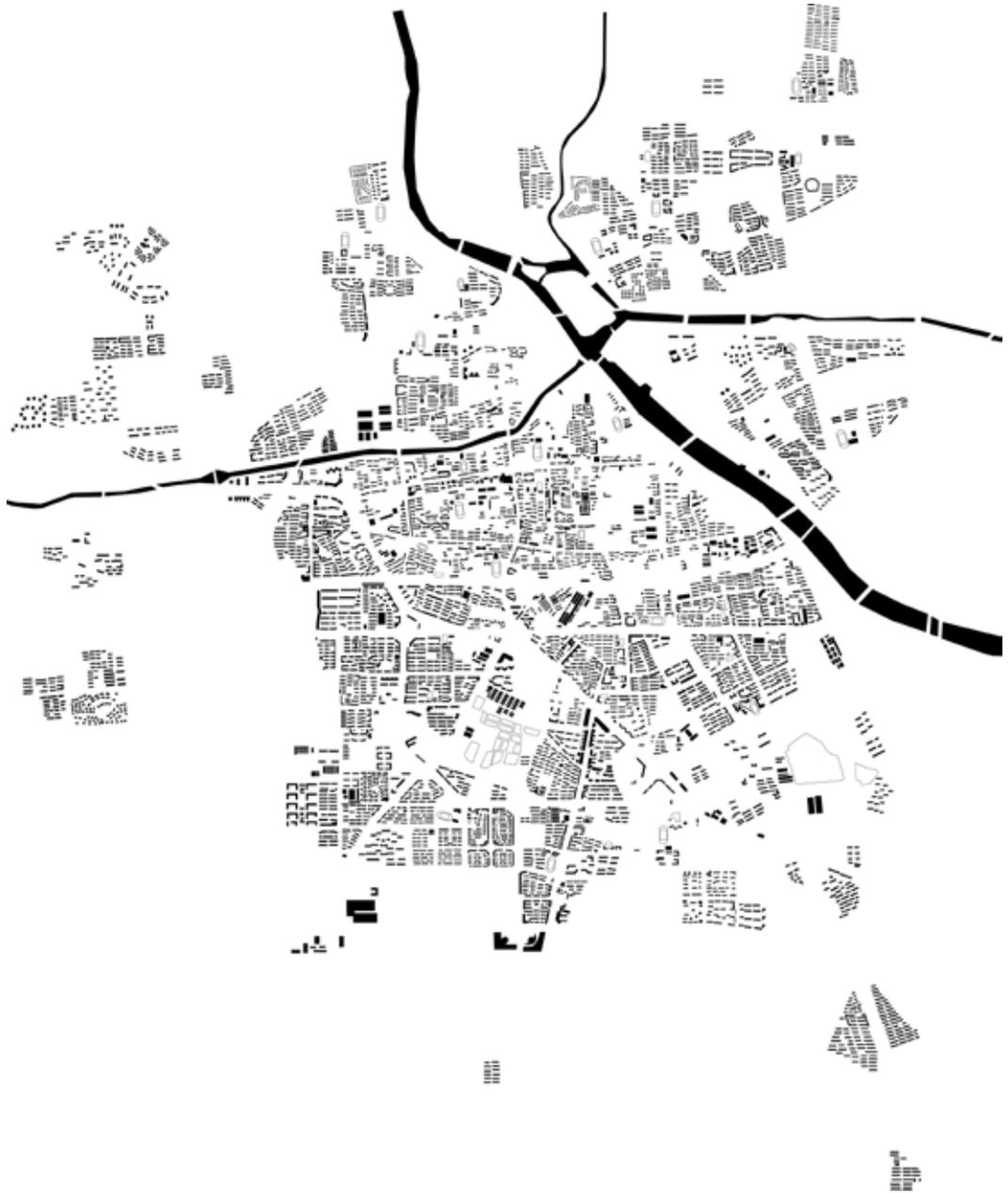
Figure 5.20
Tongzhou built-up area footprint

Figure 5.21
Tongzhou street network

R=400 (3.3 km)
Inter-urban district connections

Figure 5.22
Space Syntax analysis of the street network configuration (radius = 3.3 km), highlighting the most well connected streets across the whole city

§ 5.2.1 Spatial structure of the new town

§ 5.2.1.1 Characters of a spontaneous new town: Land use and structural elements

The Tongzhou new town has been expanding from the historical town, mainly to the east across the Grand Canal, and to the south across the railway (figure 5.17). The territory is segregated by several structural elements, including railways, highways and water courses. As analyzed in the previous section, the Tongzhou new town has largely developed as a spontaneous city: in a multiple-stakeholder decision-making manner in the planned economy era from 1949 to the mid-1980s, and in a market-driven development manner since the mid-1990s until 2005. In the planned economy era, the top-down assigned industries exhibited a surprisingly scattered and unplanned land use pattern. Urban development took place slowly, but gradually, a top-down planned urban expansion area was developed as a compact district in the southeast region across the railway line. Public facilities like schools and hospitals, as well as street parks, were simultaneously provided in the planned new area. During the early 1990s, new town master plans were not very effective in controlling the first wave of market development. Early commercial housing projects were developed outside the planned new town boundary. The land areas with good road accessibility and water landscapes were quickly purchased by private developers. Such projects mainly accumulated in the northeast region on the other side of the Grand Canal, along the expressways connecting to Beijing central city. Many of them are up-market villa communities.

During the second half of the 1990s, the market housing development accelerated. Tongzhou's urban growth was almost completely market-driven. While the commercial projects continued to aggregate in the northeast, two new concentration areas quickly appeared. The area across the Grand Canal, to the east of the old town, used to be considered a flood risk, and thus unsuitable for urban development. However, they are now being exploited because of the vast available waterfront properties. The other new urban area has emerged due to the new light-rail line. As the nearest new town to Beijing, Tongzhou benefits from rapid population growth, and (in 2001) being the first town to have regional rapid public transport connections to Beijing. Interestingly enough, the light-rail line was not connected to the historical center, which was the planned commercial and cultural center of Tongzhou. Instead, the line went southeast to reach the specialized economic and industrial zone, (SEIZ) Zhang Jiawan. Although

the light-rail line eventually did not facilitate the growth of the SEIZ, it did trigger rapid real estate development along the light-rail zones (figure 5.18). About three years before the rail line was built, shrewd developers became aware of the public transportation plan. Then, they started to build commercial housing in this zone.

Beginning in 1954, this satellite new town has been under development for over fifty years. It has achieved a built-up area of about thirty square kilometers, which are inhabited by some 300,000 urban inhabitants. Overall, the new town has expanded to the north, west and south of the historical center. During the early years of market development in the 1990s, commercial housing projects popped up here and there on the farm land. Many factories and existing villages were demolished and replaced with new housing developments. The growth pattern of the town is like a patch work (figure 5.19 & 5.20). As the deindustrialization and urbanization process continues, the urbanized area is gradually becoming more contiguous and compact, especially in the area south of the railway. However, the mapping shows that the villages, deteriorated urban tissues, industrial and storage spaces, and empty land are still sporadically embedded in the urban areas. As a result, the urban image is a montage of old and new, rural and urban.

The aggregation of market housing and the development of infrastructure networks have a co-dependent, interactive relation. As discussed earlier, good accessibility is one of the primary considerations of developers to choose project locations. New neighborhoods that are developed on farm land and former villages also tend to use the existing local roads. When the area approaches a certain size, the municipality would have to renovate and upgrade the infrastructure. As a result, the old and new networks gradually knit and integrate together. It is a combination of grid structures in the north, and a radial pattern and partial ring roads in the south (figure 5.21). The framework of the main roads is recognizable as a system, but the secondary roads, especially in the newly developed areas, are not yet fully connected. With the help of space syntax analysis (topological analysis calculated at a metric radius of about 3.3 kilometers), the structure of main streets over the built-up area and varied levels of spatial accessibility can be clearly seen. The resulting form is an interlocked double-ring structure, highlighted in warm colors (figure 5.22).

Public facilities and services
⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯ .

Public facilities and services in the Tongzhou new town, including hospitals, middle schools, higher education, governmental departments, cultural sports facilities, and green open spaces, were basically all built or initiated during the planned economic era, and the transitional period before the mid-1990s. They are mainly distributed along the main roads in the historical town and the planned urban expansion area (southeast to the railway) (figure 5.23). Between the mid-1980s and mid-1990s, public investment was made possible by the revenue from successful manufacturing industries in the Tongzhou region.

Since the primary goal of the "tenth five-year plan" (2001-2005) was to encourage real estate housing developments, public provision has dropped drastically. The major top-down efforts during this period was still focused on the historical town, including the improvement of the environment along the Grand Canal, the construction of a large city plaza and a sports park on the canal bank (figure 5.24 & 5.25). Except for the infrastructure network, the aforementioned three market-driven developed urban areas were not provided with equal quantities of public facilities, such as new schools, hospitals, social-cultural facilities, parks etc. The frequency and coverage of the bus service in these areas is also insufficient. Interestingly enough, local and informal solutions have emerged through bottom-up initiatives. There are many non-licensed "black taxis" (using private cars, motorcycles, even three-wheel bicycles) waiting in nearly every junction of the main streets, outside shopping centers and near neighborhood entrances. In addition, some large supermarkets provide shuttle services for customers from poorly connected locations. In terms of cultural facilities, some private initiations took place in the new urban areas in recent years. For example, an accomplished artist (Han Meilin) opened a private art gallery near the 5th light-rail station, and the local village authority (Li Yuan) transformed some old factories into an art district.

The local government did not receive sufficient revenues from the increased land values and the real estate developments for the investment of public facilities, due to the poor management of property rights. According to Raymond Unwin, the British government encountered similar problems in the 1900s and 1920s. They had to pay a high cost to develop the basic urban infrastructure for the uncoordinated private-initiative driven urban growth of the cities. The provision of community facilities in the commercial neighborhoods in Tongzhou depends on the project developers. Due to the lack of

clear regulations, the low quality and small scale commercial neighborhoods did not voluntarily provide community facilities in the early market period. Since the beginning of the new century, more balanced and self-contained projects were developed in the new town. Such neighborhoods usually have a well-designed inner landscape, a kindergarten and a community center; and sometimes a community medical station and a primary school. The planning regulations have become stricter after 2006. The regulations stipulated that the construction of educational, medical and community facilities must commence before half of the housing construction is finished. In addition, other services, such as greenery, public space and community shopping centers, must be started before eighty percent of the total housing is completed. All of the facilities must be ready in use when the neighborhood buildings are put on sale. Otherwise, the sale permit will be cancelled.

Commercial facilities and centralities

Unlike public facilities, the growth of commercial facilities in the new town has a different story. They are prone to be self-developed based on the market rules of supply and demand. In other words, the more the planned public provisions are missing, the more private businesses emerge to fill in the gaps. As a result, there exists an abundantly diverse array of daily life services in this new town. In this research project, the original intentions of the master plans and the actual development of the spontaneous town are compared and distinguished. The government has always planned to restore the vitality of the historical center and the harbor area as the commercial and cultural center of the whole town. Before 1996, the first few big department stores, library, cinema and sport facility were allocated along or near the planned central street, Xinhua street. This strategy turned out to be successful. However, as large-scale, new urban areas emerge, the town has expanded to a size that is too large to solely depend on one single center.

According to the mapping result, the overall concentration and distribution of various scales and types of commercial facilities exhibit a strong linear pattern along the spatially integrated streets (figure 5.26-1). This pattern fairly matches the highlights in the topological space syntax analysis on the district scale (at a metric radius of about 2.3 kilometers), which reflects the well accessible streets in each of the major urban areas (figure 5.26-2). Unlike the totally planned new towns, there is not one dominant shopping area in Tongzhou. Rather, there are stores of various sizes, which are quite dispersed and ubiquitous in the whole town. In fact, this can be recognized as a typical spatial character of Chinese cities under the current socio-economic conditions. If the spatial distribution of the commercial facilities of Beijing central city is examined, for example, similar widely distributed street-spread pattern can be identified (figure 5.27).

There are clearly varied hierarchies of businesses. The basic elements are the small businesses, such as the ground-floor shops, (GFS) which make an essential and characteristic part of the town's bottom-up economic activities. They predominantly aggregate along the main roads. And they also proliferate in the well-connected secondary roads between neighborhoods in the compact and contiguous urban areas. The ground-floor shops are developed along with the neighborhoods by private developers. Their popularity and success lies in the fact that they promptly and flexibly fulfill the demands of daily life in the early phase of a new urban area. Currently, they continue to thrive as complements to the commercial, cultural programs found in the urban centralities, by offering a diversity of services. They rely on customers from the nearby neighborhoods, usually at a radius of 600 meters. These empirical results were derived from the interviews conducted to the shop owners. The service radius can be also used as the basic parameter for the analysis of the Central Place model.

Larger centralities have spontaneously emerged in each of the new urban areas (planned or self-developed), but only after the area has existed for at least three to five years. Intriguingly enough, they appear at a spatial interval of approximately two kilometers from the center, and basically coincide with the junction points of the adjacent two kilometer-radius cells in the proposed Central Place model (figure 5.28). Such centralities often gather a series of big stores, such as large supermarkets, household electronics stores, fast food restaurants, and sometimes shopping malls. The formation of the new centralities in the southern new area is closely associated with the light-rail stations, where pedestrian flows are most concentrated. Since 2001, the areas around the second, third and fourth stations have gradually developed into compact and dense urban areas. Several A-mark chain stores and shopping malls have opened their branches in the new areas one after another in recent years. This is in response to the potential demands of the increasing number of white-collar new inhabitants. On a local scale, one or more large traditional open markets for food products can be found in every 600 meter-radius cell range.

Distribution of educational & research institutes

Distribution of hospitals and clinics in Tongzhou

Distribution of governmental offices

R = 3.3 km (district scale)

Public facilities in relation to spatial integration of streets
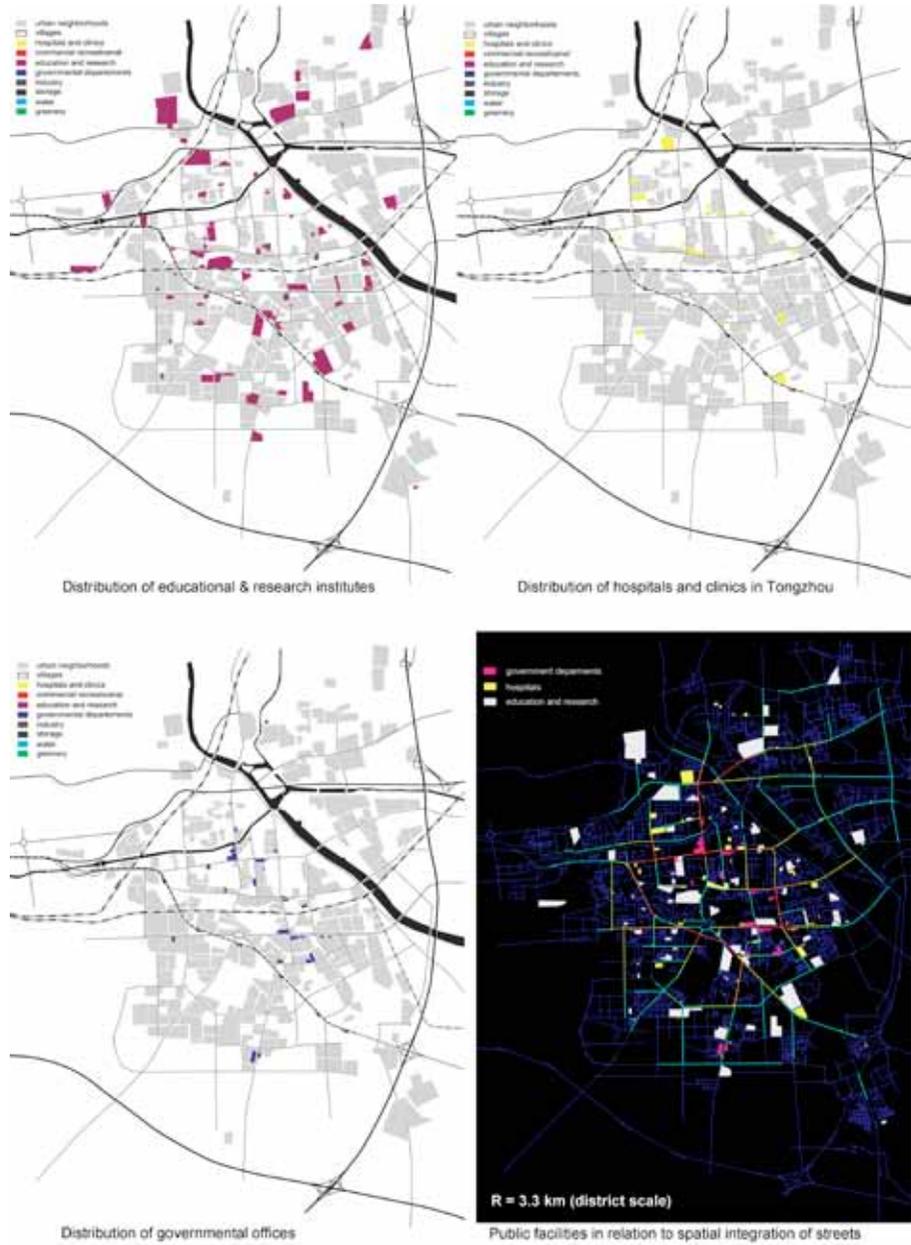
Figure 5.23
Distribution of various public facilities, and in relation to the network integration analysis (radius = 3.3 km)

1

2

3

4

5

6

7

8

Figure 5.24
(1) An imitation of historic boat at the port of Tongzhou, (2) Grand Canal Sports Park, (3)The master plan of Grand Canal Forest park, (4) Iconic bridge and Grand Canal plaza

Figure 5.25
(5-6) Da Gao village art districts using former factory buildings, (7-8) Art gallery near light-rail station imitated by the renowned Chinese artist Han Meilin
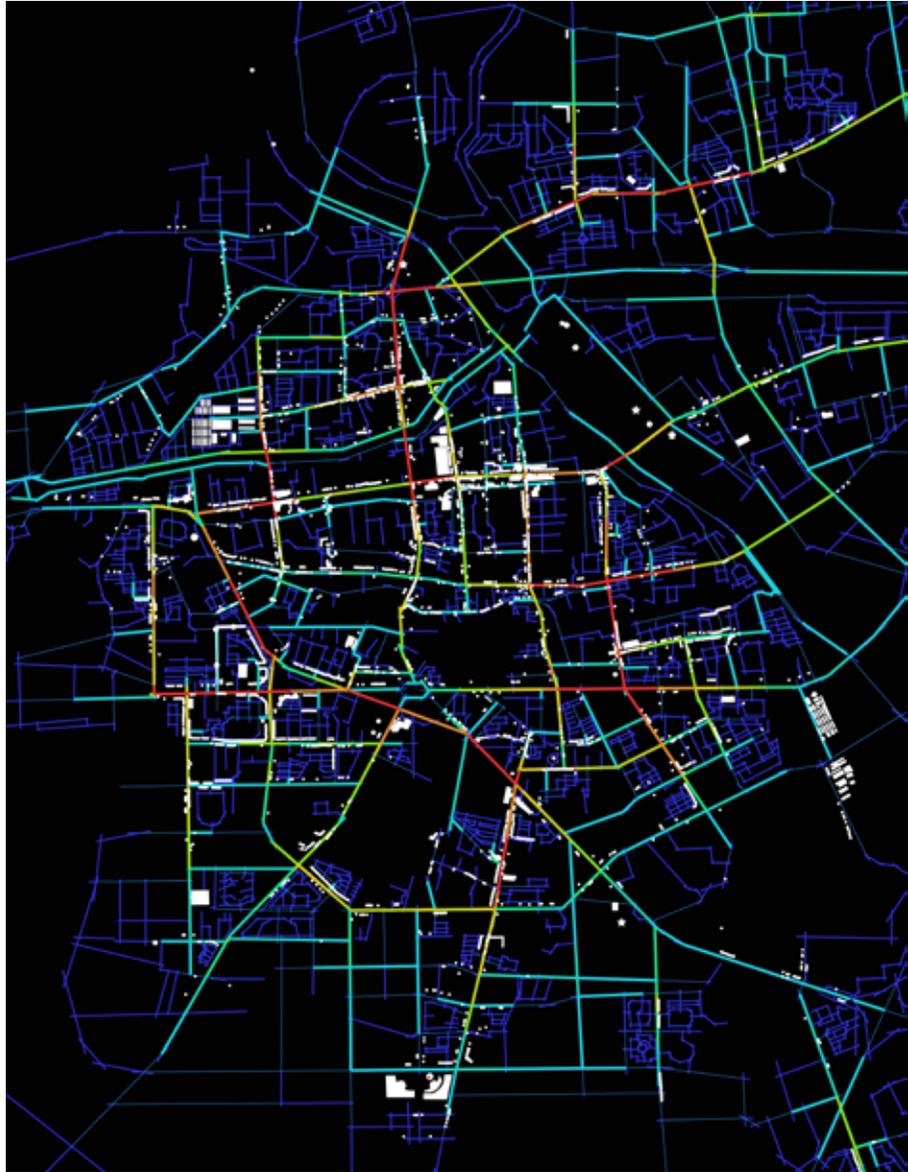
Figure 5.26 a
Distribution of commercial and recreational facilities in relation to the spatial integration values of the street network

Legend:

- urban neighborhoods
- villages
- greenery
- hospitals and clinics
- commercial recreatioanal
- education and research
- governmental departements
- industry
- storage
- water
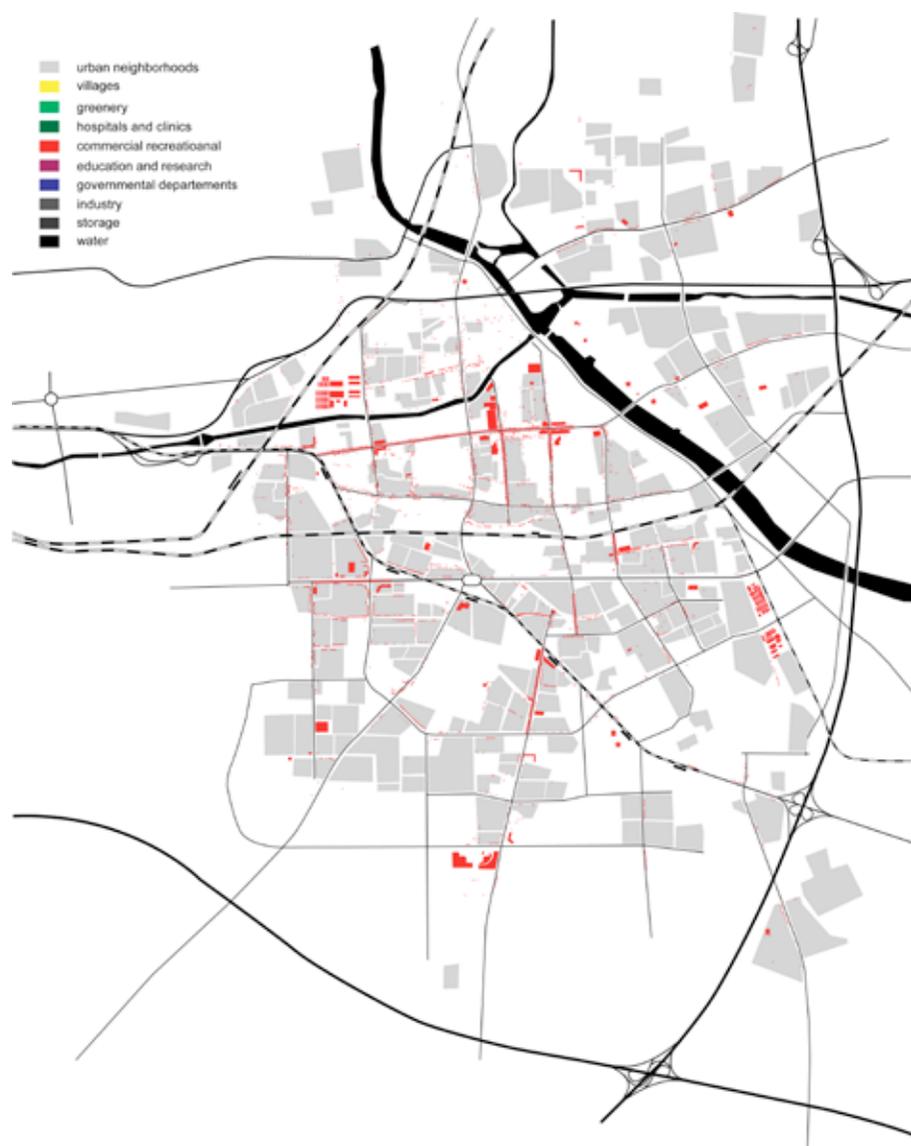
1
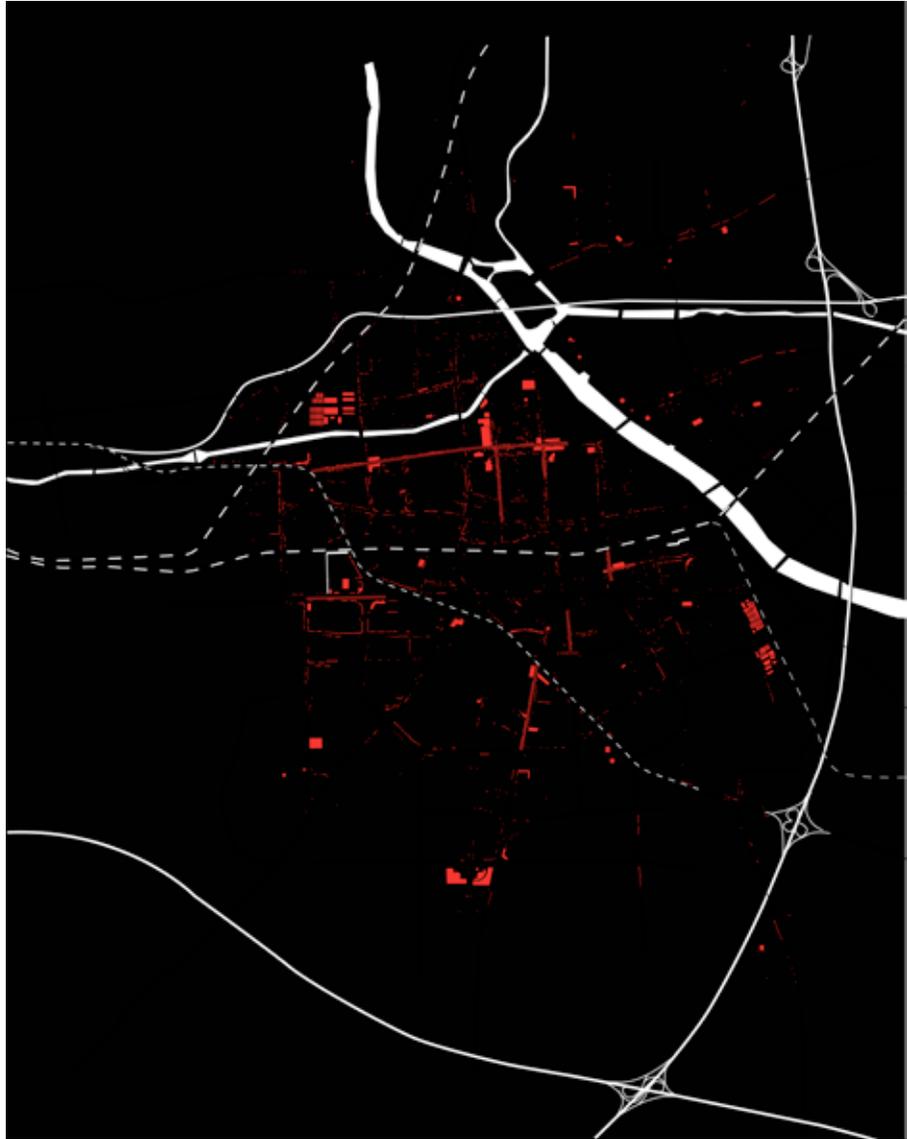
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Figure 5.26 b
(1-2) Distribution of commercial and recreational facilities in Tongzhou
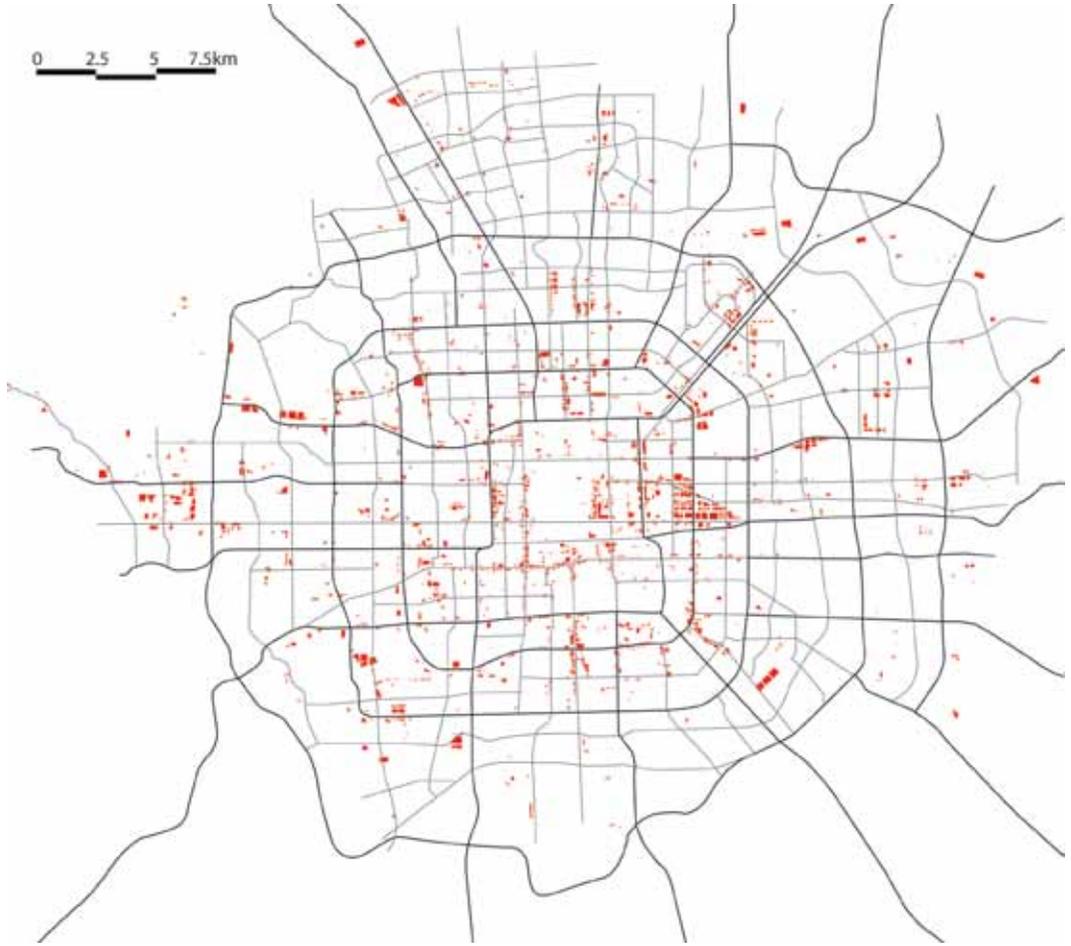
Figure 5.27
Distribution of commercial and recreational facilities in the Beijing central city
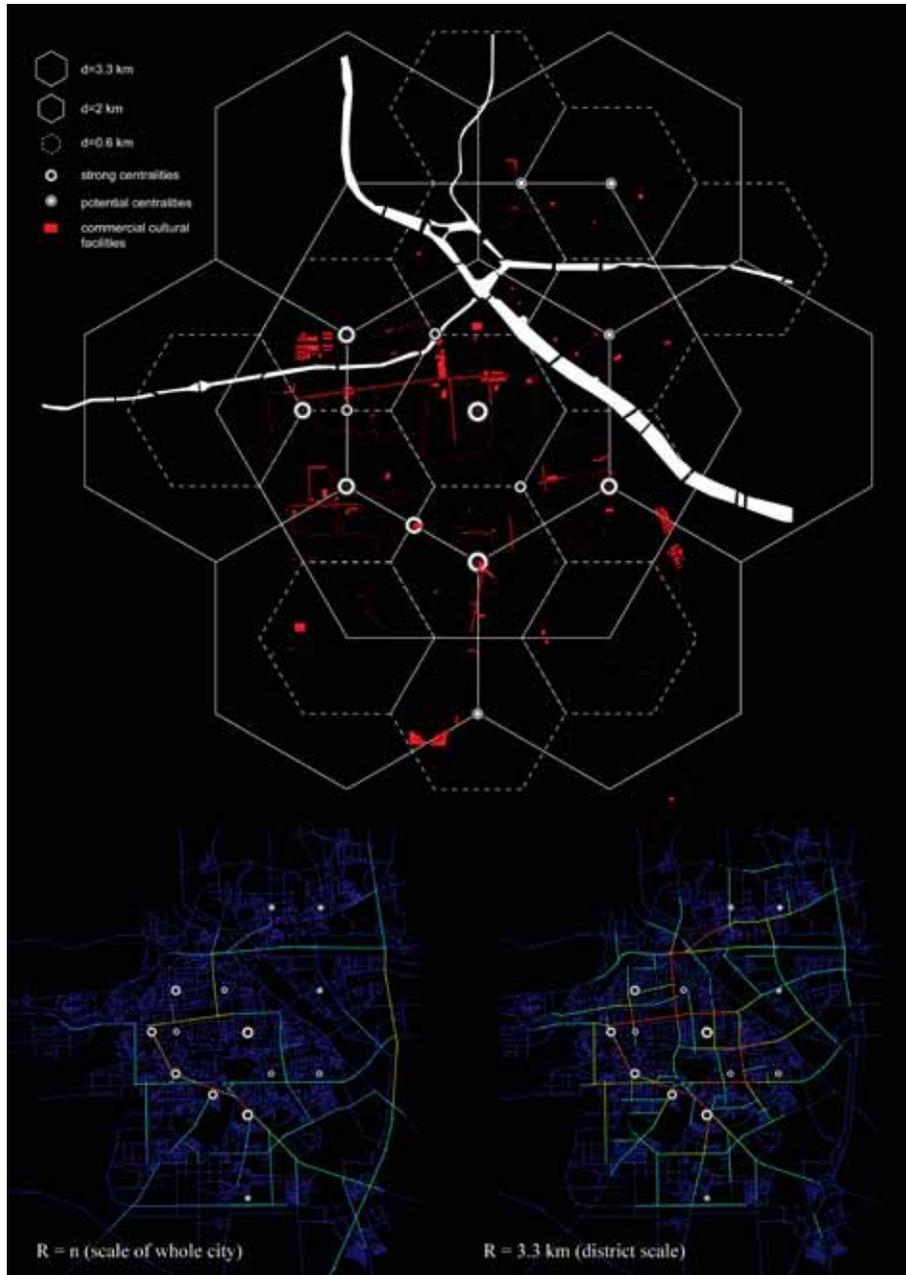
Figure 5.28
Central Place model applied to Tongzhou (above), centralities in relation to the spatial integration value of the street network
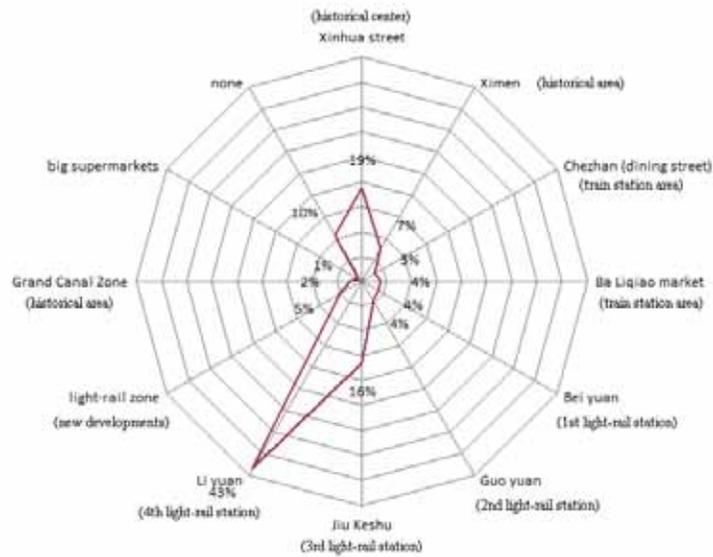
Figure 5.29

