Gated Community in Suburban Beijing: relation between spatial-functional structure and urbanity

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P2 Thesis plan

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Introduction

Gated communities are recognized as a global phenomenon. During a long period of urban development, gated community becomes the most widespread Chinese residential type. And a large number of Chinese urban residents are living in gated community. However, gated communities are quite isolated from spatial and social point of view. It is usually surrounded by fast motor vehicle lanes, therefore lack of social connection with surrounding areas (Xu & Yang, 2010). And due to the few connection, the streets out of gated communities are always ‘empty’, lack of good quality of public life and public space (M. Xu, 2009).

Many of researches have focused on motivation of gated community (Blakely & Snyder, 1997; Huang, 2006; Pow, 2010; Wu, 2010), the developing process of gated community (Min & Yang, 2008; Zhou, 1996), the main features of gated community (Bin, 2009; Huang, 2005; T. Xu, Song, Fang, & Zhang, 2009), and usage condition of gated community (Dan, Werner, & Hong, 2008; Lu, 2006; Miao, 2003a; M. Xu, 2009). And they also explained these issues from historical, economic, social, geographic, cultural, and political point of view.

Nevertheless, instead of concentrating on explaining motivation and characters of gated community, this research try to figure out ‘how does the formation of gated community influence public life’ and ‘what can we do in the future’. However, only a few research, which concerns about gated community in China, mentions about public life and possible interventions.

As a result, this research is trying to understand 1. spatial-functional structure of gated community in Beijing, 2. how does gated community interact with public life, 3. possible intervention patterns based on the established gated community.

And by answering the questions, this research aims to make contributions on four aspects. Firstly, fill in the academic gap of the relation of the Chinese gated community and the public space they are related to. Secondly, identify the meaning of Chinese public life in residential area. Thirdly, generalize crucial principle of which spatial transformation of gated community benefit public life. Lastly, use design interventions or possible patterns (based on the established gated community) to guide urban renewal in the future.
Problem analysis

This part showcases the context of Beijing in relation to gated community. Hukou system helps to understand the difference between urban residents and rural immigration. Then, explaining the time costs of people in Beijing. Furthermore, by referring to a survey of Sina, illustrates the preference of housing buyers. And last, the comparison between salary and housing price demonstrates economic issue (burden) of urban residents. Therefore, to understand gated community and its residents from political and economic point of view. And then, in terms of history and culture, this part demonstrates the development of gated structure in China.

Hukou system

Hukou system divides the population into one with urban hukou and one with rural hukou mainly based on birthplace, and one with permanent and temporary hukou based on the place of registration. Only residents with urban and permanent hukou in cities are qualified for public housing provided by work-units and municipal housing bureaus. While the others, including rural residents in suburbs and migrants workers with rural or temporary hukou, can only live in temporary shelters(Huang, 2005). In addition to physical separation between migrants and urban residents, psychologically there is a certain degree of fear and avoidance between them as migrants are afraid of mistreatment by urban residents, and urban residents attribute high crime rates to migrants(Min & Yang, 2008).

Traffic jam and commuter

Till 2014, based on the data of National Bureau of Statistics of China, Beijing now has more than 21 million of people and over half of them live outside of 5th Ring Road. And Beijing has more than 5 million automobiles in total. Three million of automobiles are for private used. Although the government introduced policies to restrict the purchase and use of private cars, there is still heavy traffic jam in Beijing. Based on data of ‘Chinanews’, the distance between work place and house for people who live in Beijing is 19.2 kilometers in average, and commuters need to speed 52 minutes on their way home or work place in average. And (T. Xu et al., 2009) believes that most of the people, who are living in suburban Beijing, are not able to change their work place or change their job. Consequently, they hardly have leisure time.

Preference of housing buyer

For primary school and middle school student in China, they are compulsory to study in the school that nearest to their home. Therefore, for the community nearby a school with good quality and educational resources, the price of the community will become even higher.

Moreover, a survey, conducted by ‘Sina’, after investigating more than 7000 residents of Beijing, claims that most of them think education resource is the most important issue when they buy a house. In addition, most of them will buy a new house in order to gain better educational resource for their children as long as they have enough money.

Incomes and housing price

With the development of a housing market, income is becoming a main factor determining where households can live. In 2014, the salary of people who live in Beijing in total is 43910 yuan. And based on data of baidu, the price of housing at around 5th Ring Road is over 30000 yuan per square meter. Therefore, for people who work in Beijing, even the house at around 5th Ring Road, where the transportation is very inconvenient, the price of housing is quite high.

The area in-between 5th Ring Road and border of grey area briefly can be regarded as suburb of Beijing. The (dark and light) green area can be regarded as outskirt of Beijing.

Compared to central Beijing (where the housing price is always more than 50000 yuan per square meter), the housing price on suburban Beijing is relatively affordable. Because the buyers can apply for bank loan or gain financial support from their families.

Conclusion

Due to the fast urban sprawl during last decades,
plenty of areas have been built up in suburban Beijing, including many gated communities. However, the facilities and amenities in gated community of suburban Beijing are insufficient from qualitative and quantitative point of view (Hui, Xiaofan, & Jiang, 2011). Because educational resource and housing price play dominant roles when people need to purchase a new house. In fact, they do not pay much attention on quality of public space or public life there, as well as the developers. Meanwhile, commuters in suburban Beijing need to spend plenty of time on their way home and work place every day.

Therefore, the public space of gated community cannot be well-designed and many residents who live in suburban gated community do not have much time for public activity. As a result, this project aims to enhance quality of public life there.

Gated structure has been existing in China for over 1000 years. In order to understand how it evolved and influence public life, it is good to look back into history.

**City as military center**

At Tang (600AD-900AD) and its previous dynasty, cities usually functioned as military centers. In order to rule and dominate the people better and easier there, the government enacted regulations to restrict behavior and activity of local residents. Fang shi regulation was the most typical one. Fang, as a basic unit of cities at Tang dynasty, constitutes the city at Tang dynasty. Shi means the place where people exchange their goods. Inside a city, all the people lived in a certain fang. Fang was enclosed by walls and the entrance of fang opened at certain time in the morning and close at certain time in the evening. Fang shi regulation clearly defined residential area and commercial area and divided them into two separate spatial areas. People at that moment rarely have any public activities or public life, the streets there are mainly functions as infrastructure (Liu, Zhou, & Chen, 2007). Citizens were not allowed to do any activity at night. Meanwhile, the regulation controlled the schedule and site of good-exchange.

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1. Masterplan of Chang’an

2. Structure of Fang

3. Structure of Fang

4. Residential unit of Fang

resource: http://d.g.wanfangdata.com/resource: http://ms.hujiang.com/menu/

resource: (Xu, 2009)
City as downtown

Song is considered the peak of Chinese ancient civilization and the beginning of Chinese modern history. Previously, the so-called city was only a military fortress with political function. However, from Song dynasty, the symbol of city was no longer the city wall nor the splendid palace, but downtown. The collapse of fang shi regulation resulted in the openness and a more flexible commercial layout of the city. The Song court formally ordered to allow merchant set up their shop as long as they pay tax. More and more houses functioned both as residence and as commercial shops, including theater, restaurant, snack bar, and market (Song, 2003).

With the increasing amount of commercial shops, streets were considerably occupied by stalls and facilities (Zhu, Pan, & Zhu, 2013). For example, during their daily life, citizens liked to go to restaurants with their friends or enjoy an opera in theater (R. Li, 2005). Consequently, plenty of activities occurred on streets and public life constitute a livable landscape there.

Comparison of urban form between Tang and Song dynasty

Although there were several dynasties between Song and contemporary China, the fundamental spatial structure of the cities and the functions of street basically remained the same. However, when People Republic of China was founded, a new residential type, Danwei (work-unit), emerged. Danwei is regarded as prototype of some gated communities in modern China, and it strengthen the identity and recognition of gated community from psychological and cultural point of view.

In China, till the end of the 1990s, housing in Chinese cities has been mainly provided by Danwei (work-units) and local governments (Hui, Xiaofan, & Jiang, 2011). Danwei (work-units) usually means urban enterprises, government, public agencies and other working unit. From spatial point of view, Danwei has enclosed space and integrity by the walls, and then organize working, living, and other welfare facilities internally, including dining hall, supermarket, and cultural center (Qiao, 2004). To some extent, Danwei compound constitutes a large part of contemporary Beijing (Zhang, Chai, & Zhou, 2009).

Danwei (work-unit) compound is quite self-sufficient and exclusive (Huang, 2005), it limits public life to a heavy extent. No matter inside or outside of Danwei compound, public life rarely happens. Inside the compound, people share the same work place and residential building. And usually it is hardly to have any facility for them to have a rest. They do not need it, either. Therefore, residents are not willing to stay outside unless necessary (T. Li & Chen, 2007). Outside the compound, the wall usually forms a very simple and boring linear public space, and not welcome any out-comer (Qiao, 2004).
Typical layout of Chinese gated community

This is a gated community which was constructed in 2009. From the layout, it is obvious that the community is quite isolated and surrounded by roads, and the entrance of community is quite limited as well.

Based on 'Residential area security system General technical requirements' (national regulation), the new developed residential neighborhood are compulsory to have fences of walls outside.

And based on certain relevant regulations of Beijing, the greenery area is supposed to occupy at least 30% in a residential block. In fact, in many gate communities, percentage of greenery are can be more 50%-60%.

The poster of gated community nowadays only demonstrates 'beautiful landscape' and 'splendid buildings'. However, the space and life at eye-level are completely ignored.

Building layers of Chinese gated community

To some extent, the higher the building, the more interest can developer gain. However, there are still many limitations. On one hand, elevator and safety exit will occupy many spaces inside a building. On the other, the level of fire-proof building differentiates the cost of building a lot. Therefore, 18-layer building becomes one of the most popular type in Chinese gated communities nowadays.

<table>
<thead>
<tr>
<th>Layer Range</th>
<th>Min Elevator</th>
<th>Max Height for Fire Truck</th>
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<tbody>
<tr>
<td>6 layers</td>
<td>At least one elevator</td>
<td></td>
</tr>
<tr>
<td>7-11 layers</td>
<td>At least one elevator and one safety exit</td>
<td></td>
</tr>
<tr>
<td>12-18 layers</td>
<td>At least two fire-proof elevators and two smog-proof stairs</td>
<td></td>
</tr>
<tr>
<td>19-33 layers</td>
<td>At least two fire-proof elevators and two smog-proof stairs</td>
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Compulsory fence or wall

Greenery percentage in gated community

<table>
<thead>
<tr>
<th>30%</th>
<th>30%</th>
<th>40%</th>
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Poster resource: http://www.nipic.com/show/2/89/4014400k7001d07a.html

Poster resource: http://www.adcas.cn/%E5%8E%A6%E9%97%A8
Diagram of comparison

Tang dynasty
Most of public life take place inside commercial blocks
Street mainly functions for people to pass through

Song dynasty
Public life and public space are everywhere
Public and private interact

1980's
Public life and public space only exist in certain area
Public and private lack of connection

Now
Public life and public space mainly exist on the border of gated community
Tang dynasty

Inside the city Chang’an (capital of Tang), there are only two commercial blocks in total. The street only functions as road. And the public life mainly occurs inside those two blocks. The city can be regarded as military center, lack of public space and public life rarely take place.

