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Master of Science in Architectural Engineering

**Design Study about the Parking lot
as an Urban Park**

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February 2014

Design Study about the Parking lot as an Urban Park

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Abstract

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This thesis seeks to the possibility for usage of new flexible urban park according to frequency of parking usage. Modern cities have become high-density and high-rise more and more, because of excessive developments. And also, they have been developed as car-centric way, so public space for people are disappeared increasingly. In the car-centric present situation, the problem of the car must not be just limited to traffic jam, oil trouble, and environments pollution. There is necessary looking at the problem of the car in a new way. This thesis tries to view the matter about the car, focusing on the occupied space by the car. The most typical facilities are road and parking lot. In this thesis, the parking lot is selected as the research object.

The parking lot, which has located all around in the high density city, has possibility to be new public space in the city. To take advantage of the possibility, the research about the parking properties is as follow. First, the parking lot is recognized as the almost non-activity space. Although it is used physically, through occupying the

space, there are not occurred events continually. Second, the area about 44.9 km², which is 7.4% of whole area of Seoul, has been role as simple storage for the car. Last, the parking lot, made for smooth use about the car, is also a contradictory space. These helps understand that the parking lot is handful wide space within the city but it is not efficient for the aspect of the space usage. On the basis of these, differs from the precedent researches, the purpose of this thesis is to seek possibility for use the parking lot as human space, when parking is empty.

In the aspect of the program solution, the urban park is noted. In the present urban condition, the contribution of the park, to changing the quality of urban life, has being more and more increased. The role of urban park within the city is being acquired the role as social space for increasing of citizen's living quality, beyond providing the natural green space simple. As above, though the necessity and importance of the urban park are emerged, in contrast securing the space for creating a new park is difficult status. Compared other city, the present park rate in Seoul looks like sufficient. But most all parks are located bordering mountains or Han River. So, in the aspect of neighborhood parks, Seoul city's park rate related people's life is too scant. Accordingly, this thesis proposes a method for using the parking space as new space for neighborhood parks, which are scant within city.

This thesis should propose the method of changing the parking lot, as the urban park. This method is not a simple radical transformation. With the keeping the existing function of parking, the method is aimed at the proposal that the space could be used as park according to frequency of parking usage. The concept of hacking is used for architectural method of this thesis. In the context of architecture and urban, hacking is allowing design and creative process to the user. That means to suggest an alternative for misused space and to generate architectural spaces previously unimagined by the designer of the architecture or urban. At this time, hacking is mainly proposed for the concept of an alternative making a new public space in high-density urban area, with the target, those who have been lost public space by automobiles or buildings in city. As cases studies for adapting similar concept, rebar's two projects, related with parking, have been analyzed. On the basis of these analysis, I have noticed that the design project

should be adopted the reversible, module system, but also improved the storage method and harmony with the existing structure. In the design chapter, the Lotte mart parking lot in Seoul station is selected the site of this design project. Macro and micro analysis about the Seoul station and definition about the scenario of urban park in this site is implemented.

The purpose of this thesis, changing parking lot as the urban park, might be the fragmentary approach to dealing with the one of urban problem. However, the parking lot can be changed to be attractive, because of its characteristic, such as plenty space and wide base location in the city. If the parking space could be changed the embracing public space for people, it would be great advantage of city. In this respect, this thesis proposes a possibility for use the parking space as urban park.

Keywords: Parking lot, park(ing), Hacking Architecture, Urban Park, Reversible, Under-used Space

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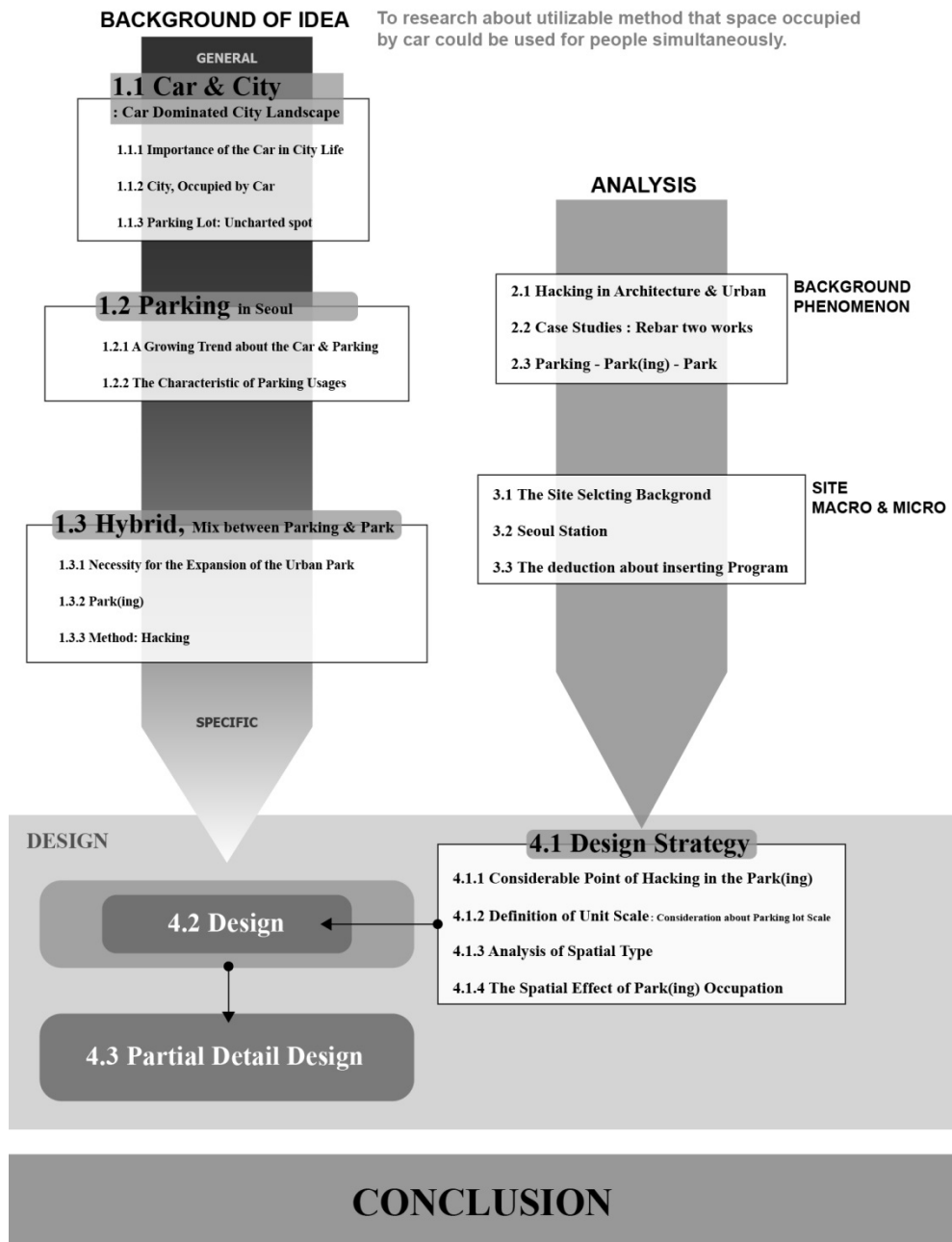
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STRUCTURE



Chapter 1. Introduction

1.1 Car & City: Car Dominated City Landscape

1.1.1 Importance of the Car in City Life

“The Car formed an essential component in the modern architect’s strategy to improve and re-build, re-shaping every aspect of the urban environment and the world that spread alongside the flowing new roads. Serious attempts at turning the tide of auto-mobility did not begin until it was too late, and the car had become socially, politically, economically and physically enmeshed into the fabric of the city.”¹

Modern cities are being more densification. And also, the half of people around the globe lives in cities. Present, machine products have improved the quality of our lives in the city. Above all things, the car, one of most important thing in the modern city life, is a symbol of the era of the machine age.

¹ Bell, Jonathan, “Carchitecture”, Birkhäuser, (2001),: p.13

Car life, such as driving and parking, has been a fundamental part of our metropolitan life since the invention of the automobile. Only hundred years, the car is the master of the whole cities in the world. Between 1950 and 1980, the number of cars in the world increased from 50 million to 350 million. According to a report from Ward's Auto, the global number of cars exceeded 1.015 billion in 2010.

Invention of car was one of important factors changing people's settlement environment. The concept of settlement was changed at the development of transportation during the Industrial Revolution. At that time, city faced with urbanization and industrialization. With the industrialization, every similar facilities in urban started to become gathering one place each. Especially, in modern settlement environments, the residential downtown area often separated. Movement to suburbs surrounding the urban core was then facilitated be extended transit and rail lines, and finally, most decisively, by the automobile.

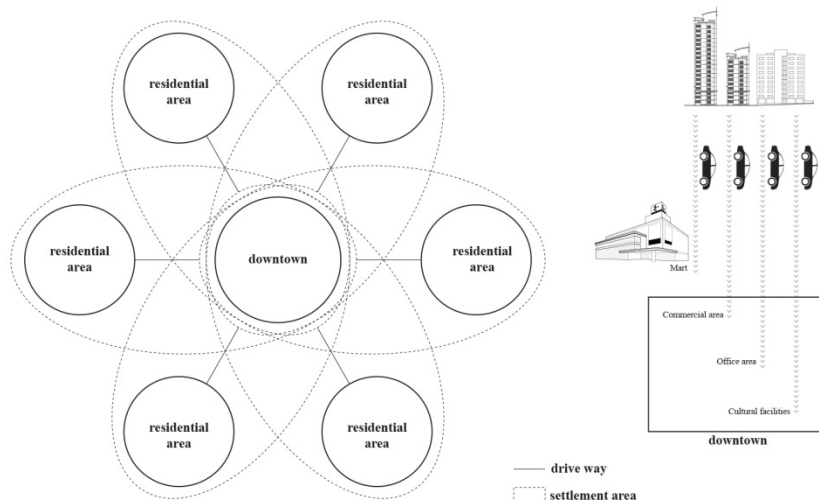


Figure 1-1 Settlement - Modern times

The reason of the highest for passenger car ratio into the distribution rate of traffic methods is the difference of the constructed infrastructure. In case of the railway system, they need a lot of money and time to make new infrastructure. However, in case of car, they could be able to use existing road and highway. It is possible to approach easy to accommodate traffic needs. With this, with that, the convenience of the car usage is the reason that increasing number of car usage amounts. Car enhances people's lives, as the staple products of the machine civilization.

The car is the products of machine civilization, making our living enriching. We are able to move long distance within short time through the car. And also, it could be reached the destination much faster and easier than other traffic method. The car has being enhanced the charm by creative idea and engineering progress.

In the present multiple-nuclei city, which is separated to space according to functions, role of the car is being more important. Actually, in terms of the means of the transportation, the car is most free, comfortable, and pleasant. In terms of the capitalism economy, it is a symbol of social position. It also can be one kind of leisure through the drive the car.

People, who have experienced with the car life, depend continually upon the car, attracted to various merit. The car has been bad effects on not only the environments, but also socio cultural. Anyone has recognition about various harmful things, related with the car, and think those are problem. However, completely eliminating the car is unlikely. This is because the car has given us the convenience with evil influence

at the same time. We have to admit the necessity and the importance of the car. If all cars are gone immediately, our daily life could be paralyzed. For example, commuting and food related issues. People could have to spend time and effort on solve the necessities of life, like food, clothing, and shelter.

The Industrial Revolution gave people numerous technical such as benefits. Bring the convenience of these benefits, has detrimental effect on the environment and animals and man by himself, lurks in the back side.

1.1.2 Invasion by the Car

The car provides to us not only benefits but also many threats. The car contributes to global warming through air pollution caused by exhaust gas emissions and fossil fuel consumptions. And also, many people are injured or died in a car accident. People get stressed because of a traffic jam and the perpetual noise of traffic. Furthermore, City uses a lot of money for a road maintenance and improvement. As a result, children's playgrounds are demolished.

As these many problems, city always fights with the car. Although the city doesn't want to be occupied by the car, they have been lost more and more space for car facilities by gradually increasing car. City wants to rid of the car facilities, but it is impossible. That is because these car facilities are the essential components for city life. If they are insufficient, city falls into disorder.



Figure 1-2 Possession pedestrian by the Car



Figure 1-3 Highway Road Scenery on National Holiday in 1990s.

Since the car appearance, the city has always been suffered from territorial disputes between people and cars. Each of them makes their own territories. They seem to be intruded from each other. Such as separation between pedestrian passages and roadway, or between basement parking lot and ground facility for human, people struggle to exclude car possession space within people's living environment. Despite all these efforts, huge scale building, only for parking, starts to appearing for accommodate increasing number of cars.

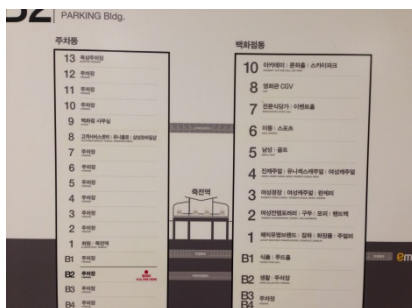


Figure 1-4 & 1-5 Shinsegae Dept. Store Jukgeon Branch

We think as giving the priority to people in real living environments, but reality is not. That means we put emphasis on the car more than people in city. For example,

people yield to oncoming traffic, in a narrow road. And also, a lot of lands within city are delivered to the car for parking space. The flow of the road is also used as in priority for the car than pedestrian. Even, some place is installed only for the car road except pedestrian. Sometimes pedestrian road is being occupied by the illegal parking, so people have to walk through the car streets. People have being taken numerous benefits, in terms of move, caused by the car. However, caused by these benefits, people have to move two or three hours on the average a day, within separated multiple-nuclei cities environment. To use the car, people are contradicting themselves. People made the car for their convenience. However, at the present, people change the law and the social facilities, to increase the car mobility. Even if people's activities are restricted constantly by the law for the car usage, each roads and parking facilities are easily created simplify in the name of local developments throughout the cities. It is hard to securing the site of creating urban park within city, but roads and parking, for the car usage, are always appearance in city.

Like this, we have been giving our living area to the car usage. It is hard to secure the site of creating urban park and green space within city, but roads and parking, for the car usage, are always newly appearance within city. To solve the traffic jam, creating more roads in city, but rather becoming worse more.

1.1.3 Parking Lot: Uncharted spot

The car is the most typical necessary evil for city. Nevertheless, its availability is too numerous, so we couldn't escape from the car usage. The number of car will be increased continuously, and also it will act as important factor on our society. The problem of the car must not be just limited to traffic jam, oil trouble, and environments pollution. There is necessary looking at the problem of the car in a new way.

This thesis tries to view the matter about the car, focusing on the occupied space by the car. Numerous urban spaces are occupied by the car. Among them, the most typical facilities are road and parking lot. In case of the road, this is the place with the move of car, having directional property. So, it is a continuing space for act. On the other hand, the parking lot is role simplify as storage for the car. That means, in terms of act, there is a transient space.

“Parking effects both transportation and land use, but its effects are often overlooked or misunderstood... Parking is a blind spot in most studies of automobile transportation.”²

As mentioned above, even if the parking lot has many potential, it has been got a little attention. Existing researches about the parking lot are the way of filling

² Donald Shoup, “Shoup”, 2005, p.3

parking demand in residential area, having with parking difficulties. And also, research about regulation of parking, or standards of parking are mainly. This thesis differs from the precedent researches. The purpose of this thesis is to seek possibility for use the parking lot as human space, when parking is empty.

1.2 Parking in the City, Seoul

Korean cities have developed into Car-centric way, because imitated the American development way. Therefore, researching and seeking about cars is most important compared other transportations. As an inevitable consequence, the numbers of parking lots has also increased rapidly to accommodate these remarkably the increase the car use.