Centralities identified by the public in the survey
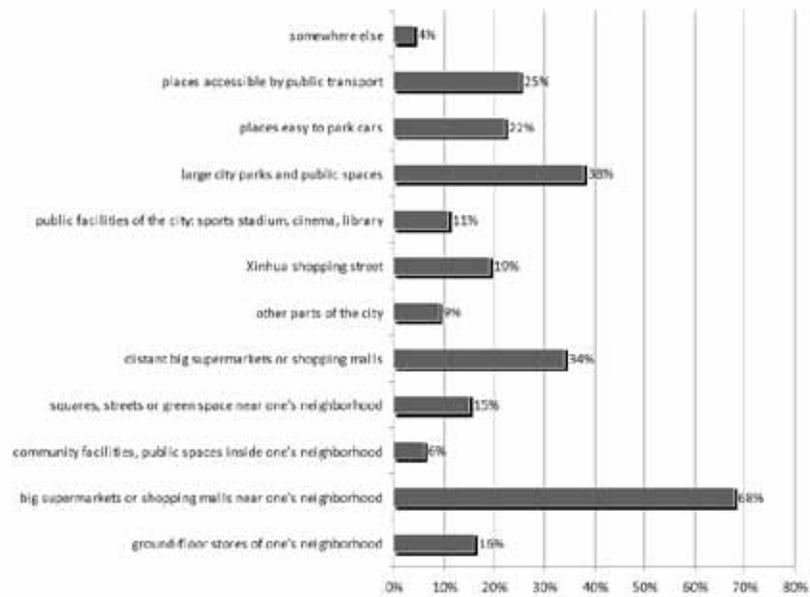
Figure 5.30

Choice of activities by Tongzhou inhabitants
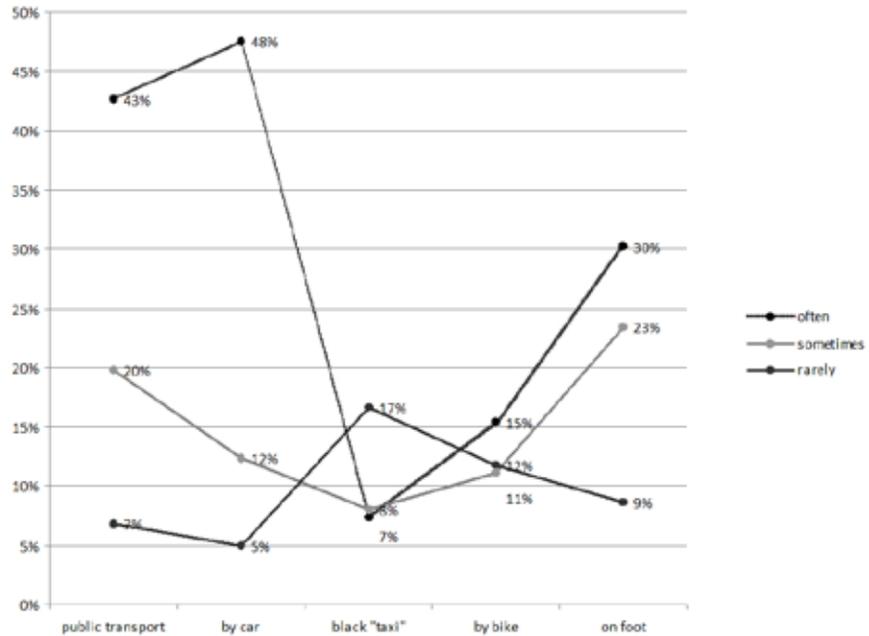
Figure 5.31
The use rate of transportation methods

The new town is now composed of several distinct urban areas that are separated by structural elements, like the canals and railways. A poly-nuclei structure with multiple urban centralities has naturally formed. This conclusion has also been proven by the questionnaire results (figure 5.29). Generally speaking, the centralities identified in the mapping are also mentioned by people in the survey. Statistics show that people (43%) recognize the area around the fourth light-rail station (Li Yuan) as the busiest place in the city, clearly surpassing the traditional shopping street Xinhua Street. This centrality has two new modern shopping malls (Guiyou opened in 2008 and Landao in 2011), as well as big chain stores for household electronics. In fact, each of the station areas and the whole light-rail zone are considered busy and lively to a varying extent. In other urban expansion areas, large supermarkets and markets play an important role in gathering people. The traditional shopping street in the historical center, Xinhua Street, is directly connected to the Grand Canal in the east, and Beijing central city in the far west. As the buildings and commercial activities continue to become downgraded and outdated, their popularity has declined. However, according to the residents of Tongzhou, it is still the second most recognized center (19%). Some public spaces and secondary streets that are linked to the main shopping street are also busy

with activities. For example, Chezhan Street, which is perpendicular to Xinhua Street and connected to the Tongzhou west railway station, is a locally popular dining street. The Grand Canal zone, where the new city plaza and sports park are located, was only mentioned by a few people (2%).

Overall, the gravity has clearly shifted and become more dispersed. In total, over seventy percent of the respondents consider the new urban centralities along the light-rail line more vibrant than the historical center. The quality and scale of the new centralities does not yet compare to Beijing central city. These centralities are successful in gathering many small businesses and generating pedestrian and traffic flows. However, they have not yet perceived as quality, modern urban centers by the residents. As a result, ten percent of the respondents claim that there is not a real city center in the Tongzhou new town.

Through a series of mapping and survey processes, the locations of the multiple centralities in this spontaneous new town have been identified. Their relation with the street network was examined through space syntax analysis. When analyzing the town's road network on the city scale, a "ring road", which is composed of several sections of city main roads, is identified as one of the most spatially integrated streets. The "ring road" interconnects all the old and new urban areas on both sides of the Grand Canal. However, this "linkage" does not completely interconnect all of the urban centralities. On the other hand, the space syntax analysis of the street network of the most compact urban areas in the town (at metric radius of 3.3 kilometers) revealed more highlighted streets on the city scale. In this calculation, an interlocked double-ring structure can be approximately identified. And nearly all the urban centralities are located along the most highlighted streets (in warm colors). Thus, a positive relation between the formation of the planned and self-emerged centralities and the degree of integration of the street network can be established.

§ 5.2.1.3   **Activity pattern**

Before investigating the use of space of urban districts and neighborhoods, it is useful to take a look at the general daily activity patterns of the inhabitants of Tongzhou (figure 5.30). As can be seen on the chart, (daily) shopping constitutes a large part of urban life. The majority of people (68%) frequently visit local big supermarkets or shopping malls near their neighborhoods (i.e. at a radius of 600 meters). Over one third of people also visit such facilities some distance away from their home. Only a few (6%) are active in the public spaces or community amenities inside one's own neighborhood. A greater amount of people often use ground-floor shops (16%) or public spaces

(15%), such as street squares, sidewalks and green spaces that are outside, but near one's neighborhood. Eleven percent of the respondents make use of the public facilities in the city, such as the sports fields, stadium, library and cinema. Large city parks along or near the Grand Canal are more popular than the public facilities (38%). Only a few people often travel to other parts of the city for other reasons (9%).

Is driving a car or taking a "black taxi" necessary in the new town due to the ineffectiveness of the bus service? Is walking or riding a bike the favorable way to commute, because many people's activity range is close to home? According to the chart (figure 5.31), the most common daily transportation method to the city (except for work) is by car (48%). There is a similar high percentage of people who often use the public transportation system (43%). The number of people who regularly take a "black taxi" is not as high as was expected (8%). When considering these findings in conjunction with the field observations, some preliminarily assertions can be made. Public transportation is used mostly by the people who live in the older urban areas, whereas in the new residential areas where bus coverage and service frequency is inadequate, people are more likely to depend on private cars. In this case, potential clients for "black taxis" are limited to the ones who commute via light-rail to work and lack a means of transportation between their home and the stations. This group seems to be quite small. Less than a third of people frequently go to places on foot (30%). There are not many people who often walk in the public spaces in or near their neighborhood. Bikes are no longer a popular transportation means in big Chinese cities, or in the Tongzhou new town. Only fifteen percent of the respondents often travel by bike for daily activities. Once people start driving cars, they tend to rely on it.

§ 5.2.2 Design and vitality on neighborhood scale

§ 5.2.2.1 Case study of neighborhood designs

Neighborhoods are a basic urban component of Tongzhou new town's spatial organization. By analyzing the different building times and developers in Tongzhou, the distinctive design characteristics of the different types of neighborhoods can be identified. This categorization includes the state-owned neighborhoods that were planned and built by town governments from 1978 to the mid-1990s. The collectively owned neighborhoods that were developed by local village authorities during the same period, the commercial projects that were

developed by private developers from the mid-1990s until now, and most recently, the new social housing projects that are assigned by the Beijing central government to the new town. All the new urban areas are composed of a mixture of these four types of housing developments. The individual areas, however, are nevertheless dominated and featured by one of the typologies. For example, the planned urban expansion area is mainly composed of multi-story (5-6) dwellings from the late 1980s and 1990s.The northeastern quarter along the express way is characterized by various villas and townhouse developments from the mid-1990s and 2000s. The eastern area across the Grand Canal has a number of large scale multi-story neighborhoods from the late 1990s and the early 2000s. Since the year 2000, the large area south of the light-rail line is made up of the most middle to high-rise developments of any area.

The diversity in neighborhood designs resulted from different socio-economic contexts, as well as competition in the housing market. It is one of the main urban characteristics of Tongzhou new town, and has various influences on the urban life pattern and the degree of urban vitality in different areas. A common factor of the neighborhoods in Tongzhou is that nearly all of them are gated communities. However, they vary in terms of density, layout, architectural style, and quality of inner landscape, provision of community facilities and possibilities of mix-used development. Five neighborhood examples which are considered capable of representing their typologies will be further analyzed (figure 5.32).

Selected cases	Construction time	Area	Floor Area Ratio (FAR)	Populations	Housing Typology
Yuqiao Beili	1991-1995	12.4 ha	1.11	1850 households	5-6 Story buildings
Xin Hualian Jiayuan	2003-2005	12.3 ha	1.9	2200 households	6-11 story buildings
Shi Jue Yuan Shu	2006	10.3 ha	0.84	356 households (terraced)	terraced houses, apartment towers
Shi Shang Jiequ	2004-2006	11.7 ha	2.33	3736 households	high-rise apart-ment buildings
Jingyu 7090	2008	8.6 ha	2.2	1708 households	high-rise apart-ment buildings

Table 5.1
An overview of the specifications of the five selected neighborhoods. Sources: www.soufun.cn

Yuqiao Beili

Yuqiao Beili (figure 5.33) is located in the planned urban expansion area south of the Jing-Cheng railway. It is one of the first neighborhoods built in this area. The project started in 1991 and finished in 1995. It is a good example of neighborhoods planned

and built by the Tongzhou government, from 1978 until the end of the 1990s. A common characteristic of the neighborhoods of this time period is that they are under the influence of a Russian model of neighborhood planning, which had similarity with Clarence Perry's Neighborhood Unit model.

Yuqiao Beili occupies an area of 12.4 hectares, with a population of about 5500 people. It consists of mainly 6-story buildings, and some residential towers, with a FAR (Floor Area Ratio) of 1.11. These early neighborhoods were designed large enough to be self-contained. In other words, it promotes a community centric lifestyle, with a complete series of community facilities, including a central community office, health service station, police station, kindergarten, primary school, post office, bank, property maintenance office, etc. Cars and pedestrians have separate entrances from different perimeters of the neighborhood, but overall, the neighborhood streets are for mixed users. There are hierarchies of the neighborhood streets. The backbone is a curvilinear route circulating throughout the whole area, and other streets attach to it like tree branches. This development method allows buildings to be sorted into several clusters. The way of organizing key community facilities is the reserve of what the Neighborhood Unit principles of Perry's. The *Yuqiao* primary school is located at the periphery of the neighborhood, with its own direct access from city arteries. This connection allows the school's services to be made available to a larger district. A central public space with a park and square is planned in the middle of the neighborhoods. Community facilities are mixed among the residential buildings, but they are easily accessible from the main circuit. There is a government building (agriculture bureau) and a collective-owned factory situated at the periphery of the area facing the city main road.

Unlike the layout of most neighborhoods from the 1980s, where all the buildings are oriented in the south/north direction and are parallel to each other, the design of *Yuqiao Beili* generated some semi-enclosures and shifts in the orientation angle of the buildings. The rule for the distance between two south/north oriented buildings is 1.7 times the height of the building. In the case of the 6-story buildings, they have about 30-meters of spacing distance in-between. The green and private neighborhood environments are developed using an abundance of tall trees and grass fields in the public space and on the streets. The entrances to the buildings and parking areas are preferably located in the north side and the greenery in the south side.

In short, *Yuqiao Beili* is a carefully top-down planned neighborhood constructed in the early 1990s. It has abundant public facilities and greenery, as well as mixed-use and other urban programs. It is self-contained, gated and introverted. It is not possible for the ground-floor space at the perimeters to be open to the city streets, due to the surrounding fences. Moreover, in the early phase of the market economy, the architectural design of the residential buildings was still austere.

Figure 5.32

Morphological studies of the five selected neighborhoods in Tongzhou

Shijue Yuanshu   Shishang Jiequ   Jinyu 7090
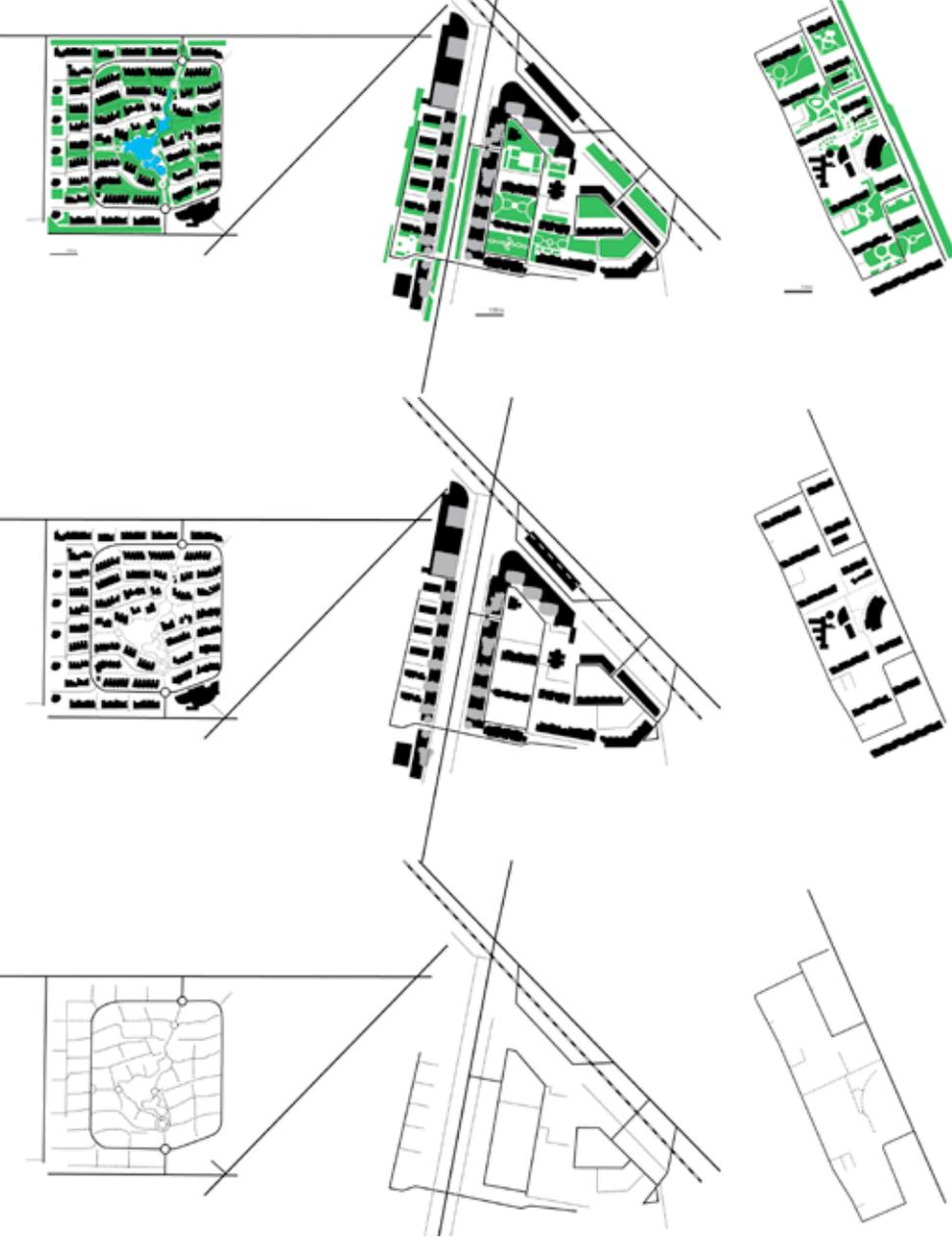
Figure 5.33
Yuqiao Beili neighborhood

(1) Xin Hualian neighborhood: architectonic styles, public spaces and community facilities (2) Small businesses, street vendors, public spaces and public facilities in XIn Hualian

Many profit-driven commercial projects from the second half of the 1990s in Tongzhou were either small-scale or lacked attention to design, construction quality and community life. *Xin Hualian Jianyuan* (figure 5.34-1), which was developed after the year 2000, represents a new generation of quality commercial neighborhoods. The neighborhood was awarded one of the ten "golden medal designed neighborhoods" in Beijing in 2003 by the city's urban planning bureau. It is located right next to the second light-rail station, with excellent accessibility to both public transportation and the main city roads. The property is divided into two districts, northern and southern, covering a total area of 27.3 hectares. The northern district, which is the phase II area built from 2003 to 2005, was analyzed in this research project. It has an area of 12.3 hectares, with a FAR of 1.9. The building typology is mainly middle to high-rises (6-11 stories). Over 2200 households (about 6-7000 people) live in the thirty-three buildings in this area.

Compared to the neighborhood design of the 1980s and 1990s, an obvious difference is the attention to architectural detail. The exterior and façade design was based on European styles. The architectonic languages that were applied included warm colored decorative tiles, pediments, arches, columns, and small domes and pavilions at the top of the buildings as ornamental elements. In addition, the Triumph Arch shaped entrance gates, and the iconic tall bell tower serve as landmarks. The emulation of classic European architectural styles was quite prevalent in urban China in the early 2000s. It was used to demonstrate a new lifestyle, a taste of culture, and a bourgeois label to the inhabitants.

Xin Hualian Jianyuan also offers abundant, well-designed open spaces, greenery and quality community facilities. As in *Yuqiao Beili*, a central park serves as the main public space. The developer gave a greater attention to detail in the design of the buildings and public spaces. A round-shaped, hard-ground sink square with a fountain, pavilions, and benches is planned in the middle of the neighborhood. Another green square that is lined with trees and plantations is provided. The overall vegetation coverage in this neighborhood is as high as thirty eight percent. However, the trees here are younger and smaller compared to the stated planned communities. Besides a similar set of community facilities that can be found in *Yuqiao Beili*, this neighborhood (in the southern district) offers a large-scale (7200 square meters) community center with a swimming pool, gym club, snookers, beauty salon, etc. The developed provides high quality education and medical services as well. For example, the community kindergarten is specialized in art and teaching second languages. The medical station is an extension of the public hospital in the new town.

The general building layout is in the north/south orientation. However, the network design prioritizes the pedestrian by providing both surface and underground parking spaces. Originally, there were two pedestrian entrances and a main entrance at the eastern boundary, which was adjacent to the light-rail station. There was also one car entrance at the south side. However, the former main entrance is now restricted to pedestrians, and one pedestrian opening has been closed. The main entrance has shifted to the quieter secondary city street in the south. By doing so, the designers intended to reduce unwanted thru-traffic and passing flows of strangers, and to create more private and exclusive gated communities to the inhabitants.

The most distinguished characteristic of the neighborhood design is the abundant supply of ground-floor shops, both inside and outside the neighborhood (figure 5.34-2). The first two stories of each residential building are allowed to be mixed-use. At the eastern and south perimeters facing the city arteries, and the buildings near the entrances, there are one to two floors of additional buildings that are meant for shops of various sizes and kinds. Most units are between ninety and two hundred square meters. The corner space, which is over a thousand square meters, is occupied by a mid-sized supermarket. These floor spaces were sold very quickly through a bidding process to individuals at higher prices than of the housing units in the same neighborhood. Due to their favorable location close to the light-rail station, the shops are often quite busy.

Compared to the typical example of top-down planned neighborhoods in the early 1990s, a greater emphasis on architectural and public space design was placed in the commercial residential developments in the 2000s, like *Xin Hualian Jiayuan*. In the meantime, the developer attempted to upgrade the quality of community life by providing exclusive recreational facilities, as well as education and medical services. Interestingly, the neighborhood connects to the city roads and surrounding urban areas through the ground floor shops at its perimeter. Although being a gated community, it has an extroverted feature.

Figure 5.35
Shi Jue Yuan Shu neighborhood master plan, landscape design, and community facilities
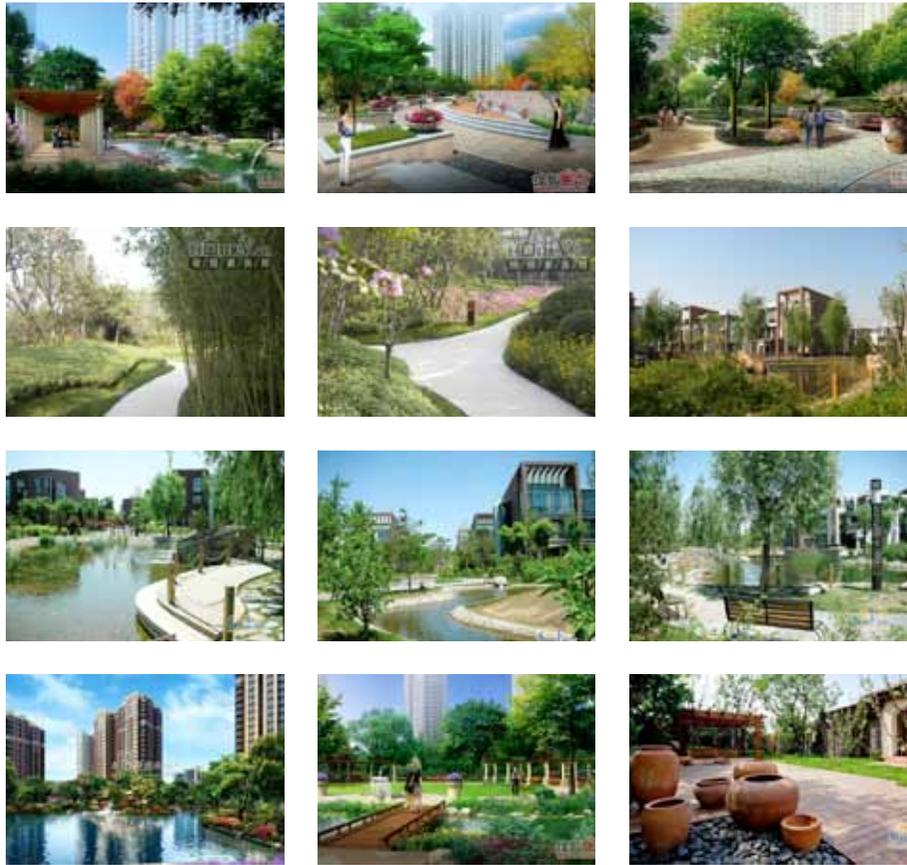
Figure 5.36
Similar examples of neighborhood designs that use high quality inner landscape as a main selling point

Tongzhou is often described by the market as the "back garden of Beijing CBD". A number of villa and townhouse projects were built in the remote areas of the new town, with alluring competitive prices. The first wave of such projects occurred in the mid-1990s, which was followed by more developments in the mid-2000s. Since the end of 2007, villa communities with a FAR of less than 1.0 in the suburban areas have been prohibited. *Shijue Yuanshu* (figure 5.35) belongs to the new generation of commercial housings, from which values of planning and design can be observed.

The project was developed in 2006, covering an area of 10.3 hectares with, a FAR of 0.84. It contains 356 units of terrace houses (also called townhouse or row houses), five residential towers and a large-scale community center. This neighborhood contains several compelling design features. The most distinguished feature is the utilization of exquisite landscaping as a tool to boost the quality and character of the neighborhood. Water landscapes were used to create a park-like, ecological friendly and aesthetically enjoyable central public space. It is grand in scale and rich in design details. The 8000-square-meter large artificial lake is decorated with pavilions, wooden docks, bridges, artistic lighting, a small island, and various floras. Buildings are laid out in a fairly organic pattern, conforming to the shape of the lake. Each row is rotated exactly 22.5 degrees to either the east or the west, in order to create picturesque effects from different street perspectives. The architectural design promotes diversity. For example, each row has an individual style, mostly by borrowing the architectonic language and elements from various European styles.

Another obvious design tactic is the clear separation of traffic and pedestrian networks. The main spine is a simple round circuit, with two openings to the city streets at the north and the south boundaries. Other branch roads are cul-de-sacs extending from the main street. Pedestrian paths are threaded through the green spaces between the rows of houses and around the central park. They form an independent and uninterrupted system in the core area of the neighborhood. Moreover, the neighborhood offers a 1500 square meter community center with mainly recreational programs, like indoor tennis courts, a swimming pool, a gym, a chess & cards game room, a café and bar, and a 3000 square meter floor space for shopping, in the same corner building facing the intersection of the city streets. Other services, such as kindergarten education and medical care, depend on the facilities in a nearby area or the city.

Shijue Yuanshu demonstrates a lot of effort on neighborhood planning. The landscape design and the ecologically friendly living environment are weighted much more than most of the earlier communities. However, not all of the public spaces are implemented as well as they were originally designed, and the exterior facades of the houses are not

very aesthetically engaging. Some of the newer villa communities do not have such a large-scale central public space. However, they are better in terms of incorporating modern architectural designs and quality landscaping (figure 5.36). A couple of the latest projects improve the beauty of the landscape design inside the community to a higher level, and use it as a major selling point.
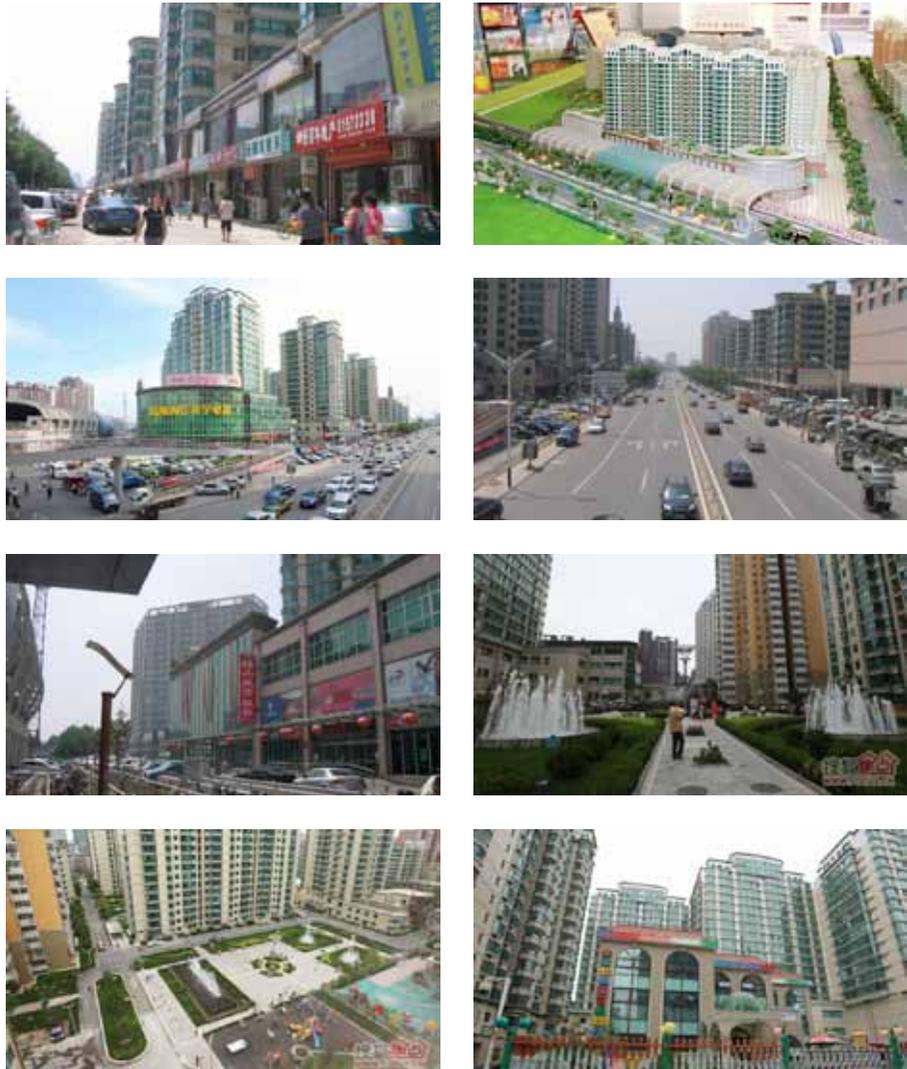
Figure 5.37
Shi Shang Jiequ neighborhood

Shishang jiequ
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Shishang jiequ (figure 5.27) is located directly next to the fourth light-rail station, Li Yuan. In fact, this neighborhood is an essential part of the biggest centrality in the new urban area south of the light-rail line. It was constructed between 2004 and 2006 in a terrain of 11.7 hectares, with a FAR of 2.33, and a total of 3736 households. Some thirty high-rise apartment buildings and towers are lined up densely on both sides of the city artery, next to the station. These towers help forma highly urbanized atmosphere.

The most prominent characteristic of this strategically located neighborhood is the development of a new shopping street. It offers a total of 60,000 square meters of floor space for commercial use. Ground floor shops are located in the two-story base buildings, for about 400 meters along the streets on which the residential high-rises stand. There is a twelve meter wide space for pedestrians and car parking between the shops and the city street. A large-scale commercial building is planned opposite to the light-rail station. On the other corner of the city street stands the most modern shopping mall, Guiyou. These two buildings are the main attractions for this popular new centrality. Although there is much outside activity, the surrounding base buildings define and enclose the space within the neighborhood, making it private and uninterrupted by noise and unwanted passers-by.