Song dynasty

From Song dynasty, city becomes much more prosperous. Different types of shops and facilities emerge along the streets, including restaurants, theaters, temples, and gardens. And public activities happen on many streets. The quality of public life is quite high.

Conclusion

Actually gated structure community constantly exists from ancient time China until now. During this process, the area of community becomes large and the height of building becomes higher, but the quality of surrounding public life does not really improve. Nowadays, the function inside gated community is quite simple and the structure is exclusive, therefore, it limits the quality of public space and potential of public life.
Problem statement

Since a considerable number of gated community has already been established, focusing on its impact to public life and public space are more practical than explaining how it emerged.

As is mentioned above, when most of the citizens mainly concern housing price, location, accessibility, educational resource, and amenity, public space and public life are always ignored. In fact, without the ‘splendid’ huge buildings, the landscape of many gated communities looks quite simple and raw. Because the developers want to maximize their benefits, therefore they are not willing to invest on facilities and amenities too much. As a result, gated communities always has simple greenery inside and boring sidewalk with trees outside. And it usually has two typical characteristics: exclusiveness and simple function.

Gated community result in exclusiveness between inside and outside spatially and psychologically. It limits the entrances of community, and only allows local residents to enter in. Gated community can be regarded as a isolated island, it can hardly have link with surrounding areas(Xu & Yang, 2010). In addition to physical separation, psychologically there is a certain degree of fear and avoidance between migrants and residents, as migrants are afraid of mistreatment by urban residents, and urban residents attribute high crime rates to migrants(M. Xu & Yang, 2008).

The function of Chinese gated community is residential-dominates. Usually, only a few commercial shops distribute on the border of gated community. In other words, only a few ‘attractors’ may exist on ground level. As a result, it decrease the potential for people to communicate with each other.

It is obvious that the spatial-functional structure of gated community reduces the possibility of interaction and communication. It lacks of urbanity, Urbanity, as well as vitality and liveliness, demonstrate the meaning of capacity or possibility of certain number of people communicate or interact with each other and have plenty of activities or various of public life with positive connotation(Gehl, 2010; Jacobs, 1961; Lozano, 1990; Pont & HAUPTE, 2009). Both Lynch (1984) and Jacobs (1961) pointed out the importance of vitality, and they regarded it as one of the essence of city. And Jacobs (1961) argues that

‘Dull, inert cities, it is true, do contain the seeds of their own destruction and little else. But lively, diverse, intense cities contain the seeds of their own regeneration, with energy enough to carry over for problems and needs outside themselves.’

In addition, Jacobs (1993) believes streets should offer spaces for outdoor activities and outdoor stay, because urban residents cannot always have private garden or park next to their house. And Gehl (1971) argues that opportunities for meeting and daily activities in the public spaces of a city or a residential area enable one to be among, to see, and to hear others, to experience other people functioning in various situations.

Therefore, as gated community in China lacks of urbanity, it is quite crucial to tackle this problem.

Research question

Gated community in now almost everywhere in China(Wang & Xu, 2013). Since it is not only a historical and cultural symbol to Chinese, but its development model can balance the benefits among residents, developers, and government(Min & Yang, 2008). However, as the design process lack of attention to physical environment, gated community leads to segregation of spaces, ambiguous space’s border, and low quality of public space(M. Xu & Yang, 2010). As a result, the quality and quantity of public life sharply decline. However, Jacobs (1993) claims streets should offer spaces for outdoor activities as well as outdoor stay. And Gehl (1971) argues that opportunities for meeting and daily activities in the public spaces of a city or a residential area can benefit people a lot. Therefore, it is crucial to enhance the existing condition.

Based on the above statement, the main question of this research is:

How does formation(morphology) of gated community influence public life in suburban Beijing? Which spatial interventions can enhance the quality of public life?

The question concerns about one of the fundamental issue of gated community – spatial-functional structure, and try to understand how do people live there and use public space. And based on the main question above, the research also answer the sub-questions below:

1. **What kind of typology does gated community have in suburban Beijing?** What are spatial and functional characteristics of those type?
2. **What are principles of good public life in residential area of Beijing?**
3. **Which kind of spatial interventions can be used to benefit public life in Beijing?**

By categorizing gated community into various types, the characteristics of gated community can be summarized clearly. It can not only help to realize the condition of different gated community, but establish fundamental framework and facilitate further relevant research upside-down. In contrast, figuring out principles of good public life can provide a bottom-up perspective to comprehend the needs of local residents. By comparing the principles to public life of gated community at present, the difference can be defined. And combining the difference with characteristics of gated community lead to the answer of main question. Afterwards, based on each type of gated community, use principles of public life as visions, proposing guideline of possible interventions. And then summarize the guidelines as pattern language. Thus, it examine the physical condition of gated community as eye-level and come up with basic principles for further research and design.
Methodology

Aim: Enhancing urbanity of gated community in suburban Beijing

Problem Analysis

Problem Statement

Research Question

Gated Community

Location

Central

Suburban

Isolated

Connected

Urbanity

Density

Border

Public realm

Sample

Case study

Strategy 1

Strategy 2

Design intervention

Design intervention

Evaluation

Evaluation

Literature research

Literature research helps to establish and support the structure of this thesis from several aspects. First, literature researches contribute to understand context of the theme. For instance, it can be found that gated structure is quite universal and typical in China, since it has already existed for more than 1000 years (Xu, 2009). And now gated community becomes almost the only residential pattern in China (Min & Yang, 2008). Second, keywords need to be defined by literature researching. In order to clearly demonstrate framework of this thesis, the keywords - suburban gated community and urbanity, need to be defined systematically. And literature research can give academic support to tackle the keywords. In order to better understand and summarize the characteristic of gated community, it is necessary to categorize them into various types. It can not only contribute to distinguish the feature of different gated community, but also helps to pinpoint framework and direction of further study in future. Basically, gated community can be distinguished in terms of their location (on urban scale) and connectivity with surrounding area (on local scale). Furthermore, urbanity can be divided from several aspects, including density (Jacobs, 1961; Pont & HAUPP, 2009), border (GLASER, HOFF, KARSSENBERG, LAVEN, & TEEFFELEN, 2012; Trancik, 1986), and quality of public realm (Gehl, 1971; GLASER, HOFF, KARSSENBERG, LAVEN, & TEEFFELEN, 2012; Jacobs, 1993).

Third, literature research offers many principles to strategy and design interventions. For instance, Alexander, Ishikawa, & Silverstein (1977) proposed many interventions for various conditions.

Comparative study and Case study

Comparative study can provides reliable data for analysis, it describes and explains principles of research objects, and provides guidance for further development (Moudon, 1998). Thus, making comparison can not only help to understand condition of site area, but offer good reference for further design intervention. For instance, this thesis will use Hutong area as a reference to make comparisons with site area in terms of several aspects, including density, border, and etc. By making comparisons, it helps to realise how spatial-functional structure influence urbanity performance from several aspects. And it demonstrates the layout of good examples which can be referred to. In addition, case study can inspire design proposals. For instance, based on the data of 'Strava Global Heatmap', people who live in Beijing are more likely to take a walk and running along riverbank or inside large park. Therefore, it can be found that at least riverbank area which next to gated community can be designed as a space for walking and running.

Observation and Interview

The environmental condition can be differ in certain area. It is very important to know what is happening in the real world. Observation provides the most direct information of certain area. On one hand, observation gives first impression of certain area. On the other, it can contribute to the analytical part. For instance, the observation (of street view) helps to evaluate quality of public realm. And the distinction of different types of gated community in terms of border based on observation as well. Besides, interviewing helps to realise the preference of local residents. It is quite crucial since the proposal and design intervention are for the local residents. By doing that, one can understand which kind of life or activities do they want. And this can be one of the purposes of strategy and design.

Mapping

Mapping helps to demonstrate data and information in a spatial approach. For instance, on urban level, the distribution of different types of gated communities will be illustrated by mapping. And on local level, the quality of public realm in site area can be showcased via mapping as well. The mapping can offer a brief performance of different area and give a general idea of which area need to be enhanced more. Moreover, when using space syntax to analyze connectivity and accessibility of site area, the result will be demonstrated by mapping.
Currently theoretical framework includes brief definition of ‘gated community and its spatial-functional structure’, ‘border between public and private’ and ‘public life and urbanity’. And literature review focuses on gated community, including typology of gated community, causes of gated community’s spatial-functional structure, lifestyle of gated community’s residents, and principles of gated community design.

In addition to the theoretical framework at present, the meaning of public life and urbanity in Beijing, as well as the border of gated community, can be further defined.

Gated community
A gated community (or walled community) is a form of residential community or housing estate containing strictly controlled entrances for pedestrians, bicycles, and automobiles, and often characterized by a closed-pair-meter of walls and fences. Gated communities usually consist of small residential streets and include shared amenities. Besides residential function, there are many other auxiliary functions nearby gated community area. For instance, supermarket, private-owned stall, restaurant, kindergarten, gym, and pharmacy(Dan et al., 2008).

Suburban Beijing
Based on the data of ‘National Bureau of Statistics of China’, people who live in Beijing need to spend 52 minutes from their home to work place in average. In order to choose typical samples, this research uses gated communities in ‘suburban Beijing’ locate in-between 5th Ring Road and 6th Ring Road of Beijing.

Urbanity
Lozano (1990) describes urbanity can be defined as the potential capacity of the inhabitants of a town or city to interact with a sizable number of people. Pont & HAUPT (2009) claim that the notion of urbanity is a very elastic, therefore, urbanity might be suitable to large gatherings of people, composed of emancipated individuals and it has in its present use a positive connotation. In this thesis, urbanity will be divided into several aspects.

First, density. Jacobs(1961) demonstrates the importance of density that ‘the district must have a sufficiently dense concentration of people, for whatever purpose they may be there’. It is obvious that density of people offers the most fundamental element to enhance urbanity. Without certain number of people, enhancing urbanity becomes impossible.