1.2.1 A Growing Trend about the Car & Parking

Son Jungmok stated, in his book, that the twentieth century is the era of changing completely for basis of human life, had been going on 5,000 years-long. Among these factor, the biggest factors of transforming Korean cities are electronic and streetcar, in first half of the twenty century. After that are car and highway.

Especially, the appearance of the car had changed the cities form and system.³ As he says, in Korea society, the car has being increased continuously, after it appearance. Figure 1-6 are sorted the major traffic indicator in Seoul. Figure 1-6 and Table 1-2 are arranged the major traffic indicator in Seoul, between 1981 and 2012, by each factors. In 1981, the number of the car in Seoul is 221,644 ea. However, after 30 years, the figures are 2,969,184ea. This trend has increased about 14.4 times. More quite astonishing thing is the changing number of total parking area in Seoul. The increasing number of parking area is shown about 48.5 times huge increase trend. (From 73,866ea to 3,584,262ea) During the same period, the increasing number of people in Seoul is shown about 1.2 times. This data indicates that the car could have influenced a lot to human life and city, Seoul.

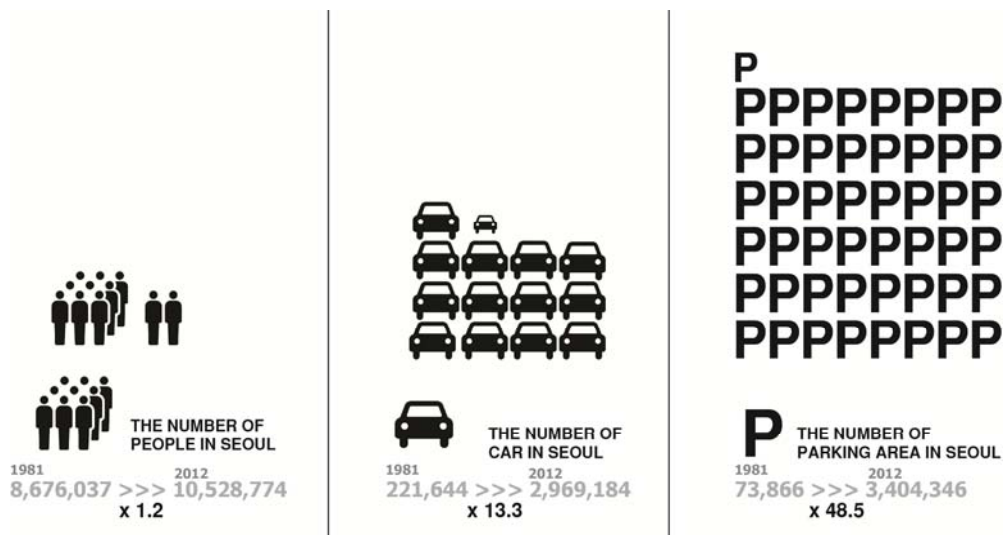


Figure 1-6 Comparison increment Figures about People, Car, and Parking Area, between 1981 ~ 2012, (Based on Seoul Government Statistic Figure)

3 손정목, 한국 도시 60년의 이야기 1, 한울, 2005, p.

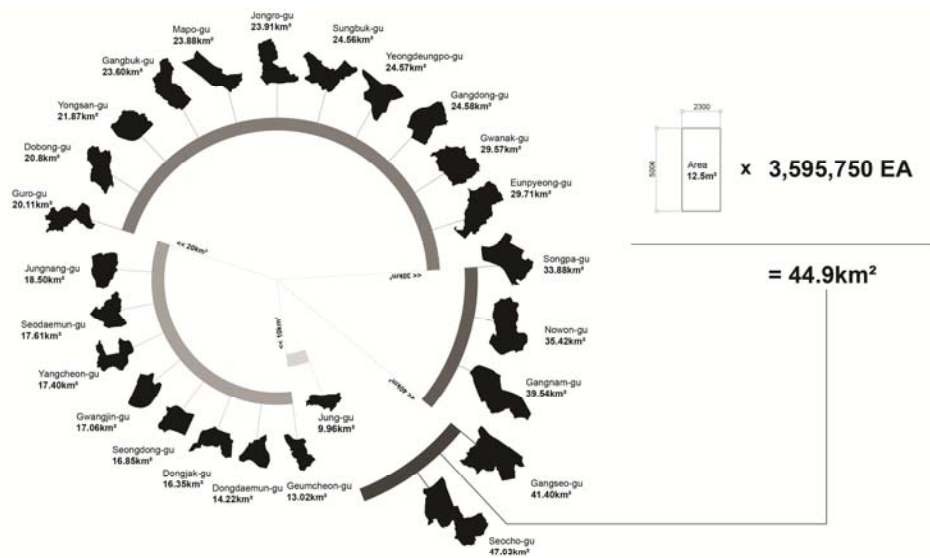


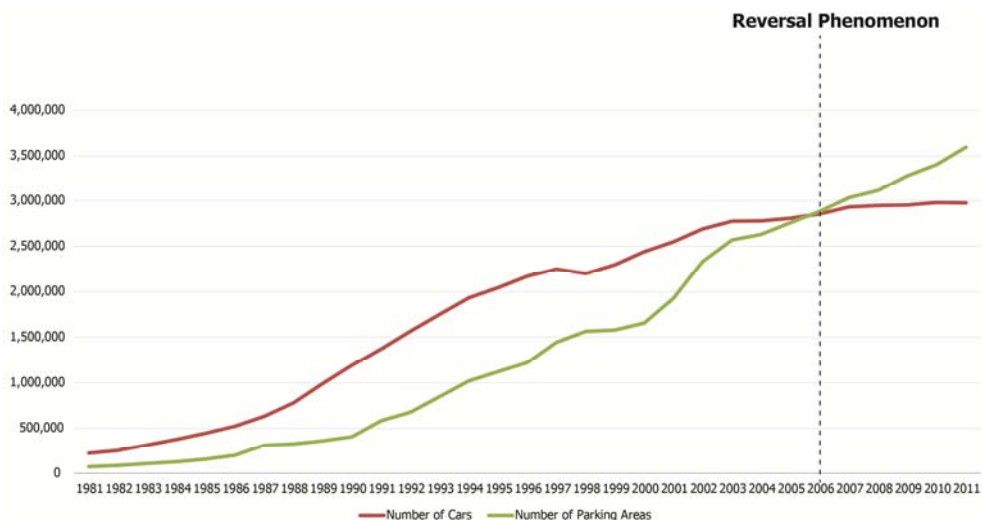
Figure 1-7 Comparing total Area of Parking with Each Area of Local in Seoul, (Based on 2012 Seoul Government Statistic Figure)

Figure 1-7 is a diagram about Comparing total Area of Parking with Each Area of Local in Seoul. The total area of parking in Seoul is approximately 44.9km², which one of parking area is assumed 2.3m and 5m in each length. This figure is about 7.4 percent of the size of Seoul. Comparing other local area size Seocho-gu is the only local area, much bigger than total area of parking in Seoul. Other areas are smaller than total parking area.

1.2.2 Characteristic of Parking Usage

The car enriches people life and is a symbol of convenience. Concurrently, people contradict oneself by the car usage. People create the car for their convenience, but rather, they are controlled by the car. The parking lot, made for smooth use about the car, is also a contradictory space.

Graph 1-1 the Growth of the number of Car and Parking area



(Based on 2012 Seoul Government Statistic Figure)

The Graph 1-1 is showing the Growth of the number of Car and Parking area. In 2006, the number of parking area is much bigger than the number of registered car in Seoul, the reversal phenomenon is emerging. However, according to one advertisement⁴ in 2012, Seoul drivers wander 500m to find parking space on

⁴ S-oil here campaign, 'here balloon', 2012

average in every day. Like this, even though there is enough to parking space at the figures, we always have difficulty with finding parking space.

Most of the parking lots within the city have being used only as the car storages. We are able to recognize the parking lot as the almost non-activity space. Although it is used physically, through occupying the space, there are not occurred events continually. Even if the parking lot will be filled completely with the car, it is the empty space in terms of human activity.

It can hardly to be free from economic ways to utilize land in cities with high density. People always want to develop the city more high height and more dense for much more economic effects. The parking lot is contradictory in these economic principles. Of course, at the present, some different types of parking buildings, such as with a commercial and cultural function in the lower part, are introduced, however these types could not be also considered suitable as fundamental alternative for future parking lot in city.

As mentioned before, In terms of people's act, the parking lot is considered as the fragmentary space, because it is installed only for the automobile usage. Most drivers park a car in the parking lot near their destination, and move to final goal on foot. At the moment, human activities are generated, through converting a transportation method.

However, these activities are aimed to escape this space, so this is not a continuous activity. The parking lot is originally the first and last part of a space on visits or

lives next to. It's like a gateway, but it could not be accommodate people activities, caused by for the car use only.

The parking lot, with broad open space within the city has a possibility enough about change attractive. If people can embrace the parking space for changing as public space, it could be great advantage for city. However, the approach of totally changing the parking facilities, now used for, will be brought about other problem within city.

1.3 Hybrid, Mix between Parking Lot & Park

1.3.1 Necessity for the Expansion of the Urban Park

The contribution of the park, to changing the quality of urban life, has being more and more increased. A lot of cities in the world have being regressed to the humanism in the urban development sector. In these situations, the new innovation and change in the urban life are requesting the new role of urban park. Now, the park is becoming important agenda in policy of the city. Simultaneously, many global cities have being competed with other cities to create good parks and green systems.⁵

5 Peter Harnik, 'Urban Green: Innovative Park for Resurgent Cities', Washington: Island

At the modern society, the concept of park is being diversification, and the character and function of park are being varied and specialized. Karen Johns and John Wills emphasized, in their book 'The Invention of the Park'⁶, that the concept of the park is flexible and changing thing. From the ancient garden till the theme park, including the appearance of the park after the Industrial Revolution, the concept of the park has being evolved, developed, or transformed with the expansion on the experiential edge. In case of urban park, it appeared as the prescription for the industrial city's problem in 19th century. After that, it had been settled and institutionalized. Having undergone urbanization process in 20th century, the characteristic and the function have being evolved with urban development.

These evolutions of urban park regard a closer relationship with urban living, as important. The diversification of contents within the park through the relationship with the urban living have being expanded the spectrum of urban park. Through this, that has being diversified as from the space provided nature for rest in the daily life till the leisure space for hobby.

Geoffrey Jellicoe stated that the park is providing the psychological relaxation beyond the natural green scape. In the book, '*Great City Parks*', Alan Tate told as in the follow. "Geoffrey Jellicoe suggested, with his characteristic acuity, that the continuing purpose of public parks 'should be to lift people out of their everyday

Press, 2009, p.1

6 Karen Jones & John Wills, 'The Invention of the Park', Cambridge: Polity Press, 2005

lives.”⁷

Like this, as if the types of urban park are being diversified, the role of urban park within the city is being acquired the role as social space for increasing of citizen's living quality, beyond providing the natural green space simple. The park within the city is not a simple green space, but a social property with various functions and roles. And also, it should be understood as the complex space being contributed to the pleasant living for citizen.

As the social place, the park has to be a place embodied the pluralistic values, gathering various people. In addition, the park is always open to everyone, and should be able to accommodate numerous social demands. As the public space within the city, the park is a place of seeing others, and showing to others simultaneously. The urban park should be able to accommodate various demands and values, as the public space. The demands of sharing with many people are important, to consider when it is no possible to meet the demand for personal space at the same time.

The park has always played a role for a catalyst to changing, ahead of time. To solve the urban contradictions and limits, according to industrialization, the concept of the park had been started to use. At the present, these concepts are proposed as the solution of numerous urban and social problems. Consequently, the park should be able to accommodate new change of urban and life, and to be proposing the new

7 Alan Tate, 'Great City Parks', London: Spon Press, 2001, p.2

vision for them.

As above, though the necessity and importance of the urban park are emerged, in contrast securing the space for creating a new park is difficult status.

Securing the lands for nonprofit urban planning facilities, like as the park, has being more and more difficult by high-density and high-rise of city, according to population growth, and high compensation cost.

The Seoul governments have been carrying forward a lot of business about roof-greening roof of individual buildings, and open to neighborhood through greening of school facilities. However, it has been vastly insufficient still to accommodate citizen's various demands for the park.

1.3.2 Park(ing)

Through the previous contents, I could be checking the present conditions. At car-centered urban system, numerous spaces within city are occupied by the car, and new parks are not supplied, as the fail to securing the lands, despite of the necessity for urban park.

As the solution of these things, this thesis should propose the method of changing the parking lot, as the urban park. This method is not a simple radical

transformation. With the keeping the existing function of parking, the method is aimed at the proposal that the space could be used as park according to frequency of parking usage.

Michael Fox states in his book *INTERACTIVE ARCHITECTURE* that “there is a great potential for applications that arise from understanding what an architectural space or object is currently doing and how it can do it better.”⁸

Therefore, this thesis focuses on the three things in relation to the possibility of transformation as park, in parking.

The first is the frequency of parking usage. On the characteristic of the parking, it's criterion of usage has been affected by the function and usage time of surrounding cities. In case of the parking, located within the residential district, there are relatively free in office hour, but after business time, there is filled with many cars. Of course, within the business district, symmetry phenomenon is observed. Like this, a fluctuation about parking usage is too big according to time and surrounding function. So if it could be planning programs of the park, considering this point, the new type of the urban park, suitable for high density urban environments, could be possible.

The second is the locational characteristic of parking lot. Looking around the present condition of urban park in Seoul, most parks are located around outskirts of

⁸ Michael Fox and Miles Kemp, “*INTERACTIVE ARCHITECTURE*”, Princeton: Princeton Architectural Press, (2009): 34

the city. Because most of it had developed on adjoin the green environments. It has brought about the low utilization, so present urban park is mainly used on weekend. Comparing the area of neighborhood parks per one person between global cities, the figures in Seoul is relatively less than the figures of other cities. At the present, the Seoul government has been making an effort more to provide the neighborhood parks. These locational characteristics of parking, which is located all over the city, are attractive enough in terms of providing urban park.

The last is efficiency of land use. As mentioned before, the parking lot has large variation of usage, and sometimes is totally empty, according to the time. In the modern urban environments, opportunity cost, according to land usage, isn't defined simple as a financial cost. To improve life qualities of citizen, the method to maximize the land usage of these facilities should be considered.

In this thesis, the word 'park(ing)' is defined as the proposal for changing the parking lot as the urban park. The concept of this word is created by refer from 'Park(ing) Day' of Rebar, and the graffiti work of Banksy (Figure 1-8). The basic meaning of this word involves both the parking and the parks are within same object, and they are changed flexible over by space usage demand. The concept of park(ing) is inserting the function of the urban park into the existing parking structure or space. The architectural method of this should be used the concept of hacking.



Figure 1-8 Banksy - Parking Swing, 9th and Broadway, LA. by JulieFaith on Flickr

1.3.3 Method: Hacking

Today is the era of emphasis on the individuality, and numerous mechanical products are being invented on every second. At this era, the user-centric trend is the act, that user modifies subjective the products for their suitable convenience, getting out of the mass-produced universal products. The most common example is the DIY, being in the limelight recently. These notions are very similar with the concept of the hacking. Commonly, we have negative recognition about the word 'hacking', because its primary perception involves breaching the security of computer systems for illegal or disruptive purposes. However, this is just a part of the notion of

hacking. Like many terms, hacking carries several meanings.

Recently, as the movements of revitalization or development, the flexible usage of urban space has been being in vogue all around the world. Being adding the modernization into life of citizen, there occur demands about various spaces according to numerous life styles and culture. As a solution of this situation, flexible architectural activities, such as temporary urban space occupancy, have being occurred. The notion of the hacking is similar, but hacking means the way about the change for existing system inconveniences or irregularities according to the change of socio paradigm. And also, the concept of hacking should be understood as a larger range than temporary space occupy, because it is able to choose both flexible and fixed way.