The architectural designs subtly adopt some symbols from the classical Roman and Greek architecture styles. However, the building has a mostly muted, modern style. One to three-room apartments, with relatively small floor areas, are the dominant typologies in the community. Their target market is white collared workers who commute with public transport to Beijing central city. Although very different in style than the villa communities, this highly urban neighborhood also promotes a green and ecological living environment, mainly through the design of open green landscapes, squares and playgrounds in-between the high-rises. However, this community is not self-contained. Instead, it depends on the city facilities in the new town, which are not very far away. Still, a kindergarten contributes to making a lively community life.

Figure 5.38
Jinyu 7090 neighborhood

Jinyu 7090

Jinyu 7090 (figure 5.38) belongs to the latest generation of commercial housing projects in Tongzhou. It was developed in the middle of 2008, by which time the speed of housing developments had drastically slowed down in Tongzhou. These developments are excellent in quality in one or multiple aspects of neighborhood planning and design. Many of them are distributed in remote locations from the existing urban centralities. Thus, ground floor shops are planned inside the neighborhood for a self-contained characteristic again. *Jinyu 7090* is such an example. The rectangular-shape project area is surrounded by barriers, such as railway tracks and big retail compounds for building materials. However, it is not (yet) surrounded by the neighboring urban developments. It does not have good conditions for street shops. Instead, business opportunities are gathered in a fancy two-story building (8000 square meters floor space), which stands in the well-designed pedestrian-only central public space inside the neighborhood.

Considering that the project is smaller in size, eleven fifteen-story apartment buildings are in an area of 8.6 hectares, with a FAR of 2.2. The neighborhood offers a rather complete group of community facilities, including a kindergarten, a medical station, and a sports and recreational center. They are all located in the central square. The network is simple, but it separates vehicles and pedestrians. Currently, the services are mainly oriented to the inhabitants of the 1708 households that are living there. However, the semi-public square is open to the city street. In this way, there is an opportunity for more external visitors in the future. The central public space is the most important feature of the neighborhood. Landscape architecture design, incorporating tactics like plantations, height difference, and building arrangement, makes the spatial experience rich and dynamic. Although the buildings are simply parallel, the green open spaces between them are designed in organic spatial patterns. In fact, *Jinyu 7090* is the first neighborhood in Tongzhou (and the 4th in Beijing) that was built to comply with the fourth generation of planning and design codes for residential buildings and neighborhoods by the nation's Minister of Construction. Besides the above mentioned qualities, aspects of eco-friendliness and energy-efficiency were incorporated into the designs.

Different neighborhood designs can influence the pattern of urban life. several representative typologies of neighborhood design in the Tongzhou new town have been analyzed. Then, the question if they resemble or differ from the urban fabric in the Beijing central city will be discussed. Generally speaking, the commercial housing developments that were created since the 1990s in the whole Greater Beijing Region are characterized as incorporating gated communities as basic design units. Most of the design ideas are very similar, except for the higher density solutions in the central city. For example, the developments within the third ring road are dominated by high-rise apartment buildings. However, the recent developments in Tongzhou are largely high-rises as well. Nevertheless, as a suburban town, the most popular typology is still made up of mid-rise (5-6 stories), south-north orientated apartment buildings. This is a typical urban development that can be found around the fourth and fifth ring roads in the central city. The non-gated traditional urban fabric, and a few first generation top-down neighborhoods that were developed after the founding of new China, stand out as featured designs in this city.

Hutong and courtyards housing: Da Shilan'r district

As has been studied in many literatures, Hutong and courtyard housing is the traditional city typologies in the historical area of Beijing city. In fact, the Hutong areas accommodated quite a large urban population, until they began to be rapidly demolished since the early 1990s. The life style in the traditional urban fabric had such a profound impact on the people of Beijing, that their unique values, and the negative impacts of their disappearance, were widely and intensively debated, and finally memorialized after people were moved into multi-story apartment buildings in the 1980s and 1990s.

Traditional Chinese town planning applies grid patterns as street networks in a city confined by walls, moats and gates. Hutong urban fabrics within the city are opened and divided by main streets. However, they are not enclosed and gated into private units. An example development is the *Da Shilan'r district* (figure 5.39), a 120-hectare Hutong area located right outside the Forbidden City in the south of Beijing. The city street located at the eastern boundary of this area was one of the most important city markets in the Ming and Qing Dynasties. This area was self-developed over time. Its open structure nature allowed it to develop into a couple of diagonal spines, which were integrated with the traditional grid pattern. This integration was made possible through the incorporation of the main pedestrian flows between the city gates to the northeast and southwest of this area. This area has abundant program mixtures, because of the openness and frequent flows. Facilities and services are not necessarily confined to the perimeters, but have emerged throughout the area, especially around the diagonal spines and several main connecting Hutong branches. Busy street lives as well as diverse local shops, workshops, hotels, tea houses, religious temples, recreational activities, and more can be found here.

Hutongs, the alleys between groups of courtyards housing, are not only corridors for pedestrian flows, but more importantly, they function as public spaces where diverse street lives take place. Unlike modern neighborhood planning, this densely populated self-developed area (195 households per hectare in 2006) does not have much central public open space. However, the intimate human-scale pedestrian-only spaces between the exterior building walls are the places where neighbors socialize, have casual chats, play chess or watch people play. Children are also playing games and riding bikes, and street venders are selling various goods. It is this kind of social contact, street life and mixed-use programs this open-structured traditional urban fabric possesses that can hardly be found in modern gated communities.
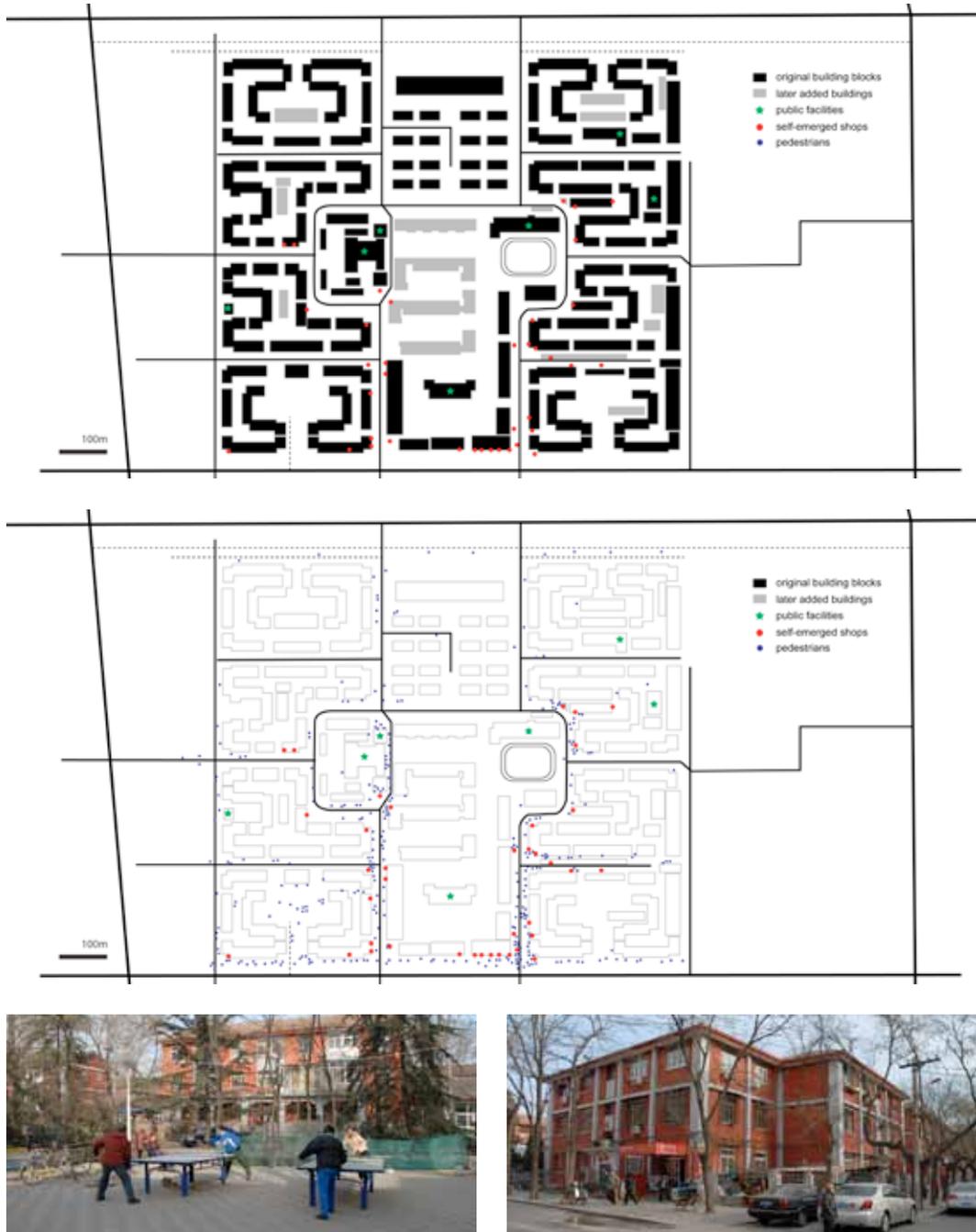
Figure 5.40
Bai Wanzhuang neighborhood: one of the earliest in Beijing in the 1950s

The first neighborhood from the 1950s: Bai Wanzhuang

Bai Wanzhuang (figure 5.40) is the first collective living neighborhood that was constructed after the founding of new China. It was built to accommodate employees of two important government departments. The neighborhood was designed in 1953 by the Chinese master architect *Zhang Kaiji*, who is also the architect of a number of important landmark buildings in Beijing in the 1950s and 1960s. It is considered a gem of neighborhood design in China, which brilliantly combined the western concepts of neighborhood and urban block (directly influenced by Russian planning model), and the traditional Chinese Hutong and courtyard housing typologies.

This 21.09-hectare (currently some 1800 households) neighborhood consists of nine "urban blocks", which are arranged symmetrically in the shape of a square, while embracing a central public space in the middle. The spacious central place aggregates public facilities, such as a kindergarten, primary school, public dining hall, community clinic as well as children's playground and green open space. Shops and post offices are located at the perimeters, facing the city streets near the local network entries. This design allowed the services to be easily accessible for people who travel between home and work. The neighborhood is not gated, and it is open to the city streets. However, the local network is designed to wind in the central area, in order to prevent direct thru traffic.

The urban block and close typologies (Unwin, 1909), where buildings are arranged along four sides of a street block, and enclose a semi-public inner space, was completely new to Chinese cities in the 1950s. The local daylight requirements and the intimate human-friendly scale of the traditional Chinese typology were incorporated into the designs. The architect designed a unique "double-close" block pattern, where there are two layers of enclosed space: the narrower inner yards (usually 1 to 1.5 times the building height in width) face the kitchens and bathrooms of each household, while the more open outer yards are the places for public activities, such as physical exercise, strolling, sitting and chatting. There are many tall trees in the public spaces that contribute to the identity of this neighborhood. Each "double-close" block is about one to two hectares in size. Several standard building blocks are deliberately and intriguingly organized into the pattern of the Chinese character . The labyrinth-like layout can be a little confusing. Hence, different blocks use different color schemes for the doors to distinguish themselves from one another. The building designs attempted to creatively regenerate traditional Chinese styles through elements like the pitched tile roof, and window, door, column, and balcony patterns. The whole neighborhood demonstrates a systematic public to semi-public sequence, and semi-private and private spaces. The urban lifestyle that is generated is peaceful, introverted, collective and self-contained.
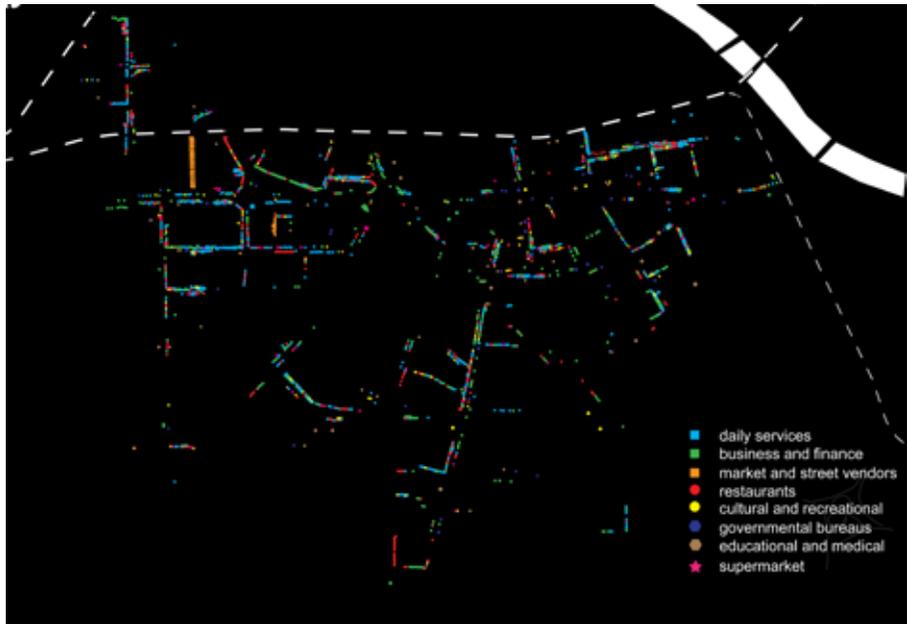
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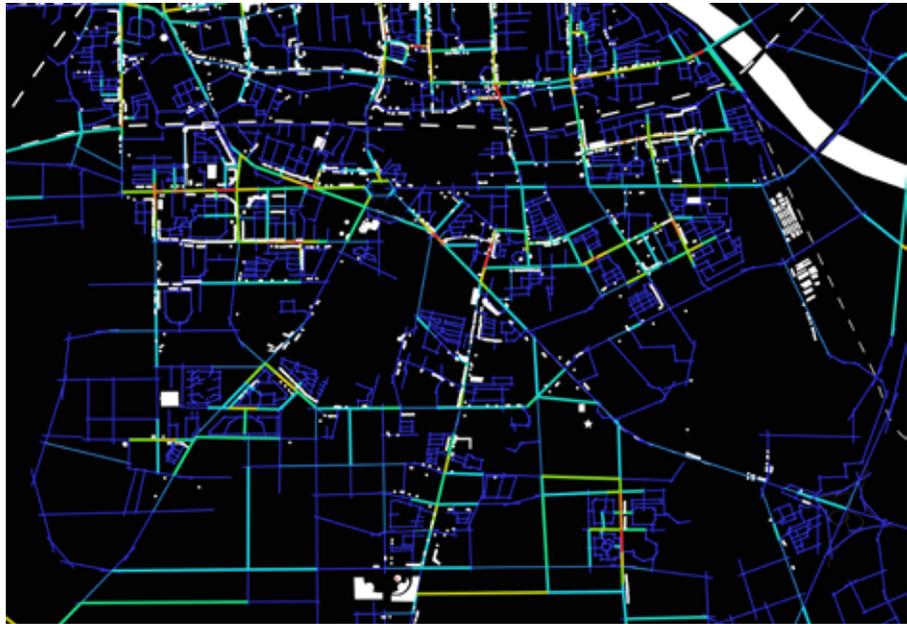
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Figure 5.41
(1) The mapping of diverse small businesses in the new urban area south to the light-rail line in Tongzhou (2) Distribution of small businesses and public facilities in relation to the local integration values of the street network (Radius = 600m)

A number of spatial appropriations have occurred in this neighborhood over the past fifty years. Many residents living on the ground floor have built a kitchen or a small private garden extension facing the semi-public inner yards. The central public open space was replaced with apartment buildings in the 1990s. Some outer yards in the "double-close" have been filled up with one to two story secondary buildings. The neighborhood has become livelier as small ground-floor shops and several street markets for vegetables and fruits have emerged. They are unexceptionally located along the main local network, and at the corner of the buildings. This coincides with the concentration of pedestrian flows. The unique design and characteristics of the neighborhood helps maintain a sense of belonging in the community.

§ 5.2.2.3   **Street life in new urban areas: mapping of ground-floor shops and markets**

Both of the two traditional urban fabrics have self-adapted and become livelier over time, due to their open structures. Interestingly enough, the new urban areas in Tongzhou that are composed of gated communities do not show signs of an absence of urban life. These neighborhoods have both introverted and extraverted characteristics. They are gated and private inside, but open and public to the surrounding city streets through the presence of commercial spaces at the perimeters. The ground-floor businesses contribute greatly to the street life. In different districts in the city, the continuation of traditional (open) markets, and the mixture of different types of neighborhoods develops the local urban life. Such mixture ensures the blending of diverse populations, so that street lives spread throughout the area during the span of a day. Although in the new urban areas, the problem of empty towns during the daytime is still detectable. On the city scale, urban life and activities are more dependent on the quantity and quality of large-scale public and commercial facilities and public spaces. Top-down efforts on this aspect are still greatly needed. However, the new centralities near the transit stations and the large city parks at the waterfront have already generated some positive effects.

It is clear that the local urban life in the new urban areas has the most research value. The region to the south of the Jing-Cheng railway, which consists of both the top-down planned extension area and the largely market-oriented development area to the south of the light-rail, was chosen for in-depth study. These areas have developed sufficient levels of compactness, complexity and liveliness to be considered urban. Through field studies, small businesses and self-emergent activities have been registered and sorted into a map (figure 5.41). The spatial logics behind the distribution pattern, and the types and levels of vitality of the small businesses, have been analyzed.

First, space syntax analysis is applied to the street network of this region. The topological analysis of 600-meters-radius reveals the locally integrated streets in short sections (figure 5.41-2). This is also used for the Central Place model analysis, as the perimeter of the basic local cells. The results of the comparison are that the latter fits better with the distribution pattern of small businesses in this region. Technically, a *spatially integrated* street means that starting from this street, one can reach all the other streets at the range of a certain metric radius within the fewest changes of angle and direction turns. In other words, they are usually the most connected and easiest accessible long streets in an area. The match between empirical mapping and computational analysis has demonstrated that *locally integrated* is one of the factors that determine the patterns of self-emerged small businesses.

Slow-speed pedestrian-friendly environment are another important factor. The survey results of the residents' activity patterns indicates that sixty-eight percent of people conduct their daily shopping near their neighborhood, and thirty percent of them do it on foot. 500 to 600 meters is considered a comfortable walking distance for pedestrians. The ground-floor shops and pedestrians encourage each other's existence and growth. Jan Gehl emphasizes that "urban life happens on foot". The registration of urban functions in Tongzhou also shows that few shops locate themselves along main arteries of high-speed traffic, except for cars services and logistics businesses.

Transit-oriented development is evident in Tongzhou new town. Sufficient *compactness and population density* is self-established around public transport stations. The typical density of the new urban areas near light-rail station in Tongzhou is approximately 450 to 550 inhabitants per hectare. A compact area in an approximately a 600-meters-radius therefore contains over 10,000 inhabitants. The areas close to a transit hub or centrality also have the advantage of having intense vehicular and pedestrian passing flows. People living in the more peripheral locations are also visitors. The further away from the major public transport station, the less bubbly the small business and street life becomes. This gradient pattern can be observed around the second and fourth light-rail stations.

Major *destinations*, such as the large supermarket and shopping malls, hospital, schools, markets and sometimes governmental bureaus, also serve as strong magnets for attracting traffic and pedestrian flows. This is evident in the planned extension area, where these facilities are not bound to the transit hubs. The open markets have an especially interesting phenomenon. Although most of them are located in hidden and peripheral locations, such as next to the railway track, they still attract a considerable amount of visitors. Sometimes, a strong urban program can attract and scale up a specific type of business. For example, private attorney offices thrive around the City Court building.

The field studies have shown that *circulation routes* in the street network are a premise for the development of street life. Tongzhou has been growing in a patchwork manner. New housing projects are often mixed with vacant grounds, villages and individual areas. In many locations, the secondary street network is incomplete and not well-connected. Many tree-structures can be identified on the map. Furthermore, rarely can urban activities be vibrant on all sides of a neighborhood. As the gated communities usually have only two openings to city streets, they always seem to have a busy front side and quiet back side, which coincide with the short line patterns that are derived from space syntax analysis.

Finally, *urban design* plays an essential role in creating a lively, urban atmosphere. Different urban design ideas have resulted in different street life patterns in the top-down planned area, and in the self-developed areas around the light-rail stations. The planned urban extension area is meant to showcase the achievements of the new town developments. A number of new government department buildings are standing along the main roads of this area. The city main roads are spaciously wide and decorated with generous strips of nicely-landscaped public greenery. The green strips offer places for elderly people to socialize outdoors, but they also block the views of many of the austere-looking neighborhoods from the 1980s and early 1990s (figure 5.42). These neighborhoods are. The green strips make the streetscape seem green and tidy. Probably for the same reason, these neighborhoods were usually not designed to provide ground-floor shops that are open to the main streets. Instead, they are rather isolated with fences and short walls. The half planned and half self-emerged neighborhood shops are concealed in the local streets in-between several neighborhoods.

Figure 5.42

Green straps along city main roads, providing places for sitting, strolling and social contact. But sometimes the greenery obstructs the visual and physical connection between the buildings and the streets.

Figure 5.43
Some vacant ground-floor shops in locations distance away from light-rail stations and public transport

On the other hand, ground-floor shops in the self-developed areas are visible on the main streets of the city, so that they can draw the attention of the public. Although the main streets are equally wide for the projected amount of traffic, there are more paved sidewalks and much less greenery. This makes the shops more accessible and visible from the streets. The reduction in greenery in public space was originally a sign of less government investment in this market-oriented development area. At some places, there are still unfinished landscapes along the street. However, it does not affect the vibrant street life in such regions.

The provision of the ground-floor shops at every possible perimeters of a neighborhood is a popular win-win solution for both developers and inhabitants. The street shops can make daily life convenient and the urban environment outside the neighborhood lively. Consequently, people prefer to live in these areas. The properties are easy to sell, and developers make more money by selling or leasing floor spaces for commercial use (up to 3 times the value of residences). However, not all planned ground-floor shops are successful. Ground shops that are located in spatially segregated locations and places absent of public transport connections are either left empty for long periods of time, or barely avoid bankruptcy (figure 5.43). For various reasons, locations that are optimal for street shops are sometimes occupied by for other building types. In these cases, self-constructed, one-story temporary structures often appear. And they will disappear after formal services are established. The improvement of the urban environment and vitality in such places should be taken into consideration in future urban design projects.

The popularity of small businesses and ground-floor shops has risen with the rapid economic developments in Chinese cities in the last couple of decades. Various small-scale urban economic activities are becoming increasingly prosperous. This economic expansion is inspiring more private individuals to become investors or business owners. They are looking for opportunities and business locations in the city. Compared to the stock market, real estate, and other investment opportunities, investments in ground-floor shops have the advantages of lower risk, smaller quantities of required capital and loans, and greater and quicker returns. As a result, ground-floor shops are very vibrant in Beijing central city, suburban new towns, and large residential communities.

The total commercial use floor area in a neighborhood does not normally exceed twenty percent of the total floor area of that neighborhood. There are several types of designs: residential building ground floors with direct openings to the streets, ground floors with uniform and characteristic extensions, additional one to two story free-standing low buildings surround the neighborhood's perimeters, and a mixed-use building accommodating various commercial, recreational and community activities (figure 5.44). The size of shop units mostly ranges from forty to one hundred and twenty square meters. Developers realize that units larger than three hundred square meters have a higher vacancy risk. A popular unit has a ratio between the width and depth of preferably 1:2 (no more than 1:3). Some recent neighborhood designs also allow business opportunities on the bottom floors and corners of the residential buildings inside the neighborhood. However, in such cases, the businesses often share the same entrance with the inhabitants above, which sometimes are not well received. Small businesses have much flexibility and adaptability. They have a collective tendency of aggregation if certain streets or places are successful. If the location is not prosperous over time, the businesses recede from the location.

Figure 5.44
Several forms of ground-floor shops inside or at the perimeters of neighborhood

In order to understand the thoughts behind the location choice and the subsequent business status, sixteen private business practitioners of ground-floor shops in Tongzhou were interviewed face-to-face. Eleven of them were located within a 600-meter range of busy light-rail stations, while the others are in peripheral positions. Most of the practitioners are in their 30s and 20s. They are all immigrants to Beijing from other parts of the country. Most of them already live in Tongzhou, and only two of them were attracted here because of good business opportunities. Developers usually sell the shop units to individuals at the same time or at the end of the sale of the housing units. They are often sold out quickly, and are mostly rented out by owners to shop managers. Only two people in the interview group are the actual owners of the properties. At strategic locations, a whole street of ground-floor shops can be fully operational within three years. It takes over five years for some less favorably locations to completely develop. However, some places do not likely to be working. Generally, the business status of the remote shops is not comparable to the central ones. Thus, there are more vacant floor spaces that are difficult to rent out.

Four out of five peripherally located shops have many vacant neighboring shop units on their streets. These young shops have just opened one to three years. By the time they were looking for a place, the nice ones in the busy, central locations have become either expensive or unavailable. Consequently, the business practitioners chose new neighborhoods to start where they believed there were market potential, and where the rent is lower. Moreover, the peripheral locations often have the advantage of plenty of free parking spaces, which is considered convenient for the business. Six out of eleven managers of the centrally located shops considered the location as the key factor of their choice. Good location (e.g. compact urban areas, transit-hub zones, developed areas) means abundant pedestrian and traffic flows, and it is also where successful shops aggregate.

Except for the influence of locations, individual shops need time to build a reputation and customer network. Some chose to over a developed shop, which they perceived to be a good opportunity for success (5/11). For the shops within walkable distance from a station, there are differences among the shops locating near the car entrances, pedestrian entrance, along city main road, at the backside of a neighborhood or in a dead-end street. However, some people intentionally choose less strategic places in a station zone because of the lower rent. Not all of the shops depend on their visibility to public flows for survival. Instead, they rely on the quality of the neighborhood behind and surround it, and the consumer power of the people living there. Such shops (4/16) are either in less obvious locations (regardless if they are in the central or peripheral areas) or inside a neighborhood. The manager of a hair salon described his decision-making as such: "the modern and luxury design of the buildings assures me that the inhabitants here have fairly good incomes".

Besides the rational logic, a quarter of the group chose a place near their home. Two people admitted that their choices were pretty spontaneous, and they did not think much about the location. For example, the manager of a small convenient store on a quiet street, who used to have a small business in the old urban area in Tongzhou, said that they rent this place because they coincidentally passed by and saw the leasing advertisement while they just had in mind to do something else for a change. The reason they moved to the new urban area is that they believed that there are more young white-collar workers here, who have a greater buying power than the elderly in the old area. The urban environment is also more relaxed. In contrast, a new restaurant owner spent five months conducting market research and location finding before they settled on the locations of their chain stores in different places in Beijing, including Tongzhou.

Most of the neighborhoods in the station vicinity have been there since the early 2000s. The favorable locations have become expensive and hardly available at the moment. Some say that small-sized units are particularly not easy to find. As the ground-floor shops blossom in this new town, the competition among the same type of shops is also fierce. Shifts in ownership and businesses happen frequently. In the group of respondents, seven shops have been opened less than one and half years ago; six shops have lasted for three to five years; and only three shops have sustained themselves for six to eight years since the beginning phase of the new area. There are particularly short-term types of business, for example, the interior decoration materials shop, which only existed during the early phase of a new neighborhood. However, even the shops at the central locations were not that stationary. The lady from an eight-year old accessory store located only a hundred meters from a light-rail station remarked that nearly every shop on this street has changed over the past years. The social composition of the new area has influenced the economic status of the businesses. The busy hours for most shops are primarily evenings and weekends. However, as many people arrive at their suburban home late in the day, they have less free time to spend in the new town. Some would rather spend their evening time near work (e.g. eating-out, dry cleaning). The interviewed shop managers considered their profits modest or just enough to make end meets. However, in general, the diverse population generates activities on the streets throughout the hours of the day. The vibrant ground-floor shops and open markets are the contributors to the vibrancy of the town.

§ 5.2.2.4

After revealing the factors important to the success of street shops, the research will focus on a specific area to better understand the interrelations between street activities and spatial settings. These interrelations are measured by the registration of ground-floor shops, formal and informal markets, informal street vendors, and other spatial appropriations. The chosen area is centered on the second light-rail station, at a radius of a maximum 1.2 kilometers, up to the third station. This area consists of a dozen of neighborhoods of various sizes planned and constructed in the 2000s. It is one of the most compact and developed areas in the new urban areas south of the Jing-Cheng railway. Snapshots of pedestrians and street activities were conducted on an ordinal workday in the summer season.

In the morning (8:00-11:30) (figure 5.45), several characteristic activities in this area can be observed. First, early-rise commuters coming from different neighborhoods arrive at the station (2nd) from several directions. Temporary fences are arranged at the gate to guide the queue. As the immediate vicinity of the station is not particularly designed yet, informal street vendors selling quick breakfasts appear on the station square, and disappear after rush hour. This also occurs near some of the main pedestrian exits of the neighborhoods facing the station. Diners along the main pedestrian flows are also filled with people having breakfast. Although busy with passers-by, the simple station square is also the place where a group of elderly women practice dancing as a hobby and form of physical exercise.