Second, border. Border is the place where things will happen. It is the place which influences experience and attractiveness of residential area quite a lot(GLASER, HOFF, KARSENSENN, LAVEN, & TEEFFEL, 2012). Gated communities usually have clear boundary. And here the border means the place where facade meets ground, landscape meets building.

Third, quality of public realm. Gehl (1971) believed that public activities happen at the place with good quality of physical environment and favorable conditions in terms of psychological and social aspects. And GLASER et al.(2012) argued that urbanites experience their cities in what we call the ‘public realm’ and it has a broader meaning than just ‘public space’; it includes facades of buildings and everything that can be seen at eye level.

What needs to be mentioned is that although ‘border’ and ‘quality of public realm’ may overlap a little bit, they have different focus and can complement each other. There are many types of spaces which are used by public. However, they need to be analyzed from different approach. For instance, park is a kind of space where people are encouraged to stay inside. A park itself is an ‘attractor’. But commercial street is a kind of space that link the shops (attractors). Therefore, border of gated community is so crucial that need to be analyzed individual. In other words, both of them involve quality issues and quantity issues, but ‘border’ is more focus on network and connectivity, and ‘quality of public realm’ is more focus on quality of spaces.

In China, due to the prosperous of housing market, a large amount of gated community were built up on suburban area of cities. Yixing (1996) attributes emerging of suburban community to three aspects: the construction of road, a large amount of old dilapidated houses, and lower price of land on suburban area (due to land reform). Moreover, the discourse of developers also plays an important role in housing market. Wu (2010) finds that developers constantly emphasize that their suburban residential development is new and can provide a good life for their customers. And Pow (2010) suburban upper-market housing is being represented as Chinese dream home.

When the suburban became the characteristic of many gated community, a new lifestyle came out. Duncan (1956) points out that residents who live in suburban communities need to spend a large amount of time to their work place every day. He believes that incomes of citizen plays an important role of work-residence separation. For example, based on his data, the work-residence separation in CBD (Central Business District) is still smaller than other suburban areas. Huang (2005) argues that only the wealthiest people can afford single-family houses in beautiful suburbs and upscale apartments in well-serviced downtown, while low-medium income households have to live in affordable gated community that are often constructed in less convenient suburbs for cheap land. Based on Bin (2009)’s study, in Beijing, the residential area and work place are clearly separated, and the function of large residential area is very simple. Meanwhile, Tao, Jiping, Linna, & Ning (2009) believe that most of the residents, who move to suburban area due to housing price, are not able to change their work place by themselves. However, the suburbanization of residence in Beijing is much more than the suburbanization of employment. As a result, plenty of people sacrifice their leisure time to have sufficient commute time.

As is mentioned before, there are more than 21 million of people who live in Beijing, but there are only less than 3 million of private cars. Therefore, it can be found that most of commuters who live in Beijing need to use public transportation tools (bus, metro), since the tax is not very affordable. And people who live in Beijing need to spend about 1 hour from their home to their work place in average and vice versa. Therefore, to roughly define suburban area of Beijing, by using Google Map (appendix 1), choose the center of Beijing (Tianmen square) as the starting point, defining the points that are one and a half hour to the center of Beijing by public transportation tools (bus, metro), and then linking those point. Outside the area will be defined as suburban area of Beijing. This area is mainly in-between 5th Ring Road and 6th Ring Road of Beijing. And outside 6th Ring Road can be regarded as countryside of Beijing. Therefore, this research will mainly focus on gated community in suburban area of Beijing.

In fact, metro is the most efficient transportation tool in Beijing in terms of speed and price. It can be found that the shape of area (need to spend less than 1.5 hours to center of Beijing) is influenced a lot by metro line. And in suburban area of Beijing, gated community can be divided into two types: the one next to metro station, and the others.

For commuters who live in the gated community which is close to metro station, their daily travel may heavily rely on metro. And for commuters who live in the gated community which is far away from metro station, their daily travel may rely on other transportation tools. These two type of people have totally different lifestyles.
Types of suburban gated community in terms of location

Suburban gated community and types in terms of border

Gated community has its own spatial introversion and social exclusiveness (Blakely & Snyder, 1997). Usually the public spaces outside of gated community are quite ambiguous, and rest of outer spaces tend to be separated and replaced by roads with traffic function only (Xu & Yang, 2010). And Alexander, Ishikawa, & Silverstein (1977) mention about street that:

‘In any public space which depends on its exposure to the street, open it up, with a fully opening wall which can be thrown wide open, and if it is possible, include some part of the activity on the far side of the pedestrian path, so that it actually straddles the path, and people walk through it as they walk along the path’

In addition, Xu & Yang (2008) argue that:

‘The boundary is where the gated community encounters the city outside. It defines not only the gated community, but also the streets around. So the physical features of the boundary, the length, the frontages, the permeability, the accommodated facilities, the surveillance conditions, and other amenities are especially crucial in the interaction between the gated community and its adjacent streets.’

Therefore, it can be found that as for the street of gated community, two aspects have been mentioned as crucial issues. One is the connection of introversion, which means the link in-between street and community (especially the facade of buildings of gated community). The other is the connection of outer space, which means the link in-between street and the other side of road.

As a result, based on the aspects that has been mentioned above, gated communities can be summarized into four types in terms of their border, and each of them has its own positive or negative performance.

First of all, based on connection between block of gated community and outside. When the road outside is rather wide, the link in-between two sides of the road is broken, and people are not encouraged to across the road. In addition, it is the same when there are some factories or abandoned area on the other side of road. In contrast, when the road outside community is narrow, people are encouraged to across it. And potential link in-between two sides of road becomes higher. In terms of that, gated community can be divided into two types: enclosed by wide road (at least three sides) and enclosed by narrow road (at least three sides). The wide road is the one with more than 4 lanes in total. And the narrow road is the one with 4 lanes or less.

Furthermore, based on physical environment on ground floor. Inside the block, there can be two kinds of connections in-between street and buildings (gated community). One is the fence or wall. In general, fence or wall breaks the link between street and community, therefore, makes the street less accessible and attractive. It decreases the potential of people going to street. The other is building with shops. Sometimes developers use buildings as wall to establish gated community. Meanwhile, their income can increase a lot since they can sale or rent the shop on ground floor. The shops on one hand, can attract more people. On the other, increasing accessibility of gated community, since some shops have both front door and backyard door, and residents can just go through it. Therefore, gated community can be divided into another two types: with shops (or other active facade) on ground floor (at least three sides) and without shops (or other active facade) on ground floor (at least three sides).

Therefore, there are four types in general (2*2) and the distribution of these types of gated communities is demonstrated on next pages.

The most popular one is the type that ‘enclosed by narrow road and fences on ground level’, since developers like to purchase several blocks together at build up gated community. Therefore, the community will gather and the road in-between community is not so wide.
This kind of gated community can be regarded as an isolated island and a completely residential-dominant community.

At least three sides of it are surrounded by the spaces which cannot attract people any more, including wide road, industrial factory, warehouse, and etc. (the roads in Beijing are always car-oriented) In this case, few connection can be created between gated community and the other side of the road. Furthermore, since there are fences outside gated community, even in the same block, the link between street and community itself is broken. It can be imagine that nothing is going to happen on the street, and only a few people may pass by when it is necessary.

Comparing to former one, this type is also surrounded by the spaces which are not attractive, including wide road, industrial factory, warehouse, and etc. Therefore, it still lacks of connection with the other side of road. However, inside the block on the street, there are some attractions on ground floor. It might be some shops, restaurants, or beautiful greenery. Although it is difficult for people to across the road and few people can be attracted from the other side of the road, these attractions can bring people there.

This type of gated community is still enclosed by fences as least from three sides and the street on the edge is quite simple-function, many people may use the street when it is necessary. However, comparing to wide road, narrow road is more pedestrian-friendly, since it is more on human-scale in comparison to last two types. Some people may like to take a walk on the street, and the scale of street encourages people to communicate with each other.

In general, this is the most vital one. In this type of gated community, the street and public space are on human scale. Pedestrians, especially local residents are encouraged to go anywhere they want, since it is quite easy for them to across the road. Consequently, many activities can take place on the street and more people would like to use the street because many activities are happening there.
Types of suburban gated community in terms of border

Location of site area and Hutong area

In order to better understand the condition of gated community and propose strategy and design intervention to it, this research choose a site area. Moreover, a case study area has been chose as well. Based on the map below, site area locates next to 5th Ring Road. And case area (Hutong) locates inside 2nd Ring Road.

In general, site area can represent one typical gated community in Beijing. On urban level, in terms of location, site area is in suburban Beijing, and there is no metro station nearby. On local level, in terms of border, most of gated communities in site area are surrounded by narrow roads with fences on border. Therefore, the strategy and intervention in site area can give reference to renewal of this kind of gated community.

And case area (Hutong) has been existing there for hundreds of years. It has good performance in terms of urban fabric and vitality, and can be regarded as typical Chinese urban form (Wu, 1994).
Location of site area

As it has been mentioned before, site area locates on suburban area of Beijing. And based on map above, it can be figured out that site area is somewhere outside of 5th Ring Road.

In the map below, main road means all the ring roads in Beijing and all the intercity roads. They establish the framework of infrastructure in Beijing. Furthermore, common road is the one that connects main roads. Usually common roads are quite crucial inside districts of Beijing. And narrow road can link common roads as well.

As the map showcases below, this area is separated by several main road of Beijing, including two intercity highways (G1 and S15) on north and south and 5th Ring Road on west. In general, these main roads are completely car dominant and quite unfriendly to pedestrian and cyclist. In other word, it will be very difficult to create connection for people across these roads in short term.

Moreover, it can be found in the map below, the roads in-between gated communities are quite narrow. Although on eye level the physical condition may differ from one another, it result in introversion of spatial structure. Therefore, people are encouraged to move across narrow road and interact with each other.

In general, this kind of spatial structure is quite similar to the one of many gated communities in suburban Beijing. They have narrow roads in-between gated communities, however, lack of connection outside of the cluster of gated communities. As it has been demonstrated before, this is the type that enclosed by narrow road. And this is the most popular one in suburban Beijing.

As a result, it can be found that gated communities in site area are quite typical ones. Their characteristics (and strategy & design intervention which will be tackled in next chapters) can somehow represent: 1. suburban gated communities without metro station nearby 2. gated communities enclosed by narrow roads.

Landuse plan of site area

In general, site area is a quite suburban area with many typical features. There are no attraction in site area, and basically tourist will not be attracted there. Therefore, people who use this area are the ones that live and work there.