The key point of this thesis is that parking lot could be changed flexible into park anytime, based on the usage of space. And also, the reverse, which the park is changed into the parking, is the same. As a method of this flexible changing within one object, hacking concept is used.

Chapter 2. Urban Park, Hacking into Parking lot

2.1 Hacking in Architecture & Urban

Some researchers state that under-used space in the city around the globe is constantly increasing due to fast-changing land use turnover. And also, they defined this phenomenon as accelerated functionalism or short-term application period. In contrast to the old times, building are built to meet the requirements for market and abandoned depend on the changing market circumstance.

The concept of hacking will be a solution for this phenomenon. To cite one example, in 2012, ‘The Office Building of the Future Competition’, hold by NAIOP⁹, is one of competitions for seeking an alternative proposal about future business environment and facilities in these rapidly changing urban environments. There are four finalists in this competition. From among these four finalists, Gensler’s work proposed making extra functional space retrofitted existing building structure, through adopting concept of Hackable building.

In this thesis, pay attention to a concept of ‘Hackable’ Building for design background of an alternative, to change car specific facilities into place share with people. The compound word ‘Hackble’ is formed from ‘Hacking’ and ‘able.’ The

⁹ National Association for Industrial and Office Parks

word of 'Hackable Building' is first used in Gensler's proposal of this design competition, however, there are some preceding researches and references for 'Hacking', in terms of architecture and urban. The term of hacking holds many varying definitions. The predominant meaning of the word used to refer to illegal activity performed by computer experts, however a new definition is slowly taking over.

On the basis of preceding research and references, seek the notion of word hacking and definition about hacking architecture, in this chapter. After that, seek validity for the notion of design background through some architectural and urban case studies.

2.1.1 The Definition of the word 'Hacking'

Hacking is the manifestation of both a resourcefulness and curiosity to explore and or exceed certain limitations projected by a given system. Like many terms, hacking carries several meanings, some which become problematic because of their negative implications. A primary perception is that hacking only involves breaching the security of computer systems for illegal or disruptive purposes. This term has been popularized by television and film,¹⁰ and still, for many people, this represents

10 Hackers(1995) – IMDb. The Internet Movie Database (IMDb). Web. 23 Mar. 2011. <ht tp://www.imdb.com/titl e/tt0113243/>.

the sole meaning of the word. But this definition covers only a partial and perhaps unfortunate branch of hacking which may be differentiated with as cracking.¹¹ When this perception of hackers is done away with, hacking can begin to be seen as an ethical and moral approach to considering possibility.¹²

To sum it up the common notion of hacking, based on the prior consideration, it refers to the re-configuring or re-programming of a system to function in ways not originally intended by the owner, administrator, or designer. In the context of architecture and urban, hacking is allowing design and creative process to the user. That means to suggest an alternative for misused space and to generate architectural spaces previously unimagined by the designer of the architecture or urban.

Figure 2-3 is the comparing general development and method of the hacking. The differential point is the finding way about development site. The general development finds the site through the consideration about urban physical trouble, such as deterioration. In contrast, the method of hacking finds the site through the consideration about problems in urban phenomenon. Gensler's concept of hackable building is also same.

11 Himanen, Pekka. *The Hacker Ethic: a Radical Approach to the Philosophy of Business*. New York: Random House, 2001. Print. Viii.

12 Janak Alford, *Modifcatured – Hacking the tools of Architectural design*, master's thesis of Carleton University, 2011, p.18

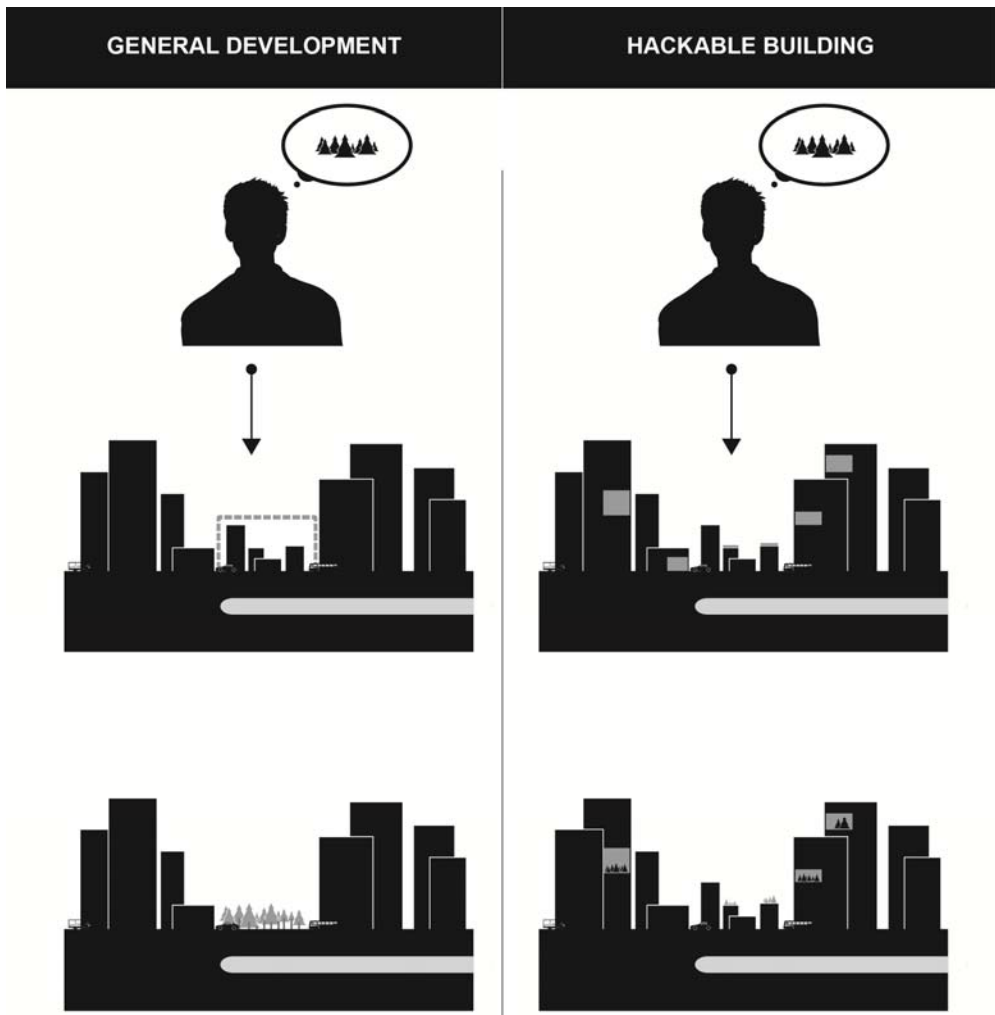


Figure 2-1 Comparing General Development and Concept of Hacking, (Based on Gensler's Office Building of the Future)

Our cities are already filled with the numerous buildings. We don't need new structures to meet the needs of our future. We need only to upgrade our existing buildings stock and make them more useful for our rapidly changing world. Buildings need to be flexible and accommodate a wide range of diverse needs in order to serve our future generations.

“Their toolbox of architecture hacks could be the starting ground for a new wave of architecture and renovations projects.”¹³

2.2 Case Studies

At this time, hacking is mainly used for the concept of an alternative making a new public space in high-density urban area, with the target, those who have been lost public space by automobiles or buildings in city. This thesis is focused on the parking space as the new place of urban park, using concept of hacking. For the easier understanding, the case studies are selected rebar's two projects, related with parking. They haven't used the word hacking at firsthand, but their origin of thought and work purpose corresponds with the concept of hacking. So they should be included the cases.

13 Inhabit, “Gensler Hacks the J. Edgar Hoover Building To Envision the Office Building of the Future”, Access: <http://inhabitat.com/gensler-hacks-the-j-edgar-hoover-building-to-envision-the-office-building-of-the-future/>

2.2.1 PARK(ing) DAY - Rebar

The first is ‘PARK(ING) DAY’ by Rebar. Rebar, founded in 2004 and based in San Francisco, is an interdisciplinary studio operating at the intersection of art, design and ecology. They have created work at venues and institutions around the globe, including the Venice Architecture Biennale, ISEA Dublin, Experimenta Design Amsterdam, SmartCity Paris, the Benaki Museum Athens, the Harvard GSD, U.C. Berkeley and the California College of the Arts.

They produce artwork and design solutions that shape the landscape and public realm, rooted in the belief that human interaction, community and a sense of wonder form the basis of the good life. Their ideas were based on remix, remake, reconfigure, and reconsider. In addition, they provided a definition about their task aimed at creating objects, spaces and ideas that inspire people to re-imagine the environment and our place in it.

PARK(ing) Day is a critical look at how cities are used and broken up, who uses them, and for whom are they designed by. In Rebar’s opinion the city has been designed around the automobile. Accordingly, they suggested these humorous and generous methods, to protest this imbalance, in terms of spatial use in our city. Because, having that sense of humor makes your critical statement more effective.



Figure 2-2 & 2-3 Park(ing) Day, detailed New Tea Table & Yoga Space
 <Source: <http://rebargroup.org/>>

Park(ing) Day identifies the metered parking space as just such a niche¹⁴ within the urban landscape, and redefines it as a fertile terrain for creative social, political and artistic experimentation. It was only through the replication of this tactic and its adoption by others that a new kind of urban space was measurably produced, as it was in the several years following Rebar’s first Park(ing) experiments in 2005. With Rebar providing others with “permission” to act, new users rushed into this niche, challenging the existing value system encoded within this humble, everyday space.

The parking space became a zone of potential, a surface onto which the intentions of any number of political, social or cultural agendas could be projected. By providing a new venue for any kind of unmet need, re-valued parking spaces became instrumental in redefining “necessity.” Thus the creative act literally “takes” place—that is, it claims a new physical and cultural territory for the social and

14 “niche spaces” are undervalued, or valued inappropriately for the range of potential activities within them. Rebar believes that such niches—once identified—can be opened up to re-valuation through creative acts.

artistic realm.¹⁵



Figure 2-4 & 2-5 Park(ing) Day
<Source: <http://rebargroup.org/>>

PARK(ing) Day is an annual daylong global event where citizens, artists and activists collaborate to temporarily transform metered parking spaces into “PARK(ing)” spaces: temporary public places.¹⁶ Park(ing) Day is showing three characteristics.

(1) Reversible Installation

This is one of temporary occupying space method for making public space. That means if events are done, the places of these events should be reconverted to original program, parking lot. In these reason, Rebar recommends to try something more creative and symbolic—a groundcover that will transform the hard concrete or

¹⁵ Rebar, The PARK(ing) DAY MANIFESTO, 2011, p.2

¹⁶ <http://rebargroup.org/parking-day/>

asphalt into a more comfortable and visually impressive space, instead of using real grass.

(2) Main Agent – Citizen

Main Agents of this park(ing) day are common people living city, and just want to use own public space to improve the quality of life for people. They are carrying out all steps, such as planning, making, and installation. So, they make decision about programs or forms of their installations themselves. And also, to encourage participation new users for these global events, Rebar provided the manual how to install a Park(ing) Day in each one's local urban context. According to this manual, they suggest the consideration for choosing the installation spot, references for fundamental elements for public space, and methods for planning the event on each one's spot. With following these considerable points, people are able to inject their own personality through all steps of these processes. As a result, there are various forms, programs, and types of installation.

(3) Standard of Scale: Free within the size of parking lot

It just allows the areas they paid. Within that area, they have freedom to make everything they want.

As artists, the Park(ing) Day phenomenon ignited our curiosity about the composition of the street. We saw that the street could be defined as a territory

inscribed with a greater number of interests than the landscape has room to accommodate. It is only by the tacit undervaluing of certain activities (such as, say, play or eating or socializing) that other activities (such as parking and driving) can thrive. Park(ing) Day sets up an operational precedent for intervening in such a contested, value-laden space and proposed a new system of valuation. Embedded within this approaches are what have emerged as four core strands of our practice so far: tactics, generosity, authenticity and absurdity.¹⁷

As an extension of this project, Rebar suggested two other projects, Parklet (or Walklet) and Parkcycle. Parklet is similar to Park(ing), but it was installed fixed landscape furniture, of course which can be flexible and adapted to changing conditions easy. The Parklet is not an annual event, but more close to daily life. As in the Parkcycle, it was more focusing about mobility. The Parkcycle is a transferable Park(ing).



Figure 2-6 & 2-7 Parklet, Using Place for Public Interaction and Commercial.
<Source: <http://rebargroup.org/>>

¹⁷ Ibid.

2.2.2 Parklet: Pavement to Park – Rebar

In a growing number of cities around the United States, including San Francisco and New York, city agencies have created permit programs for merchants, organizations and citizens to convert metered parking spaces to permanent plazas, open to the public. These installations called ‘Parklet’ – originated as part of San Francisco’s ‘Pavement to Parks’ program, which converts excess roadway into public park or plaza.

“A parklet repurposes part of the street into a public space for people. They are intended as aesthetic enhancements to the streetscape, providing an economical solution to the need for increased public open space. Parklets provide amenities like seating, planting, bike parking, and art. While parklets are funded and maintained by neighboring businesses, residents, and community organizations, they are publicly accessible and open to all.”¹⁸

(1) Three Benefits, Compared Other Installation within the City

According to Rebar, the Parklet offers some benefits.

First, it is fast, flexible, and can be adapted to changing conditions. When it is no longer needed, it can be re-used elsewhere. As such, Rebar said that "it is like a

¹⁸ City of San Francisco, ‘PARKLET MANUAL’, 2013, p.1

specialized organism that operates at the edge of change in the urban ecosystem.”¹⁹

In addition, Matthew Passmore, Who is one of partners in Rebar and currently directs Rebar’s public art program, are stated about the strong points of these reversible design in an interview.

“What’s cool about it is this inexpensive way to incubate and test a program. You put this parklet out on the street, which is completely reversible, making it much cheaper than building out a bulb on the sidewalk. If the parklet works, you can always come back later and build it out with more permanent materials. If on the other hand it’s not successful, you can take it out and return the street to being a regular street.”²⁰

Like Figure 2-9, the process of the installation must go through several steps. These are defined five main steps, such as Pre-design, Initial proposal review, Design development and permit issuance, Fabrication and installation, and Post-construction. If anyone opposed the installation, it could be reconsideration.