Morning markets, which are very traditional and commonly seen in Chinese cities, are busy early in the morning until around noon time. People can buy fresh vegetables, fruits, meat, fish and other fresh food from these markets. The official market in this area is in an over two hundred-meter long, single floor structure hidden beneath the dike of the Jing-Cheng railway. It is packed with people in the morning that sometimes it is hard to move through. Interestingly, small shops and informal vendors continue to accumulate outside the building, extending through the alley in-between two modern neighborhoods. They continue until reaching the main city road, so the market forms an L-shape around that urban block. In fact, the informal market is so established and popular that it has been designated as a part of the official market in this region. The other sides of this block are also full of activities. The northeastern side next to the light-rail track, which connects to the market, is lined with diverse small street vendors and activities. For example, there are street stands which provide bike repairs, haircuts, and tailoring. Elderly people with small children and people who "walk" their pet birds (a traditional culture of Beijing people) can be seen in the small street parks and greeneries

along this path. The two large supermarkets on the south and eastern sides facing the main city roads gather pedestrian flows later in the morning. The intersection of the perpendicular main city roads near the station is designed with small public squares at the corners, where elderly people can sit and enjoy watching small children play.
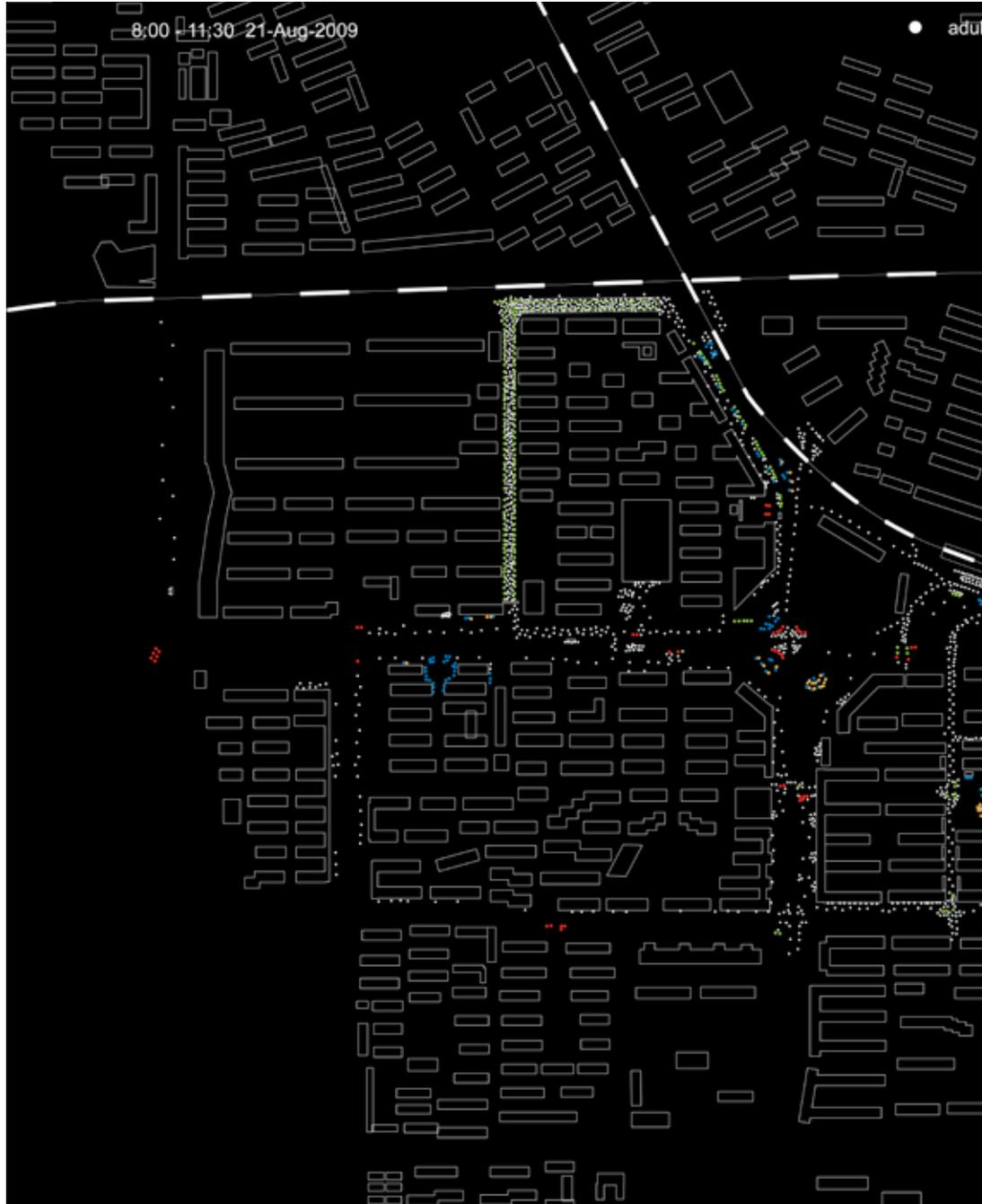
Figure 5.45
The first round of static snapshots of the area near the 2nd light-rail station: 8:00 am. – 11:30 am.

elderly ● children ● street vendors ● "black" taxi
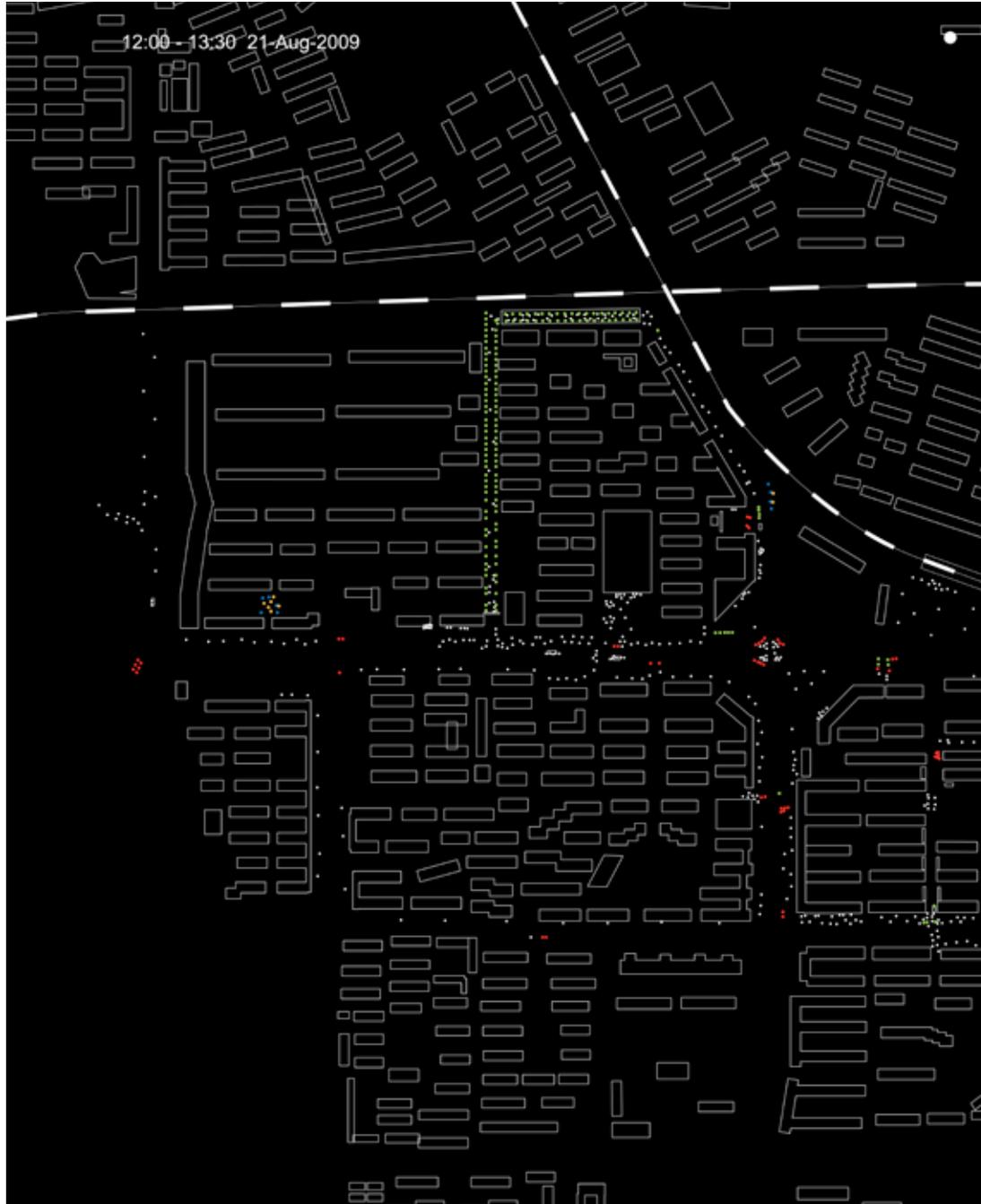
Figure 5.46
The second round of static snapshots: 12:00 pm. – 13:30 pm.

adults ● elderly ● children ● street vendors ● "black" taxi
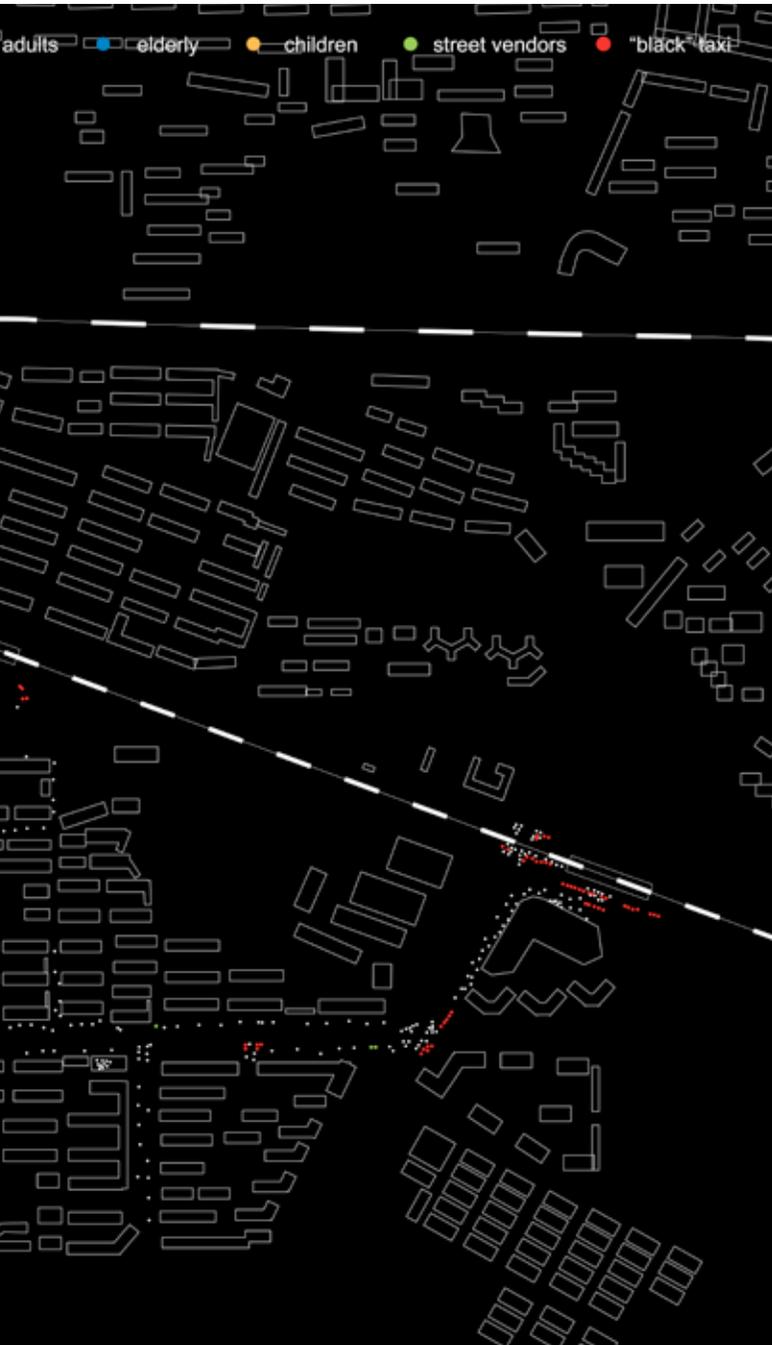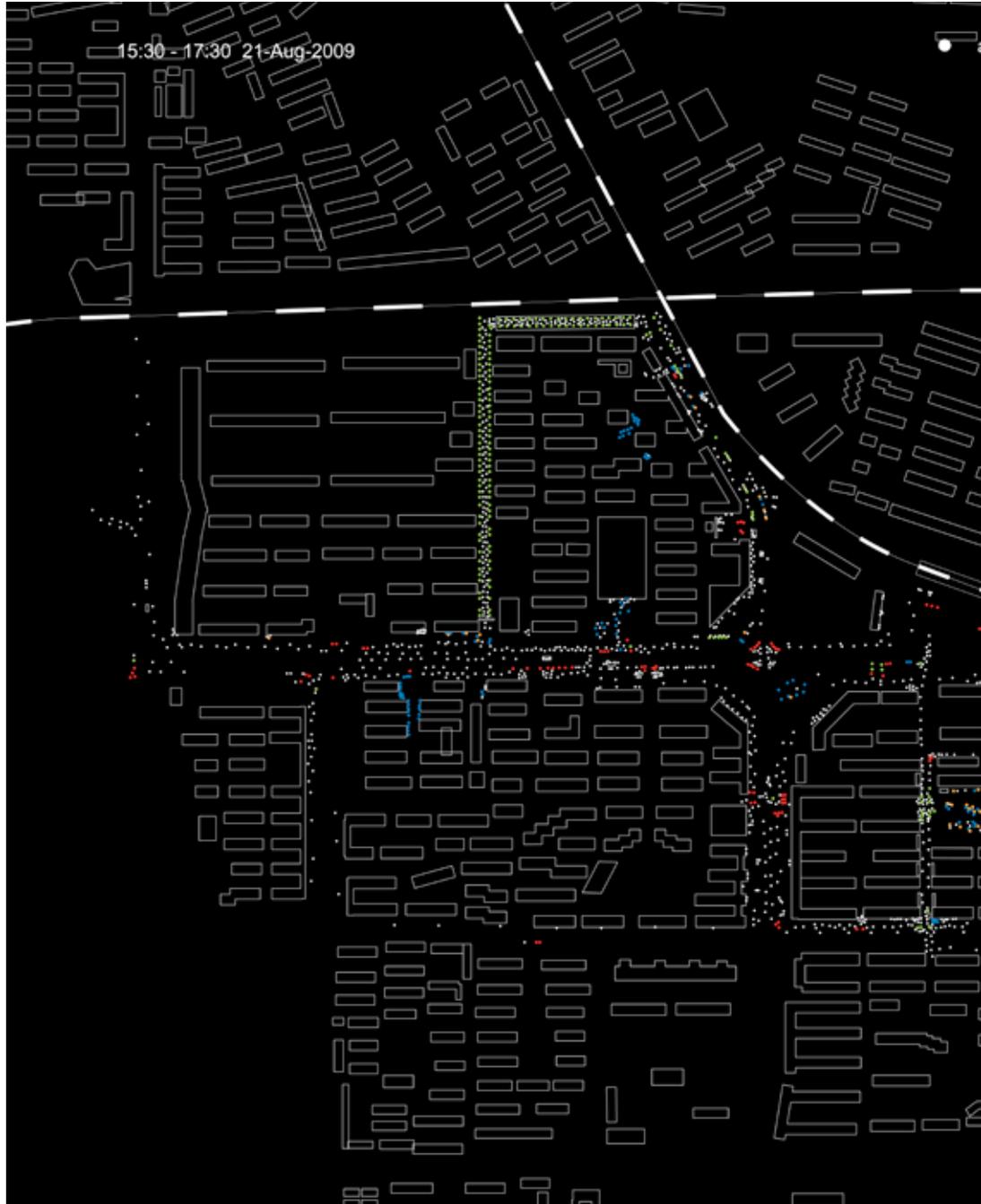
Figure 5.47
The third round of static snapshots: 15:30 pm. – 17:30 pm.

adults ● elderly ● children ● street vendors ● "black" taxi
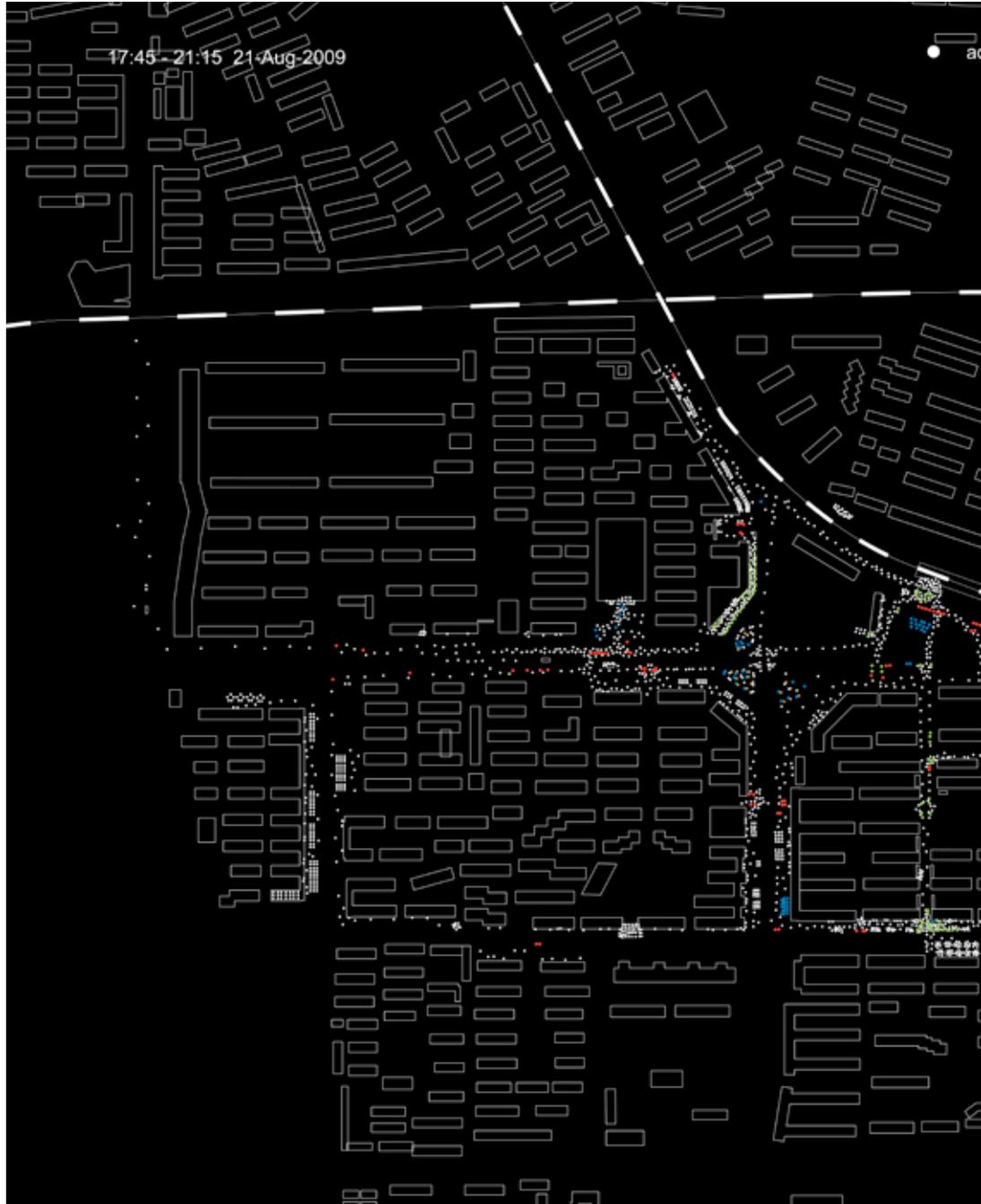
Figure 5.48
The fourth round of static snapshots: 17:45 pm. – 21:15 pm.

dults · elderly · children · street vendors · "black" taxi
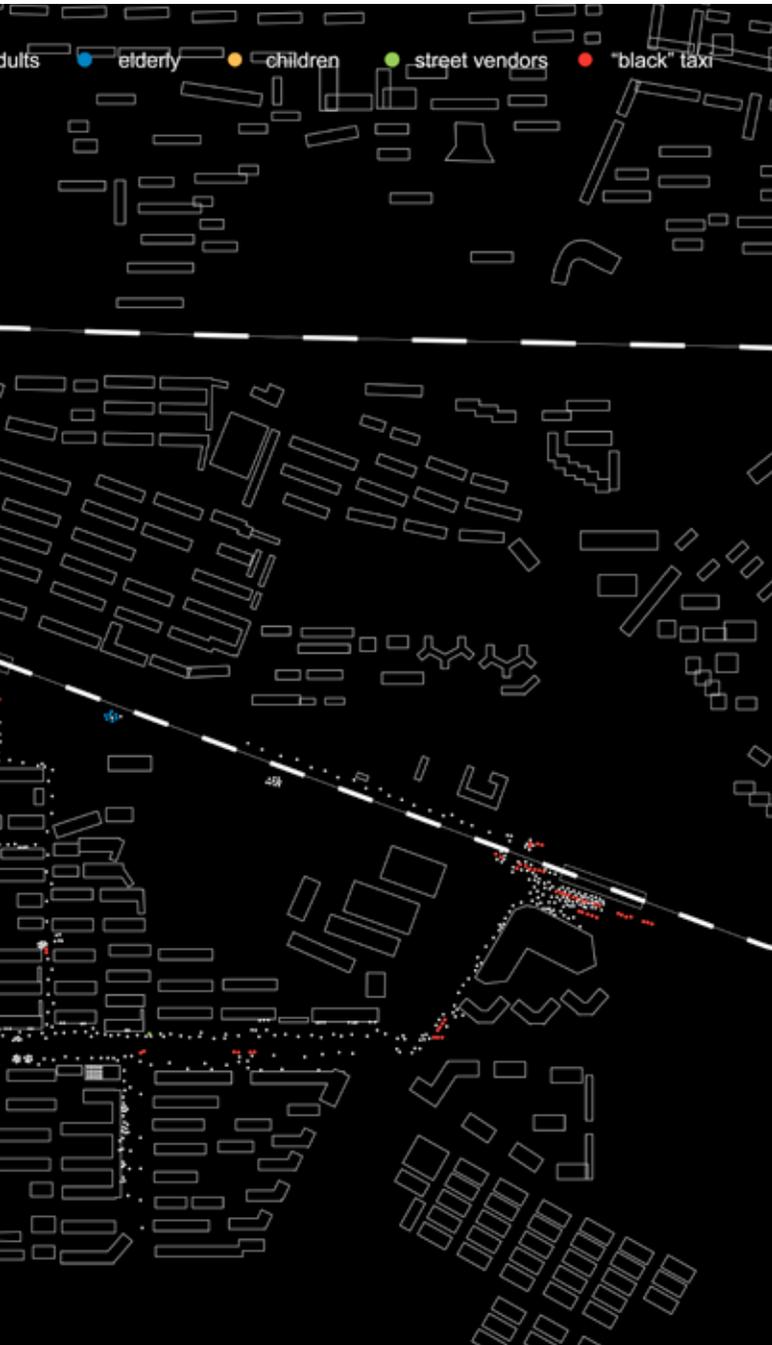
Another informal morning market is located in the block opposite of the station, hidden in the path between two neighborhoods near one of the pedestrian entrances. In general, markets, formal or informal, tend to locate themselves in less visible places, but where pedestrian circulation is possible. The neighborhood's central public space is right next to the pedestrian entrance, where there are mothers with small children playing on the paved ground, youth and elderly playing table tennis under the shade of trees, and elderly walking about in the green area made of shrubs. Moreover, the entrance is generously wide compared to other gated communities, allowing lively activities in the public space inside to be seen from the street, and the street activities near the entrance to be seen from the inside. It forms a vibrant, public and cozy atmosphere.

The early afternoon (between 12:00 and 13:30) (figure 5.46) is the quiet moment of the day. Only a few people go in or out of the station or the market. Street vendors and people in the public spaces vanished. The streets with the most pedestrian flows to the station in the morning are now empty. However, as the registrations show, there are still constantly people near the supermarkets, ground-floor shops and neighborhood entrances.

During the late afternoon (15:30-17:30) (figure 5.47), the urban life returns to this area. The market receives visitors again, though not comparable to the morning. The large supermarket Carrefour at the third light-rail station is busier than the ones among the neighborhoods. Street vendors near the (super)markets, in-between the urban blocks, and near neighborhood entrances, have reappeared. Elderly people and small children are outdoors, either in the central park, near the entrance of their own neighborhoods, or in the city public space, such as the green space underneath the light-rail track. Elderly people have the habit of sitting together having casual chat. The sunny south and west sides of an urban block are the most popular in the afternoon. There are also more "black" taxis gathering at the neighborhood entrances and near the large supermarkets. Groups of taxi drivers play Chinese chess or cards together while waiting for customers. There are obviously more people cycling and walking on the streets than in the morning. The main city roads in this area do not have much traffic flows during most of the day. There is plenty of space in front of the ground-floor shops and pedestrian-friendly sidewalks in most of city main streets.

The peak hours of street life of this area are in the evening (figure 5.48). The waves of returning commuters start to increase at around 18:00, and peaks around 19:30. There are on average 200 people walking out of the station every five minutes. In the following hour, the flow continues to be intense, but gradually decreases until after 21:00. At that point, there are less than fifty people coming out by every train arrival. During the busy hours, a dozen of street vendors stand in the best position, which is right outside the station, or on the station square, where main pedestrian

flows are passing. Hot dinner snack stands are the most successful, as they are constantly surrounded by young white collar workers. Other emergent businesses around the station entry include real estate agents, clothing, accessory and fruits merchants, as well as "black" taxis. Although street vendors are often evicted by city police, they always return quickly after, since the business near the station is irresistible. Commuters from the station spread into different directions, towards the neighborhood entrances.

Restaurants in this new town are extremely busy in the evening, partially as a result of the large amount of young commuters returning home from work late and have no time to cook. During the summer season, tables are placed outside the restaurants, occupying most of the sidewalk spaces. There are at least four dining streets that are formed in this area in the evening. Restaurants tend to aggregate. However, they are not necessarily gathered in the spatially integrated streets. This means that they do not primarily depend on passing flows, but more on inhabitants from the surrounding neighborhoods, as well as their established reputations.

Informal markets also constitute a part of the urban night life. In front of a supermarket at the corner of the main street, where the visibility to the second light-rail station and surrounding neighborhoods is the best, dozens of street vendors occupy the public space. They sell diverse, fun small goods, which attract a lot of young people. Another smaller scale street market forms at the bottom of a local street that connects to the light-rail station. This market is more locally oriented, because the neighborhoods behind and nearby it are built by village authorities and partially for former farmers relocation. The emergent of the informal street market is obvious a sign that former farmers have kept their traditional culture and habits.

Public spaces in the evening between 20:00 and 22:00 are quite vibrant. Elderly people, small children as well as grown-ups appear after dinner. People sharing common interest spontaneously form groups and conduct collective activities outdoors. For example, on the day of field observation, elderly women were dancing in groups of fifty to one hundred people at the corner square and parks at the main intersection near the station, on the station square, and simply at the corner of an urban block. A group of elderly were practicing singing, and some middle-aged men were playing music instruments together in the green space underneath the light-rail track. There were even more people playing chess or cards at the corner of a building in the evening than in the daytime, including the off-work city cleaner and employees of ground-floor shops. Even the "dead street" became livelier, as some fifty construction workers (immigrants) watch outdoor movies together.

Chronically, the pedestrian flows are concentrated in the morning at the walking routes of commuters, formal and informal market places and public street squares. After a quiet period in the early afternoon, the street life is revitalized, and more people inhabit the streets. The new town is very lively in the evening, as commuters return from work. People of various kind concentrate in the dining streets, informal markets and city public spaces. Generally, this new urban area around transit stations is full of vitality during most of the day (figure 5.49).
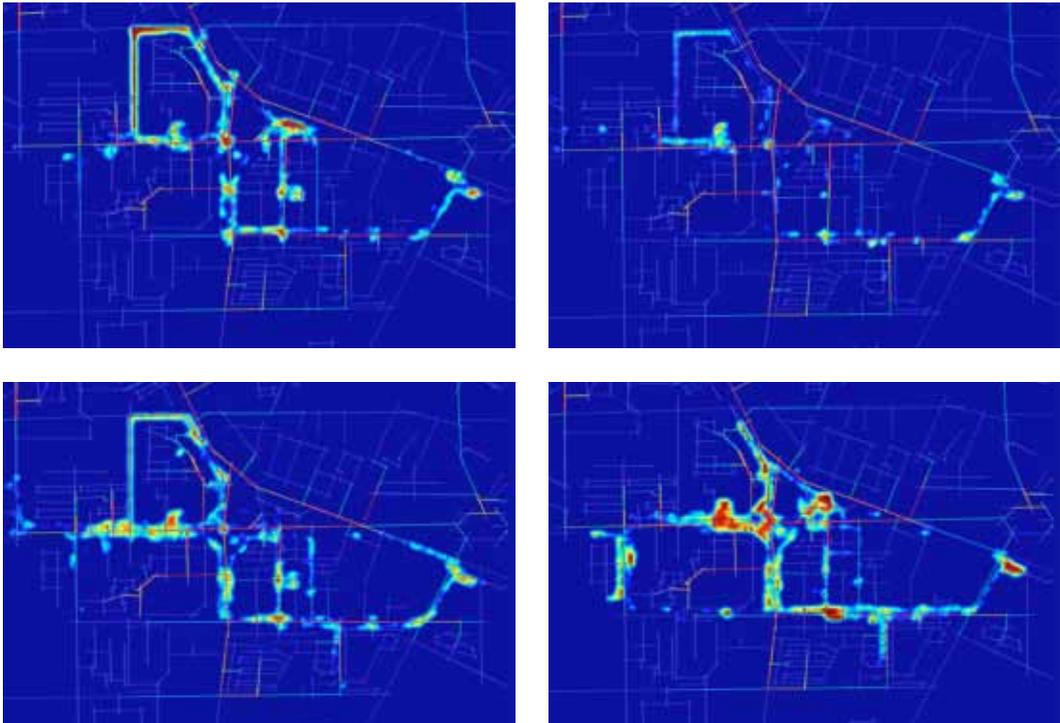
Figure 5.49
The distribution pattern of people and activities in relation to the local integration values of the street network.

Different streets have different levels of urban vitality. The impact factors for the success of small businesses that were analyzed before can be equally applied to the vitality level of street life in terms of pedestrian and activities. As can be seen from the overlapping of snapshots and spatial analyses, the vital streets usually have the most number of neighborhood pedestrian exits and mixed-use programs. They are well integrated into the network, which means they have good connectivity, visibility (less topological depth) and possibility of pedestrian-friendly circulation. However, urban life can also be lively at some less integrated and even hidden locations. In such cases, strong magnets, like markets and stations, are the key influential factors. This phenomenon can be best illustrated by the examples in the study area. The almost cul-de-sac local street, which is next to the light-rail track and nearby the market, has successfully developed into a public space with street vendors in the morning and a busy dining street in the evening. On the contrary, a section of the main city road at the mid-west block in this area, which is seemingly well connected to the main road framework, is in fact described by the shop owners as a "dead street". The main factor, among others, is due to the continuous and excessively sized urban block without inter-breaks. By contrast, the eastern section of the same street is significantly livelier, as it has neighborhood exits and interval streets at every 50 to 100 meters, and it is directly linked to the shopping center at the third light-rail station.

The street activities (figure 5.50) depicted above, such as playing chess, dancing or sitting in a group, resemble the urban culture that can be found in the traditional Courtyard and Hutong areas. For certain population groups, being outdoors in city public space is a habit, and an essential way of casual social contact with neighbors and others. Street vendors are also a traditional form of urban life. Their appearance is generally against regulation for the sake of keeping the street tidy and ordered. But they seems not be easily removed from neither in Beijing city nor in suburban new towns. Together with informal markets and ground-floor shops, street vendors are the main self-developed commercial activities in the new town. A significant feature of the activity pattern in a new town is the concentration of busy hours. The new town is not as lively in the daytime. However, due to the diversity in the population composition and in the small-scale economic activities, constant pedestrian flows and vibrant street life have been observed throughout the day.

Figure 5.50
People's activities, markets, vendors, "black" taxi and other bottom-up activities in Tongzhou

After the founding of new China in 1949, the communist party and state-owned organizations regularly commanded large-scale collective cultural activities. This social convention continued to prevail in the early phase of the socio-economic reform. In Tongzhou, the two most established annual cultural events are "Flowers in May" singing festivals and art festivals for peasants since 1983 and 1990 respectively. These city scale events usually have thousands of performers, mainly employees from various state or collectively owned organizations, and audiences that number in the tens of thousands. There are also other yearly events taking place in public spaces, such as a gourmet festival in October, street parades during Chinese New Year, and evening shows in summer months.

In terms of public facilities, the city public facilities are concentrated in the traditional city center around Xinhua street. They mainly comprise the Tongzhou movie theater, culture center, workers' club, Xinhua book store, city library and a small town history museum, which were mostly built in the late 1970s and 1980s. The culture center periodically holds exhibitions and competitions for photography, calligraphy, paintings etc. In the countryside, residents of villages and small towns organize their own collectively-owned culture clubs. In fact, most of the performers in street parades and art festivals for peasants are from local culture clubs. These public organized activities enriched people's urban lives in the 1980s and early 1990s. Since the rapid growth of the market economy in the mid-1990s, commercial recreational facilities began to emerge in the suburban satellite town, whilst public provision slowed down. Beginning in the early 2000s, public investment in facilities and public spaces had begun to be restored, as the new town master plans began to take into effect. The most well-known large urban projects are located along the Grand Canal, like the city plaza in 2000 and the Olympic sports park in 2003. The Tongzhou government also helps rural villages and towns build their local libraries, culture centers, community centers and civic squares. Some improvements have been made to the facilities in the new town, for example, the expansion of the city library in 2006, and the opening of the gallery of non-material cultural heritage in 2008. However, they still cannot meet the fast growing social-cultural life demands of the new town citizens in the twenty-first century. This will be discussed later with the survey results.

As a main city marketing strategy, Tongzhou promotes the culture of the Grand Canal as a unique identity of the new town. In order to boost its domestic and international influence and publicity, the Tongzhou government organized "the Grand Canal Festival" in 2006. This was the biggest event in the history of the city. Invited guests included national government officials, deputies of international institutes, and mayors and officials from the provinces and cities along the Grand Canal, scholars etc. Through this event, Tongzhou government aimed to demonstrate the progresses and achievements of the new town development. And they hoped to open up more opportunities for future investments and collaborations.

As a prosperous historical harbor city, Tongzhou enjoys a legacy of history and culture. Literature is one of the forms of artistic expression that is very strong in Tongzhou. The first local literature journal, "The Grand Canal", was published in 1979. Later, in 1991, the association for literature and art in Tongzhou was founded. Implementing the plan of becoming "the cradle for literature" in China, the Tongzhou government has started to finance the publication of ten books by local writers each year since 2001. This strategy has succeeded in cultivating several renowned writers, who have written award winning novels and popular literature publications.

Overall, there are many organized cultural activities in the Tongzhou new town. Most of them are inheriting and promoting cultural legacies, either from the unique history of the town or convention from the Communist era. Among them, the Grand Canal is so far the biggest theme of the cultural development of the modern new town. Additional public investment will go to the renovation of valuable historical heritage sites and townscapes in the near future. However, whether the traditional city events and schemes have influence on newcomers is doubtful. Different types of activities that fit the demands of younger generations and various social groups in the newly developed urban area should be taken into consideration.

§ 5.2.3.2   **In-between top-down and bottom-up: community committee**

Small-scale local public activities are organized by community committees, which are the frontier government organizations that work at the neighborhood level (figure 5.51). In the top-down planned neighborhoods and neighborhoods for state-owned factory workers (Danwei), a community committee is an essential part of public service. The committee members are mostly made up of local inhabitants. They take care of a series of local businesses, including services and consultation for the elderly, children and women, assistance in population registration and census, management and aid for immigrants, maintenance of the community environment as well as organization of community social-

cultural activities. As for the commercial neighborhoods in the early phase of the market-oriented new town developments, the developers did not put much consideration into community management. There are not many office spaces purposely built or reserved for community committee. Sometimes, the community committee has to rent (semi) underground space. Besides the government community committee, there also exist two other types of organizations in each neighborhood: the property management team from the developer, and self-developed client committee. The purpose of the latter is to protect the inhabitants' rights against any illegal or unfair deeds of the developer.

Since 2007, the Tongzhou government has started to fill in the gap of local scale public services in the new urban areas. First, it requires every new neighborhood to be equipped with a community office building. It must have 350 square meters of floor space, which should include offices as well as sports, cultural and recreational facilities. For the existing commercial neighborhoods, the government has so far facilitated the founding of nineteen community committees. In this situation, the committee members are not allowed to come from the neighborhood they are managing, but recruited from the other areas of the new town. The necessary expenditures are financed by the government, so that the services are free to local inhabitants. For the interviewed neighborhood (*Xinhualian South*), there are five committee members in charge of 2700 households (about 10,000 inhabitants). They are usually quite busy on workdays. As rules and regulations become more specific and solid, the ratio will be adjusted to five public servants for every one thousand households in the near future.