It can be found in the map below, there are many industrial companies and factories. For instance, there are many logistics warehouses and factories of glass and automobiles. It is obvious that they can rarely have any connection with residents of gated communities. Residents may even hope to be far away from those factories, since they are not familiar with and can be afraid of the workers in factories. Therefore, people who use the spaces next to gated community are mainly the residents. (As it is mentioned before, most of workers in factory cannot afford a house in Beijing)

And there are several villages in this area. They can be regarded as urban village. However, they are not very typical and their scale is not large. Besides, there are several schools in this area.

Moreover, there are many greenery in site area. In fact, most of green blocks in the map below are not with good quality. Since in suburban area, there are not as many people as it is in central Beijing, government do not invest so much for infrastructure, including parks. Therefore, most of green areas are under construction. They are only weeds inside and neither can be regarded as public space nor beautiful landscape.

As for gated communities in this area. Although there are several clusters of gated communities in the area, this thesis will only choose one of them to research in-depth. Because the theme of this thesis is to tackle relation between urbanity and gated community, instead of how to make all the gated communities in a certain area work together. By focusing on one cluster of gated community, the research can be more in line with the theme and relevant interventions can be more representative.
Urbanity

Xu & Yang (2008) argue three crucial elements for urban and spatial development in gated community area, including land subdivision for enclosure, boundary, and provision of public spaces and facilities in the local district. This research mentions almost the same three aspects as key elements, but modify a little bit. In addition, analyzed local activities to help understand urbanity better.

This part presents the meaning of urbanity from four aspects, including density, border between public and private, quality of public realm, and activities. The density of people is the essential issue to enhance urbanity, it is nonsense to create various spaces and activities without certain number of people. And this research will mainly focus on the border area between public and private, since that is the space with various possibilities. Furthermore, the quality of public realm influences the experience of public space or street quite a lot. Consequently, these three issues are the premises of urbanity. They offer fundamental and necessary prerequisites to achieve or enhance urbanity from three dimensions, meanwhile, complement each other. In addition, activities can directly demonstrate urbanity, since it is the expression of urbanity.

Making comparisons helps not only understand the situation of site area better, but offer some potential directions for further intervention. This part uses structure of central area of Beijing (Hutong area) as case study. The area is inside 2nd Ring Road and it remains the urban form of ancient China. Wu(1994) believed that the order and shape of ancient buildings group in Beijing, which reflecting the achievements of ancient Chinese art of architecture, is one of the outstanding architectural group all over the world. (all the photos without mentioning recourse are coming from http://www.earthol.org/city-9.html)

1. Density of people on street

In order to enhance urbanity, the density of people plays a fundamental role. Density has also been defined as the most determinant variable of 'urbanity', mainly because in a greater or lesser extent, it allows social interaction, as well as the relation of people with public spaces, public transport and urban facilities. In general, more people means more interactions and communications. And that can lead to variety and possibilities. Jacobs (1961) demonstrated the necessity of density that:

“...both of which enjoy great good fortune in mixtures of uses and attractions to outside users, can demonstrably maintain vitality at densities of approximately 100 dwelling units to the net acre, where the average there falls off to 100 dwellings to the net acre, vitality falls off.”

Interestingly, although the density is equal to boundary of minimum number to maintain urbanity, site area still has less urbanity. In contrast, Hutong area has only as half as much the density of site area, the performance of Hutong area is better. Vicuña (2012) offers an explanation of this issue that

“...of density, it is not able to be illustrated in this part, since it may somehow lead to misleading without more relevant data to support it. But the principles and conclusions density that mentioned about will be used as strategy and design tool in next chapters.

As a result, two kinds of shortcomings concerning about density on street have been mentioned. One is that, a large number of people, which are drivers, lack of interaction with streets. The other is that, the streets lack of stay-related activity.

This part first analyzes parking issue in both site area and Hutong area. Then, based on basic data, evaluating density of people on street. And showcases high density area of streets in site area. As a result, it helps to not only understand density of people in site area, but use Hutong area as a reference to study what can be used as interventions in future.
1.1 Parking issue

1.1.1 Parking at site area

In general, site area offers approx. 7000 parking positions in total, both on the ground and underground. Some of communities have plenty of greenery on the ground level and establish parking lot underground. About 6000 of them are underground. It is obvious that when drivers park their cars underground, they can directly back home via elevators. Therefore, they can rarely have any connections with ground level. And parking lots on ground level mainly distribute in some other communities and along a side of street.

1.1.2 Parking at Hutong area

All the parking position at Hutong area are on the ground, since Hutong was built up hundreds of years ago and people at that moment did not reserve any space for parking. Those parking positions are along two sides of roads and about 400 in total. Therefore, not many people are actually use automobiles in this area. Thus, most of people would like to take a walk or cycle at least in this area, which means the density of people will mainly focus on street.

1.2 Density on street

Base on the data below, it can be found that in comparison to Hutong area, although the built area of site is smaller, it has higher density (about 14250 dwellings at site area and about 6875 dwellings at Hutong area), almost as twice as Hutong area. Because the layers of buildings in average at site area is 18 and at Hutong area is only 1.5. However, there are about 7000 parking space at site area. If residents inside a dwelling share the same car, the density on street will almost be the same (about 7250 at site area and about 6475 at Hutong area). In other words, site area has high potential to improve density on street to enhance urbanity.
2. Border between public and private

GLASER, et al. (2012) argued that plinths are crucial for the experience and attractiveness of the urban space in residential area. Urban design relies on the integration of buildings and landscape, the space in-between ground and facade(Trancik, 1986). And Carmona, Heath, Oc, & Tiesdell (2003) mentioned the advantages of traditional urban spaces (street and square) are composed by continuous building volumes. It can be found that those spaces are all the border area.

Gated community has a very clear border, since it always enclosed by fences or other objects. The boundaries are simultaneously means of separation and communication(Madanipour, 2003). And the borders of gated community makes a separation of inner and outer space. Inner spaces of gated community serve for residents only, since the entrances of gated community are strictly controlled(Blakely & Snyder, 1997). Comparing to inner space, the outer spaces of gated community are more accessible and can be used by more people, including residents, tourists, small retailers, and those who just passing-by. In fact, due to many functional issues (shops, stations, and people’s flow) locate on the edge of gated community, the border area of gated community can attract both residents and others.

Relatively speaking, the border at site area represents a quite simple structure. For pedestrian, the structure is less attractive, since they have few choice and distance in-between intersections is longer. In addition, usually the road inside gated community cannot be regarded as border. On ground floor of buildings inside gated community, there are dwellings as well. There can be many windows toward all directions of the building. It is not welcomed to get close to the building besides entrance. Because it may invade privacy of residents who live on ground floor. Therefore, inside gated community, the streets cannot be regarded as border.

In contrast, almost all the street and path at Hutong area can be seemed as border. The street there is the border between public space and private house. Local residents like to stay there. Sometimes they may meet their neighborhood and talk with them. In general, it is quite a vital space.

This part helps to understand performance of border in both site area and Hutong area. First, it defines the border between public, semi-public and private. Furthermore, this part demonstrates the quantity of border between site area and Hutong area, including number of intersections, length of road, and distance between intersections in average. What is more, this part illustrates a little bit about quality of border. As a result, this part helps to understand connectivity of border at site area and use Hutong area as a case study to figure out some proper approaches which can be used in future.

2.1 Definition of border

2.1.1 Border of gated community

It is obvious that in gated community, dwellings are all inside buildings, and those are the most private spaces. The semi-public space can be regarded as the place inside gated community but outside of buildings. Because usually the entrance of gated community is strictly controlled and only residents can enter inside. And the place outside gated community is the real public space. However, inside gated community, the border between private space (building) and semi-public space are not very active. On ground level of buildings are the dwellings as well, strangers who close to buildings will be regarded as invading privacy of the residents. Therefore, the border between semi-public and public is the one for public used. And it is the border of gated community as well.

2.1.2 Border of Hutong

As the most typical Chinese urban structure, the most private spaces of Hutong are also inside the buildings. And usually the courtyard in-between buildings is the semi-public space. In comparison to gated community, the semi-public space in Hutong is rather small, but more delicate and popular. Local resident can not only meet their friends, but enjoy gardening there. At hutong area, the border between public and semi-public is the street. The street there is composed of buildings and is well-connected with many semi-public spaces. Usually the door of each courtyard is towards the street and local residents use the street quite frequently. Based on observation, residents like to sit there to enjoy sunshine, and they can always meet their neighborhoods and talk with them.
2.2 Quantity of border

As is mentioned above, the border of gated community is the street outside. In comparison with border of Hutong, it showcases a rather simple structure.

Based on the data below, there are only 16 intersections in site area comparing to 36 in Hutong area. Jacobs (1961) demonstrates necessity of small block, in other words, the necessity of intersections, since it encourages meeting opportunities of people and can enhance liveliness of the area.

And the distance between two intersections in average at site area is 361M comparing to 208M in Hutong area. In general, the distance of 400M-500M for people to take a walk is acceptable, but it may differs from one another in terms of quality of public realm (Gehl, 1971). The quality of public realm will be mentioned at next part. As for the physical distance only, in site area, it is obvious that people do not have many choices when they are going outside. Because of the longer length, people are more likely to feel boring and the block is more likely to become isolated (Jacobs, 1961).

As a result, it can be found that the quantity of border in site area does not work showcase a good performance. It has longer length and less intersections in comparison to Hutong area. Therefore, it lacks of potential for people to interact and communicate.
2.3 Quality of border

In general, the type of border can differentiate the quality of border. As is mentioned, the quality of public realm will be demonstrated in next part in detail. This part will only make a brief division to understand the structure and connectivity of border. The quality of border can be summarized into two types: active one and inactive one.

2.3.1 Quality of border in site area

In general, the active borders in site area are the one that with shops on ground floor or the border of park. And there is no entrance of building towards on border area of gated community. The photos below illustrate how those active borders in site area look like.

It can be found that only part of borders in site area are active. And even those active borders are quite detached and isolated. Therefore, the configuration decreases the possibility of people's communication and interaction to a great extent.
2.3.2 Quality of border in Hutong area

In general, almost all the streets in Hutong area are the active ones. Since the door will always towards to street, residents are encouraged to use it, which leads to many active street in Hutong area. And when there are shops and beautiful landscape (view) on the street or next to it, the street can be even more active based on observation.

It can be found in the map that the active border in Hutong area is quite continuous. Comparing to active border in site area, it not only demonstrates a well-connected structure, but has longer length in total. Therefore, the design intervention of site area can refer to the case in Hutong area to propose a structure of active border with better connectivity.
3. Quality of public realm

GLASER et al. (2012) argued that urbanites experience their cities in what we call the ‘public realm’ and it has a broader meaning than just ‘public space’; it includes facades of buildings and everything that can be seen at eye level.