19 Ibid.

20 Interview: REBAR makes simple yet powerful statements about the how and why of city design, Access: <http://nextcity.org/daily/entry/interview-rebar-makes-simple-yet-powerful-statements-about-the-how-and-why->

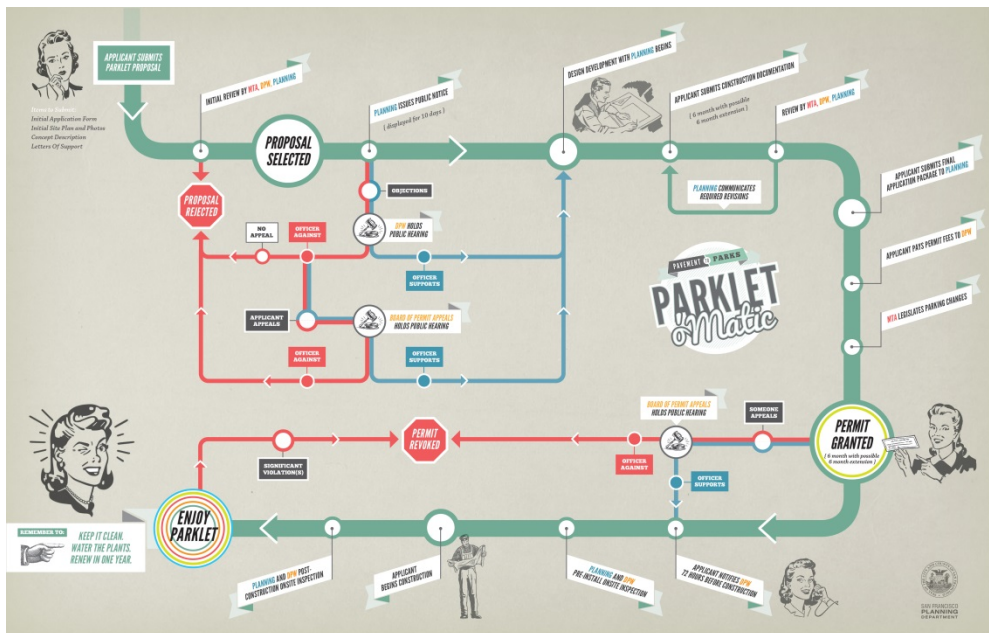


Figure 2-8 Graphic Representation of the Parklet Permitting Process.
 <Source: San Francisco, Parklet Manual, p.4-5>

Second, the Parklet is less expensive by orders of magnitude, compared with traditional ‘bricks and mortar’ approaches to permanently redesigning the streetscape. So it is a potential boon to cash for strapped municipalities, which want to initiate positive changes but don’t have the budget for large scale capital projects.

Last, the Parklet system can be programmed to accommodate the needs of the local community, business clientele, and the general public. While the Parklet are funded and maintained by neighboring businesses, residents, and community organizations, they are publicly accessible and open to all.²¹ Store owner, front of them installed the Parklet, extended this inspiration towards the creation of a new

21 Ibid.

public space in the street, adding seating for their patrons, as well as neighborhood residents and visitors who pause to relax and chat on the Parklet.



Figure 2-9 & 2-10 Parklet, Using Place for Public Interaction and Commercial.
<Source: <http://rebargroup.org/>>

(2) Modular System

“Parklet is a modular system for extending the sidewalk into the parking lane, offering an opportunity to redesign cities with a new kind of user-generated urbanism.”²² The Parklet uses a ‘kit of parts’ approach to creating urban public space. Various modules are available that link together along the curb line to extend the width of the sidewalk by about 7 feet / 2.1m. Each module works independently and together with others to create a customized living environment in the pedestrian right-of-way. Currently, available modules include high tables, benches, planters, bike racks and flat extensions.

²² <http://rebargroup.org/walklet/>

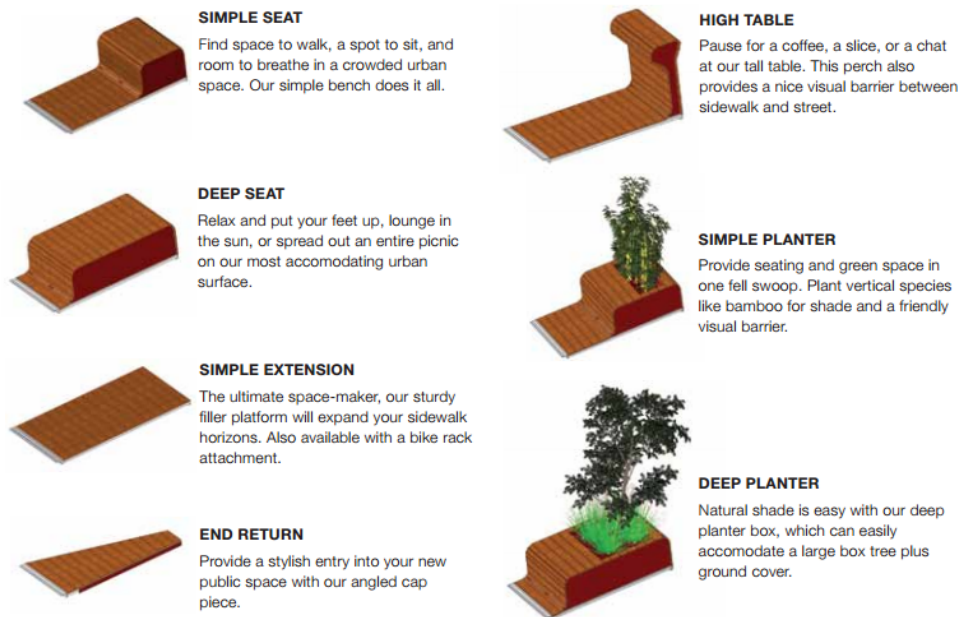


Figure 2-11 A Mix and Match, Modular System for Walklet
<Source: <http://www.walklet.org/>>

2.3 Parking – Park(ing) - Park

2.3.1 New type of Park

(1) Present - Surface Type Park

According to "A Law about Urban Park and Green Space", the area of the park secures more than 6m^2 in urban area, except development restriction area and green belt area is 3m^2 into a law. These methods are basic unit requirement application method based on population, and have availability for standard setting of urban

planning. However, these methods are unsuitable for Seoul, which is heavily populated city, because they doesn't consider basic unit requirement standard, required as reality, and population density.²³ Figure 2-2 is analysis of park service isolated area on the basis of effective distance.

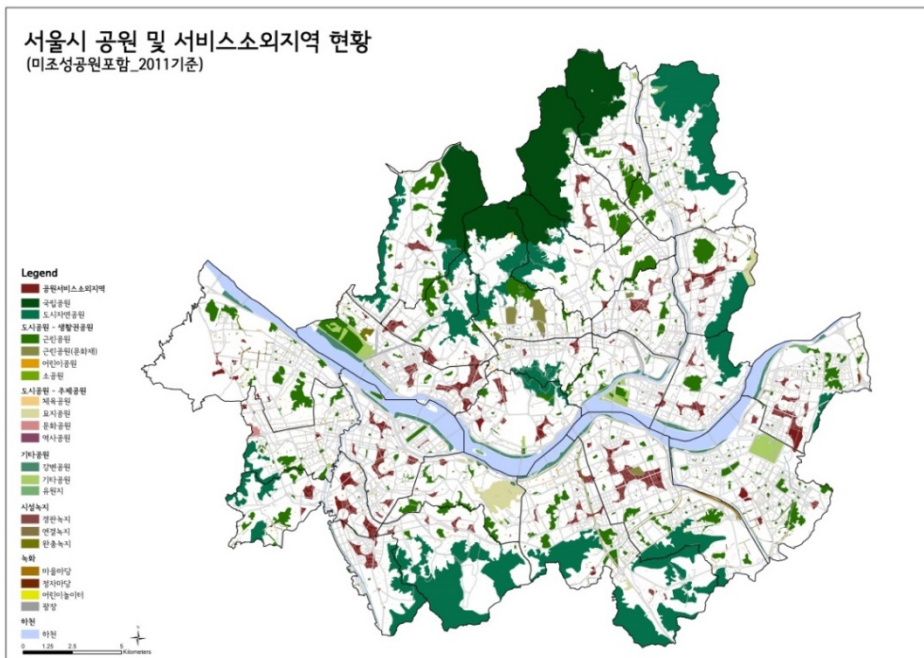


Figure 2-12 Present Condition of Park and Park Service Isolated Area in Seoul

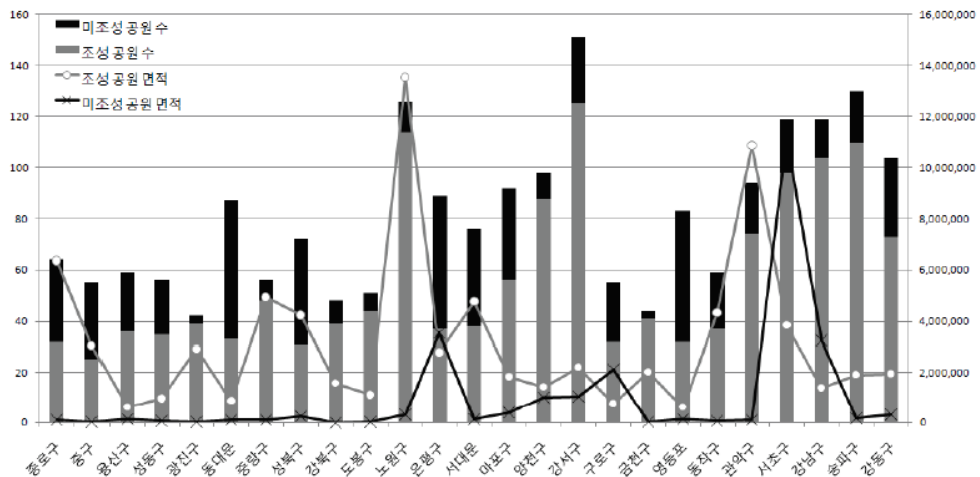
<Source: The Public Hearing about Basic Planning about Greens of Park in Seoul, 2011 >

Except the park service isolated area, red color in Figure 2-2, other colors shows present condition of urban park in Seoul. Most of all located bordering mountains or Han River, and these parks has occupied a lot of areas, and recognized as surface

23 박종준, '참여적 계획을 위한 집합적 공간 의사 결정지원 시스템의 개발 및 적용', 서울대 박사논문, 2013, p.52

type park. More than half of the urban park in Seoul belongs to the urban natural park. As a result, in numerical terms, although the area of park looks like enough, to narrow down the neighborhood life zone park, the area of urban park is insufficient and concentrated particular areas. In terms of park rate, there is an imbalance distribution.

Graph 2-1 The Urban park built Condition for Each Local Constituency



<Source: 박종준, '참여적 계획을 위한 집합적 공간 의사 결정지원 시스템의 개발 및 적용', 서울대 박사논문, 2013, p.50>

Graph 2-1 is the urban park built condition for each local constituency. The areas, the downtown apart from natural greens, such as Jongno-gu, Jung-gu, and Yongsan-gu, have small number and areas of urban park. In case of Gangnam district, which are built in the 1980's, the number of parks are enough but the total areas of parks is too insufficient for the numbers.

(2) Future - Dotted Dispersed Type Park

In Korea, almost green space consist of mountain area, so usage of these green space are confined until weekend cause its low accessibility and availability. Furthermore, on limited territory, securing nonprofit urban facility, like park, has increasingly difficult caused by the problem of land acquisition, due to densification, based on population growth, manhattanization, and high land compensation. At the business about urban public area, many cases attract private capital recently. Open space, including the park, are also developed with these business is, purpose are commercial and development profits, however that is just formality, like only requirements of legal standard.



Figure 2-13 Han River on Weekend



Figure 2-14 Namsan on Weekend

According to '2030 The Seoul Government Basic Planning about Park and Green Space', the methods about expansion of the urban park are defined as making new park, securing park in District Development Project, making park in urban planning facilities, and making park in relocated public facility site. However, for twenty years from now, securing large scale greens of park in Seoul will be difficult. Therefore, Seoul government method of securing urban park land is more focusing

on re-using existing facilities, such as urban planning facilities or relocated public facilities, rather than making new park. And also the concept of urban park should be realized flexible as user perspective rather than legal regulation. As a result, it could be come up with versatile securing methods. Even small scale piece of land could be developed for urban park.²⁴



Figure 2-15 Parking day



Figure 2-16 Using Roof Floor Tennis Court

In modern times, this is the age that diversity becomes increasingly expanding. The time, that individuality and difference become respected, past when the age emphasis standardized value. Korean society is also arrived the age, emphasized on diversity, and individuality, through the high growth period, only focused uniformity and efficiency. For this reason, people's various desire in city are constantly emerged and exploded. The park, taken charge of people's leisure and rest, have being also changed space having functions of recreational and edificatory through supply green space into social space with various people's act.

24 서울시, 2020 서울도시기본계획, 2006, p.462

In future, making urban parks, an approach to aspect of securing green area is too hard to secure enough area and disagree in urban paradigm at this time. Today's city requires the diversity in terms of life paradigm and cultural consumption. People want the urban park to guarantee multidimensional activities with reflecting changing leisure trend, and requirements for citizen, rather than Simple and Function centered park. To meet these role changes, each foundation's interests and efforts are growing.

The alternative suggestion about new type park is 'Dotted Dispersed Park'. It could be easy to approach better than the natural park located in forest, outskirts of the city, and also accommodate differing scale of activities. What is the 'Dotted Dispersed Park', inner-city facilities' empty space, according to time or function, is utilized as a temporary urban park. This method is no need to secure large scale land to make new park, and also is easy to approach for people, caused by located in downtown.

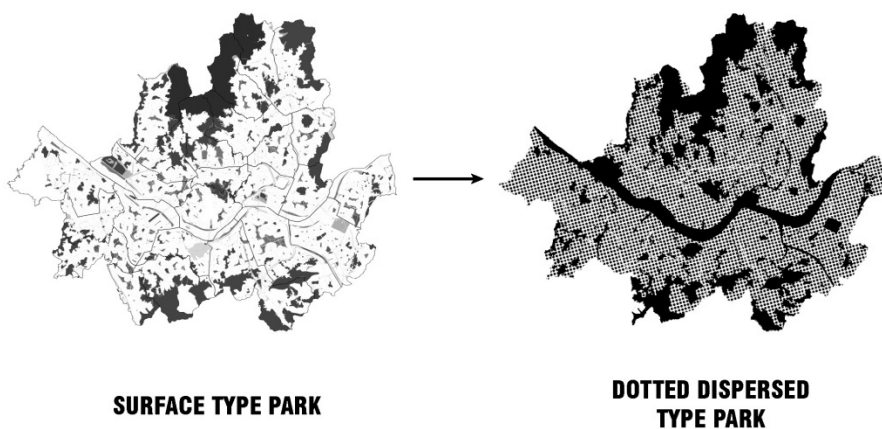


Figure 2-17 Change surface type to Dotted Dispersed Park

2.3.2 The Definition about Program of new Type Park

(1) The Function and Components of the Urban Park Facilities

The contribution of the park, to changing the quality of urban life, has being more and more increased. A lot of cities in the world have being regressed to the humanism in the urban development sector. In these situations, the new innovation and change in the urban life are requesting the new role of urban park. At the modern society, the concept of park is being diversification, and the character and function of park are being varied and specialized. Like this, as if the types of urban park are being diversified, the role of urban park within the city is being acquired the role as social space for increasing of citizen's living quality, beyond providing the natural green space simple.

According to the importance of these roles of park, the function and role of present urban park are defined as a degree of human desire in between the nature and the social environments. The figure 2-21 is classified according to the functions and facilities composition of the park.

The common function of the park is classified as 'the nature supply', supplied by the nature as the material, and 'the recreation', demanded by people as main user, and 'the region centrism', demanded by the social environments as background.