When walking inside the *Xinhualian South* neighborhood, there are billboards at every major street intersection. They provide announcements, flyers and other sorts of information from the community committee. On the wall of their office, one can see photos from past activities, including lectures for the vulnerable groups, home-visits to elderly people, exhibitions of paintings and photography of local inhabitants, children's talent shows and games, as well as public evaluations of the work of the community committee. According to one of the committee members, they organize around ten activities each year. The public participation is considered active, but mainly from the elderly people. Young and middle-aged employed people seem to have little time for community activities, thus they have less awareness of the existence of the committee. The organized activities often take place during workdays. However, sometimes, in order to gain more participants (e.g. children and parents), the events will be arranged in the weekends.

In conclusion, during the phase of rapid social transformation and market-oriented development, there is a noticeable drop of top-down organized public activities and public provisions in Tongzhou, as well as other Chinese cities in general, in comparison to the Communist era. However, as the traditional local management institute, the community committee gradually has resumed its functionality, and the sense of collectiveness still exists at the neighborhood level.

Figure 5.51
Office of Xin Hualian neighborhood committee, with activity photos on the wall

Figure 5.52
Self-organized club activities
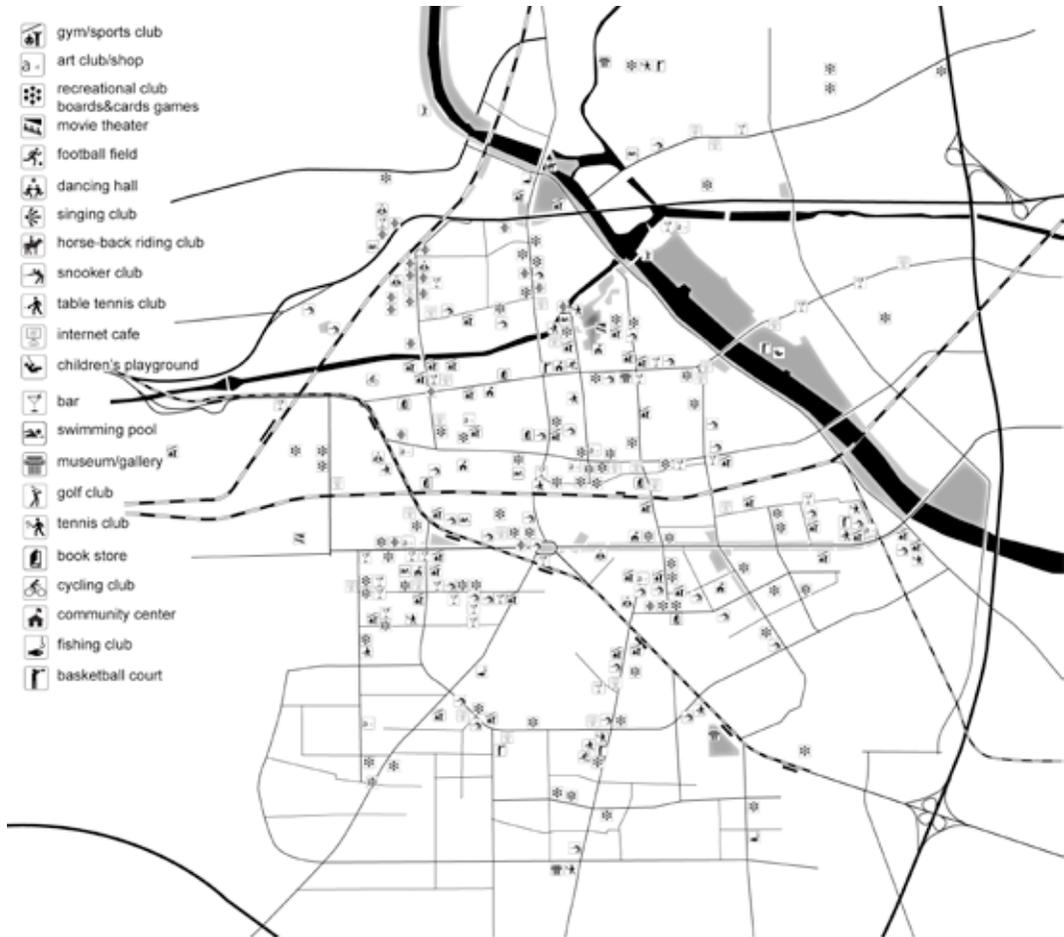
Figure 5.53
The mapping of cultural geography of Tongzhou, diverse planned and unplanned programs and activities

Figure 5.54
Diverse places for cultural, social and recreational activities in Tongzhou

While collective singing is one of the major forms of top-down organized events, it is also a popular form of self-developed recreational activity. By 2007, there are over 360 civic chorus teams in Tongzhou. Participants are voluntarily gathered together, based on the same urban district they live in, which are mainly made of local middle-aged and elderly people whose lifestyles are deeply influenced by the social conventions that existed in the Communist era. They regularly practice in public spaces, like street parks and in community centers. Such group activities have been described earlier. The inhabitants in the new urban areas voluntarily form groups as well, but mainly by younger people for sports activities. They use the new town community website as the platform to arrange meetings and recruit members (figure 5.52). For example, the swimming group has had over five hundred participants; neighborhood football teams are formed and invite each other for matches every now and then. Other hobby groups include badminton, table tennis, basketball, snookers and fishing.

City public sports facilities are rather limited in quantity, and are concentrated in the old urban center. The space-demanding sports (e.g. ball games, swimming) take place more in school and community facilities, as well as a couple of large commercial sports clubs, especially in the new urban areas. According to the mapping of cultural geography (figure 5.53 & 5.54), there are many other kinds of small to medium recreational programs distributed throughout the town. Many exist in the form of ground-floor shops along the neighborhood perimeters. The most popular recreational programs here include snookers clubs, board and card games rooms, internet bars and karaoke singing and dancing halls. As a suburban town, it also offers some luxury programs, like golf courses and horse-back riding fields.

The self-developed virtual community has increasingly become the platform for grass-roots, bottom-up activities for new town citizens. The website contains a wide range of topics of urban life for people to communicate with one another, which include real estate housing, hobbies and interests, community activities, online markets, home and decorations, job hunting in the new town, new town planning and more. It is especially helpful for newcomers to explore and find places of interest to spend their leisure time. For example, besides gathering hobby groups and organizing activities as mentioned before, people exchange information and give comments on where it is nice to shop, eat and play in the new town. The web managers are mostly volunteers, who edit the local news on the main page, and keep track of each topic section. Recently, the government has acknowledged the important role of the community web. They are making use of it by adding online police help, and sometimes collecting public opinions. For example, the government plans to open a shuttle line to help reduce the commuting stress from Tongzhou to the Beijing central city. A public survey is posted online for people to decide where the stops should be. The government officials also occasionally visit the web managers to hear the public's opinion. However, their opinions and feedbacks are not directly reflected in the government's policies.

Figure 5.55
Self-developed Songzhuang art villagein the rural area of Tongzhou

The most intriguing and well-known self-developed cultural activity in the Tongzhou town is the spontaneous aggregation of artists, primarily painters, in the rural villages of *Song Zhuang, Xiao Bu*, and the surrounding areas (figure 5.55). For many artists, the primary motivation for moving to the urban periphery was their need for a quiet place to focus and be creative. The authentic village atmosphere and the spacious courtyard housing at an attractive rental rates, contributed to the gathering of several artists to this region in 1993. As another self-developed art village in Beijing was evicted in 1995 for social reasons, many of the "homeless" artists then migrated to Tongzhou. The phenomenon of similar work type individuals aggregating is well demonstrated in this region. So far, over six hundred artists are distributed in several villages and small towns in the rural area of Tongzhou. Their skill sets are diverse, such as sculptors, new media artists, photographers, independent film makers, original music producers, freelance writers, etc., but painters still are the majority of the residents. Compared to the 798 art district in the former factory district of central Beijing, the art villages in Tongzhou look just as normal and quiet as any other village, from outside. However, this special social group, with a unique lifestyle, lives inside the farmer houses. A few of them have already been recognized internationally.

Instead of evicting the group, the Tongzhou government is proactively using this opportunit to market the new town in recent years. The government wants to turn this hidden region into a well-known source of art and culture Combined with government investment and commercial forces, there have been a number of art museums, galleries, exhibition center workshops, and private dwellings constructed in the art villages over the last couple of years. Moreover, an ambitious plan has been made to further transform this area into a modern CAD (central art district). On the bright side, it encourages the communication between artists and the public, might help them develop a reputation and market opportunities. The promotion indeed has brought a lot of attention and visitors. On the other hand, some are afraid that the series of actions will make the uncontaminated rural area too commercialized and corny that artists will have to leave for other places.

Although located in the rural area of Tongzhou, the artists contribute to the cultural life of the Tongzhou new town in several ways. Some donate works to the historic religious temple and city museum. Some open private art galleries in the city park. The arguably most influential contribution is the annual art and cultural festival of the art village, which strengthens the creative industry as a unique identity of the Tongzhou new town. Inspired by this successful event, the *Li Yuan* village authority in Tongzhou new town transformed some old factories into artist lofts and workshops. These facilities have already attracted diverse artists both from Tongzhou and artists from other regions. In conclusion, the new town of Tongzhou has a variety of bottom-up activities, including small to medium commercial and community programs, hobby groups, the internet forum, and the famous art villages. It is undeniable that some of the popular

activities, especially among the middle-aged and elderly people, are influenced by the historic and social legacy of the original Tongzhou town, as well as the culture legacy of the Communist era. However, these activities have less involvement by the younger inhabitants and immigrants. The strategies to activate the cultural life of these social groups require further attention.

1

2

規划总平面

3

Figure 5.56
(1) Artistic impression of the future development of the core zone of Grand Canal new city center (2) Artistic representation of the Grand Canal Development Zone (3) The master plan of the Grand Canal Development Zone

§ 5.2.4   **Recent planning and development**

Beijing's regional strategy prioritizes the enhancement of the development and modernization of new towns after the 2008 Olympic Games. Tongzhou is one of three primary targets. The Tongzhou master plan for 2005-2020 defines a one hundred and fifty-five square kilometer planning area, with a projected population of 1 million inhabitants. Spatially, it specifies the direction of urban expansion, the characteristics of each sub-district, and the locations of strategic urban projects. However, the plan has undergone several adjustments since then. Only since the last couple of years, the implementation process has begun to accelerate. General ideas and strategies in the master plan are gradually translated into detailed zoning plans and visionary urban designs. The government is busy promoting the new town by means of frequently updating news and progress in various newspapers and media.

After years of market-oriented real estate developments, the Tongzhou government is now the main director of the new town's development, especially in the public sectors. Its prioritized task at this stage is to establish new vital urban economic sectors of the new town, as well as to create a modern, even international image and identity. The ongoing plans include the multi-functional, core urban district along the bank of the Grand Canal (figure 5.56), the central business district near the first light-rail station (*Bei Yuan*), the movie and animation theme park in the south of the town, the music theme town in the north, and the creative art district in the east near the art villages. There are also several uncertain long-term plans, such as the new Beijing train station at the center of Tongzhou, another six light-rail and railway lines connecting with the central city and surrounding new towns, and a central district for relocating government bureaus. This wave of public planning and investment is unprecedented in the new town's development. The competition among the eleven new towns is so fierce that they are all trying to find competitive economic activities and unique identities which might still be missing in the region of Beijing. They are also competing for government subsidies and police prioritization of their plans.

Based on its unique historical and cultural legacy, and the fame of art villages, the Tongzhou municipality is trying to enhance its comparative advantage in the culture and creative industries. The Tongzhou government announced the launch of a movie and animation theme park project at the end of 2010. It will be located at the intersection of the sixth ring road of Beijing and Jing-Shen highway, and is connected by a new light-rail line. This recreational park is supposed to be a high quality, high-tech investment, which will be the world's largest movie theater upon completion. It will incorporate the latest 3D, 4D, IMAX and even 5D technologies, Las Vegas style performing stages, an exclusive conference center for premiere and award ceremonies, an educational lab for youth, a digital games center, as well as dining services.

A similarly ambitious project is the music theme town. The idea stems from the fact that the music industry is a growing sector in Beijing city, but the facilities are rather dispersed. The aim of this project is to collect them, and create a specialized center where the complete chain in the industry, from creation and production to promotion, sale and shows, can be provided in the same spot. The whole theme town is thus characterized into five districts: a general producing district, workshop districts for the elites, a shows district, a tourist and recreational district, and a sports park. The park is meant to bring new experiences and excitement to the visitors. Not only can people enjoy the concerts, shows and performances from small to large scales, but they can also interact in the dynamic process of music making and other recreational programs. This twelve-square-kilometers "town" is planned to be located in the northeastern quarter of Tongzhou, at a ring road and highway intersection. Both of the projects are being developed to generate a regional tourism center, and stimulate the growth of the creative industry and creative class in the Tongzhou new town. The constructions are expected to finish in two to five years.

As the spatial analysis indicates, a polycentric structure has formed in Tongzhou. However, there is a lack of a strong core and central image of the town in peoples' minds. It is always the intention of the master plans to reinforce the position of the historical town center. The commercial, business and cultural core district plan along waterfront is also served to this purpose. The planned core district covers an area of forty-eight square kilometers, which overlaps the most historical urban fabrics of the Tongzhou town. Since April 2010, the project resulted in a large scale demolishment, which involved relocating over 10,000 local inhabitants. The area is divided into three zones: a cultural and business zone, a mixed-use zone of business and living, and an exhibition and service zone. Again, the urban design of such sensitive areas has undergone several adjustments. The original plan was too focused on a funky urban image, and was not feasible. The development concepts, such as making a 500-meter building, which will be the highest in the world and replace the courtyard housing with a high density central business district, have been abandoned. The landmark is still needed, but its design has been lowered to two to three hundred meters in height. The new buildings in the historical core area will be transitioned to low density, low-rises, which will emulate the traditional architectural and urban styles. The core area will be the transit hub of three light-rail and railway stations. Currently, the land is being made ready for development, and the government is actively seeking the involvement of private investors to develop a vibrant multi-functional center for the new town along the waterfront.

Evaluation and conclusions

Evaluation of urban vitality with online survey

The previous section has analyzed spatial factors of various scales, the actual situation of street life and small businesses in the newly developed urban district, the top-down and bottom-up social-cultural activities, and the latest planning interventions. A concise conclusion can be drawn that Tongzhou as a largely spontaneous new town, is lively with regard to small-scale street activities. In the meantime, it generally lacks large-scale high-quality public provisions that need to be initiated by the government. An online survey was carried out to determine the public's opinion on the new town's current urban vitality and the urban plans for its future.

The designed questionnaire was posted online in the Tongzhou community website (www.bato.cn) in February 2011, and was accessible for twelve days. In total, two hundred and fifteen people participated, and one hundred and sixty-two of them completed all of the questions. Overall, the participation was very satisfactory. Ninety-nine percent of the respondents are between twenty and fifty-nine years old (figure 5.57-1). The largest two respondent groups were people in their 30s and 20s. The age composition of the participants was probably resulted from the use of the internet as the medium for distributing the questionnaire. Therefore, the views from teenagers and the elderly are hardly presented in the subsequent analyses. In terms of geographical location (figure 5.57-2), eighty-five percent of the respondents are from the domain of Tongzhou new town, the other fifteen percent come from the rural towns and villages in the municipality. Overall, forty percent of the respondents are from newly developed urban areas, while an equivalent proportion (44%) are from old urban districts. The opinions of both newcomers and native citizens are evenly represented here.

age composition
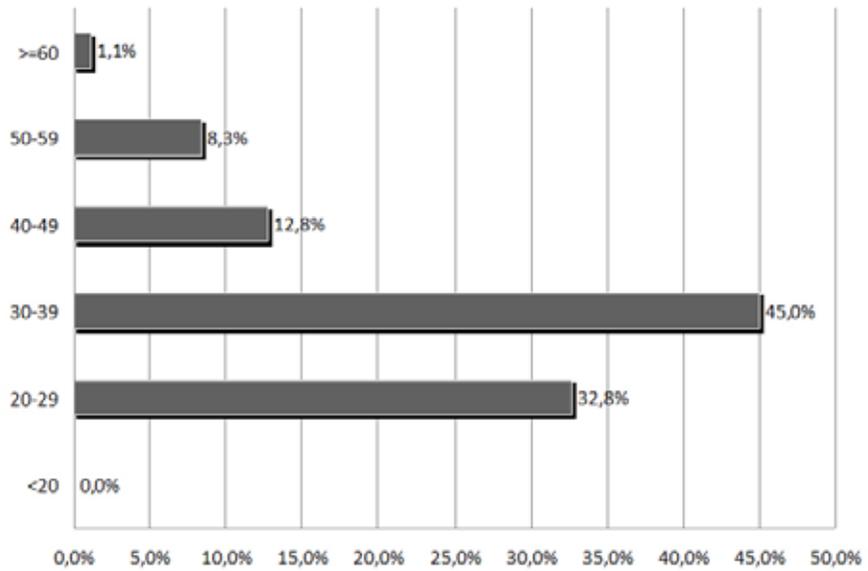
1

location of respondents

2

lively new town or not?

Category	Percentage
something else	4%
not yet, but promising	57%
no, always a sleep town	33%
yes, quite some achievement	6%

3

sufficient facilities

- yes, plenty of choices — 12%
- moderate, only for daily life — 59%
- no, mainly depend on central city — 26%
- something else — 3%

4

measures for improvement

Measure	%
something else	12%
city beautification, more greenery, parks & public spaces	65%
enhance the connections to central city	80%
improve the availability of public transport	66%
amend the porous landuse pattern, make it compact	29%
a clear central district, a cluster of landmark buildings	44%
more high-quality public facilities: hospitals, schools	83%
more modern commercial, cultural and recreational facilities	73%
coordinated development: accelerate urban renewal	59%
more local jobs, import modern business and enterprises	86%

5

views on urban planning

- yes, it lets see a clear perspective — 36%
- plans not necessarily realized — 57%
- other comments — 7%
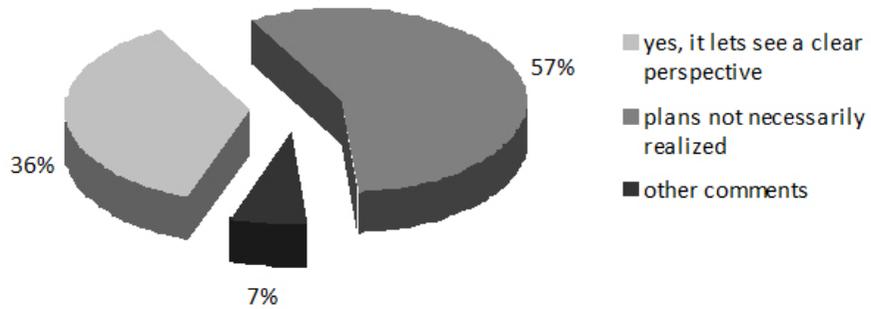
6

Figure 5.57
(1) Age composition of the survey respondents (2) Locations of the survey respondents (3) Is Tongzhou already a lively town? (4) Level of facilities (5) Measures to improve urban vitality (6) Expectation of the urban planning (7) Level of public participation in urban planning

When asked if Tongzhou is currently a lively and self-contained modern new town (figure 5.57-3), only six percent of the respondents are content with the achievements of the current urban developments. Fifty-seven percent consider it not very lively now, but believe it has a promising future, if the government takes advantage of the spatial and cultural potential of Tongzhou. However, one third of the people have a negative attitude, they believe it is hard to transform a sleeping town into a real city. People also expressed different interpretations on urban vitality. Some miss the quiet and peaceful quality of the old Tongzhou town from earlier times when neighbors were in good contact with each other, and cared about each other. In their opinion, an area is lively enough if social bonding between the neighbors is close and harmonious.

Can the existing commercial, cultural and recreational facilities in this new town meet the demands of the people (figure 5.57-4)? Only twelve percent of people of people think that there are already plenty of choices. As much as fifty-nine percent think the facilities can only fulfil daily needs, but they choose to go to Beijing central city for shopping and entertainment. In addition, another twenty-six percent reveal that their lives largely depend on the central city, and that they are basically using the new town as a dormitory. The statistics clearly show that the new town has not become self-contained in terms of its social and cultural life. The evident vitality of local small businesses in this town is not influential enough to make people think that it is dynamic at the city level. This contrast is especially substantial as people naturally compare the new town with the Beijing central city, which is just fifteen to twenty kilometers away.

So what, in people's opinion, should be the main tasks of new town development in order to make it a real city (figure 5.57-5)? As Tongzhou is still being developed, there are clearly multiple aspects that need to be improved. The results show that most of the proposed solutions are approved by the majority of the respondents. The three most agreed upon proposals are to strengthen the local economy by importing modern enterprises and create new jobs (86%), to provide high quality hospitals and schools (83%), and to enhance the traffic connections with the central city (80%).

Since the middle of the 1990s, the municipality largely depended on the market-driven real estate industry for developing the new town. At present, it is important for the new town to establish long term, competitive and sustainable economic sectors. A bold idea in the new town's master plan is to relocate national and Beijing city's government bureaus to Tongzhou. However, the implementation of this ambition is quite uncertain. The Tongzhou government is also seeking to develop the culture industry. Second, as a big city of over 600,000 people, Tongzhou has a serious lack of

quality public facilities. High quality hospitals and schools (83%) are more urgently needed than commercial, cultural and recreational facilities (73%). The lack of quality educational facilities is especially a growing worry of young families who move to the new town. Some would rather return to their small and old apartment in the Beijing central city in exchange for a better education for their children.

The current large and small commercial facilities may well meet people's daily life demands. However, people hope that there will be more high-quality shopping malls, restaurants and cinemas in the town. These facilities may attract shoppers and tourists from the surrounding cities and towns. However, the construction of a new central business district and a cluster of landmarks may not be necessary to achieve these goals. Less than half of the respondents (44%) support the idea. It is clear, from the survey, that quality public services in regards to the citizens' everyday life, for example, the availability of public transportation (66%) and maintenance of the public environment (65%), concern people more than a new city image. Moreover, fifty-nine percent of respondents hope that the urban renewal of old urban areas could progress faster. In the meantime, it is important to preserve the culturally valuable places. The current development plans are destroying, at a large scale, the history and identity of the town. Finally, it was mentioned several times by the respondents that it is equally important to improve the educational level of people in the town, and the service attitude of the public servants.

The ambitious Tongzhou new town master plan has raised a lot of expectations for the Tongzhou inhabitants (figure 5.57-6). Thirty-six percent of the respondents feel positive that the plan helps envisage the future prospective of the new town. However, over half of the people are skeptical if the plan will be realized (57%). They are disappointed because the progresses of the announced large development projects and goals are rather slowly. According to the analysis in this research, it is important for Tongzhou to seize the current valuable development opportunities and establish solid economic foundation. Moreover, the local government should provide more opportunities for the public participation. About two thirds of people say that they want to care about the new town planning and development, but they feel their opinions are not taken into account by the decision-makers. Information is usually not transparent enough or communicated to the public. Over one third of the respondents use the community website (the section of new town planning) as their main platform to share news and give opinions about the latest development. A small number of people have direct contact with the government departments, write to the newspaper, or participate in public exhibitions (6%). However, even if there are ways to make their opinions public, these opinions are usually not taken into account by the municipality. In conclusion, the Tongzhou new town is not yet widely considered a vibrant city. However, the majority of respondents are positive about its future. Many suggestions for how it can become a real city are focused on improving the basic quality of everyday

life, including tidy and clean living environments, well organized traffic and public transportation systems, and quality medical and educational facilities. Urban vitality can also be boosted if some high end and long term goals can be realized, such as increasing employment, and generating commercial and cultural prosperity. Many of the tasks require efforts from local and regional governments, and private public participation. However, success cannot be developed only through the market. Spatial planning and urban governance should play a stronger role in facilitating urban development in Tongzhou. The results of this research project suggest that the local government should makes the effort to obtain consistent policy and financial support from the Beijing central government, consolidate the realization of top-down plans and public provisions. At the same time, the municipality should openly interact with the public, so as to gain their input, support and understanding.

§ 5.3.2   Conclusions

The development of the Tongzhou new town is an example of a multiple-stakeholder, market-driven, self-developing model. The urban development has been growing in a patch-like manner, and the land use pattern is, to a large extent, mixed. Four relatively compact urban quarters have emerged to the east and south of the historical town area, only one of them is top-down planned. Currently, the new town has achieved a built-up area of about thirty square kilometers, with some 300,000 urban inhabitants.

Since the middle of the 1990s, public provision has noticeably slowed down, due to the real estate housing development becoming the primary development goal. The public facilities are mainly concentrated in the historical town and the planned expansion area. The level of available facilities in the self-developed urban areas is insufficient. However, under these circumstances, formal and informal bottom-up solutions have emerged to fill in the service gaps. On the other hand, various commercial activities have grown quickly and ubiquitously through market forces, which exhibit a dispersed linear pattern of development along the most spatially integrated streets in each urban area. Ground-floor shops form an essential and characteristic part of the bottom-up activities in Tongzhou. Besides the small scale businesses, new centralities have formed, mainly around the light-rail stations in the new urban areas. This poly-centric structure principally matches with the proposed Central Place model. Moreover, the planned and self-developed centralities are located in locations with good street network accessibility. In the opinion of survey respondents, the new centralities around the light-rail stations in the southern new area, where the new modern shopping malls and large chain stores are concentrated, have surpassed the traditional shopping streets in the historical areas, as the busiest places in Tongzhou.

When examining people's daily activity patterns, the majority of the respondents are active locally. They tend to do their (daily) shopping, visit ground-floor small shops, do recreational activities, and use the street level public spaces that are near their neighborhoods. Over a third of the local residents are also attracted to large facilities, like shopping malls, supermarkets, city parks and plazas, which are a considerable distance away from their homes. However, city sports and cultural facilities, as well as community amenities, generally experience a lack of users. Taking public transport and using a private car are equally common choices. This indicates that even local activities are not always conducted on foot or by bike.

The large-scale development of the new housings is the most dramatic achievement of the Tongzhou new town in the last two decades. Gated neighborhood developments are the basic component of the new urban areas. The diversity in neighborhood designs is one of the main urban characteristics of the Tongzhou new town. The top-down planned neighborhoods from the 1980s and early 1990s are austere in appearance, but have sufficient public facilities, such as a primary school, and public greenery. Government offices are sometimes located at the corner of such neighborhoods. The quality of the early commercial neighborhoods in the Tongzhou new town was generally poor. Since the early 2000s, the quality of commercial neighborhoods has been dramatically improved. They place increasing emphasis on the richness and diversity in architectural and landscape designs, separation of traffic and pedestrian networks, provision of a multi-functional community center, and other amenities. Most interesting of all, abundant business opportunities are created through ground-floor shops at the perimeters or inside the community shopping street. Therefore, the gated neighborhoods not only are quiet, green, collective and closed environments, but are also open and connected to the city. In doing so, the urban life inside and outside the neighborhoods are able to be both lively in different ways. Except for their relatively low density, the planning characteristics of the neighborhoods in the suburban new town are largely the same as the contemporary neighborhoods in Beijing central city. Only the traditional Hutong area and the Russian style influenced first neighborhoods are open in structure. A greater quantity of self-emerged activities within the urban fabric has emerged from these neighborhoods.

Several neighborhoods constitute an urban district. As in Tongzhou, the new urban quarters are spatially mixed by different types of neighborhoods from different times, and thus, a blend of diverse populations. Urban vitality is examined by registering the location of diverse small businesses and self-emerged social and cultural programs in the new urban area south of the railway line. As the results show, such activities tend to aggregate and succeed when they are located in areas of sufficient compactness and population density, accessible to public transport, in locally integrated and pedestrian friendly streets that provide the possibility of thru-flow circulation, or having major attractions in the area. In Tongzhou, it normally takes three to five years for a whole

street of ground-floor shops to be fully filled with tenants, depending on the location. In fact, the flouring of small business has become a ubiquitous phenomenon in contemporary Chinese cities.

The majority of the interviewed shop managers consider location as the key factor of their choice. They prefer to be near the light-rail stations. The quality of the neighborhood, and the consumer power of the people living there, is another important concern. Most shops are primarily busy in the evening and the weekends. As there are already a large number of ground-floor shops in Tongzhou, the competition is fierce. Shops change business types and owners frequently. The owners are mainly local immigrants of young age. The contribution of ground-floor shops to urban vitality is that they promptly and flexibly fulfil the demands of daily life in the early phase of the new urban areas. They currently continue to survive and thrive as complementary to the big centralities, by offering a diversity of services.

Urban vitality on the local scale is also examined through snapshots of street activities and pedestrian flows, over an ordinary day in the summer season. The field observations show that the chosen area, which is a 1.2 kilometer radius range centered from a light-rail station, is lively throughout the day, although it is the busiest in the evening when commuters return to their homes. The vital streets are usually the ones with the greatest number of neighborhood pedestrian exits and mixed-use programs. Other impact factors are similar to the ones needed for successful ground-floor shops, such as a pedestrian-friendly loop, connectivity and visibility. For the older age groups, being outdoors in a public space is a habit and an essential method of casual social contact with neighbors and others. Diversity in population composition, as well as proper population density plays an important role in sustaining a certain amount of vitality throughout the day.

In terms of top-down organized social-cultural activities, there are a couple of large scale annual culture and art festivals in the new town. These are mostly the continuation of the cultural legacies of the town's history, or from the Communism era. Likewise, community committees at the neighborhood level are also responsible for generating a sense of collectiveness between the residents. However, there is generally a lack of activities that fit the demands of the younger generations, and the various social groups in both the newly developed and old urban areas. Tongzhou is very lively with regard to bottom-up small scale activities, which includes widely distributed commercial recreational programs (such as snookers clubs, board and card games rooms, internet bars and karaoke singing and dancing halls), self-developed hobby groups (users of community facilities and public spaces), and active internet communities (the major communication platform for new town inhabitants). Furthermore, Tongzhou is also famous for the self-developed art villages in its rural region, which enables the new town to promote the creative culture industry as the unique identity and new economic growth sector.

After years of market-oriented real estate developments, the Tongzhou government is now taking the role as the main director of the new town development. Based on the historic and cultural legacy of the town, Tongzhou is aiming to promote creative culture industries through the development of two large urban projects: the movie and animation theme park, and the music theme town. These recreational centers are supposed to be developed into regional tourism centers, and attract more creative people and activities to the new town. A modern image is considered an effective strategy to attract economic activities and investors. Multi-functional business districts are planned at the canal bank and near the first light-rail station. The waterfront district will be developed as a show piece. It will not only celebrate modern architecture landmarks and traditional Chinese urban fabrics, but also function as a vital transit hub with business, commercial and cultural programs. According to the research analysis, estalishing a collectively recognized modern city center would be benefital to the new town. However, the government plans tend to be overly ambitious and slow in progress. Therefore, there needs to be a re-optimization of the large urban projects, including readjusting the priority arrangement, the scale of the projects and the functional focus of each centrality (figure 5.58).

The research analyses and observations have demonstrated that Tongzhou is a largely self-developed town, and that it is lively in terms of bottom-up small business and street level activities, the majority of people in the survey consider it inadequate to be considered a real vital city. In their opinion, the new town still lacks strong key factors, such as a vibrant urban economy, quality educational and medical facilities, as well as modern shopping and recreational centers. Obviously, they cannot self-grow by market forces alone. Anticipation arises when the new master plan and recent project plans are made public. Spatial planning and urban governance should play a stronger role in facilitating new town development. During the top-down interventions, public opinion and participation needs to be heard and organized, in order to make the right actions to improve the quality of life for the people living in the new town.