The places with good quality of public realm can indeed attract more people. Therefore, creating more communications and possibilities. Gehl (1971) believed that public activities happen at the place with good quality of physical environment and favorable conditions in terms of psychological and social aspects. And A. B. Jacobs (1993) argued that the great streets always have same characteristics, including desirable landscape, clear boundary, permeability, harmony, and etc. It is obvious that people would rather like to stay and use the space with good quality, because they feel more comfortable. Thus, good quality of public realm directly benefit urbanity, since it can encourage and maximize potential activities.

3.1 Analysis of site area

This part uses the approach of Gehl to give mark to quality of public realm. First, make analysis from several aspects to cover 12 keywords of public realm. Then, evaluating public realm from 12 quality criteria and give the mark from 0 (bad) to 3 (good). By combining the marks together, evaluating the quality of public realm from 4 levels: good(25-36), friendly(17-24), boring(9-16), bad(0-8).

This evaluation will be presented on a map. On one hand, it helps to understand the quality of public realm as a whole. On the other, it illustrates shortage of each street, which will be one of design task in future.

This part does not evaluate the area that under construction or undeveloped. And this part does not evaluate the quality of space inside gated community, since those area cannot be regarded as public space at present. However, two of mappings take inner space of gated community into consideration in order to better understand structure of greenery and space for staying. (In general, most of space inside communities are greenery and some small squares)

| 1. Protection against Traffic & Accident |
| 2. Protection against crime & violence (feeling of safety) |
| 3. Protection against unpleasant sense experiences |
| 4. Possibilities for WALKING |
| 5. Possibilities for STANDING & STAYING |
| 6. Possibilities for SITTING |
| 7. Possibilities to SEE |
| 8. Possibilities for HEARING & TALKING |
| 9. Possibilities for PLAY, UNFOLDING, ACTIVITIES |
| 10. SCALE |
| 11. Possibilities for enjoying positive aspects of climate |
| 12. Aesthetic quality & positive sense-experiences |

Undeveloped area in site area
3.1.1 Gated structure in site area

The gated structure in site area helps to demonstrate the form of each community in site area. And it showcases the type of border as well. It can be found that gated communities in site area are surrounded by either fences or buildings. And most of them have two or three gates in total.

When the border is composed by fences or buildings without functions, nothing will really happen there. It can rarely attract any people unless necessary. Sometimes, local residents may take a walk there, but still, the facade is rather boring.
3.1.2 Greenery as a view only in site area

Greenery as a view only means that the space with greenery only as a view, however, not as a place for people to stay. This kind of spaces distribute both inside and outside of gated community. Inside gated community, the spaces are always big areas of grass and trees. And outside of gated community, the spaces usually become linear. Although this kind of space does not have or do not encourage people to really stay inside, it can improve aesthetic value of ambient environment to some extent. And sometimes, it offers pedestrians a safe walking space, since it emerges in-between road and sidewalk.

1. linear shrubs and grass
2. linear trees and grass
3. linear trees and grass
4. linear trees and grass
5. linear grass
6. grass and trees

Greenery as a view in site area
3.1.3 Public space for staying in site area

This kind of space encourages people to stay inside. Based on mapping, it can be found that there are two types of space in total. One is the space inside gated community. Most of place inside gated community is occupied by this kind of space. It can be an area with greenery and facilities and residents are encouraged to stay there and communicate with their neighborhoods. The other one is parks outside of gated community. The only place that encourages people to stay is park. In general, those parks are rather large and cannot really attract people to stay there, since they have the same function with spaces inside communities.

1. a pond with bamboo, trees, grass nearby
2. a park with plenty of trees and grass
3. node inside community with greenery and facilities
4. riverband area with facilities
5. a small square inside community
6. a park with plenty of greenery
3.1.4 Shops in site area

Usually commercial shops (including restaurants) can attract people, especially a commercial street. Since a large number of people can be attracted there, this kind of area enhances the possibility of people to communicate with each other. As a result, it offers more opportunity for hearing and talking. And people can feel safer in this kind of area, since the shops are always quite active and have constant focus on the street.

In addition, comparing to fences or buildings, shops in commercial street can at least create an interesting facade which has higher aesthetic value.
3.1.5 Sidewalk in site area

The sidewalk which is illustrated in the map means the well-designed and paved sidewalk. Therefore, it can not only encourage walking, but protect people against traffic and accident. It can be found that only part of gated communities have continuous sidewalk outside.
3.1.6 Street eye in site area

Jacobs (1961) believes that the safety on streets relies on eyes that watching on streets. It can come from people who are walking on the street or residents from buildings or shopkeeper or even the drivers.

The map showcases street eyes that come from buildings (including shops) and automobiles.
3.1.7 Scale analysis in site area

The scale of space can not only influence the people's feeling of environment, but differentiate the potential for communication. This part uses two theories to analyze the scale. One is the theory of A.B.Jacobs (1993), the other is theory of Jan Gehl (2010).

Jacobs (1993) argues that 'all the great streets have clear borders, and their ratio of height to width (H: W) is always in-between 1:4 and 1:0.4. One step further, most of their ratio of height to width (H: W) is in-between 1:1.1 and 1:2.5. Some streets might be very wide, then boulevard can help to delimit the street, for example, Avenue des Champs-Élysées in Paris. That is why sometimes plenty of trees are necessary.' Therefore, to have a comfortable environment, it is crucial for street to have a proper ratio between height and width.

Besides, as for social connection, Gehl (2010) mentions that 'when distance between 25M and 100M, people can recognize outline of other's body or movement. And when the distance is between 25M and 7M, there can be some more communications, including facial expression and emotions. When the distance is less than 7M, much more communications become possible. Among these data, 25M is quite important, since within this distance, people can easily observe the others.' Therefore, it can be found that when the width of a street or the distance between two sidewalks is about 25M or less than 25M, then pedestrians and cyclists can somehow have connections with all the stuffs on street, including meeting other people, taking a look of beautiful landscape, understanding types of shops on ground level. In other words, a street which is too wide decreases the potential and possibility of people to communicate with others to a great extent. The performance of scale is divided into three levels: friendly, in-between, and unfriendly.
9. The border is clear, and width of road is proper, but buildings are too high and result in oppressive feeling.

10. In general, the scale is proper, and border is clear, although left side of building is a little bit low.

11. The ratio (H: W) of space is not bad, and border is clear, but still the width of street and height of buildings are not very friendly.

12. The border is unclear, and scale is not friendly at all.

13. The border is unclear, and scale is not friendly at all.

14. The border is unclear, and scale is totally unfriendly.

15. The border is unclear, and scale is not friendly at all.

16. The border is clear, but width of street is too large and height of buildings is too high.

Quality of scale in site area:

- **Unfriendly**
- **In-between**
- **Friendly**
- **Buildings**

Map showing the quality of scale in site area with different colors indicating the level of friendliness.
### 3.2 Evaluation of site area

#### 3.2.1. Main road

<table>
<thead>
<tr>
<th>Protection</th>
<th>Confort</th>
<th>Enjoyment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>no sidewalk, pedestrians are directly exposed to cars, which is very dangerous</td>
<td>sidewalk is well-designed and pedestrians are totally safe</td>
<td>the view is rather broad, but landscape is quite boring</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>no sidewalk, and it is quite difficult for pedestrians to find a road. Facade is not attractive at all</td>
<td>not many people use this place, and there is no space for sitting. The view is rather broad</td>
<td>the scale is not so bad, but still need to become more comfortable for people</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>the view is rather broad, but landscape is quite boring</td>
<td>basically there is no chance for communication</td>
<td>people are not encouraged to enjoy their leisure time there</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>the scale is not so bad, but still need to become more comfortable for people</td>
<td>basically the facade of buildings and details of environment are quite boring and lack of diversification</td>
<td>the environment is suitable for communication, but there are not many chances for people to meet with each other</td>
</tr>
</tbody>
</table>

This is the main street and links gated communities in site area. In general, this place is quite empty. The road here is totally occupied by automobiles and it is very dangerous for pedestrian and cyclist to use this place. People are not willing to staying here and this place can rarely have any communication and activity.

**Score:** 6

#### 3.2.2. Sub-road

<table>
<thead>
<tr>
<th>Protection</th>
<th>Confort</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>not many eyes from buildings or cars can focus on the street, therefore, it lack of enough protection</td>
<td>sidewalk is well-designed and pedestrians are totally safe</td>
<td>sidewalk is well-designed, and pavement is with good quality, however, besides greenery, facade is not very attractive</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>people have no reason to stay there, and there is no space for sitting</td>
<td>the view is rather broad, and landscape is quite beautiful, including trees, shrubs, grass</td>
<td>the environment is suitable for communication, but there are not many chances for people to meet with each other</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>people have no reason to stay there, and there is no space for sitting</td>
<td>there is no space for sitting. The view is rather broad</td>
<td>people are not encouraged to have many activities there</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>the scale is proper, as well as width of street, boulevard encloses a comfortable space. Some buildings might be too high</td>
<td>this is a very quite space with beautiful landscape, boulevard can somehow prevent people from suffering unpleasant experience</td>
<td>the landscape is ok, but facade of building is super boring</td>
</tr>
</tbody>
</table>

This is a street outside gated community in site area. It is a peaceful place with beautiful landscape. As a street next to community, it has considerable physical environment. However, this street is not very accessible, since there is continuous fence in-between the street and community. For the residents who want to take a walk may like to use this place. For the others, this street is not very attractive.

**Score:** 17
3.2.3. Sub-road

This is another street outside gated community in site area. There are many shops along the street, and residents come here to purchase daily necessaries or just take a walk. Pedestrians are able to feel safe on the sidewalk and the scale of the street is proper.

Score: 25

<table>
<thead>
<tr>
<th>Protection</th>
<th>Comfort</th>
<th>Enjoyment</th>
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<tbody>
<tr>
<td>2</td>
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<tr>
<td>5</td>
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<td>4</td>
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</tbody>
</table>

- Sidewalk is well-designed, but sometimes it is interrupted by road.
- Most part of sidewalk is continuous, and people are encouraged to take a walk there, the facade is quite amazing.
- Landscape is beautiful, shops are attractive, and the view is quite broad as well.
- The scale is proper and comfortable for people, sometimes buildings might be too high.
- People can enjoy sunshine and be protected by shops and boulevard as well.
- Facade of building is very interesting, the landscape is attractive as well.
- A quite clean space, trees and shops can prevent people from suffering unpleasant experience.
- People are encouraged to take a walk there, the facade is attractive.
- This area has high potential to have activities, since this is quite a vital space.
- The scale is proper, as well as the width of street. Maybe more trees are needed to create a more comfortable physical environment.
- People do not have many spaces to enjoy their leisure time there.
- This street lack of greenery, and it looks a little bit dirty.
- People do not have many spaces to enjoy their leisure time there.
- Facade of building is attractive, however, lack of landscape or other attractions.