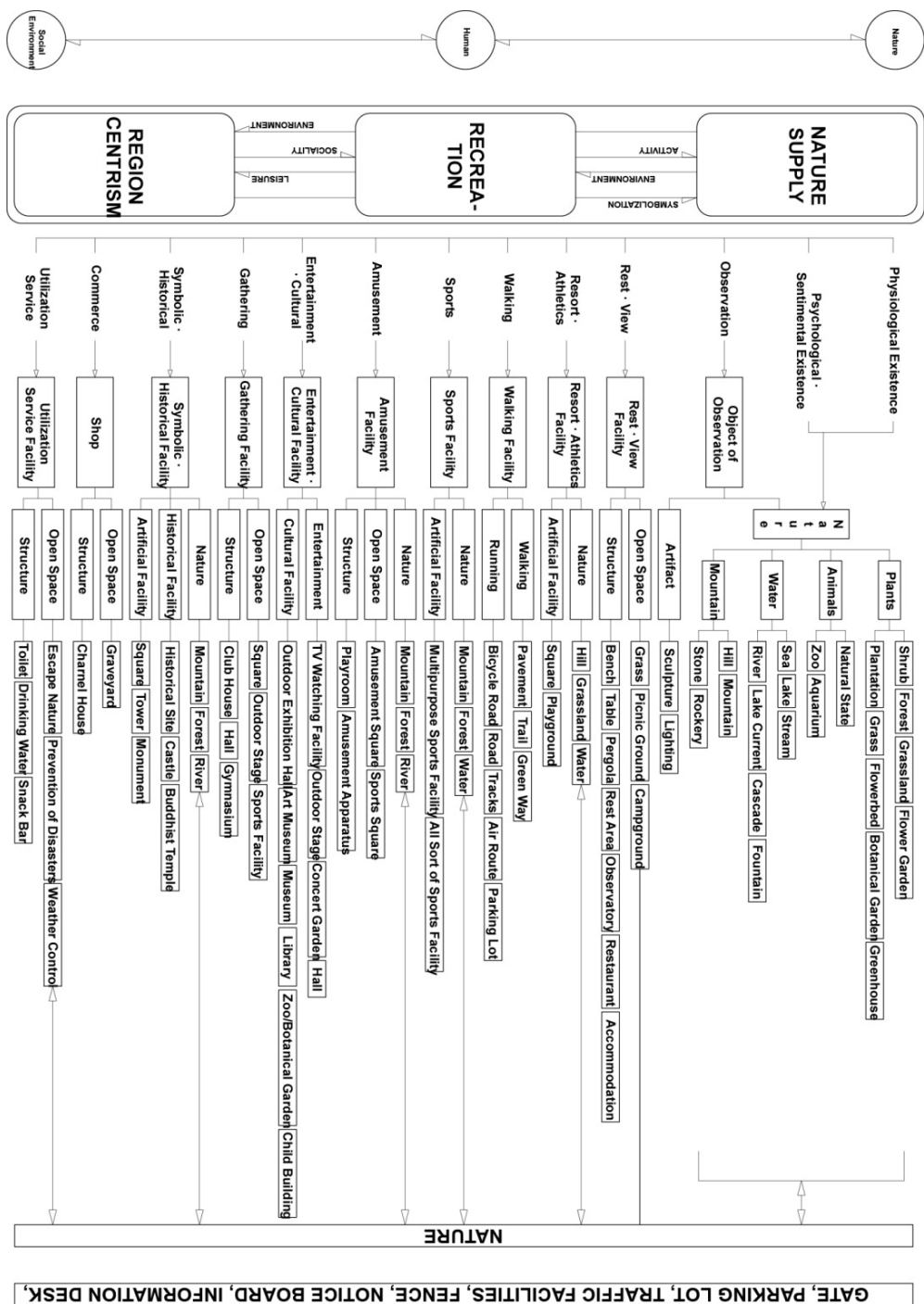


Figure 2-18 Functions and Facilities Composition of the Park

<Source: 안봉원 외, '조경계획론', 한국조경학회, 문운당, 1990, p.173>

(2) Function & Facilities Setting of New Type Park

Depending on the degree of these functions, the characteristics are classified into thirteen things. The purpose of this thesis is to inject the function of the park to the parking lot to maintain human activities. So, new type park corresponds to six characteristics, on the basis of 'recreation'.

Table 2-1 the Characteristic of New Type Park

Characteristic	Space Type	Park Facilities
Rest · View	Open Space	Grass, Picnic Ground
	Structure	Bench, Table, Pergola, Rest Area, Observatory
Resort · Athletics	Artificial Facility	Square, Playground
Sports	Artificial Facility	Multipurpose Facilities, All sort of Sports Facilities
Amusement	Open Space	Amusement Square, Sports Square
	Structure	Amusement Apparatus
Entertainment · Cultural	Entertainment	Outdoor Stage, Concert Garden, Hall
	Cultural Facility	Outdoor Exhibition Hall,
Gathering	Open Space	Square, Outdoor Stage
	Structure	Gymnasium

2.4 Summary

In this section, through the research about current condition, the urban park in Seoul has problem, which the most of them are located around outskirts of the city. As a solution, this thesis attempts to suggest the dotted dispersed type park. This new type park is provided the temporary park, through the using the empty space in existing facilities according to the function or usage time. These existing facilities are limited as parking lot through the previous background idea of this thesis. The architectural method, to convert from parking to park, is using the architectural adaptation of concept of hacking, which is in the limelight as the user centric trends. In architecture field, hacking means the way, which is the change to suit people convenience, against the problem for usage in building or urban. The parking lot has the problems about use fluctuation according to time, and fragmentary use in terms of people's act. Accordingly, the converting method has to be considered for the way to maintain human activities.

The concept of park(ing) is inserting the function of the urban park into the existing parking structure or space. As mentioned before, the key point of this thesis is that parking lot could be changed flexible into park anytime, based on the usage of space. This method is not a simple radical transformation. With the keeping the existing function of parking, the method is aimed at the proposal, that the space could be used as park according to frequency of parking usage.

In summary, The Park(ing) is the new type park, corresponding to dotted dispersed type. Its origin space is the existing parking lot. The Park(ing) use the space or structure for these existing parking lot. It has the merit of the location, all around in the city. However, the main usage target for the Park(ing) is the human. Because, this thesis main purpose is to research about utilizable method that space occupied by car could be used for people simultaneously. Figure 2-25 is showing the concept of Park(ing).

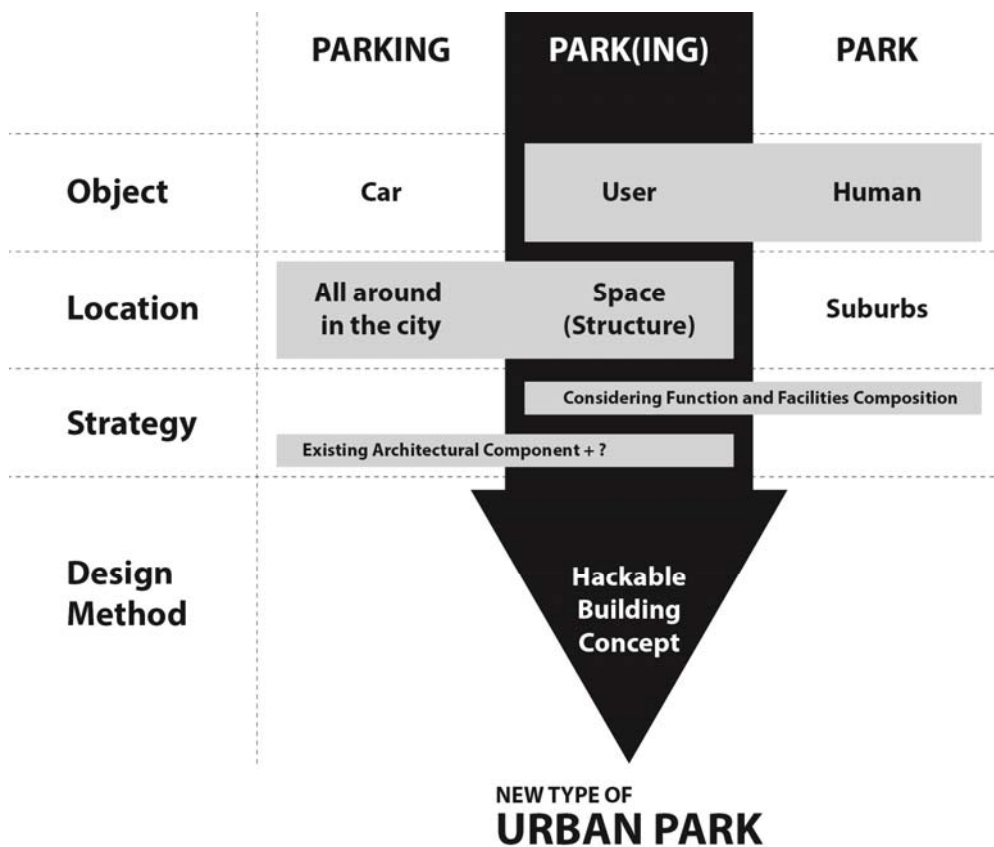


Figure 2-19 the Concept of PARK(ING)

Chapter 3. The Consideration about Site

3.1 The Site Selecting Background

3.1.1 Selecting Condition

This thesis seeks to the possibility for usage of new flexible urban park according to frequency of parking usage. There are five selection standard for target site selection.

1) Attached Parking Facilities

What are attached parking facilities? That means the installed adjunct parking lot on parking demand induction facilities, such as building, golf driving range and etc. And also, they are provided for user and common people on these buildings and facilities. Look at a table 3-1, a percentage of the attached parking lot on parking in urban is 92 percent. In other words, most parking lots in urban are belong to the attached parking facilities. Moreover, the usage of these attached parking lot is affected according to existing buildings program and operating hour. So those facilities are proper experiment object of making urban park. That is the reason why this thesis chooses the attached parking facilities.

In case of the attached parking facilities, except for a certain reason, those facilities couldn't be used as other function, regulated by law. In this thesis, maintaining parking facility, I seek an idea about using the parking lot as a flexible urban park, at the same time. So, this regulation should not be a consideration.

Table 3-1 the Number of Parking Lot & Area by Type in Seoul

	Parking Lot					
	Road Parking Lot		Off-Street Parking Lot		Attached Parking Lot	
	Lot	Area	Lot	Area	Lot	Area
Seoul	12,533	147,712	2,538	122,564	340,141	3,313,986

< Refer to Seoul Government Statistics >

2) Public Space or Facilities (Open to Everyone)

Selecting objects are limited to parking lot in public space or public facilities. The purpose of this thesis is making flexible urban park into parking lot, so the site is more suitable for space or facility, having public function, than privately-owned space by individual or company. Therefore, the facilities are open to anyone and closed with daily life. That is not suited for this thesis site, if those are not public facilities, because subject of usage is confined to owner and someone, who are related with this facility.

3) A Large Floating Population or Users

For the efficient usage of urban park, the site needs to be selected for a node for people's movement, like major traffic facility in city, having many visitors or moves. So, object facilities have to be decided as a space with a lot of users or floating population.

4) The Size of the Parking Lot: Big Scale

The size of parking lot, selected for experimental objective for this thesis, is to be large scale building in terms of scale. This is because a major point of this thesis is method of occupying the empty space as urban park, while keeping parking function. So, to select large scale parking, if possible, is more suitable for experiments about multiple land use for other two functions, parking and park.

5) Considering Surrounding Environments

On the selection of the site, that has to be preceded a consideration about the building, which are including to the target parking lot, and surroundings. This is necessary works for efficient distribution of park within a city, so this thesis is aimed to the facilities within a city. And also, it needs to consider about current state of park in surroundings. Last, it has to be selected to the place to affect positively to the target facilities or surroundings through making flexible park into parking.

On the basis of these five standards, the experimental object site is large scale attached parking lot, located within public space, which has a lot of users and floating populations. In addition, the site has a lack of park and leisure facilities nearby surroundings, so it should be a place that has a positive effect on macro-environments through park facilities. In terms of demand for enhancing the publicness in urban park and creating a neighborhood park, the site is selected within urban planning facilities, the relevant data considering. The ranges of suitable facilities are narrowed down as station and automobile stop, like Table 3-2. In this thesis, the site is selected as an attached parking lot within the station. This is associated with the importance of station as new public space.

Table 3-2 Standard of Selection of Object Facility

Classification		Attached Parking Facilities	Open to Everyone	Large Floating Population	Big Scale	Intra-Urban Location
Transport Facility	Road		○			
	Station	○	○	○	○	○
	Harbor		○		○	
	Airport	○	○	○	○	
	Parking Lot		○			○
	Automobile Stop	○	○	○	○	○
Distribution Supply Facility	Distribution Facility					
	Water Supply		○			
	Telecommunication Facility		○			
	Common Ditch		○			
	Market	○	○		○	○
Public Cultural Sports Facility	School					○
	Playground					○
	Government Office Building	○	○	○	○	○
	Cultural Facility	○		○		○
	Sports Facility	○		○		○
	Library	○	○	○		○
	Research Facility					○
	Social Welfare Facility					○
	Public Vocational Training Facility					○
	Teenagers Training Facility					○
Disaster Prevention Facility	River and Reservoir					
Health Sanitation	Crematorium		○			
	Cemetery	○	○			
	Charnel Facility	○	○			
	Funeral Hall	○	○			○
	Medical Complex	○	○	○		○
Environment Basic Facility	Sewer		○			
	Treatment Facility		○			
	Junkyard		○			

3.1.2 Importance of Station for New Public Space

The importance of station as public space is defined as function and role, required in urban, according to change of station spatial structure.

The previous station was not a space that people stay. People were waiting a little time for the train on there. However, in the late 80's, the private investment station²⁵ was developed as the national business to expand various convenience facilities and to modernize superannuated station facilities. That appearances of the private investments station totally changed existing concept and spatial structure of the station. According to the book '*Korea Train Express*', *Contemporary Architecture Vol.54*, the concept of modern station is defined as the following

“A station is not a mere station any more. It has to deserve the new label of ‘hybrid station.’ The wall-enveloped station building concept is one-dimensional and outmoded; fir the boundary becomes broader and blurred, passengers are various and cities become larger. Passengers are just not passing through a station to move to another place but they have to be allowed to use it for their contacts and hence the new character of a station. For there are a large number of users passing by, a station provides simple, comfort, distinctive and familiar spaces. The contacts produced in a station come into two; various people from all walks of life come and

25 This is the way that a private enterprise built the building on the national railway construction and earned the profits through the long term rent methods in the range of the thirty years.

mingle with each other in a station other than anywhere else; in doing so, each individual goes through emotional feelings inside himself or herself. Station planning considers these.”²⁶

In summary, in the twenty one century, as a new public space in the city, the space of station needs for change of recognition about the space which is changed from one of move strongpoint into place that occur cultural exchange between various people. These phenomena appear in a change of spatial structure of station, like Figure 3-1.

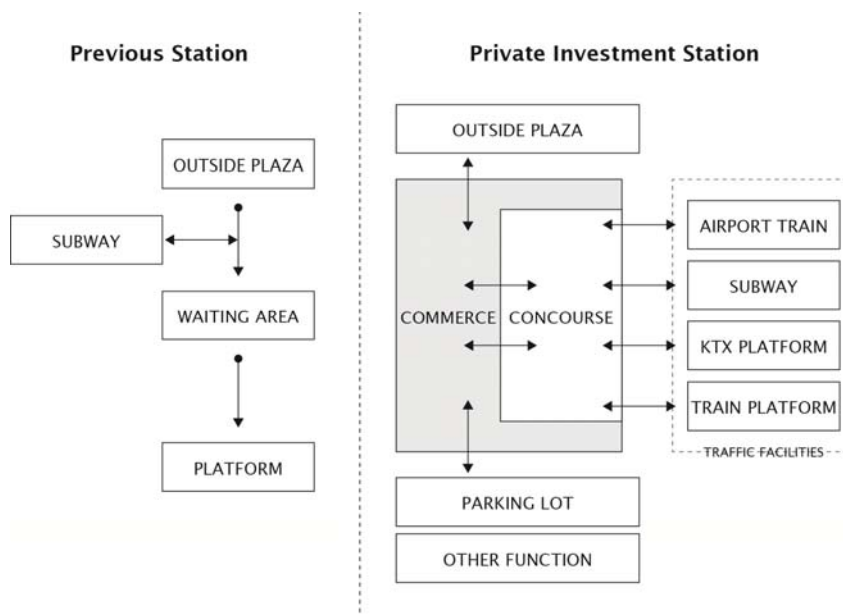


Figure 3-1 Analysis of Change Spatial Structure of Station through Developed by Private Investment

26 CA Press, 'Korea Train Express', Contemporary Architecture vol.54, 2004, p.15

The station has been changed as space to visit people, through these spatial structure changes. Simultaneously a revaluation of the station as new public space is being conducted. However, most private investment stations in Korea are not enough able to act as public space, because the commercial rate dominates a large proportion of those buildings program, as per table 3-3. Therefore, if it is possible to act a parking facility as a neighborhood park, it should be able to enhance functions of the station as the public space.