Current government plan of large urban projects
and implementation sequence

Legend:
- Offices
- Cultural & Recreational
- Commercial
- New Centralities
- Interchange stations
- Central Streets

M = light-rail
S = inter-city railway
R = metro

1

Offices

Cultural & Recreational

Commercial

New Centralities

Interchange stations

Central Streets

M = light-rail
S = inter-city railway
R = metro
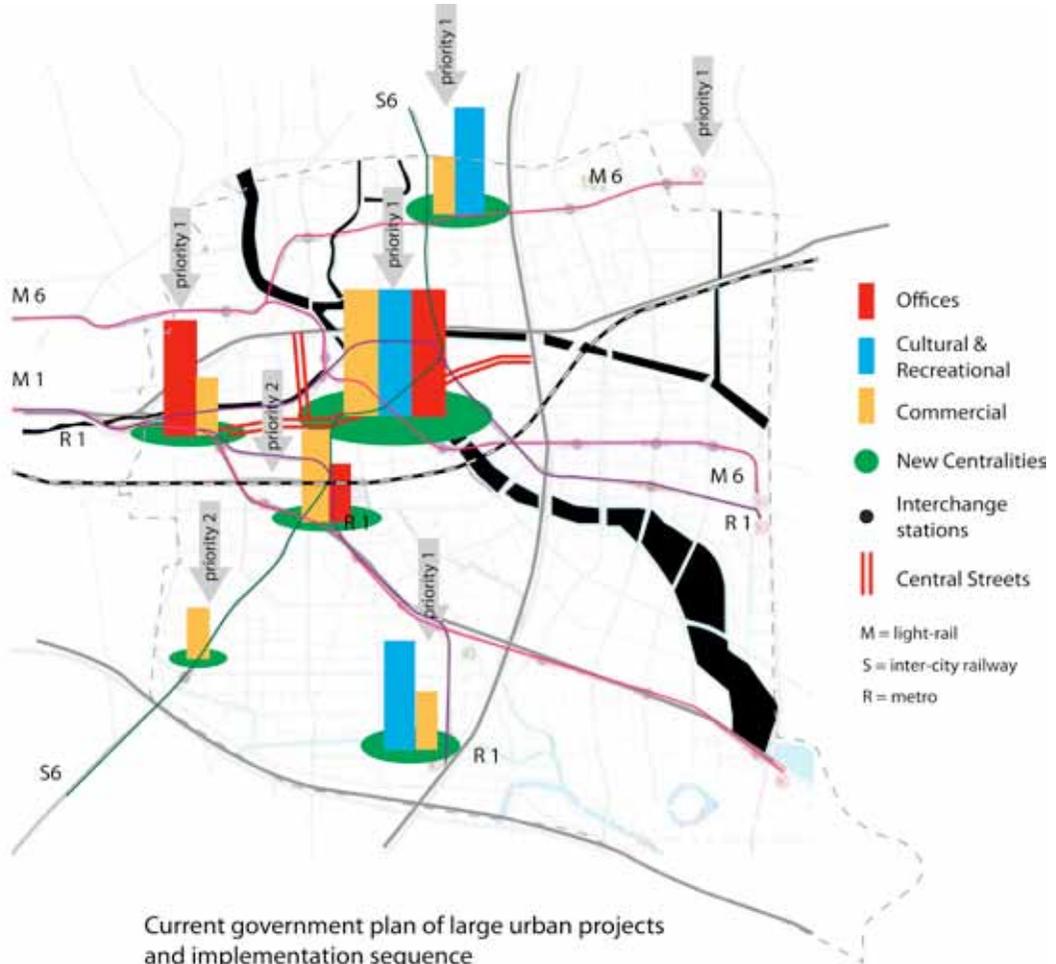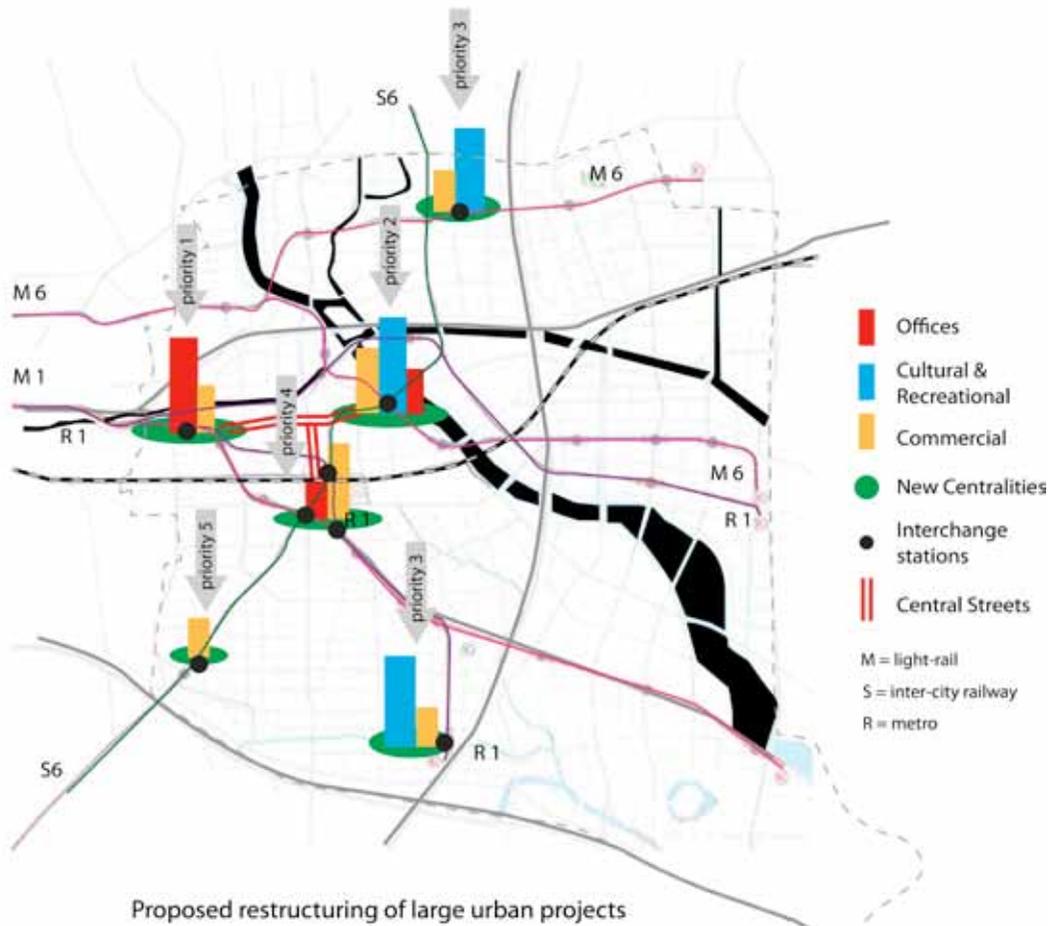
Proposed restructuring of large urban projects

2

Figure 5.58
(1) Current government plan of large urban projects and implementation sequence (2) Proposed re-structuring of large urban projects and rationalized phasing plan

6 Comparison and Discussions

Chapters 4 and 5 have elaborated on the Almere and Tongzhou case studies in detail. This chapter concisely synthesizes the differences and similarities of these two cases, according to a comprehensive range of aspects, side by side in a table. Then, the influential factors which are considered most crucial to urban vitality are further discussed and compared. The ways in which the two new towns can learn or reference from each other are explicitly stated. The listed influential factors on urban vitality cover spatial planning and design on various scales, as well as the social and economic development of a new town. The key factors include the regional position of the new town, the city development methods, the spatial configuration of the networks, the design of the urban interfaces, and the urban governance approaches. Finally, the recommendations for each new town are summarized.

For the case of Almere, the most important issue is to develop a new planning framework that encourages market development, the involvement of diverse actors, small-scale incremental growth, and a variety of social and spatial compositions. In terms of spatial design, it is argued that traditional urban interfaces are required in order to bring back quality street life. The urban structure should be transformed from a segregated, inward-looking tree structure, to an interconnected, open structure. For the case of Tongzhou, an abrupt jump from self-organization to central-control should be avoided. Stronger executive power of spatial plans is required, but in the meantime, the merits of market-driven development need to be incorporated into a new planning paradigm. Moreover, it is essential to integrate more social and environmental considerations into the city's economic development plan.

§ 6.1   Table of comprehensive comparisons

	Almere	Tongzhou
History		
	- started from clean slate, planning since 1960s, construction since 1976, still growing	- used to be historical harbor town, successful industrial town in 1980s -1990s; key new town since 2004
Regional position		
pros	- close to big cities* receiving radiant: 35 km to Amsterdam and Hilversum, 48 km to Utrecht	- close to big city* receiving radiant: 24 km to Beijing, 13 km to Beijing international airport
cons	- suburban garden city - commuter traffic causing congestion in regional road - at the fringe of urban agglomeration - missing history and strong culture identity - lack of strong employment magnets	- suburban dormitory town - commuter traffic causing congestion in regional road - fierce competition with other new towns - lack of pillar industries, except for real estate
Area and population		
	- 191.000 inhabitants on 130 km² built-up area by 2011 - density: 14,7 p./ha, about 25 p./ha in residential area - total municipal domain: 248,7 km² - planned population: 400,000 by 2020	- 420.000 long-term and 220.000 short-term inhabitants on 42 km² built-up area by 2008 - density: 100 p./ha (long-term), 152 p./ha (total) - total Tongzhou District domain: 677 km² - planned area of the new town: 155 km², 0,9 million inhabitants by 2020
Social composition		
	- already similar to the 27 big cities in NL, but having more family with children and less elderly - 60% is middle income class, but overall at lower position of national average - over 30% non-Dutch nationality, 26% non-western - less highly educated people - about 50% of working class work outside Almere, mainly in A'dam area - overall: homogenous population, middle to middle-low income, lots of non-western immigrants	- about 30% long-term residents do not register in Tongzhou (48% from Beijing, 45% from other provinces) - over 80% is between 15 to 64 year of age - majority lower educated - over 50% of working class are commuters, mainly immigrants work locally - overall: diverse population, low to middle-low income, lots of immigrants from outside Beijing

>>>

>>>	Almere	Tongzhou
Spatial organization		
pros	- planned, coordinated and ordered development, quality control - abundant green and water landscape, and public spaces at various scale level - cyclist and public transport prioritized - variations and innovation on architectural design - built-by-yourself possibilities	- market-driven self-developed, involvement of diverse developers and local authorities, competition and adaptation - diversified urban landscape, highly mix-functional - relatively high density, but much lower than Beijing - normal, open street grid - transit-oriented self-emerged new centralities - corner squares and green space along main streets
cons	- multiple segregations: poly-nuclear city structure, functional separation, tree-like network structure, neighborhood island, housing enclosures, etc. - separation of traffic modes - lower density, increased car dependency - much concentration of business and shops, neighborhoods lack interesting meeting places - monotonous housing typology and living environment	- inefficient coordination between infrastructure and housing development - unordered and dispersed land development - urban villages and old factories embedded - lack a modern city center/ image - segregation between old and new districts
Public provisions		
pros	- full coverage of public transport service - public facilities provided for most of neighborhood - modern city center and commerce - plenty of organized social-cultural events	- lack high quality educational institutes, hospitals - lack modern, quality recreational facilities
cons	- heavy task of public space maintenance	- lack high quality educational institutes, hospitals - lack modern, quality recreational facilities
Small business		
pros	- 25% more home-based small business in Almere - make use of spare home space, storage space in industrial zones, or public facilities, etc.	- open perimeters and special typology at ground floor of each neighborhood - many self-employed immigrants - blossom of ground-floor shops of diverse programs
cons	- neighborhood convenient stores and corner shops was intentionally minimized in plans - not so many flexible building typology and floor plans provided along main streets - no traditional urban streets available where pedestrian, cyclists, cars and buses in the same flow	- frequent change of owners (3-5 years) - peripheral locations far away from light-rail stations have more vacant planned shops

>>>

>>>	Almere	Tongzhou
Street life		
pros	- neighborhood activities gather around schools and supermarkets - many children activities during day time - weekly open market in the centers	- ground floor shops and restaurants generate constant street life and wide distribution - formal and informal daily open market; street markets and vendors appear twice at peak hours - collective singing, dancing or physical exercise in public spaces - diversified social composition contributes to the complexity of space users over different time of day
cons	- concentrated activities venues and pedestrian flows - dispersedly planned corner shops cannot bring a sense of urbanity in the street - home-based business are randomly dispersed and low-profile, they do not generate much street life	- chaotic traffics, space occupation - lack urban management
Bottom-up activities		
	- local community committee per neighborhood - self-initiated hobby groups and activities - collective neighbors parties	- community online forum of Tongzhou - self-initiated hobby groups and activities - "black taxi", informal street vendors
Participation		
pros	- organized participation in space management - "build-by-yourself" projects - "walk-in" hours of public authorities	
cons		- inform about plans but not open to communication and feedback
Future plans		
	- population: 350.000 by 2030 - strengthen regional infrastructure connection - 100.000 new jobs - develop mixed functions, diversified life styles - introduce higher education institute - sustainable energy and eco-environment - overall: self-contained, socially economically balanced and ecologically sustainable city	- population: 900.000 by 2020 - international new town, happy living new town - strengthen regional infrastructure connection - take advantage of history and culture, promote culture and creative industries - large urban projects on new business districts based on urban renewal of historical areas - quality public facilities - duty for new social housing projects - control the in-flow of immigrants - overall: strengthen economic development, shift from quantity to quality focused, continue to absorb population from the central city

* measured from city center to city center

Table 6.1
Table of comprehensive comparisons

§ 6.2 Comparisons of key factors on urban vitality

§ 6.2.1 Regional position: stronger regional bond = stronger self-containment

Almere and Tongzhou are similar in the way that they enjoy convenient locations near the most populated cities in their regions, Amsterdam and Beijing respectively (figure 6.1). To a large extent, their successes lie in their strategic regional positions. Many opposing examples, such as the new town Flevoland which is located on the same polder as Almere, and those "new ghost towns" in China, have shown that large-scale new settlements built far away from existing urban areas against the nature of organic growth tend to suffer from limited liveliness. Almere and Tongzhou both have similar characteristics to a dormitory town. While these towns release urban pressure from their respective mother cities by providing affordable and attractive suburban housing, they are also subject to a lack of real urban quality, a competitive urban economy, and generating substantial regional traffic congestion.

Almere had a population of over 191.000 inhabitants by the middle of 2011, distributed across a land area of about 130 square kilometers (total municipal domain 248,7 km² including water area). The planned population for 2030 will be 350.000 in the same land boundary. Tongzhou new town, occupying a built-up area of about 42 square kilometers in 2008, is the central town of the Tongzhou District. It is more complicated to calculate the population precisely, because of the registration system in China. According to the 2004 national census, the Tongzhou new town had about 420.000 long term residents, and another 220.000 short-term residents. The planned built-up area for the new town will be 85 square kilometers by 2020 (total planning boundary 155 km²), with a projected population of 900,000 people. Fortifying regional infrastructure connections is one of the essential steps for facilitating urban and economic growth. Almere is planning to double the traffic capacity over IJmeer in the direction of Amsterdam, and extends its connections to the east and north of the country by the future *Hanzelijn*. Tongzhou is going to have a new light-rail connection (with two branch lines in the new town domain), a new express road connection with Beijing central city, as well as a regional railway to the other new towns in Greater Beijing region.

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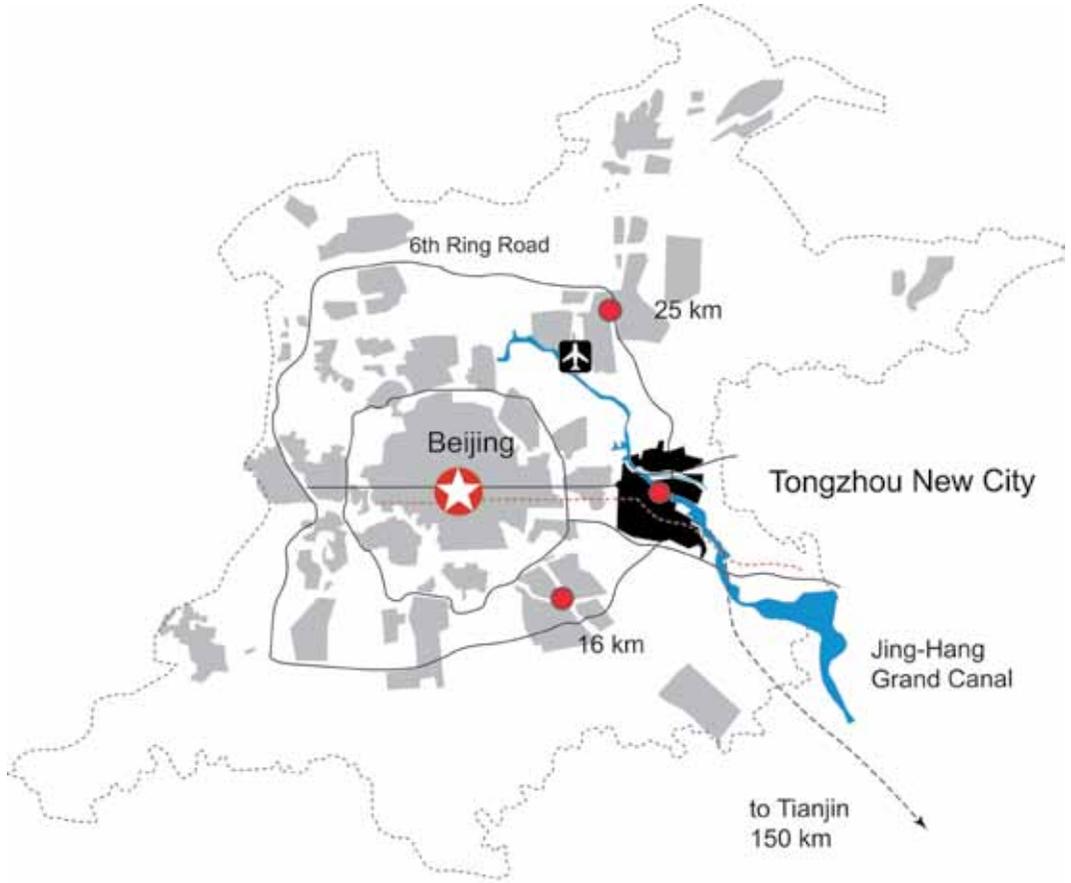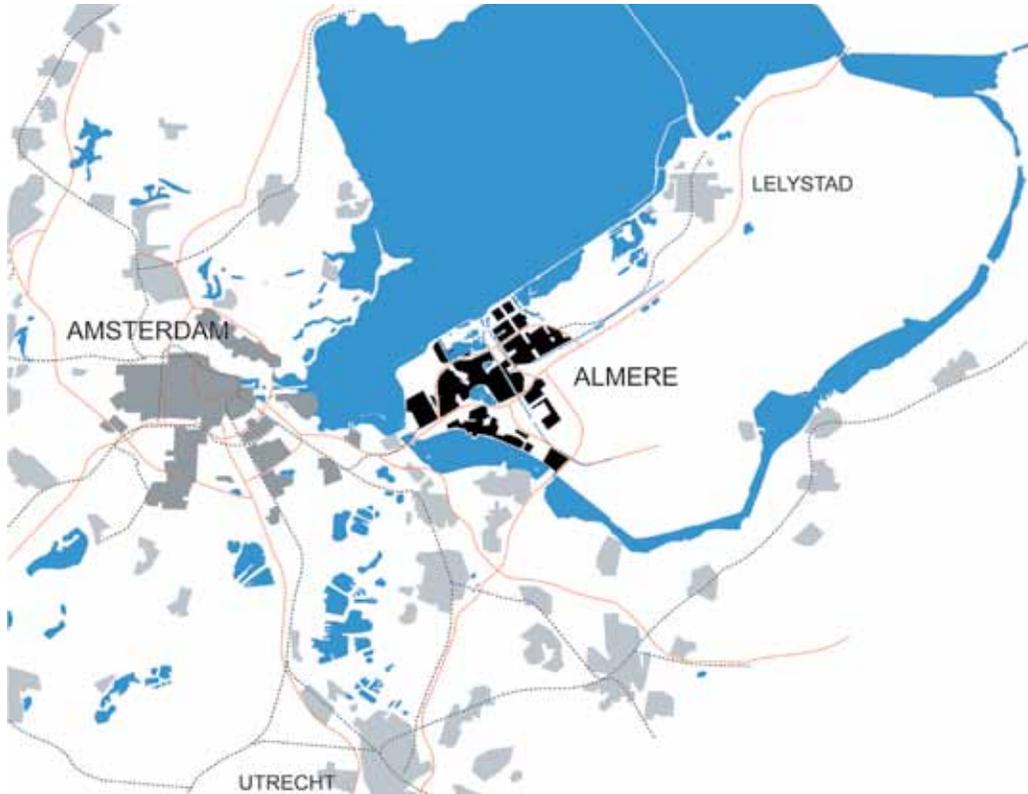
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Strengthening regional connections: Tongzhou has planned new light-rail and infrastructure connections (1); Almere has planned new cross-like railway connection (2)

Almere

Additional housing is not the only reason for the urban expansion of both of the new towns. They have bigger ambitions, to become self-contained, socially and economically balanced real cities. Currently, they both have a certain imbalance in their social composition. Almere has a higher percentage of middle-income family-with-children type of households, but it is less attractive to students, social starters, pension groups and artists. The housing typologies and living environments are rather monotonous. There is also a relatively high percentage of non-western ethnicities in the new town, but most of them have integrated well into Dutch society. In the Almere 2.0 vision, increasing (100.000) new jobs and diversifying living environments are primary approaches to realizing the desired "scale leap". The first step will be the allocation of new higher education institutes in 2012. The Almere 2.0 proposal includes a closer spatial and functional relation with the cities and regions from the old land that have the potential to help Almere grow. High density and mixed-functional urban settings are planned for Almere-Pampus, the new urban node which extends towards Amsterdam. The very low density ecological habitat will be located in the Almere-Hout and Oosterwold, and connecting to het Gooi region and Utrecht. The ambitious "scale leap" of Almere has developed into a national project once again. National subsidies are required for the major public programs in the plan.

Tongzhou

Tongzhou, on the other hand, has a more mixed population, composed of original inhabitants, (former) peasants, young white collar workers that commute to Beijing central city, immigrants from other provinces, and middle-high income groups attracted by suburban villa communities. However, the lower-educated people (immigrants) are the ones that work in and dominate the new town. The higher-educated groups are commuters, and they use the new town as "bedrooms". Moreover, the suburban new town cannot compare to Beijing central city in terms of the quality and quantity of public facilities, quality of built-up environments, and prosperity and diversity of cultural life. Real estate development has been the most important source of Tongzhou's local revenue for the past two decades, but it is no longer the only financial pillar to be relied upon. The municipality believes that employment in higher-skill sectors is the key to upgrading the population composition and the built-up environment. The new master plan for Tongzhou 2030 is focused on establishing new characteristic urban economic sectors, including business and commerce, creative and culture industries, a central district for the relocated Beijing government offices, and a regional medical center. The eleven new towns in the Greater Beijing regions are fiercely competing with each other for new concepts and new domains for economic growth. The Tongzhou new town authority has been actively seeking collaboration

with domestic and international investors, in order to accelerate the realization of the planned large urban projects. Beijing and the national governments also provide subsidies for the development of Tongzhou, as they are still urgently depending on major new towns to ease the heavy urban and environmental burden of the capital city. What to learn from each other?

Urban expansion is utilized as a primary strategy to upgrade both of the new town's regional position. This is primarily because they have the advantage of available land, compared with the old towns. It is just as big as an opportunity, as it is a challenge. If the strategies are implemented as planned, both new towns are going to reach their full urbanization threshold within the municipal domains by 2030. The extent to which the suburban new towns can transform into vital cities depends on the success of the implementation of their "scale leap" plans in the coming two decades. There is an increasing awareness in efficient and sustainable land use strategies in both countries. However, successful urban expansion solutions remain to be the biggest challenge and research question to the spatial planning, design and governance of cities throughout the world.

The merit of the Dutch approach is that social and environmental aims are embedded in the spatial strategies and physical forms, such as the quality of life, diversity of lifestyles, freedom of choice and renewable energies. Moreover, the plans are more likely to be realized, because they are being implemented by the strong top-down executive power of the Dutch authorities. The central strategy for developing the Chinese new town plans is focused on economic development. In the current phase of fierce market competition, consistent economic growth is considered key to a sustainable new town. Social and environmental aims most often stay on the paper. In reference to each other, it is suggested that Almere make the most of its strategic regional location, since it is nearby the biggest economic and international culture center in the country. The Almere municipality should consolidate its own economic comparative advantage (other than real estate) within the system of cities in the north wing of Randstad. On the other hand, the Chinese new town developers should balance and integrate social and environmental considerations in their pursuit of economic growth, before a heavy price for pollution and population imbalance becomes inevitable. Clusters of modern architecture boost the urban image of the new town as a whole. However, it is the quality of local urban environments and public facilities that influence the quality of the everyday urban life of inhabitants.

City planning and development method: top-down planning vs. market-driven

Almere and Tongzhou contrast each other with regard to their city development methods (figure 6.2). The former is the product of thorough top-down planning and a consistent implementation process; and the latter went through a market-driven, spontaneous and somewhat chaotic process, and reached a certain coherency. What are their different influences on urban vitality?
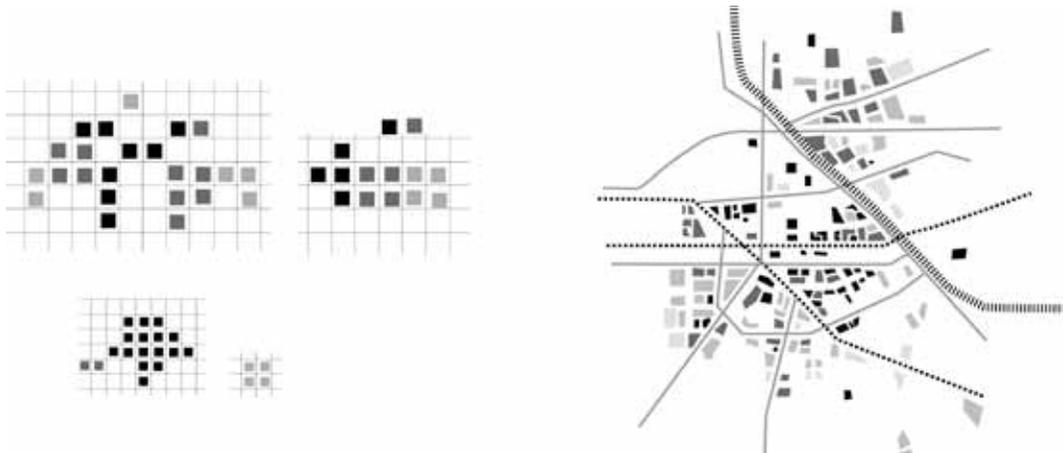
Figure 6.2
Diagrams of the different developing processes: Almere in a sequential manner and Tongzhou in a mosaic manner

Almere

Almere was a national project that was aimed to provide more habitable land in the Netherlands in the first half of the twentieth century. In the middle of the 1970s, it was built on the clean slate of the newly reclaimed polder. Planners from the specially established national authority RIJP made the important initial planning decisions for the new town Almere. It can be assumed that this group of professionals gave their best effort in developing the town plan to maximize the quality of the town for its residents. The decision of making low-rise, low density single family houses the dominant housing typology was because it was the most popular housing typology in the Netherlands. This was determined according to a public survey that was conducted

during the strong economic growth and baby boom period in the 1960s and 1970s. The spacious setting and abundant landscape was believed to guarantee a healthy living environment. In addition, the tree-structure hierarchical road network design was supposed to make local environments safe and less polluted. The quality of the individual residences was the foremost concern of the planners, and it has been successfully achieved. However, there were some aspects that did not go as well as planned. For example, the attempt to create a balanced population and self-contained job market, the intention to reserve system flexibility within the polynuclear model, and the aim to nurture urbanity and diversity, were not fully achieved. On the one hand, this research project has demonstrated that the artificially planned spatial structure is responsible for hindering the development of the town's urban vitality. On the other hand, the way that only a limited number of parties were involved in the decision-making, designing and development processes also have negative impacts on the diversity of the built-environment. For a project as complex and large-scale as developing a new town, prescriptive planning is just not capable of predicting and defining all the societal dynamics, and the corresponding physical forms.

Tongzhou

Tongzhou was an economically declining historical harbor city with its own cultural legacy. It was designated as one of the forty industrial satellite towns around Beijing in the 1950s. Under formidable top-down governance during the Communism era, dozens of major state-owned factories were relocated to satellite towns. Communities for factory workers were built nearby the factories. It was a successful and self-contained industrial town, until those heavy polluting and outdated industries gradually closed down, beginning in the early 1990s. It was also when real estate industry started to thrive in urban China, after the market economy was restored. Without guiding urban plans and strict regulations, the market-driven housing development in Tongzhou has been driven largely by private developers as well as the local authorities of former farm lands. The real estate booming has lasted until around the mid-2000s. During this period of "anarchy", a variety of parties were involved in land acquisition and development. New housing communities of various sizes, building typologies, and design and construction qualities spontaneously popped up along the major infrastructure connections to Beijing central city, along the canal banks, and around the planned trajectory of the light-rail line. Even though a certain degree of compactness and order has evolved out of chaos by now, the urban area as a whole is a montage of new build-ups, urban villages, vacant lands, and factories. The local government was in a passive position, developing infrastructure and public utilities according to the demands of urbanization.

Human society is perceived by urban theorists as a living organism that is constantly adapting from within. Cities are also increasingly studied as complex systems, whose natural state is featured as being between order and chaos, but not as ordered and predictable as a machine. The dynamic process and result of the Tongzhou new town is much more comparable to the manners of the organic growth and self-organized complex systems. The lack of restrictive planning rules in the early phase of the Tongzhou development inadvertently led to an immense freedom in the city development, which allowed diverse private and public parties to take part in and interact with one another. Each individual action followed the market rules of selecting the best profitable location possible and tended to aggregate themselves for the benefits of scale. They competed with and complemented each other, resulting in constant improvement of the project quality as well as new design themes as selling points. As the physical chemist Ilya Prigogine said, "while turbulent motion appears as irregular and chaotic on the macroscopic scale, it is, on the contrary, highly organized on the microscopic scale" (Prigogine, 1984, p.141).

What to learn from each other?

Both new towns are in transitional moments, either from a top-down planned manner to a more organic growth manner or from a market-driven, spontaneous mode to a stronger planning control mode. New development and governance approaches are needed to balance the relation between the top-down and bottom-up strategies, as well as the planned and unplanned urban elements. The Almere government could learn from the government of Tongzhou, in regards to its dynamic-triggering urban development "approach", in other words, its successful involvement of multiple parties in the development process, which result in a positive effect on market competition, and bring about a natural diversity to the urban landscape. It definitely does not imply going back to the entirely uncontrolled urban sprawl developments that occurred in the Randstad area several decades ago. The Tongzhou government could learn from the Almere government how to effectively manage projects, city development as well as the civic society. Without certain guidance and regulations, "chaos" can easily lead to "market failure". However, it should be realized that being over controlling and highly ordered is equally detrimental to urban vitality than the seeming disorder.
In the current economic environment of capitalized societies, it is especially important to combat the negative effects of marketization - the monopoly of big players- with regard to the development of urban diversity and vitality. These tendencies are already witnessed in Chinese society. The Tongzhou authorities should avoid developing large-scale urban projects with only a single or a few big developers and stakeholders. They should try not to restrain the initiatives from local (village) authorities and other motivated market forces. Otherwise, its current dynamics and vitality will soon disappear. For Almere, it is helpful to encourage the participation and growth of

smaller interest groups, and avoid the scale problems that are associated with the large (former state-owned) housing corporations and construction companies. For both of the new towns, it could be a useful strategy to develop a planning framework with clear goals and basic principles. In order to achieve certain flexibility and diversity in the plan, the project land can be divided into smaller lots. In this way, it allows small-scale incremental developments initiated by or commissioned to a variety of partners.