3.2.4. Sub-road

This is a street between market and gated community. There are many shops along the street. In general the scale of this space is proper. However, it lacks of other attractions, including greenery, space for staying, and etc.

Score: 17

<table>
<thead>
<tr>
<th>Protection</th>
<th>Comfort</th>
<th>Enjoyment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5</td>
<td>3</td>
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<tr>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
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<td>4</td>
<td>2</td>
<td>4</td>
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<tr>
<td>7</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

- Sidewalk is well-designed, but sometimes it is interrupted by road.
- Most part of sidewalk is continuous, and people are encouraged to take a walk there, the facade is quite amazing.
- Landscape is beautiful, shops are attractive, and the view is quite broad.
- The scale is proper, as well as the width of street. Maybe more trees are needed to create a more comfortable physical environment.
- People do not have many spaces to enjoy their leisure time there.
- This street lack of greenery, and it looks a little bit dirty.
- People do not have many spaces to enjoy their leisure time there.
- Facade of building is attractive, however, lack of landscape or other attractions.
3.2.5. Sub-road

This area is border of gated community, and next to a park. In general, the only attraction here is greenery and landscape. And this area lacks of other functions. The scale of this area is acceptable.

Score: 12

- Sidewalk is well-designed, but sometimes it is interrupted by road
- Most part of sidewalk is continuous, but the space and facade is quite boring
- Landscape is beautiful, but lack of other attractions, in total, this area is boring
- The height of building is proper, but this street feels quite empty

3.2.6. Sub-road

This area is quite boring. It lacks of attraction and can rarely have any activity. The scale of this space is unfriendly, since the sidth of street is too short. And facade of this area is not attractive at all.

Score: 8

- Sidewalk is well-designed, but sometimes it is interrupted by road
- Most part of sidewalk is continuous, but the space and facade is quite boring
- Landscape is beautiful, but lack of other attractions, in total, this area is boring
- The height of building is rather high, and it can result in oppressive feeling, border is clear

- Eyes from buildings can focus on road, as well as the drivers
- There are some place for staying, but this area lacks of reason for staying
- There are some greenery, but in total, this area is boring
- People do not have many spaces to enjoy their leisure time there

- The view is quite broad, people are not encouraged to sit here
- The space and facade is quite boring
- This area does not encourage many activities, although the space is quite empty
- People do not really have many opportunities to communicate with each other

- Only eyes from buildings can focus on road
- There is no place for staying, and this area lacks of reason for staying
- There is no space for sitting, people are not encouraged to sit here
- This area does not encourage any activities

- People do not have many spaces to protect people
- The only attraction here is landscape, the facade of building is quite boring
- The only attraction here is landscape, the facade of building is quite boring
- People do not have any space to enjoy their leisure time there
### 3.2.7. Sub-road

This area is a commercial street on border of gated community. In general, the scale of this area is proper, and shops can attract many people there. People are encouraged to take a walk there. The landscape can be enhanced and more functional public spaces for staying and meeting are needed.

<table>
<thead>
<tr>
<th>Protection</th>
<th>Comfort</th>
<th>Enjoyment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 sidewalk is well-designed, pedestrians are quite safe, but sometimes motorcycles may use the sidewalk</td>
<td>5 many shops are on the street, and eyes from buildings can also focus on road, as well as the drivers, therefore, this street is rather safe</td>
<td>1 a quite clean space, sometimes tracks may dirty the space</td>
</tr>
<tr>
<td>2 the shops create a quite interesting space, people are encouraged to take a walk on the street</td>
<td>1 there is some spaces for people to stay, and they can be attracted somehow and stay for a while</td>
<td>4 the view is rather broad, but landscape is quite boring</td>
</tr>
<tr>
<td>2 the view is broad, shops offer a attractive environment, but the greenery need to be enhanced</td>
<td>1 people are encouraged to communicate with each other, but there are not many spaces for meeting</td>
<td>1 this area does not encourage many activities, although the space is quite enough</td>
</tr>
<tr>
<td>2 the scale is proper, border is clear</td>
<td>1 people do not have many spaces to enjoy their leisure time there</td>
<td>2 shops are quite attractive, but landscape can be more various</td>
</tr>
</tbody>
</table>

Score: 20

### 3.2.8. Main road

This is the other part of main street. In general, this place is super boring and quite empty. The road here has no attraction and it is very dangerous for pedestrian and cyclist to use this place. People are not willing to staying here and this place can rarely have any communication and activity. The scale is quite unfriendly as well. It is quite urgent to enhance quality of this space.

<table>
<thead>
<tr>
<th>Protection</th>
<th>Comfort</th>
<th>Enjoyment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 no sidewalk, pedestrians are directly exposed to cars, which is very dangerous</td>
<td>0 people have no reason to stay there, and there is no place for stay at all</td>
<td>0 people are not encouraged to enjoy their leisure time there</td>
</tr>
<tr>
<td>0 street eyes come from surrounding buildings and drivers, since many cars will pass this road</td>
<td>0 not many people use this place, and there is no space for sitting. The view is rather broad</td>
<td>0 people are not encouraged to have activity there. But still, there are many empty spaces</td>
</tr>
<tr>
<td>0 soil is directly exposed outside, which is quite dirty. In addition, there is no place to protect people from heavy wind or rain</td>
<td>0 basically there is no chance for communication</td>
<td>0 basically the facade of buildings and details of environment are quite boring and lack of diversification</td>
</tr>
<tr>
<td>0 many spaces are undeveloped, therefore, people are not encouraged to have activity there. But still, there are many empty spaces</td>
<td>0 the scale is unfriendly, the border is unclear and width of street is too wide</td>
<td>0 people are not encouraged to enjoy their leisure time there</td>
</tr>
</tbody>
</table>

Score: 4
Quality of public realm in site area

It can be found that in terms of quality of public realm, southern part of site area has better performance. And a large area of northern part needs to improve quality of public realm, since they have rather low quality.

This area still lacks of a continuous and complete network for pedestrians and cyclists. Sometimes pedestrians need to walk through undeveloped area to supermarket. And especially on main road, pedestrians and automobiles use share the same space, which is quite dangerous and may result in accident.

The scale, which means proper scale of space for human, needs to be improved as well. Since all the buildings in gated communities (in site area) are high-rise, they often create a oppressive feeling to pedestrians who are just passing by, which is quite an unpleasant experience for people. Moreover, especially at northern part of site area, width of many streets is rather wide. On one hand, it creates a very empty physical environment which is quite boring and unattractive. On the other, basically there is no connection between two sides of this kind of road, and it decreases potential of interaction to a great extent.

Furthermore, this area lacks of space for staying and sitting. Gehl(2010) mentions that a certain number of people who can stay outside will considerably increase opportunities for communication and interaction. However, in site area, besides parks, only inside gated community there are a few facilities and spaces which encourage people to sit and stay. Even on commercial street, people need to keep walking, since there is no space for them to sit or stay.

What is more, eastern part of site area is still undeveloped. At the moment, the area is mainly grass and a river without any path. And the quality of landscape is not at good quality. Therefore, the area is not very attractive for people, and basically no one is using the space.

In short, these aspects that has been mentioned above need to be improved. In the next chapters, strategies and design interventions will try to deal with these problems.
4. Activities

Activities are the directly expression of urbanity. This part demonstrates the most popular activities that are happening in site area. In general, these activities showcase characteristics of site area. And understanding these activities can help to design strategy and propose intervention.(the photos of this part made by author)

4.1 Going to supermarket

Since the function of gated community is usually very simple, the neighboring supermarket will be the place where a large number of local resident purchase their daily necessaries. In the morning or on the evening, commuters go to supermarket to buy some food. And during daytime, elders and those who work nearby will go to the supermarket as well. Therefore, the supermarket in residential area can continuously attract people during opening hours.

4.2 Waiting for bus at bus station

There are more than 20 million of people who live in Beijing, however, with less than 3 million of private cars, not to mention some cars cannot be used due to the vehicle restriction rule of Beijing. And since Beijing is quite a large city, in fact, most of citizens can only use public transport or taxi. As is known, taxi is the most expensive approach. And because of the traffic jam in Beijing, it cannot save much time. As a result, comparing to bus, metro is more popular in general (in terms of speed and connectivity). However, for people who live in the areas without metro station, bus becomes the only choice (for daily travel). In those areas, bus stations can have continuous people flow, since there are always some people waiting for the bus. Sometimes, peddlers will emerge at the bus station. They may sale food, snacks, and beverage, in order to meet the need of commuters. Thus, plenty of people with various identities and different purposes gather to bus station. And this offers many possibilities to enhance urbanity there.

4.3 Going to express pick up point

Online shopping is very popular in China. In 2014, the turnover of ‘Taobao’ (the largest Chinese online shopping website) is more than the combined turnover of Amazon and Ebay world widely. In addition, besides ‘Taobao’, there are still many online shopping websites in China, including ‘Jingdong’, ‘Weipinhui’, ‘Suning’, ‘Dangdang’, and etc. Therefore, for each gated community in Beijing, there will be lots of express parcels that needed to be picked up. Some delivery man may send the parcel directly one by one, the others may stay somewhere nearby and send message to every addressees to ask them pick up their parcels. The latter one can be regarded as the delivery man set up a temporary express pick up point. In principle, due to the considerable number of people in total, this kind of pick up point can create constantly flow of people nearby. As a result, this kind of activity enhance urbanity at certain area.

4.4 Playing chess (or Mahjong)

Chinese people like playing chess (or Mahjong) very much. It can be found that at certain areas (usually inside gated community or next to the border of gated community), local residents are playing chess or Mahjong. After a while, more people will come there and look on them. Sometimes, even salespeople and peddlers are attracted to stay there as well.

4.5 Taking a walk

Since the layout of gated community inside is like a garden with plenty of greenery, many residents like to take a walk inside (sometimes outside) when the climate is proper. They walk around for quite a long time and regard it as an approach of physical exercise.
Conclusion

This chapter is trying to tackle ‘urbanity’ from four aspects, including ‘density on street’, ‘border between public and private’, ‘quality of public realm’, and ‘activities’. By analyzing performance of site area from these four aspects, this chapter helps not only understand the condition of site area at present, but figures out the problems that should be improved.