Table 3-3 the Scale and Proportion of Facilities Usage for Each Stations in Seoul²⁷

Station	Total Area	Station work	Sales	Office	Sports	Culture	Parking	etc
Seoul Station	95,172	15,992 (16.8)	58,500 (61.5)	-	-	-	20,680 (21.7)	-
Yongsan Station	249,048	27,527 (10.2)	139,737 (51.7)	235 (0.1)	-	11,729 (4.3)	69,296 (25.6)	21,753 (8.0)
Yeongdeungpo Station	131,729	20,942 (15.9)	57,182 (43.4)	-	-	6,942 (5.3)	46,663 (35.4)	-
Wangsimni Station	97,802	13,477 (13.8)	26,602 (51.7)	10,583 (10.8)	-	16,038 (16.4)	31,103 (31.8)	-
Cheongnyangni Station	178,300	19,613 (11.2)	96,282 (54.5)	1,783 (0.1)	-	7,132 (4.1)	40,112 (22.4)	13,372 (7.3)
Changdong Station	86,898	8,768 (10.1)	40,538 (46.6)	-	-	8,059 (9.2)	23,109 (26.5)	6,421 (7.6)

(m², %)

Like table 3-3, present station has various facilities besides facilities for station work. To define the function and role of present railway station is as in the following.

27 김기영, '서울부도심권 복합 민자역사의 공공성 분석 연구: 청량리역, 왕십리역, 신촌역을 중심으로, 중앙대 석사 논문, 2013, p.18~19 참조

a) The Node of Transportation, and the Symbolic of City's Gateway

The railway station carries on various roles, such as a core of urban transport, a place of citizens living, and a community place for various people. And also, it has a role as a new meeting place for diverse culture exchange. Therefore, it has to be a representative public space in the city as city's gateway.

b) Strong Point of Living and Culture

The existing station was regarded as a city wall, obstructing urban flows. The future station will have to promote the convenience of daily life for local and urban people, through accommodate for public function, such as library, gallery, museum, and cultural space.

c) Various Program

In the present, most private investment station have trouble with the public function caused by excessive commercial proportion with focusing on creating profitability. Injecting into private capital, but there are necessity for to avoid lopsided development of commercial facilities and to expand culture and convenience facilities for public.

d) Local Community Center, Emphasized Publicness

Another problem of the private investment station is lack of contribution for local society. There needs to be consideration regarding residential use such as local indigenous characteristic, day care, education, sports, and welfare. Also this has to

be developed as local center of traffic and information, with diversification for functions of station, suited for local characteristic.

On the basis of these function and role, the station is able to act a new living culture node, which people visit and stay. However, in the urban, the railway stations are performed irrational function, weighted towards commercial, in terms of public function. Therefore the attached parking lot in the station is a suitable for the site of this thesis. From this perspective, this thesis will use the Seoul station, as a most representative railway station in Seoul, as the site.

3.2 Seoul Station

3.2.1 Outline

The Seoul Station was installed on the outskirts of the city, in Japanese colonial period. As dissolution of the urban boundary with castle, the Seoul Station had most closely been experienced spread of the city, with the development of transport. Since the construction in 1925, it has been acting as a city's gateway. In 1989, Korea's first private investment station was completed. Following the introduction of high-speed railway, it was reformed as a private Investment Station Complex, in 2004. Through the high-speed train, train and subway line 1 · 4, and airport railway station, daily floating population are almost 40 million, the Seoul station could be called the gateway to Seoul.



Figure 3-2 Transport Flow linking Seoul Station

(1) History of the Seoul Station

After constructed, the Seoul station has been changed a lot in terms of spatial until now. Table 3-4 is showing the Architectural Outline and History per period in the Seoul station.

Table 3-4 Architectural Outline and History per period

Building Name	Year of Completion	Architectural Outline
Seoul Station (Gyeongseong station)	1925	Plan: Tsukamoto Yasushi Construction: Shimizu construction company Taskmaster: Yoshioka Shinichi Construct Agent: south manchuria railway company Building Area: 2,637m ² Total Area: 17,269m ² Scale: 2F / B1F Structure: reinforced concrete
Seoul Private Investment Station	1989	Plan: Archiplan Inc. Construction: Dongah Construction Industrial Co., Ltd. Construct Agent: Hanhwa Station Plottage: 26,893.5m ² Building Area: 11,682.6m ² Total Area: 25,129.63m ² Scale: 3F / B2F Structure: reinforced concrete, steel frame
Seoul Private Investment Station Complex	2004	Plan: Archiplan Inc. Construction: Hanhwa Engineering&Construction Construct Agent: Hanhwa Station Plottage: 67,559.98.5m ² Building Area: 37,558.20m ² Total Area: 95,171.99m ² Scale: 3F / B2F Structure: reinforced concrete, steel frame
History	1900.07.08 Construct Namdaemun Station 1919.03.31 Demolish Seodaemun Station 1922.03.31 Beginning of construction Gyeongseong Station 1925.09.30 Completion of Gyeongseong Station 1947.11.01 The change of a name Seoul Station 1957.12.30 Completion of the Southern Seoul Station 1974.08.15 Opening of Subway between Seoul Station and Cheongnyangni Station 1975.05.10 Beginning of construction Western Seoul Station 1975.09.18 Completion Ceremony of Western Seoul Station 1977.01.22 Construct Pedestrian overpass 1981.09.05 Appointment of historical site number 284 1987.07.00 Beginning of construction Private investment Station 1989.09.00 Completion of Private investment Station 1993.12.00 the Opening of Cultural Center in Seoul Station 1997.04.01 the Opening of Railroad Museum in Seoul Station 2001.07.00 Beginning of construction Private Investment Station Complex 2003.11.00 Closing the Old Seoul Station 2003.12.00 Completion of Private investment Station Complex 2004.01.00 Opening of KTX, high-speed Railroad 2009.07.01 Opening of Gyeongui Line & Closing Commuter Train 2010.12.29 Opening of AREX Airport Train & Beginning of City Air Terminal Business 2011.08.16 Beginning of construction Transfer Passage 2012.04.02 Opening of Culture Station Seoul 284 (Old Seoul Station) 2014.03.31 Prearranged Run KTX to Incheon Air Port	

< Refer to Shin Ye-Kyeong, 'A Study on the Spatial Evolution of Seoul Railway Station', 2009, p.73 >

3.2.2 Macro Analysis of Seoul Station

(1) Axis 1: Historical Corridor, the One of Main Axis in Seoul

the Seoul station is the starting point of Axis 1, historical corridor, which is relevant to the four axis of comprehensive plan recreated in downtown Seoul. It seems to be more highlighted as a key element of the cluster, which is connected to Gwanghwamun - Namdaemun - Seoul seogyedong leading cultural complex.



Figure 3-3 the Main Axis in Seoul

(2) Present Condition near Seoul Station

1) Park & Natural Space

Examine park and natural space near the Seoul station, the Mt.Namsan is located in the southeast. And Mt. Ansan and Mt. Bugaksan are located in the north. In the case of the park, there are several parks near the Seoul station, including the Seosomun park in the north, the Son Gi-jeong Sports Park in the west, and the Baekbeom square behind of Millennium hotel in the east. However, the Seosomun park, which is closest to the station, has not connected directly, so it couldn't affect for the users and floating population.

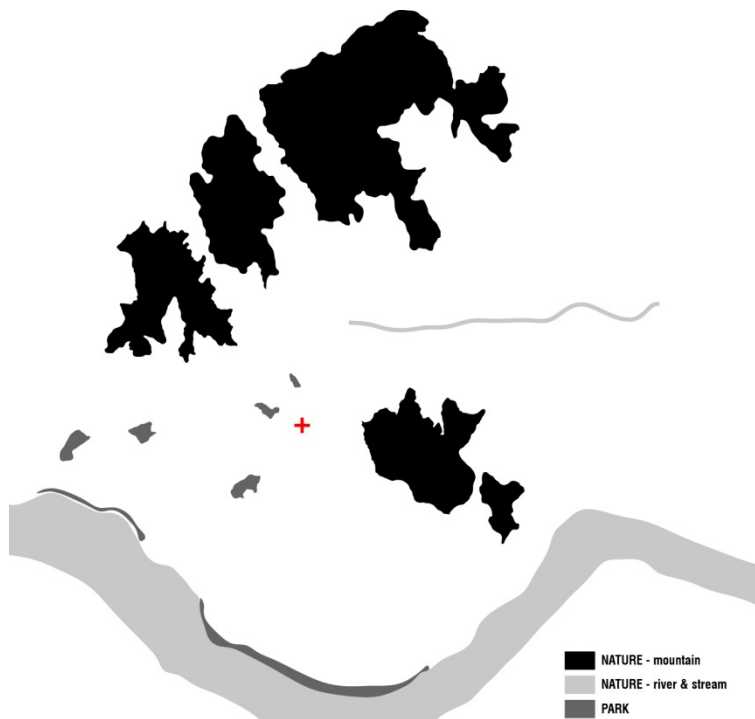


Figure 3-4 the Condition about Natural Space with Seoul Station as the Center

2) Building Height

Near the Seoul station, there are distinct low-rise and high density area in the west and high-rise buildings in the north east, with the railroad as the center figure. The high-rise buildings are mainly business buildings, such as office and hotel.



Figure 3-5 the Building Height and Occupation near Seoul Station

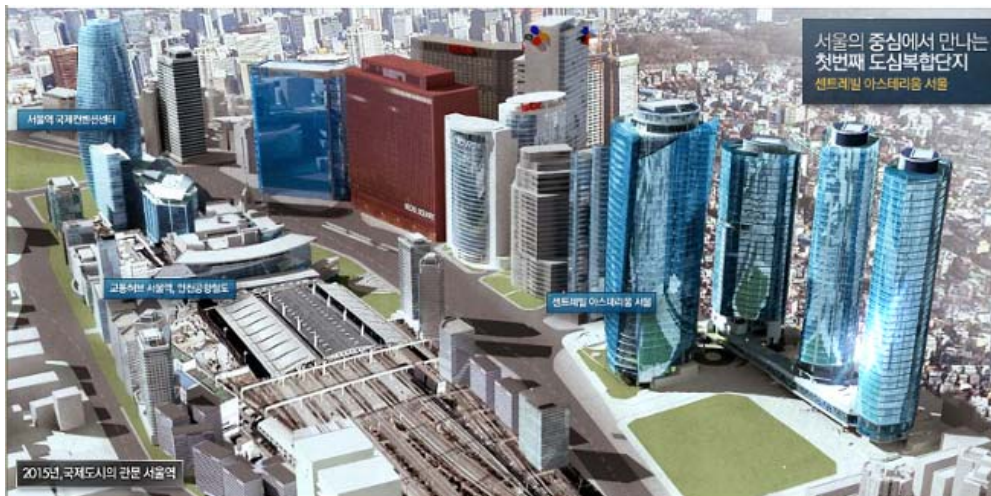


Figure 3-6 the Perspective Image near Seoul Station in 2015

Source: <http://blog.naver.com/yja305?Redirect=Log&logNo=130074396543>

The Figure 3-6 is the perspective image in 2015, after construction of Centreville is complete. Through this picture, we can guess the future image of near the Seoul station. On the opposite side of the Hangangro in the east of the Seoul station, there are scheduled to build the high-rise buildings. And also, in the north of the Seoul station, there are planned to build a new convention center. So, the around building's height will be generally higher.

3) Supermarket, Business in Town

The figure 3-7 is a diagram, analyzed present condition about hypermarket, SSM²⁸, and traditional market with the Seoul station as the center within a 5km radius. Except Lotte mart in the Seoul station, there is no hypermarket within a 2km radius.

²⁸ Super SuperMarket(SSM)

And within a 5km radius, there are only five hypermarkets in the south and east. Because the north of the Seoul station are mainly central commercial and office districts, so there are unsuitable for the condition of a location for hypermarket site. Instead of hypermarket, SSM are of wide distribution within analysis range. In the case of traditional market, some groups, near Namdaemun market and Chunggye stream, are striking, and except for them others were distributed as local livelihood types. The thing, inferred about this analysis, is that the lotte mart in the Seoul station is only one hypermarket within a 2km radius. And this thing could be a driving force of increasing people's visiting.

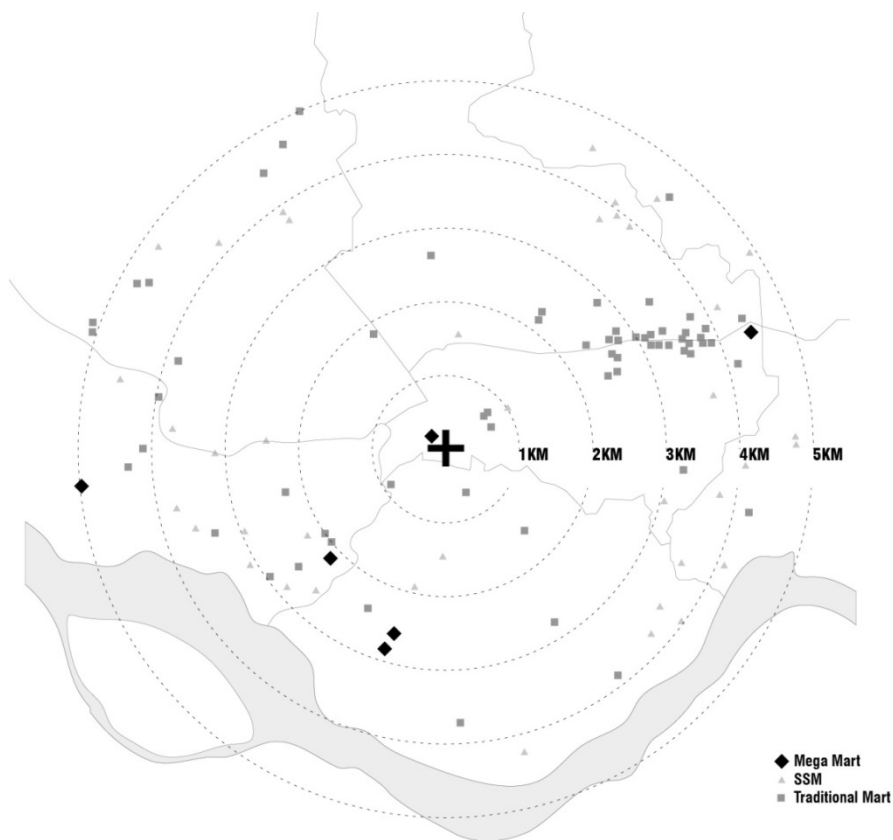


Figure 3-7 Mart Condition with Seoul Station as the Center

(3) The Node of Traffic

Today, the users of the Seoul station is more than 200,000 people, even a floating population is reached to 400,000 people. This place is the final destination of the railway and also the passage for various transport methods, such as subway line no.1, no.4, airport train, and various buses. That means this place is the one of transport nodes in Seoul.