§ 6.2.3   Spatial form and street life: urban streets and small-scale business
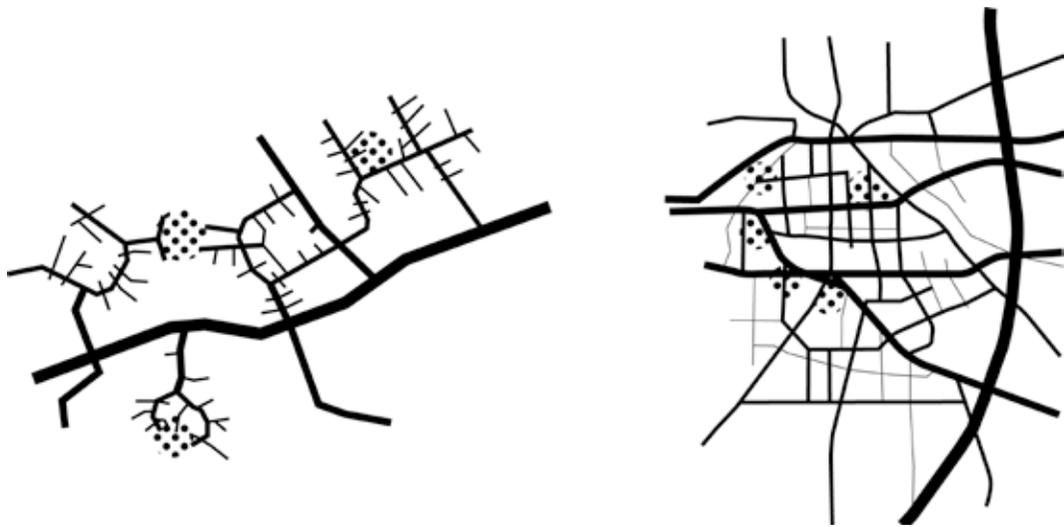
Figure 6.3
Diagrams of the distinct network configurations: Almere in a tree-structure, and Tongzhou in an open-grid structure

Tongzhou

The bustling street life is very characteristic of the Tongzhou new town. It is a result of the development of a spatial form that is favorable to social contact and economic transactions at the street level, proper compactness and density, a diversity of population groups, as well as freedom to engage in various street activities. Spatially speaking, the mixed-traffic streets, especially the secondary ones, are important contributors to, and conductors of the urban life in Tongzhou (figure 6.3). This is the same role as they have in natural cities. Almost every new neighborhood is a gated community. Each neighborhood has a core micro eco-environment. Although quiet and self-centered from within, they simultaneously share open interfaces with the city streets at the neighborhood perimeters in the form of ground-floor shops (figure 6.4). This successful typology has been developed throughout Tongzhou. The proliferation of small-scale businesses reflects the fact that there is sufficient demand within a relatively compact and densely populated built-up area. Small-scale economic activities on the streets of the residential areas are spread throughout most parts of the network, and they provide a link between the local areas and the bigger centralities in the city. The new town is a melting pot of different social groups. People actively inhabit the streets and public space over different periods of the day. There are multiple peak moments, and many activity center points, including the daily morning, afternoon, and evening markets, the gathering of street vendors for departing and returning commuters, group singing and dancing in the early evening, the flows of supermarkets and schools, and an outdoor dining fiesta in the summer evenings. Immigrants, locals and former peasants are the protagonists of urban life in the new town, after the large amount of "white-collar workers" commute to the central city. The spontaneous new town is a "free" town for the street vendors, markets, "black" taxis and other informal urban phenomena. Although their existence brings disorder to the everyday public life, they do effectively replace the missing (public) supplies and services, and animate the local urban vitality.
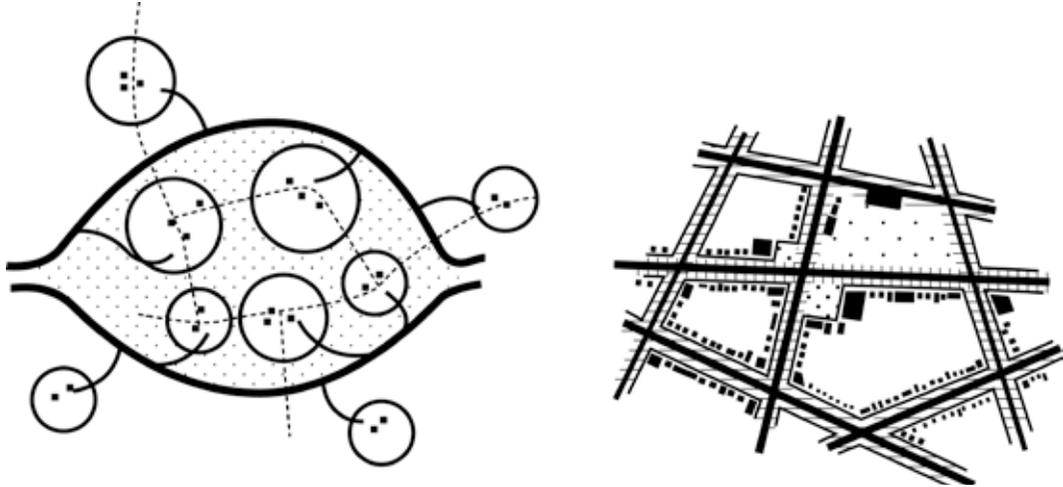
Diagrams of distinct urban composition: Almere in a segregated manner, Tongzhou with open urban streets

Almere

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Christopher Alexander contends that "for the human mind, the tree is the easiest vehicle for complex thoughts" (Alexander, 1965, p.17). City planning that follows this logic produces stationary and separated elements that fail to generate overlaps and interactions with one another. This results in the loss of countless spatial and social relations and interactions, and inhibits the possibilities for bottom-up emergences of businesses and activities. In Alexander's opinion, the "ordering principle" fundamentally determines the degree of complexity and vitality of the created structure more than other spatial remedies, such as richness in architectural styles, sequences of public spaces and urban density. Unfortunately, Almere's planning was just another applied case of the "tree structure" (figure 6.3 & 6.4). The idea of separation was applied at all scale levels. This resulted in the different urban nodes being separated by large scale green areas and landscapes, neighborhoods being bordered by urban parks,   each neighborhood being divided into (four) quarters, and the physical division of the different traffic modes. The local activities are therefore cut into pieces. Compared to Tongzhou, the neighborhoods in Almere have open block structures, but closed perimeters. There are not any shared edges, and there is limited communication (through flows) between the urban islands. The facilities and programs are grouped in centralities on three scales, and the allocation of street shops in residential areas was intentionally reduced. As a result, the survey that was conducted in this research project demonstrates that the lack of interesting meeting places and functional-mix in the local neighborhoods are one of the major spatial issues identified by the public.

On the other hand, recreational and sports activities in the green landscape are the most popular outdoor activity in Almere. Under such spatial conditions, individual initiatives are still able to find their own solutions. Interestingly enough, there is a significantly higher ratio of home-based small businesses in Almere than in the other big cities in the Netherlands. The modern information technologies and the convenient public and private transportation that are present here have changed the location behavior of the small-scale service industry. These resources have allowed them to locate their businesses in a rather foot-loose manner: they are not sensitive to locations and the amount of passing traffic and pedestrian flows. Consequently, the proliferation of home-based businesses does not contribute much to the local street life. In short, too much separation and concentration in terms of the spatial structure of Almere makes the distribution of urban life rather limited.

What to learn from each other?

Within the spatial framework proposed for multiple stakeholder partnerships, planners are responsible for establishing the ground rules and conditions that facilitate different levels of urban vitality to emerge and grow. These include a well accessible and intelligible street network and public spaces, a proper population density, a recognizable urban identity and image, interactive streetscapes and public space, appropriate building typologies in the potential streets for mixed-use programs, as well as proper social and environmental goals. The examples of Tongzhou, as well as traditional urban fabrics like the Amsterdam Zuid extension in the Netherlands, demonstrate that a density made up of four to five-story apartment buildings is suitable for developing a sense of urbanity. They further illustrate that traditional street grids with open blocks and neighborhood perimeters are more suitable for allowing small businesses to grow and street life to thrive than a tree-like network with introverted and landscape-isolated neighborhood islands.

As built-up environments in new towns are fixed and not suitable for large-scale demolition and renewal, the results of this research project suggest that small scale interventions in Almere will boost its urban vitality. The goal is to diversify the living environments and lifestyle possibilities, at the range of the existing three urban nodes. It is not the intention of the researcher to force each suburban neighborhood into urban settings. In considering the lessons learned from the analysis of Tongzhou, the spatial element that is seriously missing in Almere is "urban streets", where people can "linger…, take pleasure in spaces and city life, meet and get together with other people (Gehl, 1971, p.53). The author proposes that the transformation could focus on the areas close to the city centers, and new urban interfaces and urban streets could be created by urbanizing part of the isolating green buffer zones (see Figure 4.56) through the development of mixed-function land use and flexible building typologies.

The government of Tongzhou should be aware of the problem of vacant ground-floor shops resulted from the over estimation of the potential economic market. The success of the shops eventually depends on the retention of a long term client base within walking distance of the shop, and the shop's relative location to major public transportation connections. As the centralities on the city scale become more mature, and public provision becomes more sufficient, ground-floor shops and informal economic activities will face stronger competition in the local market. According to the interviews of the shop owners, the consumption power of Tongzhou inhabitants is obviously lower than people in the central city. The shop owners need to be responsive to the changing demand, in order to maintain their businesses. Meanwhile, it is also crucial for the new town to improve the average income level. This can be accomplished by attracting higher income groups, and then keeping them active in the new town.

§ 6.2.4   Public provision and urban governance

Almere

One of the major advantages of the developed Almere master plans is their social considerations. Sufficient quality facilities were planned in proportion to the population size of each neighborhood and each urban node. In addition, the provision of daily services had begun in the first development stage. The initial master plan of the city center reserved space for development in phases. The new city center was completed by the early 2000s, and it has upgraded the quality of the city life to a level that is more comparable to other towns in the region. According to the survey of this research project, most inhabitants agree that all the necessary amenities are available locally, and that there are plenty of organized activities. However, it would be better if there were more cultural and recreational program choices, as well as big city events that bring more people together and generate a sense of collectiveness. Abundant greenery on different scales is another physical manifestation of the government's efforts. Trees were being planted even before the construction of the housing project began. Judging from the quantity and size of the trees and plantations in Almere, one would not believe it was built on new land. There are open channels of communication between the local authority and the citizens. Public services are well organized, and opportunities for public participation in the domain of politics and space management are available. As a result, the research survey shows that the majority of respondents find the new town modestly lively.

Tongzhou

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Even though Tongzhou has a large number of small-scale businesses and a busy street life, the survey shows that the public's opinion towards the vitality of the town is not satisfactory, due to the lack of quality medical and educational facilities, as well as a modern urban center, on the city scale. Many local residents surveyed heavily rely on Beijing central city for social cultural life. Some have even chosen to move back (for instance, for children's education). During the planned economy era, the local government took responsibility for providing public facilities like libraries, sports fields, culture centers, cinemas etc. However, this process stagnated during the real estate boom in the 1990s and the early 2000s. The local government decided to allow freedom for the free market activities; however, they are inexperienced in dealing with its effects. This resulted in the lack of investment in the public domain of the new urban areas. In general, master planning as a land management tool had little control over the rapid changes in the market-driven development of urban China. Amazingly, the same type of detailed zoning plans is still being mass produced for other new urban expansions.

What to learn from each other?

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An important lesson for the government of Tongzhou is that the task of creating a sustainable and vital society cannot be left to the hands of the market. Public authorities need to proactively take on planning and governance duties. It is clear that spontaneous small businesses and street life can only contribute in part to the development of urban vitality. Public provision of quality facilities, the construction of modern city centers, as well as people-oriented public services and governance are crucial to building a high quality society. In this respect, Almere is a role model for Tongzhou. However, there remain challenges for both new towns in terms of developing and testing effective and collaborative planning and governance approaches, in order to balance the top-down control and bottom-up freedom in order to develop successful new areas in the coming decades.

Almere

The recent plans of new urban nodes in Almere clearly demonstrate the determination of the authority to establish new planning paradigm and to prevent the same urban problems in existing urban nodes from happening again. Take Almere-Poort for instance, new approaches to create flexibility and diversity in urban setting are explored. The concept of "flexible building block" is applied to the development of central area of Almere-Poort, Olympia office park and Olympiakwartier, so that functional mix, functional change and program-on-demand are possible over time. The development approach is similar to that of the city center (stadhart). The individual urban blocks or architectures are assigned to different design companies within the framework of the same urban plan, so that diversity in terms of building form and appearance is derived. Following transit-oriented development (TOD) model, the district around new train station, Olympiakwartier, aims to develop into a high urban area integrated with living, working, shopping and other facilities, a strong centrality to Almere-Poort as well as to the city. The adjacent area, Europakwartier, is also intended for mixed land use, where traditional ground-floor multi-functional space is reintroduced to the streets. But not the entire Almere-Poort is planned to be urban. The areas far away from train station are the suburb of this urban node. They have pure living environment and features of typical Almere's planning, but modern themes are labeled to them: sustainability (Columbuskwartier) and build-by-yourself (Homeruskwartier).

As innovative and thoughtful as the new plans are, there are some aspects that merit further discussion. Concentrating businesses and activities (thus separation from living) is still dominant. Liveliness of the office park during off-work hours is questionable. The scale and characteristics of the new centrality will influence the vitality of the existing city center (stadhart). The spatial integration of the street network is still under-addressed in the plan. The polynuclear and tree-like structures continue to prevail. The edges of Almere-Poort and Almere-Pampus are isolated by green space, and the connection between the two urban nodes is rather limited (figure 6.5). Space syntax analysis on the street network configuration of Almere-Poort shows that the connections between different zones in the same node are limited (figure 6.6). Yet again, this kind of network configuration is bound to compromise the development of street life. While the same study on Tongzhou's street network plan reveals more choices of linkage between urban districts (figure 6.7). In addition, the secondary roads are generally design as even grid pattern.

Tongzhou

While the Almere municipality is loosening up their planning prescriptions, the Tongzhou local government has been trying to exert tighter control over future urban developments since the mid-2000s, as well as resuming their public duties. Several new public facilities pertinent to people's daily lives, such as a hospital and primary schools, are currently under construction in the new urban areas. The new master plan (2004-2020) contains detailed land use zoning plans that are supposed to be legally binding. It should be noted that the freedom and dynamicism in the market-driven development phase would probably be smothered by the new rigid plans, which can be considered a negative influence on the town's development. In reference to the Dutch planning approach, the master plan is meant to capture the overall structure of key elements, and detailed plans should be elaborated at the next scale level, where flexibility has been given to the corresponding designers. As described before, characteristic urban economy sectors and big cultural recreational programs are deployed to different districts throughout the Tongzhou new town. This has been done in order to reduce the differences between the center and the periphery, and the urban and suburban areas. However, the relation between the old and new urban centralities needs to be evaluated. It has always been the aim of the government to restore the central position of the historical town at the bank of the Grand Canal, and that is where the large scale main city center and central business district has been planned. However, it is obvious that another planned business district around the light-rail station closest to Beijing central city has a greater potential for fast development. A metro connection to the historical town and the planned main city center is not expected to open until the new district has been developed. Moreover, it is questionable if so much office space is needed for this new town.

The planning and design of key public projects, usually with surreally rendered images of the future prospective, has been used by Tongzhou authorities as an instrument to catalyze and motivate the involvement of private investors on the development of surrounding areas. However, the realization process of the promised public projects is rather slow, probably because the plans are too ambitious and too much about urban images. This leads to a difficulty in finding sufficient public subsidies and investment partners. Public enthusiasm on new town planning has waned over time. It should be noted that the concept of a central district could improve the sense of urban quality for residents, and attract business agglomeration. However, the idea of building a cluster of modern architecture projects in advance of office developments would be risky for suburban new towns, especially under the current economic condition. It is not rare for office spaces to remain vacant and be transformed to other uses in the future. Therefore, it is a challenge for the future that the city planning and development of Tongzhou interact more closely with what is in demand. It integrates potential parties into the planning process, so that the plans would become more feasible. Most importantly, it should be noted that the efforts for the quality of life of inhabitants should not be de-prioritized by the grant face-lift projects that are meant to show off the achievements of the officials.

Figure 6.5
The spatial relation between Almere-Poort and Pampus in two recent master plans

R=n (external connections)

R=300 (inter-area connections)

Figure 6.6
Space syntax analysis of Almere-Poort's traffic network (external and internal connectivity)

Figure 6.7
Space syntax analysis of Tongzhou's future street network (external and internal connectivity)

§ 6.3 Summary of suggestions

This chapter highlights and compares the key aspects of the two new town case studies side by side. The comparative study has generated insights on spatial and non-spatial factors that have influenced urban life, the lessons and experiences they could learn from each other, as well as design and strategy-wise recommendations on future improvements. For both new towns, solutions for increasing urban vitality shall be explored from spatial planning and design perspectives, as well as an urban governance perspective. On an individual case basis, future challenges are summarized as follows.

In order to enhance the urban vitality of Almere, it requires:
- the strengthening of regional bonds and consolidation of economic comparative advantages
- making use of the positive effects of market competition by encouraging the participation of individuals and groups of diverse sizes and types in the plan-making and development process
- avoiding the big player monopolies in either public or private sectors
- new types of spatial plans that can balance planned and unplanned urban developments, be adaptive to changes and feedback, and be effective instruments for communication
- small-scale incremental developments, instead of large-scale mass production
- avoiding too much functional concentration and network segregation in new urban areas
- balancing the relation between the old and new city centralities
- diversifying the living environment of the existing urban nodes by small-scale, step-by-step interventions
- resolving spatial segregations generated by polynuclear models and tree structures
- reintroducing "urban streets" as active interfaces, which are made possible by employing grid networks, open urban blocks, mixed-functional land use, and flexible building typologies
- a certain degree of compactness and population density

In order to enhance the urban vitality of Tongzhou, the town needs:
- the integration of social and environmental goals into the economic growth process, including quality of life, freedom of choice, eco-friendly environments
- public provision of quality facilities in the new urban areas
- people-oriented public services and urban governance
- establishing sustainable economic growth sectors: e.g. cultural and creative industries
- new public-private partnerships in urban development, retaining the involvement of motivated market initiatives, avoiding the tendency of developing monopolization as a result of marketization
- avoiding rigid zoning plans and large-scale rapid developments
- adopting a strategic and flexible master plan, clarifying the fixed principles, and developing a series of codes
- evaluating the feasibility of project goals, avoiding real estate bubbles and "face" projects
- stronger executive power, effective project management
- building characteristic urban images that can be collectively recognized: e.g. city center, public programs
- integrating the historical urban area with new town development
- upgrade social compositions by attracting higher income groups, enhancing market potentials

7 Final Conclusions

§ 7.1   **The usefulness of this research**

New towns claim to be differentiated from suburban housing estates because they are supposed to be developed into self-contained regional magnets, cities with balanced populations and employment, and cities with a certain degree of economic, cultural and urban vitality. This goal began in the pioneer garden city developments, and then was widely adopted by the new town movements worldwide. However, empirical studies have shown that this ideal has been difficult to be fully realized. However, these new towns commonly lack a sense of urban vitality. Therefore, based on a comparative study of the top-down planned new town Almere in the north wing of the Randstad region in the Netherlands and the market-driven self-developed Tongzhou new town in Beijing Metropolitan region in China, this research investigated the spatial and non-spatial factors that facilitated the development of urban vitality. This research provides practical planning strategies and design recommendations for both growing new towns and the established ones in search of transformation.

The two chosen case studies complement each other with regards to their planning strategy, development method, spatial organization, as well as urban governance. The urban planners could learn from the advantageous experiences of each other on nurturing urban vitality. The sufficient provision of community amenities in the residential areas, quality commercial and cultural facilities in the modern city center and sub-centers, organized year-round city events, and the recent participatory and build-by-yourself developments are all factors contributing to Almere's urban life. On the other hand, Tongzhou excels at developing a versatile street life, a diversity of social groups, a significant amount of active players in the market, and providing freedom in the development process. Both new towns are currently in transition stages. Ambitious urban expansion plans have been developed for the coming two to three decades, with the aim to achieve better social, cultural, and economic balance, as well as environmental sustainability. Their development strategies in the past were contrary, but their future strategies tend to shift to each other's model. Almere is searching for flexibility in their plans, diversity and urbanity in living environment, whereas Tongzhou is exerting stronger planning controls, and developing public projects at an accelerated rate. The systematic comparison study of these two new towns is oriented to the factors relevant to urban vitality. This research has generated some insights for the body of knowledge on urban vitality, as well as some concrete references and suggestions for the future development of the new towns.

§ 7.2 Main novelties and reflections on research questions and hypotheses

§ 7.2.1 Clarified definition of urban vitality

There are many theories and discussions on the interrelations between space and society, and good urban forms that make urban life lively. However, the notion of urban vitality surprisingly remains to be vague. This research attempts to give a more precise definition of urban vitality, mainly through literature studies, by narrowing the denotation and widening the research domains. This research answers the questions of how urban vitality relates to socio-economic and culture life, the necessary indicators and conditions, and how they can be quantitatively measured (as described in § 1.2).

In hypothesis (1), social, cultural and economic activities are considered key indicators of urban vitality. In general, urban activities can be categorized as living, working, recreation and circulation (Le Corbusier, 1943). However, how life is lived at home and at work is not the concern of this research. Rather, this research is focused on people›s public life in the public domain of the city, which includes a variety of social, cultural and economic activities. Jan Gehl (1971) and others further distinguish public life between buildings into functional, optional and social types. The functional type refers to activities with obligated purposes, such as work-related commuting and traveling, which is mainly the subject of traffic planning studies. The social and casual (non-obligated, optional) activities that happen in the public realm of cities are the primary focus of urban vitality studies. As can be seen, theoretical studies help clarify the scope of activities identified in the hypothesis.

Second, the urban vitality in this research emphasizes the impact of the physical qualities of urban space on the rhythm of people's everyday urban life. Economic and cultural vitalities have a cause-and-effect relation with urban vitality. Economic and cultural activities are studied only for their effects on people›s spatial behaviors. Besides, there are also types of spatial activities that are independent on non-spatial attractors. For instance, taking pleasure in occupying space, and having casual social contact with other people on the street. The narrow scope of economic vitality and cultural vitality, which respectively deals with the productivity of industries and businesses, and the prosperity of non-spatial creative works in human society, is not the focus of this research. Third, the notion of urban vitality emphasizes the unique quality of cities, where numerous, varied transactions occur in places where people are gathering in a certain density.

Urban vitality is a qualitative concept. It refers to the extent to which a city or part of it feels alive or lively. The key issue that is defined in this research is how to quantitatively measure urban vitality, and what the spatial indicators are for its measurement. The seminal work of Jane Jacobs offers criteria for evaluating the intensity and time-span of pedestrian flows on the street, and the presence of small-scale business activities on the ground-floor of urban blocks. In the same vein, John Montgomery argues that combinations of mixtures of activities are the key to vital, successful urban places. He goes one step further than previous researches, by including a wider range of activities besides small-scale businesses. This research project proposes to add the elements of place and people to the definition of urban vitality. Urban space in itself is in fact a source of attraction for human co-presence. People can be the initiators of activities. Thus, the primary condition for a vital city is (re)defined as whether the city offers rich choices of activities and quality places for people to experience, and whether the city inspires people to take their own initiatives and to be part of city-making. Consequently, consistent with hypothesis (1), the key indicators identified and adopted in this research include the presence of people and their spatially related social, cultural and economic activities in the public realm (i.e. how well spaces or facilities are used). However, a distinction is made between the planned/public programs and the self-emerged/private ones (i.e. to what extent the city is transformed by bottom-up initiatives). It should be noted that planned programs and quality space themselves are valuable conditions, but not indicators.

The core discussion of this research is how to create conditions for urban vitality to develop in new towns. It endeavors to give a holistic inquiry of important spatial factors, as well as planning and governance approaches. Jacobs and Montgomery's views on urban vitality are largely the attractor-determinism. Public facilities, small businesses, diverse activities and land use functions, as well as well-designed public spaces are such attractors for to-movement of flows, in other words, for gathering people. This research project has found that the spatial configuration of street networks and the spatial details on a smaller scale are also important factors. Space syntax theory studying thru-movements reveals that the natural movement patterns of flows are largely influenced by the integration value of a certain street in relation to the system as a whole. The intelligibility of the network (the extent of easiness to go from everywhere to everywhere else in a certain radius) determines the use of space. Urban designers consider the sensory (information) communication between people and space, and the details on small scales, influential to the duration of people's stay in public spaces. These can be thought of as space-determinism. Moreover, the account of people-determinism is proposed in this research project. This viewpoint emphasizes the usefulness of involving a multitude of agents participating in the decision-making process of urban development, as well as the value of encouraging spontaneous self-initiatives and collective activities by inhabitants. The interrelations of the three elements (program-place-people) will be elaborated in the following texts.

§ 7.2.2   New research approach

Several studies have developed certain methods to measure human activities. Jane Jacobs observed human activities taking place on the local scale of urban blocks of downtown areas of American big cities. However, her empirical method and normative statements were sometimes criticized by planning professionals as lacking supporting morphological studies on larger scales, and on other related urban elements. Jan Gehl carried out research tracking where people sit, stand and walk in several city center areas in world cities. However, his main focus is on the design of public space on small scales. For the study of new towns, a more complicated combination of factors affects urban vitality. The works testing Space Syntax theory in relation to the spatial behavior of economic activities (e.g. Hillier, Van Nes) intersect the calculated network integration values with the registration map of small businesses. However, the actual pedestrian/ traffic flows are not usually included. First, the above mentioned methods cannot fulfill the demand of studying urban vitality in new towns. Second, there are more indicators and factors that need to be measured according to the renewed definition of urban vitality in this research. Therefore, a comprehensive approach was designed.

Compared with previous works on studying urban vitality, the novelty of this research approach lies in the complexity and multi-scalar overlap of data. It not only quantitatively measures and visualizes the degree of urban vitality in terms of the co-presence of people in the public realm, but also identifies relations between the mass spatial behavior patterns and diverse influential factors. The potential factors are explored globally, and the measurements are taken locally. The spatial attractors are the primary mapping target. However, their distribution pattern is understood through critically analyzing the new town development process, social demographics and urban governance approaches, as well as the influence of urban compositions and network configurations at multiple scale levels. People's daily activity patterns in outdoor spaces are registered at the level of local neighborhoods and urban districts, through static snapshots (as described in § 3.3.3). Then, the snapshot maps are overlapped and compared with multiple layers of data, including the mapping of «attractors» (facilities, shops, planned and self-initiated small businesses and social-cultural activities), the configurative map of the street networks that was developed through Space Syntax analysis, the arrangement and design of public space, as well as the local social composition. Finally, the results of the morphological study and field research are cross evaluated with public opinions, which are derived from online surveys and face-to-face interviews.

Urban vitality triangle

PLACE
- **regional position**: well-connected, comparative advantage

- **land use pattern**: compact, mixed-use, functional overlap, mixture of concentration and street-spreading distribution

- **living environment**: diversified life styles and aesthetic styles

- **street network**: good communication, intelligible, freedom of choice (overlap)

- **public space**: easily accessible, functional, communicative, well-defined edges, rich details, fractal structure, human scale, legible visual qualities

- **identity and meaning**: vivid,

PEOPLE
- **social composition**: a diversity of different age, origin, education level, occupation, income level, cultural background, ambition

- encourage **public participation** in spatial management, spatial planning, city making, city events, and other volunteer work

- encourage **private initiatives**: by policy, finance, technique/knowledge support

PROGRAM
- a mixture of **top-down** initiatives, **market-driven** initiatives, and **grass-root** initiatives
- **public provision**: large-scale recreational, cultural, sports facilities, hospitals, library, cinema, gallery, museum, schools, organized city events etc.
- **market-driven and bottom-up**: diverse shopping, supermarket, cafe/restaurants, market, diverse small-scale business, self-organized social-cultural activities, hobby groups
- **variety**: meet the demand of different social groups

Figure 7.1
Diagram of urban vitality triangle and the list of influential factors

Set forth in hypotheses (2), place, people and program are considered three essential elements for urban vitality. When clarifying the definition of urban vitality and its measurement indicators, the establishment of attractor-determinism, space-determinism and people-determinism as three main factors coincide with the hypothesis. The urban vitality triangle diagram (figure 7.1) is developed to illustrate how these three elements can be interrelated and activated to make the built environment lively, through means of effective spatial planning, development method and urban governance. In other words, the three elements in the outer ring are vehicles to drive the dynamics of the elements of the inner ring.

First, the definitions of place, people and program need to be clarified. Place is distinguished from space for its emphasis on social connotation, rather than spatiality. Place theories claim that space becomes place when identities, memories and meanings are attached to it, either through the activities happening on site or through the aesthetics or spatial values of the physical form. Here, place not only refers to the physical public realms (public spaces and public facilities) but also the composition of spatial elements of the city as a whole. The notion of program in this context refers to the spatially related social, cultural, and economic activities. It does not imply spatial planning and design projects. Compared to the diagrams from previous place theorists (see Figure 2.15), people are a new element that is added to the triangle, which is meant to emphasize the pivotal role of proactive interactions between people (not just passive reactions) and the other two elements. Here, people primarily refer to individuals or groups from private sectors, including local or prospective inhabitants, business owners and market developers. However, it excludes agents from public sectors, such as planners and city officials.

The interrelations between the three essential elements are as follows. Places accommodate programs, and programs choose places to be located at. Programs serve people, and people initiate programs. Places attract people, and people make places. In order to explain more specifically, places need to be understood as more than merely containers for planned urban functions. However, activities, especially the economic ones, have their own logic of locational behavior. Factors like the connectivity and intelligibility of the street networks, the relations to other urban elements, the visual characteristics and quality of space, and the typology of buildings at the edges of public spaces all contribute to the emergence and pattern of unplanned (and even planned) activities. Top-down provided programs enrich people's social and recreational life. However, it is important for a vital city to have motivated individuals or groups to initiate programs by themselves, whether it is micro-economic activities or collective culture events. Quality space and the activities associated with it attract the co-presence of people and the movement of flows. Such places are likely to continue to have programs aggregate. People not only live in and travel through urban spaces, but they also appropriate and modify their ambience according to their ideas. It is people using the space that makes the built environment lively. A more radical step of city animation would be to empower people to be directly involved in the process of city making. Among the cyclic relations in the urban vitality triangle, the directions needing the most emphasis are to activate people to participate in spatial planning, to initiate activities, and to engage in urban management (which are shown in thicker black arrows in the diagram).

Relations between network configuration, attractors and movement of flows
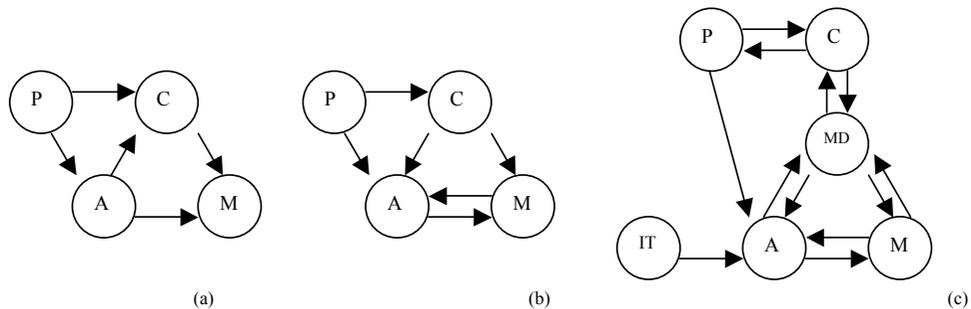
P = spatial planning, C = network configuration, M = movement of flows, A = attractors, MD = market-driven development, IT = IT technology

Figure 7.2
Diagram of the relations between network configuration, attractors, movement of flows and other factors

The study of the relations between the network configuration, attractors and movement of flows is an extension of the study of the place-program-people relations (figure 7.2). This study focuses on demonstrating how the elements influence the appearance or growth of each other. It tackles the question of how the locational behavior of (economic) activities is interrelated with the structure and development of the infrastructure networks, and thus, human flows in different models of city development.

The street network is one of the most important structural elements in a city. It is a channel for communication that carries the flow of traffic between different urban areas and activities. Diagram (a) shows these types of static relations between the three elements. In the 1960s, traffic engineers designed the street networks, and its traffic capacity is based on the land use plan that was made for a future prospective. The structure was designed largely based on the allocation of urban functions and urban density. In other words, the movement of flows predicted by the traffic planners is determined by the attractors. Thus, it is considered a major attractor-determinism method of studying travel patterns.

Hillier and colleagues study the movement patterns of flows in human settlements from a configuration-determinism view. It is argued that there is a type of so-called natural movement that is independent from specific destinations (attractors). It is purely influenced by the configuration of the street networks, the cognition of orientation when exploring in space, and namely the degree of integration of an individual street, and the intelligibility of the whole network. The key statement in this vein, as shown in diagram (b), is that the structure determines the co-presence of the humans, which consequently determines the aggregation of the flow-dependent (micro-economic) businesses. The relation between the movement of flows and attractors is interactive. However, the network configuration is not affected by either the presence of attractors or the natural movement. Based on the results of this research project, the scheme depicted by space syntax theorists seems to only fit top-down planned cities or largely built-up, slow evolving built environments, where street networks and urban structures on the macro-scale is to a large extent fixed and stationary.

Diagram (c) presents a more comprehensive and dynamic relation between spatial planning (P), network configurations (C), movement patterns (M), and urban land use (A) in organically-grown or market-driven developing cities from a systems view. In this circumstance, an action from spatial planning (e.g. infrastructure, public buildings or public space) or private initiatives (markets, real estate development, industries or business) causes changes in the built environment. These changes modify the context for decisions to act by others, and triggers (chain) reactions and self-organization within the market-driven developments. For instance, a new light-rail generates housing developments along the line, the new business cluster in the city center stimulates gentrification, and an explorative housing development in the suburbs intrigues more followers. The consequences are the growth in the scales of land use and population, which then leads to further agglomeration of a series of urban functions in the service sector. As described in the previous diagram, the attractors and movement of flows complement the presence of each other. In this scenario, the spontaneous bottom-up developments determine the spatial configuration in the city to some extent. When the changes are feedback to the planning system, they urge the public authority to adjust the plan to the new conditions, and set forth new actions. The cycle continues from there.

A noteworthy phenomenon of location behavior is that it is clear that in the age of information technology, businesses using internet platforms for transactions depend significantly less on physical locations in the city. A considerable amount of real stores in the city still require face-to-face communication with customers. However, the increasing convenience in obtaining information online and the use of modern orientation tools, such as digital maps and global positioning systems (GPS), makes people's trips more acupunctural than random. As a result,

the distribution of (small) economic activities tends to have more freedom and ubiquity. However, the rules-of-thumb of location theory still apply. The places where movement of flows of pedestrians and (slow) traffic is sufficient, public transportation (especially transit hub) is conveniently accessible, and a large, nearby reservoir of high frequency consumers, are still the places where activities concentrate. In addition, public (or semi-public) spaces that are located along the dominant movement flow paths are likely to be well used. Designing network configurations that allow good communication and freedom of choice continues to be a requirement for a vibrant street life.

§ 7.2.5 System conditions for vital new towns

In general, for new towns or any planned urban fabric that is trying to be developed into a similar environment as natural, high functioning cities, optimal conditions for a dynamic and complex system must be developed. This statement is in accordance with hypothesis (3), which stresses the level of complexity and diversity of the environment in terms of spatial and social composition important to generating a strong urban vitality. Supporting arguments are derived from the theoretical and empirical studies of this research project. The development and control of such complex systems requires new urban planning and urban governance approaches. The advantage of small-scale, incremental developments, and the involvement of multitude of partners, as put forward in hypothesis (5), will be reflected in the discussion of different stages of power decentralization in this section.