This chapter first analyzes density at site area in total. And by making comparison with Hutong area, it has been found that site area does not have a high density on street, since many people would like to use cars as transportation tool. In other words, site area has high potential to enhance density on street. Furthermore, by analyzing types of border, it has been found that in comparison to Hutong area, the structure of border is quite simple, since the border only exists outside of gated community. And a large part of border in site area is inactive. Therefore, not many people can be attracted on streets and they have relatively less opportunities to meet and interact. Thus, site area need to have a more complete and great street network and quality. What is more, by referring to the criteria which came up by Jan Gehl, this chapter demonstrates the quality of public realm of site area. It finds out many problems which can be design tasks in next chapters. Last but not least, this chapter analyzes the most popular activities that exist in site area, which can contribute to strategy design and intervention.

Aim and Vision

This research aim to enhance urbanity of gated community (area). And it is necessary to specify this aim. In analytical part, urbanity is mainly divided into three aspects: density of people on street, border between public and private, and quality of public realm. Based on these aspects, several problems in site area have been defined, including lacking of sufficient people on street, many spaces lack of accessibility, borders are inactive, scale of built environment is unfriendly, and etc. In terms of these problems, sub-aims can be proposed from three aspects as well. These three sub-aims can properly complement one another. And by achieving these sub-aims, urbanity in site area can be enhanced as well.

1. Enhancing density of street
As it is mentioned before, density is rather important even on neighborhood level(Vicuña, 2012). It is obvious that in order to enhance urbanity in a certain area, certain number of people is necessary(Jacobs, 1961). On one hand, a large number of people who use automobiles every day have potential to have more interactions with streets. On the other, more functional buildings can be proposed to increase both density of people and density of built environment of site area.

2. Increasing connectivity of public space
Pont & HAUP (2009) point out that connectivity can facilitate movement taking place. And Jacobs(1961) believes small blocks can stimulate liveliness, since it provides the greatest proportion of public ways. As it is known, many spaces of gated community are not very accessible(Blakely & Snyder, 1997). Then, proposing new ways or paths actually can help a lot to increasing connectivity of public space. Admittedly, residents do not hope to have noise, so the paths inside gated community should be proposed carefully.

3. Improving quality of public realm
Quality of public realm is crucial for people to experience city and interact with each other(Gehl, 2010; GLASER, HOFF, KARSENBERG, LAVEN, & TEEFFELEN, 2012). Public spaces with good quality can attract people to a great extent and make them feel comfortable(Gehl, 1971). Since problems of public realm in site area have already been figured out, the idea is to fix them, that is, improving quality of public realm, including creating proper scale for built environment, establishing more space for staying, and etc.

The products of this thesis is a renewal of layout or network of site area. It will demonstrate an updated layout of shops and supermarkets, a refined network of public space, interventions of spaces which can encourage more people and activities, and etc. Furthermore, this thesis will propose node design on some crucial points. It can help to understand the effects of strategies and design interventions, especially on eye level.
Vision

Shops
Public space
New buildings
Existing buildings

Timeline

Sep  Oct  Nov  Dec  Jan  Feb  Mar  Apr  May  Jun

P1          P2      P3      P4     P5

Problem statement
Problem analysis
History development

Literature review

Case study
Field trip

Site analysis
Design strategy
Design intervention
Evaluation

Shops
Public space
New buildings
Existing buildings
Scientific relevance

Since gated community becomes a popular topic all over the world, researchers have focused on it from various perspectives, including geographic, social, economic, political, cultural, historical, typological, psychological ones. Nevertheless, due to the condition of gated community in different countries differs from one another, Chinese gated community had its own characteristics in terms of motivation, development, and attributes. Many researchers have already conducted studies and analyzed on Chinese gated community, however, the typo-morphology of Chinese gated community has been rarely expressed. The typo-morphology of Chinese gated community is the key element to understand how Chinese gated community works and connects to other relevant urban levels. On one hand, in relation to urban-level, it helps to understand how gated community embeds into city’s structure and how it influences city’s flow. On the other hand, in relation to eye-level, it helps to realize public life in-between gated community, which is quite essential as well. Because the quality of public life is directly and closely relates to residents themselves, and ‘Good cities are all about people’ (Gehl & Svarre, 2013). To conclude, formation of gated community is the bridge between city and residents who are living inside. In order to understand gated community, it is very important to research across scales, because sometimes the solution or intervention to a certain scale can result in problems to other scales. Therefore, this research can not only figure out basic rules of the relationship. Then, by using the rules, come up with general patterns and possible interventions to guide the renewal and regeneration of Chinese gated community in future. As a result, enhancing urbanity of public space of gated community.

Social relevance

Since the type of gated community is the most popular one in China, a considerably amount of Chinese are living in this kind of gated community, and the typo-morphology of it directly influence public life of people. As is mentioned in literature review, there are many problems in typical gated community: exclusiveness is a problem of gated community all over the world, and deserted streets on the border of gated community are quite unbearable. In fact, although there are some activities occurred there and certain social connection in-between residents of gated community and other people, it is still relatively difficult for both residents and others (mainly small entrepreneurs) to use public space and enjoy public life there. However, due to the developers only focusing on buildings and economic values, they can hardly concentrate and assure on the good quality of the surrounding streets, which are the borders of gated community. Therefore, it is quite crucial to propose interventions to the gated community, in order to offer urban life space and desirable public life there. And this research is trying to find the essence of relationship between gated community’s formation and public life, and to figure out basic rules of the relationship. Then, by using the rules, come up with general patterns and possible interventions to guide the renewal and regeneration of Chinese gated community in future. As a result, enhancing urbanity of public space of gated community.

Reference


Appendix 2

Gated community in suburban Beijing: Urbandity concerns

Abstract

Most of Chinese urban residents live in Gated community nowadays, and the typo-morphology of gated community directly concerns about their daily public life. Many researchers have already focused on various aspects of gated community in China. However, the spatial-functional structure of gated community has rarely expressed, not to mention its relation to public life. This research will focus on: 1. types of spatial-functional structure of gated community in suburban Beijing, 2. relation between spatial-functional structures of gated community interact with urbanity. By researching these questions, it can not only fill in the academic gap of typo-morphology issue of gated community in suburban Beijing, but come up with principles to enhance urbanity in relevant areas.

Introduction

Gated communities are recognized as a global phenomenon. During a long period of urban development, gated community becomes the most widespread Chinese residential type. And a large number of Chinese urban residents are living in gated community. However, gated communities are quite isolated from spatial and social point of view. It is usually surrounded by fast motor vehicle lanes, therefore lack of social connection with surrounding areas (Xu & Yang, 2010). And due to the few connection, the streets out of gated communities are always ‘empty’, lack of good quality of public life and public space (Xu, 2009).

Literature review

Causes of gated community in China and their influence

The reason that gated community exists in China explain the background of it. And it can help to understand the essence of gated community. Pow (2010) argues that gated community in China stem from Government’s constantly control on residential level and the formation of gated community is largely driven by indigenous process embedded in the local culture and politics: it expresses and maintains Chinese collective cultural tradition. And he believes gated community results in segregation between residents and undesired social class.

The research of Huang (2006) showcase a similar idea from cultural and historical point of view: collectivism-oriented culture and tight political control explain neighborhood enclosure in Chinese city as well as its omnipresence and continuity. By reviewing and making comparison with theory of gated community in western countries, Shu & Chunyan (2008) explain that gated community in China result from four aspects: demand of resident, promotion of government, historical habit and commercialized transformation of Danwei (work-unit). And they believe gated structure lead to social isolation.

Spatial segregation of gated community and its influence

In China, due to the prosperous of housing market, a large amount of gated community were built up on suburban area of cities. Yixing (1996) attributes emerging of suburban community to...
three aspects: the construction of road, a large amount of old dilapidated houses, and lower price area (due to land reform). Moreover, the discourse of developers also plays an important role in housing market. Wu (2010) finds that developers constantly emphasize that their suburban residential development is new and can provide a good life for their customers. And Pow (2010) mentions that suburban upper-market housing is being represented as Chinese dream home.

When the suburban became the characteristic of many gated community, spatial separation came out. Duncan (1956) points out that residents who live in suburban communities need to spend a large amount of time to their work place everyday. He believes that the differentiate of citizen income can play an important role of work-residence separation. For example, based on his data, the work-residence separation in CBD (Central Business District) is substantial greater than other areas. Huang (2005) argues that only the wealthiest people can afford single-family houses in beautiful suburbs and upscale apartments in well-serviced downtown, while low-medium income households have to live in affordable gated community that are often constructed in less convenient suburbs for cheap price. Based on Bin (2009)'s study, in Beijing, the residential area and work place are clearly separated, and the function of large residential area is very simple. It can be found that during daytime, most of residents in gated community need to go to work, and only a few people may still stay inside or next to gated community. Moreover, because of the spatial separation, plenty of people who live in suburban gated community has to spend a large amount of time to assure sufficient commute time. Therefore, it is quite difficult to attract people there, since they do not have time.

To conclude, relevant researches clearly explain the cause of gated community in China, then point out that in general, the gated structure lead to systematical analyze urbanity performance of suburban gated community of Beijing from spatial-functional structure.

**Typology of suburban gated community in Beijing**

Even in suburban Beijing, there are still a large number of gated communities. In order to establish framework for further research and design, it is necessary to define these types of gated communities. Because a typology is not merely reproduced; its essence is selected, and a design is based on this essence (Lozano, 1990). For every single of type it may have its special features. Lozano (1990) mentions that the essence of a typology is made up of a combination of key characteristics of the elements in the typology, as well as by the range of variations. And the part below is going to divide gated communities (in suburban Beijing) into several types and demonstrates the characteristics of each type.

On urban level, gated communities can be divided into different types in terms of public transport approach. Based on data of ‘National Bureau of Statistics of the People's Republic of China’ in 2015, there are more than 21 million of people living in Beijing, over half of them live outside of 5th Ring Road (where can be briefly regarded as suburban area of Beijing). And people who live in Beijing need to spend 52 minutes from their home to work place in average (average commuting time for the people of the People's Republic of China). There are about 3 million of private cars in Beijing, which means, a large number of people need to take public transport every day, that is, bus or metro.

Since radius of 5th Ring Road of Beijing is more than 15 kilometers, people who live in suburban area need a transport with considerable speed. In general, metro becomes the most efficient public transport in Beijing, especially in suburban area (Ming, 2012). First, metro has the highest speed among all the transports inside a city. Furthermore, unlike bus or automobile, metro will never be influenced by traffic jam. What is more, the price of metro is acceptable. Therefore, in suburban Beijing, comparing to the others, gated communities which locate next to metro stations are more likely to be divided into four types in terms of their border, and each of them has its own positive or negative performance.