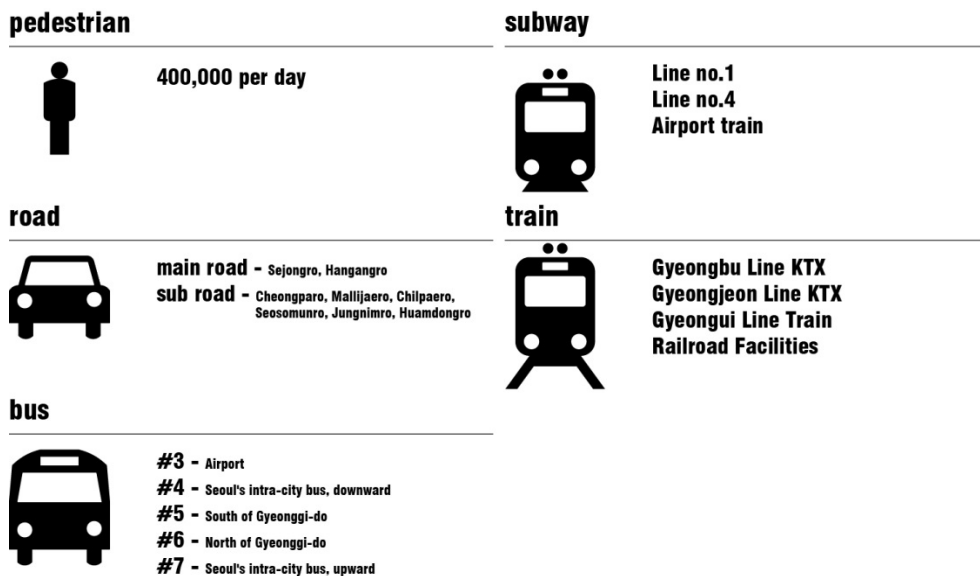


Figure 3-8 the Node of Traffic

(4) City Wall - Macro Analysis

As mentioned before, the Seoul station is located the intersection point which is overlapped urban major flows, and is the gate of the Seoul, gathering flows from the whole of Korea. However, despite the condition of location and geographically important status, the Seoul station and the whole neighborhood are obstructed by various urban flows, due to a railroad track running from north and south on the characteristic of the station. In other words, the Seoul Station has acted as the city wall. In this area, there are several urban flows, which are obstructed by the Seoul station, such as northwest-southeast flows of green, and urbanization flow, highlighted by comparing northeast downtown with southwest deteriorated dwelling, Seogyedong and Mallidong. These intercepted flows disturb that the Seoul station become to function as a new public space physically and programmatically.

1) Physical Flow in the City

On the ground level, to cross from west, Seogyedong and Mallidong, to east, high-rise the downtown area, there are only two routes that pass through the Seoul station and cross the pedestrian overpass in north of the Seoul station. However, it was recently ascertained that the pedestrian overpass are demolished after thirty-six years, because of its decreased utilization, consequential vulnerable environment and possession by homeless people. That means there remains only one way to link physically between from east to west, passing through the Seoul station.

Figure 3-9 is shown physical access on ground level around the Seoul station. The pedestrian overpass, north of the station, was begun to demolish since 2013.11.01. Namely, the way, passed through the station, is only one route to link east-west.

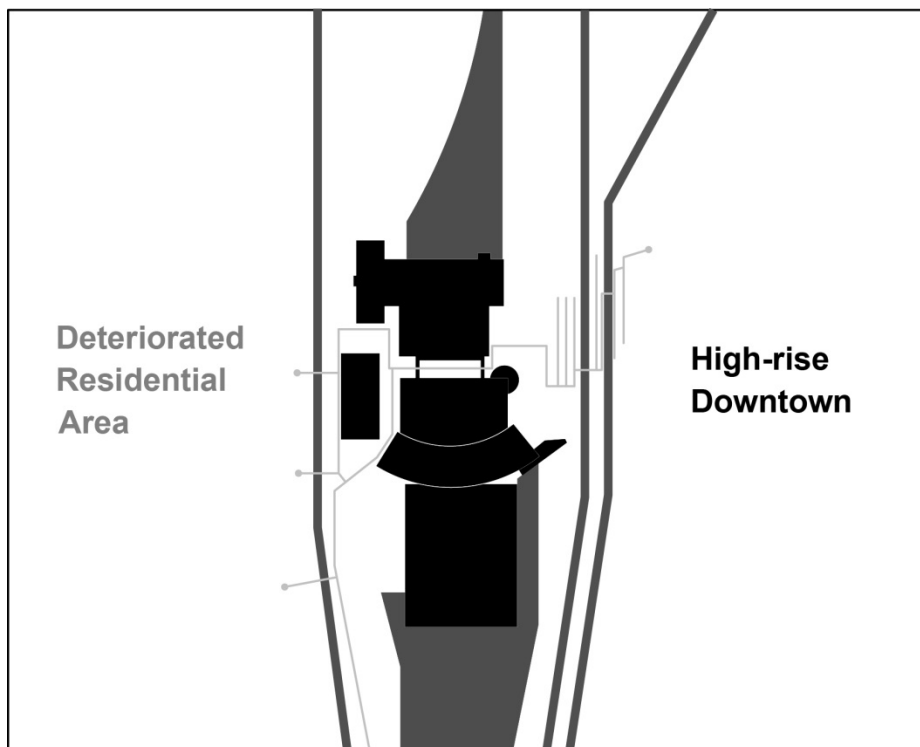


Figure 3-9 Physical Access on Ground Level

2) Program Flow in the City

Next, Figure 3-3 & 3-4 are diagrams shown the Seoul station as mega wall to obstruct the program flow in urban. As these figures, there are four urban flows, such as green, traffic, commerce, and culture. First, the flow of green, there are green network near Seoul station, which are linked by neighborhood parks and cultural assets between the Namsan in the southeast and the Ansan in the northwest. In the middle of this green network, Seoul station is located and obstructs this flow of green. Second, the flows of traffic, near Seoul station, are formed north and south as parallel way with railroads, and there are not much roads from east to west intermittent. As mentioned earlier, in case of walking, there is only one route passing through the Seoul station. Third, the flows of commerce, there are high-rise buildings the northeasterly areas, such as commercial and office. However, low-rise housing, become superannuated, are contradistinctively located to the southwest. This is also assumed that flow of civilization is obstructed by Seoul station as a city wall. Lastly, the flows of culture, there are heterogeneity of leisure activities such as various sightseeing, rest, and culture. These are too located to the northeast and only a few are located to the southwest.

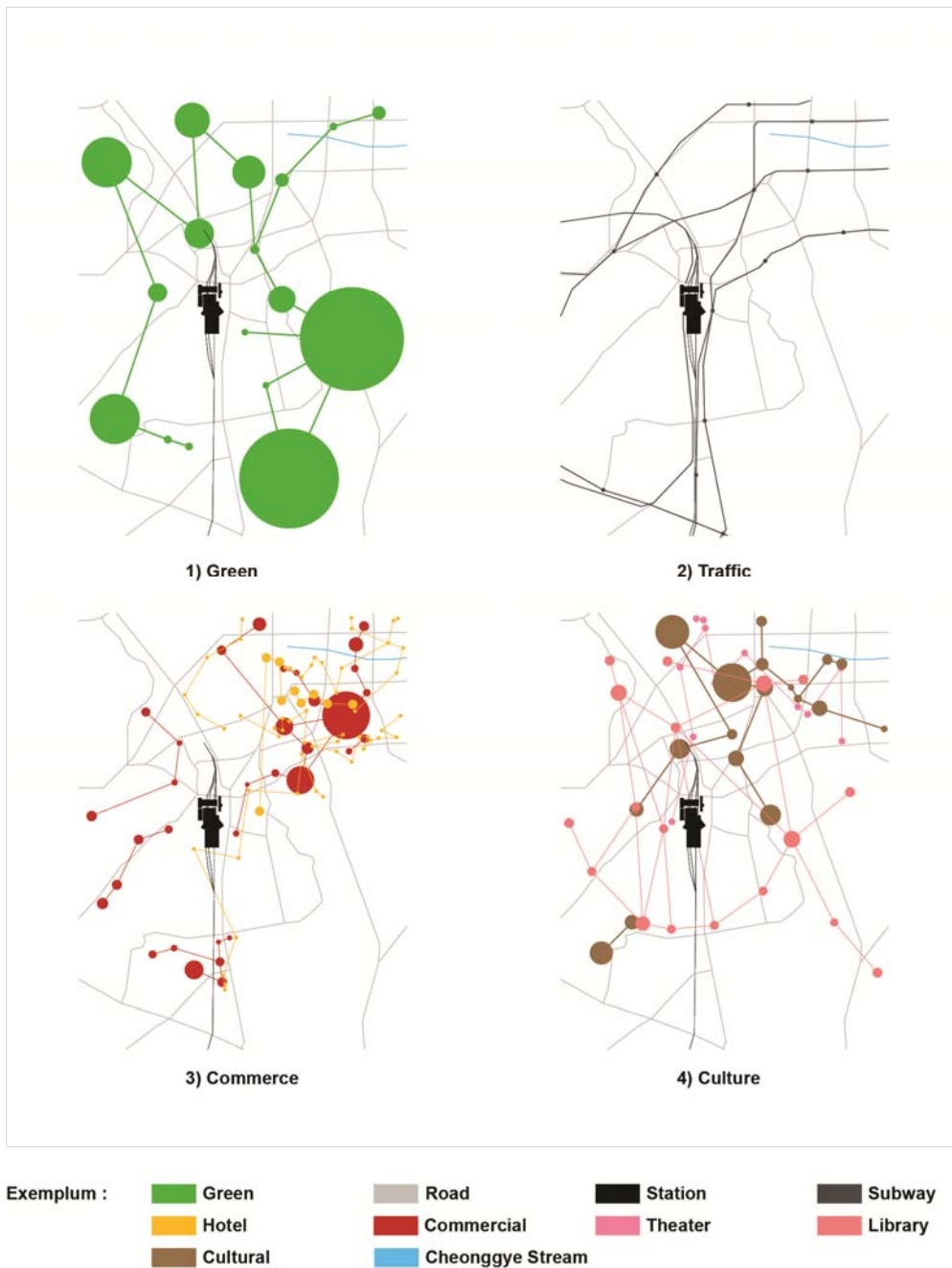
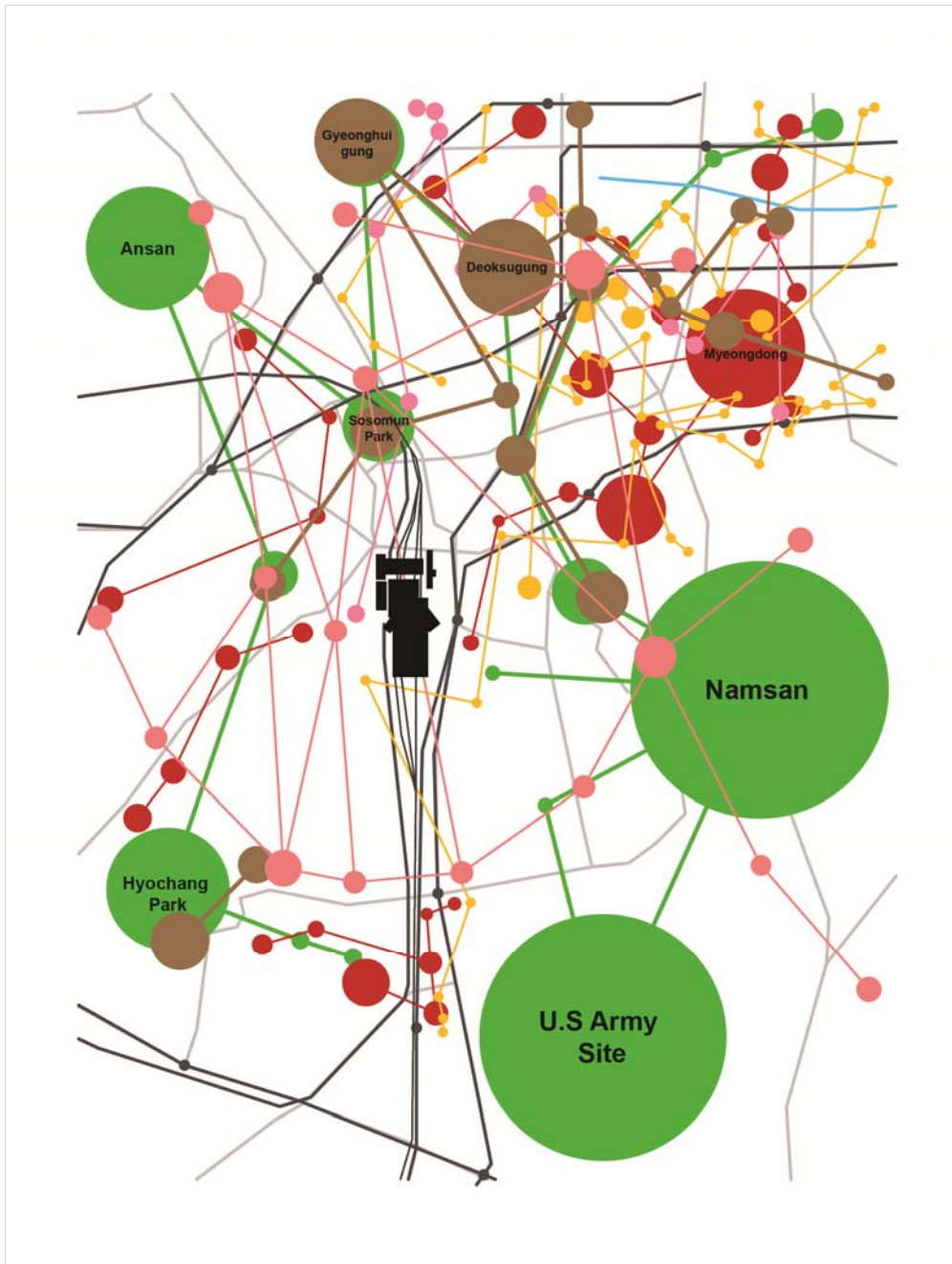


Figure 3-10 & 3-11 Macro Analysis near Seoul Station

<Refer to Analysis Method, An Donghyouk, 'Landscape Design of Sewoon Arcade Area applying the Architectural Landscape Concept', P. 32-33 >



3.2.3 Micro Analysis of Seoul Station

(1) Variety of Users

After developing private-funded station, floating population and visitors in the Seoul station are more increasing and their purposes are diversifying. They consist of train user, which are origin function of station, transfer passenger, and the user of commercial and cultural facilities in the station. And also, the residents and the workers near the Seoul station are defined as one of space user group. The current status of use and problem of each user group are as in the following table 3-5.

Table 3-5 the current status of use and problem of each user group

User Type	Facilities	Problem
Rail Users	Waiting room, Commercial Facilities, Parking lot, Other Transportation, Square	Lack of space of waiting room to wait train. The function of public space is weak due to excessive proportion of commercial facilities.
Transfer Passengers	Other Transportation, Parking lot, Square	Transit passengers are mostly people who go through the station, rather than to stay in. However, they are also potential guests of station.
Facilities Users	Commercial Facilities, Parking lot, Square	The spatial program is limited in terms of consumption, due to excessive commercial facilities. So there needs solution about various program
Local Resident	Other Transportation , Commercial Facilities, Square	Over the three user groups, they also used means of transportation. At the same time, the Seoul station is able to act a new living culture node, which people visit and stay

(2) Change Program Rate per Period

The functions of the Seoul station are like as table 3-6, consist of station work, parking, sales, and culture. Look at the table 3-6, the initial sales areas, that were only 8.32%, are increased to 51.2% through developing private-funded station in 1989. In the case of the station work, the initial rate of station work area was 91.58%. However, after developing private-funded station, the rate of the area about station work are seen a sharp decrease, gradually 29.1% → 16.8%. In accordance with the increasing commercial facilities, the rate of parking area, which is required to support, are also increasing. In summary, the rate of commercial area within the station has been too much increased. So ,at this point of time about the emphasizing the importance of the station as the new public space, the Seoul station looks like shopping mall, which involves the station program, rather than public station.