A complex system exhibits a state between order and disorder, and structure and serendipity. From a systems view, an open and living system entails possibilities of extensive interactions among its component parts and constant adaptation to changes caused by the interactions. In order to prevent the tendencies of over planning or unregulated market-driven chaos from happening in developing new towns, it is necessary to develop a new relation between top-down spatial planning and urban governance, and market-oriented development and bottom-up initiatives. The creation of such a relation requires the involvement of a good number of public private participants during the process of spatial planning and urban development. The arbitrary dominance and monopoly of only a few players should be avoided. The optimal use of a variety of market forces and private initiatives in designing and constructing built environments allows natural diversity (in terms of the living environment, social composition, social-cultural and economic activities, etc.) to grow.

Spatial planning and urban governance should be used as managerial tools that facilitate constructive interactions among the participants, and guide directions and control errors. Therefore, they should be firm in terms of rational principles and regulations, while being flexible in terms of developing a detailed program and design variations. In this way, planners and public authorities are responsible for the interests of the city and society as a whole, as they have the resources and skills to have a better overview of the system on the macro-scale. In addition, on the micro scale, people and private organizations are given freedom and decision-making powers in developing urban projects, in pursuit of their individual goals and ambitions. In the meantime, the responsibility of managing the well-being of their environment and community life is shared by both public and private actors, because of their direct involvement. In terms of the planning product, long term static and rigid spatial plans have been considered ineffective. Time-oriented trajectory planning and incremental development methods should be adopted for their usefulness in allowing systems to regularly evaluate and react to feedback and changes.
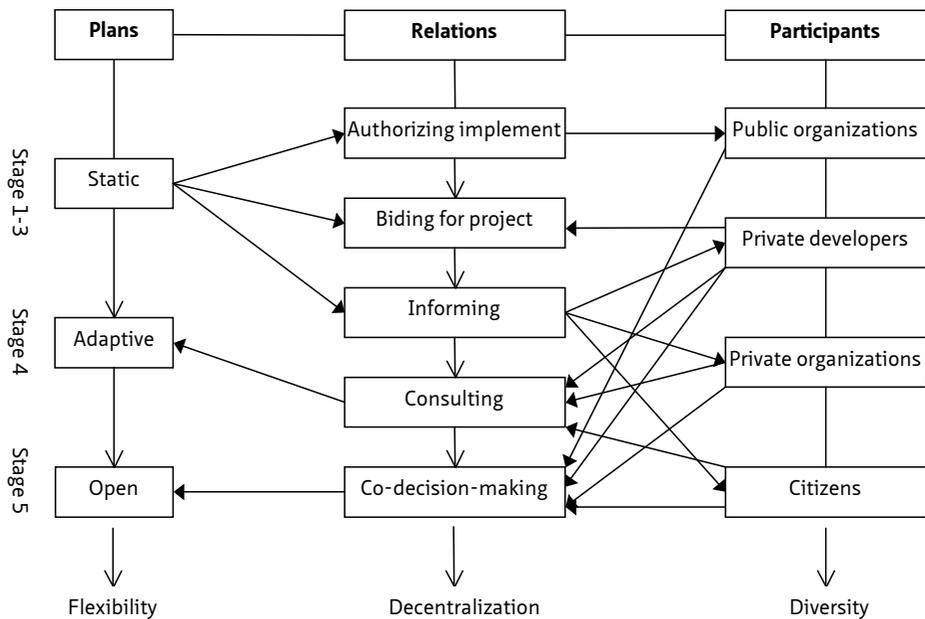
Figure 7.3
Evolution of planning process and product

The anticipated planning process and product is further elaborated (figure 7.3). So far, the most powerful tool at the hand of the authority is the control of land use. They can allocate land for development, and assign functions and programs to them (with the economic and social planning reflected in spatial terms to different extent). However, in order to realize the desirable system view of planning and development, this power needs to be more decentralized from top-down to bottom-up. The evolution process of power decentralization can be roughly divided into five stages (1) In the case of absolute control, the land use plan is prepared in detail by the authority, and only public organizations (or authorized private agents) are allowed to develop the land. (2) Mutual land development is one positive development option. The authority allocates land on the market according to its own agenda, and it allows private/public parties to bid for the project development rights. The program must still follow the plan. However, in the first two stages, information of the spatial plan is held back from the external parties. (3) Therefore, progress can be made through the (full or partial) opening of information to the general public. The official plans are shown to people through various media and exhibitions. However, this process of informing is a single-direction communication method. The planning process and products are still static because of the absence of real interactions.

(4) In the next stage, flexibility and adaptability in the physical plans, and dialogue with partners are emphasized. Plans of this kind consist of several alternative scenarios and trajectories. They evolve sequentially in phases. Public authorities organize public hearings in each phase, and they consult with various developers and interest groups for remarks and advice. This method already generates fruitful interactions, mainly between public and private groups. Suggestions and changes over time are able to be integrated into the plan. However, the key decisions of urban development, and the control of the process, are still mostly made by the authority. The interaction among participants from private sectors is still limited.

(5)The next stage introduces real participation and full interaction, where individuals and groups practice actual decision-making power in dynamic plan-making and urban development processes. An important premise is that the authority still finds its key role as facilitator of the process. The authority is required to have independent presumptions, preferences and reasoning, which must be derived from making a systematic analysis of the problems, setting up goals and alternative courses of actions, as in the previous stage. They are responsible for keeping participants well informed about the context, and presenting their expert opinions and plans as reference and inspiration. However, an open plan is to be used as a platform for interactive decision-making by the participants. Such a plan will contain a few main structural elements of the site that are relatively fixed (e.g. infrastructure and topographical features), as well as indicate planned major public projects (e.g. public transport, water green system or amenities). An important difference is that the land use and spatial composition of

the rest of the available land is open for discussion. They can be divided into relatively small cells (zones), with suggested possibilities of urban functions, and certain mandatory program requirements that are presumed to be good for the public. These requirements may include quantitative figures and qualitative descriptions, such as the ratio of mixed-use, social housing, public/green space, parking space, sunlight, and so forth, as well as code for visual diversity and desirable urban characteristics.

There are several ways to make the open plan definitive, and additional methods are still under development. For instance, face-to-face simulation (role playing) games can be organized, where representatives of interested parties have the freedom in choosing from a base map which land (a single cell or a combination of several), and what program (predefined modules), to develop and preserve. When an individual choice conflicts with the plan, or the decision is questioned by other parties, the problem should be solved through debates and negotiations. If several parties show the same interest in one project, then they need to compete for it. During this process, the planners play the role of mediator and consultant. It is also possible to use online simulation software as a platform. The advantage of the virtual tool is that the simultaneous attendance of all potential participants is not required, and incremental and gradual program infill can occur over time. It is also less time consuming and less intensive, but with the expense of no face-to-face communication. In addition, the participants have more time to study the situation, react to the consequences of other's actions, and contemplate their decisions. In any case, the authority has the right to evaluate the outcome, and propose adjustments. Participants who have confirmed propositions in the simulation process should sign contracts with the authority, and become partners in the urban development.

Finally, in the case of total anarchy, there is no government planning control of any kind. However, the radical self-organization of individuals over a long period of time is required. It is the opposite extreme of absolute authority control (stage1). However, it is outside the scope of the core discussion of this thesis.

§ 7.2.6 Spatial factors for urban vitality

As this research mainly falls in the field of spatial planning, several spatial factors crucial to urban vitality at different scale levels are concluded from theoretical and empirical studies. On the regional scale, new towns ought to position themselves in the system of cities in the (metropolitan) region, and to establish comparative advantages. Networking cities, especially the smaller and more mono-functional ones, inevitably depend more or less on the complementary functions of others. A more self-contained town requires the

development of characteristics and productive economic sectors, so as to maintain a good amount of activities within the city. Urban vitality fundamentally relies on economic vitality. The results of this research project suggest that both new towns take advantage of their strategic regional locations, strengthen regional connections, and proactively explore new growth sectors in association with eco-friendly and high-tech industries.

In terms of city form, the research finds the city-wide functional overlap, and the global street network supporting good communication, are the most important prerequisites for urban life. Space syntax analysis of the network, the mapping of urban functions, and the registration of human activity patterns show that the street life in areas with a higher concentration (i.e. separation) of functions, in addition to a tree-structure network, makes a bigger difference than those with a dispersed (especially street-spreading) distribution of programs with a well-connected, open grid. The grid pattern offers alternative route choices. It is this redundancy in connectivity that makes the system flexible and resilient, and enables programs to have more freedom of choice to settle and overlap. In any given city, residential land use has the largest proportion of land use specification. It is in fact the relatively limited resources of the economic, social-cultural and service activities associated with urban land use (including industries and business, public facilities, public spaces), that are the main attractors that determine the public urban life patterns. If they are predominantly concentrated in several planned centralities, for example, as depicted in the Central Place model, the majority of the living environments would be homogenous and quiet. However, if these spatial elements (especially micro-economic activities) are more ubiquitously dispersed along the main frames of the street networks, and integrated in the housing areas with proper density and compactness, street life would, on average, be livelier in the city. The results of this research suggest that spatial composition is a powerful tool in determining (suburban or urban) lifestyles. The two cases of this research represent two extremes of concentration and dispersion. However, the urban environment of a vital natural city is diversified. Therefore, a combination of "point-spread" patterns is suggested for new towns. The tuning of the pattern between the two poles would result in variations of the urban characteristics of specific sub-divided districts in a city.

The details on the small scale, and at eye-level, are equally important. They provide the qualities and opportunities to encourage social life in the public domain. Design strategies should aim at stimulating sensory communication between the space and people at the key interfaces, such as the streetscape and the edge defining public spaces. Studies show that an interface is interactive when it contains sufficient and well-defined information. It cannot be overly emphasized that the quantity and quality of spatial information influences people's cognition of orientation, visual and mental experience, and duration of stay in outdoor space. Elements, such as scales, shapes, volumes, colors, materials, symbols, patterns, ornaments, plantations, street furniture and more are useful variables to make aesthetically impressive spatial designs. They

are capable of drawing the attention of different types of people at different directions and distances. Legible urban landscape is able to provide people with clear and vivid mental images and memories, which not only make spaces meaningful places, but are also helpful in terms of way finding. Moreover, studies show that fractal structures (i.e. network consisting of short segments or a public space with intricate communication channels) and walkable circular loops are features that contribute to street activities. Hypothesis (4) gives different weights to the influence of spatial factors at the city and local scale on urban vitality. This statement is confirmed by the spatial studies of the two new towns. It has been concluded above that network configurations and the spatial distribution of urban functions determine the thru and to- movement of people in the city. If the street network, the carrier of flows, is designed in a way of prohibiting the co-presence of people, then the chances of the planned programs and public spaces being well used is largely reduced, no matter how fancy the detail designs are. In other words, the degree of convenience of traveling to the place (i.e. accessibility) is the foremost prerequisite of the vitality of that place. However, the fundamental basis for the vitality of a new town stems from its regional development perspective.

§ 7.2.7 Is new town a feasible model to be multiplied?

At the end of the thesis, the question of if the new town is a sound regionalization model by then and for now must be revisited. This research project demonstrates that the new town is a special product during the phase of a city's development that is characterized as having rapid urban and economic growth. Newly emergent economic activities, and a rapidly increasing urban population, require large-scale, new urban land. The government must determine if they should let the town grow spontaneously into a contiguous mega urban region, or if they should develop a planning intervention to control the town's sprawl. As shown in the literature study, the regionalization of North America in the twentieth century is an example of free market-driven, self-organized development, while the new town movement of Britain until the late 1970s is an example of structuralized growth through planning methods. As has been demonstrated, successful new towns and edge city's economic development is always a driving force for urban growth and vitality. The economic entities could be relocated industries from central city or burgeoning new industries. Right timing is an important factor for new towns to establish new economic foundations. As a society starts to transform into a post-industrial service economy, the time window for decentralizing productive activities out of the central city narrows down. However, even when the timing is correct, too many planned new towns compete among themselves and others for economic opportunities. Government funding seems to be a dissipating way of deploying resources, and is less likely to result in the maturity of strong new cities.

The difference between planning a new town and developing a new urban district within a city should be reflected. One of the benefits of the new town model is the green buffer zone that is reserved in-between urban agglomerations. This is beneficial for the ecological environment of the region. The new town has an independent administration. In addition, rational planning ensures efficient land development and a supply of public facilities. However, compared to the market-oriented incremental growth, one of the major disadvantages of large-scale planning and construction is the uncertainty of changing socio-economic and project conditions. The phenomenon that physical and socio-economic results of a developed master plan do not concur with the anticipated results often happens. Some new town's physical framework is built just as beautiful and comprehensive as planned, but they can still suffer from high vacancy rates and poor urban vitality. Moreover, new towns' ambition to be fully self-contained is clearly a difficult task. In many cases, new towns are not able to confine traffic flows in their territory. Rather, they incur more intensive regional communication. As indicated by the Central Place theory and location theories, cities and regions tend to form polycentric systems, where levels of activity are hierarchically distributed. New towns that serve as smaller nodes in the network are likely to receive small-scale or lower-rank economic and cultural programs. Many cases indicate that a considerable portion of a new town's population actually consists of middle to low income groups and immigrants. Other towns become pure middle class garden cities. In most cases, new towns are successful in the way they accommodate migrant populations from the nearby mother city or region. However, they are less successful in becoming an attractive and competitive counterpart. They eventually become supplementary satellite towns. The inevitable interdependent relation between new towns and their mother city or others in the system of cities in the region needs to be underlined.

Finally, the main suggestion for countries which are still developing new towns at the moment or in the future is to focus the top-down efforts on only a few potential cases, to make the right timing and take advantage of the current available opportunities, and invite diverse productive economic activities to settle and develop in the new towns. However, it would be infeasible to construct new towns in generous numbers. The concept of a garden city community and a new town should be distinguished. Towns can hardly be both at the same time, with regard to urbanity. The size and scale of the urbanized area makes a difference. The core quality of successful and vital new towns against homogeneous suburbanization lies in the diversity of job opportunities, living environments and recreational activities offered. In order to realize this condition, a strategy for regional positioning and economic consolidation must be the fundamental basis of the town's development plan. Physical planning and design on different scales is the best method to create functional spatial frameworks and additional spatial qualities. Moreover, the planning and development process is more important than the static planning product. Step-by-step incremental developments, with the involvement of diverse public and private partners and regular control and adjustment of the plan based on feedback, is recommended as an effective approach in reducing the risk of uncertainty of the large-scale and long-term planning endeavor.

Concise suggestions on future spatial development of Almere and Tongzhou

The Almere and Tongzhou case studies can be used to learn from each other, with regard to determining how different development methods, spatial characteristics and urban governance approaches influence the urban vitality of new towns. This comparative study shows that the strengths and weaknesses of the two new towns could complement each other. Tongzhou has developed in a market-oriented, multiple-agents manner. The new town has an open grid structure and a mixture of diversity in terms of social composition and living environments. Its urban vitality is especially reflected in the widely distributed small businesses and rich street life. However, the lack of regulations in the market and social considerations has resulted in inefficient land developments, as well as insufficient public provisions. Almere, on the other hand, is a paradigm of effective planning control and thoughtful integration of social aims into spatial plans. Innovations in neighborhood design are promoted. Its urban vitality is derived from quality social-cultural and commercial amenities, organized activities, as well as abundant and ubiquitous green/water space. However, the continued dominance of a few public organizations and the rigidness in planning and implementation has led to a singularity in suburban characterized living environments, where functions are separated, thru-traffic is restricted, and density is monotonously low. The problems of the two new towns need to be tackled from both spatial and managerial perspectives. Suggestions for the planning process and product in theory have been elaborated in the section above. Specific spatial-social recommendations for each new town are concisely summarized again.

In Almere, the urban vitality of the existing urban nodes can be improved by turning the isolated urban edges into multi-functional interfaces filled with urban life. Small-scale spatial interventions in the areas near the city center are considered to be the most desirable. Recommended design strategies include partially transforming the tree-like street network into a more connected grid, re-introducing urban streets in and between neighborhoods, facilitating the growth of ground-floor small businesses by using flexible building typologies, and infilling programs in the green space. The blocks in the vicinity of the city center are expected to be transformed into the "downtown" area of the new town, where a mixture of social groups (e.g. students, social starters, singles, urban dwellers, artists, elderly, short-term visitors, etc.) and activities generate a lively urban atmosphere. With regards to the new urban nodes, the main suggestion is still to break the patterns of spatial segregation and functional concentration. Almere-Pampus, where the new economic center of the new town is going to be located, could benefit from better connectivity with the surrounding areas. Otherwise, it is in danger of becoming

another self-centered urban island separated by green buffer zones. Attention is needed to prevent the planned office park from becoming a lifeless zone in the evening. Some office functions that are less co-dependent with others can be mixed into other places in the node.

After rapid market-driven real estate development in the last two decades, the new task for Tongzhou is to upgrade its facilities and public spaces to make the quality of life of the new town comparable to that of Beijing central city. In the current new phase, urban planning and development should avoid jumping from one extreme (market chaos) to another (rigid planning). As discussed above, experiments in innovative spatial planning and urban governance methods, from a systems view, is necessary, in order to involve real participation, balanced decision-making powers, and allow flexibility and adaptation of the plan. The over-use of spatial plans as a marketing tool should be avoided. The authority should be credible in implementing key public projects as planned, and establish good communication with the inhabitants. Currently, the new master plan tends to be too ambitious, by developing planned, multiple, large-scale, and comprehensive centralities and developments simultaneously. Incremental growth, regular monitoring of situation changes and constant adapting of the plan are methods to make plans operable. Furthermore, sustaining the planned high quality cultural, commercial, and other facilities requires equivalent consumption power and demand from the inhabitants. The new town needs to upgrade its social composition by attracting more middle to high income and highly-educated people, as it already has a considerable amount of middle to low income residents. In addition, the Beijing central government is outsourcing more low-income groups to the new town by assigning several large-scale social housing projects.

§ 7.4   **Recommendations for future research**

First, a comparative study process is adopted as the main research methodology for this research project. It can be further promoted and strengthened in a number of aspects. This dissertation develops in-depth analysis of two contrasting new towns in the Netherlands and China. A series of spatial factors and managerial strategies for urban vitality are identified. For the same research purpose, other characteristic new towns from countries of different cultural backgrounds and planning paradigms can be chosen as study cases, so that the list of factors can be expanded or consolidated. In this dissertation, the spatial organization of new towns at the local scale is compared with several traditional urban fabrics in historical (natural) cities. Enriching comparative studies in this direction in broader aspects and scale levels will be meaningful. The relation between top-down planning and bottom-up urbanism could

be further explored. Radical self-organization cases, such as urban villages, ghettos, and slums, could also be a useful resource to understand the underlying forces that aggregate urban vitality in new towns.

Second, based on the summarized factors and strategies, this dissertation began with a collection of neighborhood designs and typologies of well-used public spaces. It would be fruitful to continue to work on a design handbook on the subject of improving urban vitality by collecting and analyzing concrete spatial planning and urban design strategies and approaches. Inspiration is not limited to the planning and design of new towns; it can also come from urban regeneration and re-animation programs of deteriorated areas in natural cities. The planning strategies and design proposals suggested in this dissertation could also be tested in real planning and design projects.

Finally, urban density is in fact a particularly important underlying condition for urban life, which is not yet addressed sufficiently in this comparative study. This is because of the large disparity of lifestyle and culture in these two countries. The endless sprawl of low-density, green, pure and owner-occupied suburban development is spread throughout North America and Europe. Whilst in countries with much higher population densities like China, much of the urban landscape is dominated by multi-storage apartment buildings. However, since the 1990s, the emergence of a new wealthy class has triggered a rapid increase in villa community development. Suburban living seems to have become the "dream" lifestyle of many people in modern societies. However, several issues need to be addressed, including determining if the increasing enjoyment of individual residential pleasure suggests the end of urbanity and urban vitality, if traditional city forms are obsolete, and if future built environments are going to be dominated by the suburban "nation".

It is undeniable that suburban living is a justified way of life. People should have freedom in choosing their living environments and lifestyles, according to their disposition and needs in different phase of their lives. However, it is equally apparent that suburban settings compromise urban vitality productivity, when compared to traditional compact organizations. Characterized social activities do develop in the public spaces of the suburbs. In general, they are mostly concerned with children and a small group of neighbors living in the same street. However, the familiar bustling life between buildings found in the city, such as the streets filled with pedestrians and traffic, corner shops, vendors, cafe/restaurants, and diverse small shops, are absent. These conditions are difficult to stimulate in the suburb. Most urban life is confined to mega shopping malls and centers, which is centralized in certain points. Moreover, the wide-spread use of online social platforms also reduces the need of real face-to-face communication, to a certain extent.

The problems of new towns do not belong to only new towns; they are problems that affect suburban forms of urbanization as a whole. The predominant suburban life style is manifested by the enlargement of personal space as well as recreational green space, homogeneity in social class, individualism, quietness and more. In fact, the question of density, as well as other characteristics of suburban settings, are not only the question of spatial planning and design, but more importantly, of the social ideology and of how people choose to live with others in the society. In recent years, the development of villa communities has been forced to stop in many of China's big cities by the central government, because the government has come to realize that there must be a sustainable balance maintained between the agriculture land use and the built environment. Perhaps in the near future, the sprawl of suburban landscape will slow down also due to the residents' need for traditional urban vitality and social contact. In the author's opinion, these issues are going to be a perpetual research and design question for the contemporary society.

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Summary

Building new towns seems to be a rational regionalization approach that releases pressure from overly burdened large cities. This strategy was developed in Western Europe in the middle of twentieth century. Since the 1990s, the European new town model has been widely implemented in China. However, the author questions the feasibility of the large-scale, hasty new town developments. The study of worldwide new town experiences, especially European and Chinese cases, demonstrates that many new towns in fact have difficulty in achieving a real sense of urban quality and vitality. So far, few research projects have been conducted to evaluate and develop solutions for this problem.

The purpose of this research project is therefore to identify the spatial and non-spatial factors and conditions that facilitate the development of urban vitality in new towns. It is aimed to reveal the impacts of spatial design, urban planning and governance approaches on the degree and patterns of local urban life of new towns in China and in the Netherlands. The generated knowledge of this research project helps develop not only a better understanding of the main problems of new towns, but also spatial strategies with the aim to enliven new towns and other types of (sub)urban areas as well.

The central research question is approached through literature review and case studies. The literature review provides a critical re-evaluation of the scientific validation of the new town model, especially the notion of town self-containment in economic terms. The relevant theories under study mainly include regional science and economic geography. The literature review also clarifies the general definition of urban vitality and its distinct meanings in different socio-economic and political backgrounds of the two societies, sets up the quantitative measurements methodology, and identifies a preliminary framework of spatial factors and conditions. As it turns out, the key indicators of urban vitality are the co-presence of people as well as the social, cultural and economic activities in public spaces. The primary conditions are categorized as attractor-determinism, space-determinism and people-determinism. In regard to the spatial factors, the focus is on the spatial configuration of street networks, the composition of urban blocks and neighborhoods, as well as the value of details on small scales. The non-spatial factors primarily include the changing urban planning and governance approaches. The systems approach of planning and control, and the decentralization of decision-making powers are of particular importance to the topic.

Various urban vitality evaluation criteria are derived, and then applied and tested in the comparative case studies. The Dutch new town Almere and the Chinese new town Tongzhou are both important new towns in their regions. They are selected based on

their contrasting features as planned and market-driven, self-organized new towns, and the resultant differences in the level and character of their urban vitality. It is believed that their governments could gain inspiration from each other's experiences for the future development of the towns. The key analytical approach of the case studies is to overlap multiple layers of top-down socio-spatial analyses with the actual space use from the bottom-up field investigations. The spatial analysis focuses on finding relations between the distribution of the planned and unplanned socio-economic activities and the spatial configuration of different elements on different scales. Space syntax is adopted as one of the key analytical tools. The field study tasks include registering people's movement of flows through static snapshots method, the mapping of self-organized small-businesses, activities and space appropriations, and conducting interviews and surveys of city officials, local people and shop owners.

The results of the comparative case studies show that there is a strong correlation between space and the socio-economic life in new towns. As a market-driven, spontaneous new town, streets are the key places for socio-economic activities in Tongzhou. An essential spatial condition stimulating dynamic street life is found to be the open grid network structure with the mixture of diverse commercial, cultural and public programs widely dispersed on street frontages. The proliferation of ground-floor small businesses at the perimeters of neighborhoods in Tongzhou constitutes a big part of the street life, especially for the areas near public transport stations. As a top-down planned town, Almere excels at effective planning control and responsible social considerations, which benefits the long-term well-being of the city. Good urban governance is reflected not only in the public provisions and city marketing, but more importantly, in the quality of the public services and the available opportunities of citizen participation. For example, adaptable architectural design and bottom-up community planning implemented in Almere has positive impacts on animating local and perspective inhabitants, hence increasing urban vitality in another dimension. Interestingly, many of the home-based small businesses in Almere thrive by virtue of internet platform, despite that the effect is subtle in terms of bringing street activities. Both new towns need to further develop and experiment with new approaches of urban planning. Such new approaches are intended to be capable of creating a framework for a dynamic system to grow, balancing the planned and unplanned elements, involving a diversity of interested parties in the development process, being adaptive to changes over time, and emphasizing the quality of life for their citizens.
Finally, the empirical and theoretical study findings are compared to each other. It results in a refined definition of urban vitality, which is synthesized into the place-people-program triangle diagram, an enriched list of the favorable spatial conditions that are required to generate a sense of urban vitality, as well as a clear proposal for an upgraded urban planning and governance approach that is open to the complexity and uncertainty of contemporary societies.

Samenvatting

Het bouwen van nieuwe steden lijkt als regiogeoriënteerde strategie een logische keus om de druk te verlichten op grote steden die uit hun voegen barsten. Deze strategie voor nieuwe steden, die halverwege de 20e eeuw in West-Europa werd ontwikkeld, heeft sinds de jaren '90 ook in China brede ingang gevonden. De auteur zet echter vraagtekens bij zo'n snelle en grootschalige ontwikkeling van nieuwe steden. Uit onderzoek naar ervaringen met nieuwe steden overal ter wereld, met name in Europa en China, blijkt dat het in veel nieuwe steden moeilijk is om de beoogde echte stedelijke kwaliteit en vitaliteit te realiseren. Tot op heden zijn er nog maar weinig onderzoeksprojecten uitgevoerd waarin de evaluatie en aanpak van dit probleem centraal stonden.

Dit onderzoek is dan ook bedoeld om vast te stellen welke ruimtelijke en niet-ruimtelijke factoren en omstandigheden de stedelijke vitaliteit in de nieuwe steden bevorderen. Doel is het in kaart brengen van de gevolgen van ruimtelijke ontwikkeling, stadsplanning en bestuurlijk beleid voor het niveau en de patronen van het stadsleven in nieuwe steden in China en Nederland. De kennis die dit onderzoek oplevert, zal niet alleen bijdragen tot een beter inzicht in de belangrijkste problemen van de nieuwe steden, maar ook tot de ontwikkeling van strategieën op het gebied van ruimtelijke ordening voor het verlevendigen van nieuwe steden en andere typen (voor)stedelijke gebieden.

De centrale onderzoeksvraag wordt ter hand genomen door middel van literatuuronderzoek en casestudy's. Literatuuronderzoek geeft een kritische herbeoordeling van de wetenschappelijke rechtvaardiging voor het nieuwe stedelijke model, met name het concept van economische zelfverzorging. De relevante theorieën die in de studie zijn betrokken komen hoofdzakelijk voort uit de regional science en de economische geografie. Het literatuuronderzoek verschaft voorts duidelijkheid over de definitie van het begrip stedelijke vitaliteit, het definieert de methodiek voor kwantitatieve metingen en biedt een voorlopig kader voor ruimtelijke factoren en voorwaarden. De belangrijkste indicatoren voor stedelijke vitaliteit blijken de medeaanwezigheid van mensen en de sociale, culturele en economische activiteiten in publieke ruimten. De primaire voorwaarden worden gecategoriseerd als as attractor-determinisme, ruimte-determinisme en mens-determinisme. Wat betreft de ruimtelijke factoren ligt de nadruk op de ruimtelijke configuratie van netwerken van straten, de samenstelling van woonblokken en wijken in steden, en het belang van kleinschalige details. De niet-ruimtelijke factoren betreffen hoofdzakelijk de veranderingen op het gebied van stadsplanning en bestuur. Van bijzonder belang voor dit thema zijn de stelselmatige benadering van planning en toezicht en de decentralisatie van besluitvormende instanties.

Diverse beoordelingscriteria voor stedelijke vitaliteit worden afgeleid en vervolgens toegepast en getest in vergelijkende casestudy's. De nieuwe stad Almere in Nederland en de nieuwe stad Tongzhou in China zijn binnen hun regio belangrijke nieuwe steden. Deze geplande en marktgestuurde, autonome nieuwe steden zijn geselecteerd op basis van hun contrasterende kenmerken en de daaruit voortvloeiende verschillen in niveau en aard van de stedelijke vitaliteit. We denken dat de stadsbesturen wederzijds inspiratie kunnen opdoen uit ervaringen voor de toekomstige ontwikkeling van hun stad. De belangrijkste analytische benadering van de casestudy's bestaat eruit dat we meerdere lagen van top-down sociaal-ruimtelijke analyses hebben afgezet tegen gegevens over het feitelijke grondgebruik die zijn verkregen via bottom-up veldonderzoek. Bij de ruimtelijke analyse ligt de nadruk op het bepalen van relaties tussen de verdeling van geplande en niet-geplande sociaaleconomische activiteiten, en de ruimtelijke configuratie van verschillende elementen op verschillende schaalniveaus. De 'ruimtesyntaxis' (space syntax) fungeert daarbij als een van de belangrijkste analytische instrumenten. Tot de taken van het veldonderzoek behoren de registratie van de bewegingen van mensenstromen door middel van statische momentopnamen, het inventariseren van door mensen zelf opgezette kleine bedrijfjes en van de mate van benutting van activiteiten en ruimte, en het houden van interviews en enquêtes onder gemeenteambtenaren, de plaatselijke bevolking en winkeleigenaars.

De resultaten van de vergelijkende casestudy's laten een sterke correlatie zien tussen de ruimte en het sociaaleconomische leven in de nieuwe steden. In een autonome stad als Tongzhou vormen straten de belangrijkste locatie voor sociaaleconomische activiteiten. Een essentiële ruimtelijke voorwaarde om een dynamisch straatleven te bevorderen blijkt de open rasterstructuur van de stad, met de mengeling van diverse commerciële, culturele en publieke programma's die her en der langs de straten plaatsvindt. De snelle opkomst van kleine bedrijfjes op straatniveau langs de rand van de wijken in Tongzhou speelt een dominante rol in het straatleven, met name dicht bij stations en haltes van het openbaar vervoer. Almere, een top-down geplande stad, munt uit in effectieve gereguleerde planning en een sterk maatschappelijk verantwoordelijkheidsbesef, wat het welzijn van de stad op lange termijn ten goede komt. De degelijkheid van het stadsbestuur blijkt niet alleen uit de stedelijke voorzieningen en het stedelijk marketingbeleid, maar vooral ook uit de kwaliteit van de openbare diensten en de beschikbare mogelijkheden voor burgerparticipatie. Zo hadden de flexibiliteit in architectuurontwerp en de bottom-up gestuurde gemeenschapsplanning zoals die in Almere zijn geïmplementeerd, een positief effect op het betrekken van lokale en potentiële bewoners bij het stadsleven. Daardoor wordt de stedelijke vitaliteit ook op een ander niveau bevorderd. Interessant daarbij is dat veel van de van huis uit werkende kleine bedrijven gedijen dankzij het internetplatform, wat echter weinig bijdraagt aan de ontwikkeling van straatactiviteiten. Beide nieuwe steden moeten zich verder ontwikkelen en experimenteren met nieuwe strategieën op

het gebied van stadsplanning. Dergelijke nieuwe strategieën zullen de voorwaarden moeten scheppen voor een kader dat een dynamisch groeigericht systeem ondersteunt, met een juist evenwicht tussen geplande en niet-geplande elementen. Bij de ontwikkeling van deze strategieën moeten uiteenlopende belanghebbende partijen worden betrokken, waarbij ook op verandering moet kunnen worden ingespeeld. Het accent dient te liggen op de kwaliteit van leven voor de bewoners van de stad.

Ten slotte vindt vergelijking plaats tussen de empirische en theoretische onderzoeksbevindingen, wat resulteert in een verfijnde definitie van stedelijke vitaliteit. Deze is vertaald naar het driehoeksdiagram plaats-mens-programma, een aangevulde lijst met gunstige ruimtelijke voorwaarden voor het creëren van een gevoel van stedelijke vitaliteit, en een helder voorstel voor verbetering van de stadsplanning en voor een bestuurlijke benadering met oog voor de complexiteit en onzekerheden van de hedendaagse maatschappij.

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Curriculum Vitae

Jing Zhou

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Jing Zhou (born in Beijing, 1980) studied architecture and urban planning in Tianjin unviersity, China. In 2004, she came to the Netherlands and followed the Urbanism master program in the faculty of Architecture in TU Delft. After graduated as Cum Laude on the subject of sustainable urban renewal, she becomes a Ph.D. researcher, jointly funded by the chair of urban design in TU Delft and the International New Town Institute (INTI) in Almere. Her research project is about comparative study of Chinese and Western new towns, with special focus on the development of urban vitality. She also actively participates in the teaching and organizing of the master design studio in Delft.