As a result, based on the aspects that has been mentioned above, gated communities can be summarized into four types in terms of their border, and each of them has its own positive or negative performance.

First of all, based on connection between block of gated community and outside. When the road outside is rather wide, the link in-between two sides of the road is broken, and people are not encouraged to across the road. In addition, it is the same when there are some factories or abandoned area on the other side of road. In contrast, when the road outside community is narrow, people are encouraged to across it. And potential link in-between two sides of road becomes higher. In terms of that, gated community can be divided into two types: enclosed by wide road (at least three sides) and enclosed by narrow road (at least three sides). The wide road is the one with more than 4 lanes. In total. And the narrow road is the one with 4 lanes or less.

Furthermore, based on physical environment on ground floor. Inside the block, there can be two kinds of connections in-between Street and buildings (gated community). One is the fence or wall. In general, fence or wall breaks the link between street and community, therefore, it makes the street less accessible and attractive. It decreases the potential of people going to street. The other is building with shops. Sometimes developers use buildings as wall to establish gated community. Meanwhile, their income can increase a lot since they can sale or rent the shop on ground floor. The shops on one hand, can attract more people. On the other, increasing the possiblility of gated community since some first shops have both front door and backyard door, and residents can just go through it. Therefore, gated community can be divided into another two types: with shops (or other active facade) on ground floor (at least three sides) and without shops (or other active facade) on ground floor (at least three sides).

These types of gated community can preliminarily provide framework and background knowledge for further research. Based on certain type of gated community, a site area can be chose. It can represent certain type of gated community in suburban Beijing. And the relation between urbanity and gated community can be figured out.
Methodology

Comparative study and Case study

Comparative study can provide reliable data for analysis, it describes and explains principles of research objects, and provides guidance for further development (Moudon, 1998). Thus, making comparison can not only help to understand condition of site area, but offer good reference for further design intervention. For instance, this thesis will use Hutong area as a reference to make comparisons with site area in terms of several aspects, including density, border, and etc. By making comparisons, it helps to realize how spatial-functional structure influences urbanity performance from several aspects. And it demonstrates the layout of good examples which can be referred to. In addition, case study can inspire design proposals. For instance, based on the data of 'Strava Global Heatmap', people who live in Beijing are more likely to take a walk and running along riverbank or inside large park. Therefore, it can be found that at least riverbank area which next to gated community can be designed as a space for walking and running.

Literature research

Literature research can give academic support to tackle the keywords. In order to better understand and summarize the characteristic of gated community, it is necessary to categorize them into various types. It can not only contributes to distinguish the feature of different gated community, but also helps to pinpoint framework and direction of further study in future. Basically, gated community can be distinguished in terms of their location (on urban scale) and connectivity with surrounding area (on local scale). Furthermore, urbanity can be divided from several aspects, including density (Jacobs, 1961; Pont & HAUPT, 2009), border (GLASER, HOFF, KARSSENBERG, LAVEN, & TEEFFELEN, 2012; Trancik, 1986), and quality of public realm. The density of people is the essential issue to enhance urbanity, it is nonsense to create various spaces and activities without certain number of people. And this research will mainly focus on the border area between public and private, since that is the space with various possibilities. Furthermore, the quality of public realm influences the experience of public space or street quite a lot. Consequently, these three issues are the premises of urbanity. They offer fundamental and necessary prerequisites to achieve or enhance urbanity from three dimensions, meanwhile, complement each other.

Making comparisons helps not only understand the situation of site area better, but offer some potential directions for further intervention. This part uses structure of central area of Beijing (Hutong area) as case study. The area is inside 2nd Ring Road and it remains the urban form of ancient China. Wu (1994) believed that the order and shape of ancient buildings group in Beijing, which reflecting the achievements of ancient Chinese art of architecture, is one of the outstanding architectural group all over the world.

Observation

Observation provides the most direct information of certain area. It can extremely contribute to the analytical part. For instance, the distinction of different types of gated community in terms of border based on observation. On local level, gated community may have different characteristics in terms of its performance of border. When the border space of gated community has proper scale and many ‘attractors’, it creates possibility of communication and interaction. In contrast, when the border space of gated community is super boring and lacks of any connection with surrounding area, the community itself is more like an isolated island(Xu & Yang, 2010). Thus, this kind of distinction relies on observation. Moreover, observation helps to evaluate quality of public realm as well. Based on the criteria of (Gehl, 2010), there are 12 aspects that can be used to evaluate quality of public space. And one needs to give the evaluation from 12 aspects via observation as well.

Urbaniy

Xu & Yang (2008) argue three crucial elements for urban and spatial development in gated community area, including land subdivision for enclosure, boundary, and provision of public spaces and facilities in the local district. This research mentions almost the same three aspects as key elements, but modify a little bit. In addition, analyzed local activities to help to understand urbanity better. This part presents the meaning of urbanity from three aspects, including density, border between public and private, and quality of public realm. The density of people is the essential issue to enhance urbanity, it is nonsense to create various spaces and activities without certain number of people. And this research will mainly focus on the border area between public and private, since that is the space with various possibilities. Furthermore, the quality of public realm influences the experience of public space or street quite a lot. Consequently, these three issues are the premises of urbanity. They offer fundamental and necessary prerequisites to achieve or enhance urbanity from three dimensions, meanwhile, complement each other.

Density of people on street

In order to enhance urbanity, the density of people plays a fundamental role. Density has also been defined as the most determinant variable of 'urbanity', mainly because in a greater or lesser extent, it allows social interaction, as well as the relation of people with public spaces, public transport and urban facilities. In general, more people means more interactions and communications. And that can lead to variety and possibilities. Jacobs (1961) demonstrated the necessity of density that:

“The district must have a sufficiently dense concentration of people, for whatever purpose they may be there. This includes people there because of residence …… on the other hand, people gathered in concentrations of city size, and density can be considered a positive good, in the faith that they are desirable because they are the source of immense vitality, and because they do represent, in small geographic compass, a great and exuberant richness of differences and possibilities, many of these differences unique and unpredictable and all the more valuable because they are.”

As for the relation between density and urbanity, Lozano (1990) demonstrated that density determines the accessibility of people to people, of people to work, of people to services and recreation; in short, it allows urban relationships to flourish. And based on this, Pont & HAUPT (2009) used ‘Space Matrix’ to illustrated the density of people and built environment in a spatial(mathematical) way. They believe that density can help a lot for professionals to evaluate the performance of urban issues.

Jacobs (1961) believes that 100 dwellings per acre (which is 250 dwellings per hectare) is the boundary. Jacobs argues that ‘...both of which enjoy great good fortune in mixtures of uses and attractions to outside users, can demonstrably maintain vitality at densities of approximately 100 dwelling units to the net acre... where the average there falls off to 100 dwellings to the net acre, vitality falls off.’

In general, the ‘density’ that mentioned above means the number of people in total. However, the density (number of people) on the street is different, since it can be influenced by local lifestyle. For instance, in Venice, where most of people go to somewhere by walking, the density in total almost means the density on the street.

Border between public and private

Plinths are crucial for the experience and attractiveness of the urban space in residential area(GLASER, HOFF, KARSSENBERG, LAVEN, & TEEFFELEN, 2012). Urban design relies on the integration of buildings and landscape, the space in-between ground and facade(Tranck, 1986). And the advantages of traditional urban spaces (street and square) are composed by continuous building volumes(Carmona, Heath, Oc, & Tiesdell, 2003). It can be found that those spaces are all the border area.

Gated community has a very clear border, since it always enclosed by fences or other objects. The boundaries are simultaneously means of separation and communication (Madanipour, 2003). And the borders of gated community makes a separation of inner and outer space. Inner spaces of gated community serve for residents only, since the entrances of gated community are strictly controlled(Blakely & Snyder, 1997). Comparing to inner space, the outer spaces of gated community are more accessible and can be used by more people.
including residents, tourists, small retailers, and those who just passing-by. In fact, due to many functional issues (shops, stations, and people’s flow) locate on the edge of gated community, the border area of gated community can attract both residents and others.

Relatively speaking, the network of border at gated community area will be quite simple. For pedestrian, the structure is less attractive, since they have few choice and distance in-between intersections is longer. In addition, usually the road inside gated community cannot be regarded as border. On ground floor of buildings inside gated community, there are dwellings as well. There can be many windows toward all directions of the building. It is not welcomed to get close to the building besides entrance. Because it may invade privacy of residents who live on ground floor. Therefore, inside gated community, the streets cannot be regarded as border. In contrast, almost all the street and path at Hutong area can be seemed as border. The street there is the border between public space and private house. Local residents like to stay there. Sometimes they may meet their neighborhood and talk with them. In general, it is quite a vital space.

**Quality of public realm**

GLASER et al. (2012) argued that urbanites experience their cities in what we call the ‘public realm’ and it has a broader meaning than just ‘public space’; it includes facades of buildings and everything that can be seen at eye level.

The places with good quality of public realm can indeed attract more people. Therefore, creating more communications and possibilities. Gehl (1971) believed that public activities happen at the place with good quality of physical environment and favorable conditions in terms of psychological and social aspects. And A. B. Jacobs (1993) argued that the great streets always have same characteristics, including desirable landscape, clear boundary, permeability, harmony, and etc. It is obvious that people would rather like to stay and use the space with good quality, because they feel more comfortable. Thus, good quality of public realm directly benefit urbanity, since it can encourage and maximize potential activities.

Based on observation, in comparison to Hutong, the scale of public space around gated community is not very friendly, since there are many high rise buildings. Sometimes it can result in oppressive feelings. And public spaces around gated community usually lack of space for sitting and staying. Therefore, it reduces the possibility of activities and interactions to a great extent (Gehl, 2010).

**Conclusion**

In general, this paper is trying to establish a framework for research of relation between urbanity and gated community in suburban Beijing. It first proposes different types of gated communities in suburban Beijing both on urban level and on local level. For each of type it has its own special characteristics. Furthermore, it has been pointed out that urbanity of gated community can be tackled from three aspects, including density, border, and quality of public realm. All of these three aspects are crucial and can considerably influence degree of urbanity.

What is more, by making comparison with Hutong area, this paper propose some strategies and interventions that can be used to enhance urbanity of gated community. First, increasing density of people and its percentage on street. Second, improving vitality and connectivity of border. Third, enhancing quality of public realm, especially regarding to scale and space for staying.

**Reference**