Table 3-6 Area Change per Period

	Station work	Parking	Sales	Culture
1900-1925	151.80 m ²	-	-	-
1925-1945	5,383.64 m ² (91.58%)	-	453.36m ² (8.32%)	-
1989-2004	9,448.40 m ² (29.1%)	5,173.00 m ² (15.9%)	16,612.81 m ² (51.2%)	1,200.05 m ² (3.8%)
2004-present	15,910.74 m ² (16.8%)	20,499.15 m ² (21.5%)	55,832.91 m ² (59.9%)	1,716.30 m ² (1.8%)

<Source: Shin Ye-Kyeong, 'A Study on the Spatial Evolution of Seoul Railway Station., 2009, p.78>

(3) Insufficient Public Space

Through the previous contents, about the each program area rate within the station, this shows that the current sale area rate within Seoul station is largest part, almost

60%, and the rate of station work area is gradually decreased. In addition, some parts of waiting room are operating the membership lounge, which are opened to only particular passenger. And also some commercial booths are installed within the waiting room. As a result, space, which the train users could be stay or rest waiting their train time, is gradually decreased. To find the relaxing area, people use the commercial facilities necessarily or spend time in the outside square.

Through these problems, the Seoul station is regarded as proper experimental place about the topic of this thesis, provision of space for human centric through changing parking lot to urban park. Like figure 3-12, through the concept of park(ing), it could divide people's rest place, only concentrated on waiting room, and be helped recovering public character of station, coming into spotlight as new public space.

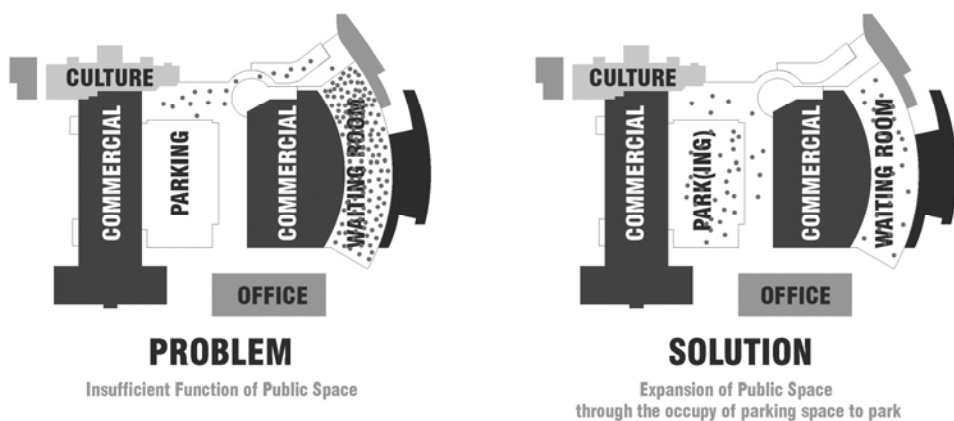


Figure 3-12 Problem and Potential Solution about Insufficient Public Space

3.2.4 Summary – Experimental Validity

Through the previous analysis, this thesis checked the current condition of the Seoul station. This building has acted as the city wall about obstructing city's physical connection and programmatic flow. As the development of private-funded station, rather, public space is decreased, according to increase of commercial spatial rate. That means there should be a measure to transform from current commercial center condition into public space. Based on all analysis, the Seoul station is regarded as the most proper place to experiment this design study.

In the Seoul station, there are four parking lot areas. This thesis is focusing on the Lotte Mart parking lot. The reasons are as in the following.

First, Importance of Square between Lotte mart and Department store

As I mentioned before, there are only one way to link east and west city near the Seoul station. This route has to be passing through this square. And also, this square is one of the few public spaces at the current condition of most facilities commercialized.

Second, Physical Contiguity

Except the Lotte mart parking lot, others are located some distance from the Seoul station. So if they conduct the concept of Park(ing), should have solved the big problem about people's approach. On the Contrary, Lotte mart parking lot is located within the Seoul station and it is able to connect inner circulation.

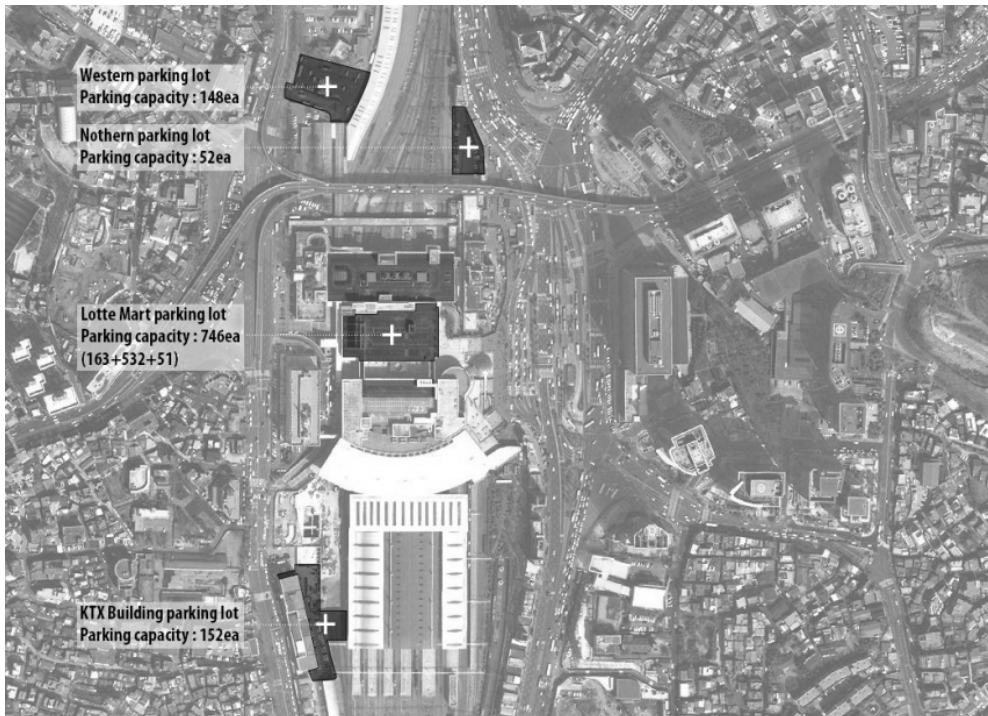


Figure 3-13 the Present Condition about Parking lots in Seoul Station

3.3 The Deduction about Inserting Program

3.3.1 The Scenario of Park(ing)

The object of this thesis is the proposal about changing parking lot into urban park, as a new type of urban park. Therefore, this thesis has a plan to draw some scenario about urban and architectural scale, to act the urban park.

Scenario #1

The acceptance of the act within the urban park, which are developed adjacently in suburbs natural environments.

This scenario #1 is one of alternative about making temporary occupation urban park according to the frequency of parking usage. This has its root in the lack of the neighborhood parks in the downtown area, consequential present condition of urban park in Seoul, and the requirement of securing the land over a certain size, required by the park facilities, in the high density downtown area. This is the one of possibility to change existing car-centric urban environment into human-centric. At the same time, this will be the basis of the ‘Dotted Dispersed Type Park’, as mentioned in chapter 2.3.1.

Scenario #2

The cultural space opens to everyone

The site of this thesis is the Lotte mart parking lot within the Seoul station. In a situation about de-functionalization of public space as the following excessive commercialization within station area, one of purpose of this design experiments is recovery of publicness for the station, using the concept of the park(ing) on the site. Considering the openness, efficient of traffic, and the importance within the city about the station, the park(ing) has to be opened to the public, and also provide the variety to people’s life.

Scenario #3

The Relaxing area for User and Visitor of Station

As mentioned before, the Seoul station is occupied by the commercial facilities, more than both waiting room and station work area. Almost 60% of the total area became the commercialization, and it looks like contradiction in itself. As a result, waiting room is always busy and suffers lack of relaxing area. So people are not willing to use the commercial facilities but they use them under the necessity to find place to rest. Otherwise, they are waiting for their train service, sitting the outside square corners. If the parking lot, which is almost 21.5% of total area, is possible to use the urban park according to the parking usage, it could solve the lack of relaxing area. At the same time, it could be helped for the increasing of the publicness.

3.3.2 The Inserting Program

The purpose of this thesis is the making temporary occupation urban park according to the frequency of parking usage within the Seoul station. Targeting drawing program in chapter 2.3, the functions of applicable scale are considered. The results are as follows.

Characteristic	Park Facilities	Components
Rest & View	Green, Picnic, Rest, Observatory	Grass, Tree, Pots, Bench, Table, Pergola, Stand
Entertainment & Cultural & Gathering	Outdoor Stage, Exhibition	Screen, Stand, Supporting Box, Control Box, Waiting Room, Warehouse, Lobby, Display space
Sports & Amusements	X-sports, Basketball, Futsal, Supporting	Jump Stand, Installation, Stand, Goal post, Locker room, Dressing room, Medical room, Waiting room

Chapter 4. Design Park(ing)

4.1 Design Strategy

: Lotte Mart Parking Lot, in Seoul Station, as an Urban Park according to Parking Usage

4.1.1 Considerable Point of Hacking in the Park(ing)

Through the case studies, two of Rebar's works related with parking lot, in chapter 2.2, this thesis extracted the acceptance & improvement point. Each of them consist two things.

The acceptance points are reversible, and module type. It's important because this thesis is aimed to flexible change according to the usage demand. The Improvement points are storage method, and harmony with existing structure. In the case of storage method, it's not an annual event like rebar park(ing) day. It's a daily urban park. So it needs to be changed quickly. When the space used as the parking, it should be stored. In the case of harmony with existing structure, this differs from previous case studies. Park(ing) could be joined or installed the attached parking facilities, not a ground parking lot. So it has to be considered existing condition.

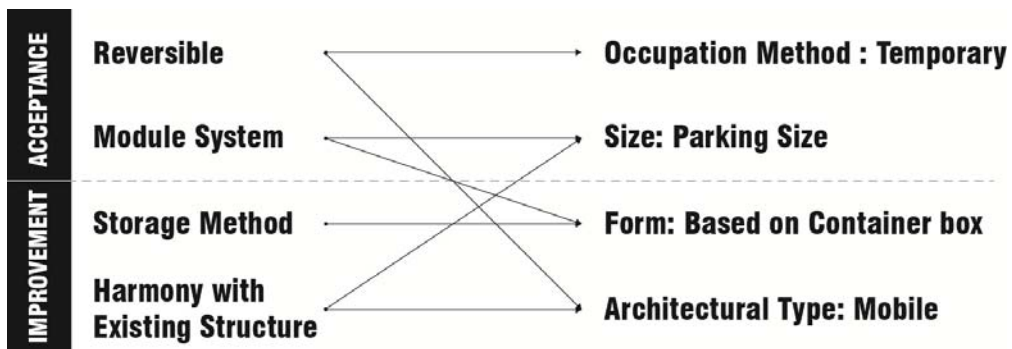


Figure 4-1 Considerable Points about Hacking in the Park(ing), Based on Case Studies

Based on the previous four points, the characteristic of Park(ing) is defined as following. As the occupation method, this project select the temporary occupation way. Due to it should play role of existing parking lot. In the case of the project scale, the design of this project is planned as considering parking standard for efficient space use. The basic form is designed as module system, on the basis of container box, for the convenience of movement and storage. The basic types of module system are bar type, frame type, and box type. The bar type could be acted the function of open space. And also, the box type plays a role of inner space.

4.1.2 The Definition of Unit Scale

This project seeks ways to utilize the parking lot in the city as new type of urban park, through the mixing units, planned considering parking standard. The scale degrees of this project are defined four steps, such as S, M, L, XL. The sizes of each step are as following figure 4-2.

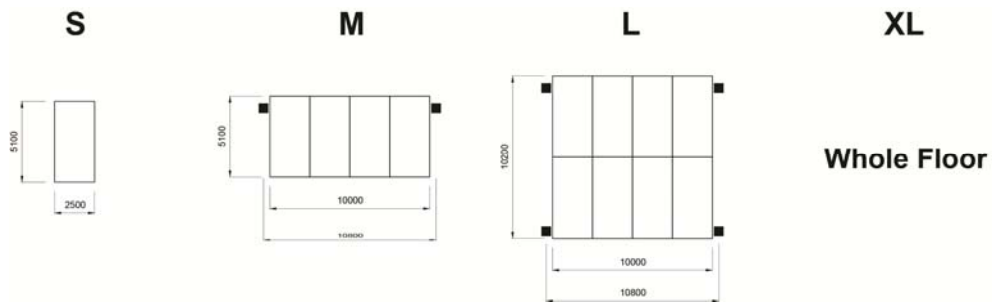


Figure 4-2 Definition about Parking Scale as Design Component

The application of each module types are as following figure 4-3. Basically, combination of several units is composed upper scale step. However, the box type could transform as M scale, opening both side long elevations.

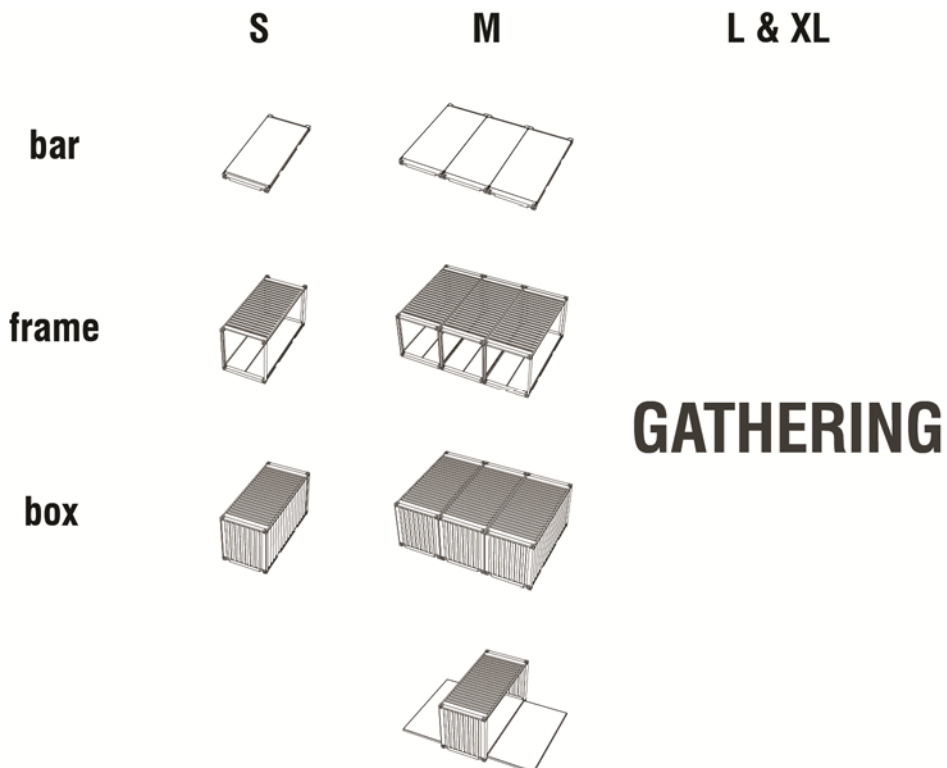


Figure 4-3 the Basic Form of Each Scale

4.1.3 The Analysis of Spatial Type

This project should be processed on the basis of analysis about target building, because the object of this project is not ground parking lot but attached parking lot. Through the analysis about spatial type and present status of use, the methodologies about movement, storage, and installation of Park(ing) facilities should be contrivable.

The figure 4-4 is a diagram of current status of use per time on Lotte mart parking lot in Seoul station. This figure is showing that the second and third floors are active as parking lot at all times. Except these two floors, others are showing like there is not efficiency for using parking lot on the most time. Therefore the target spaces of this thesis are selected as the fourth, the fifth, and the roof floors.

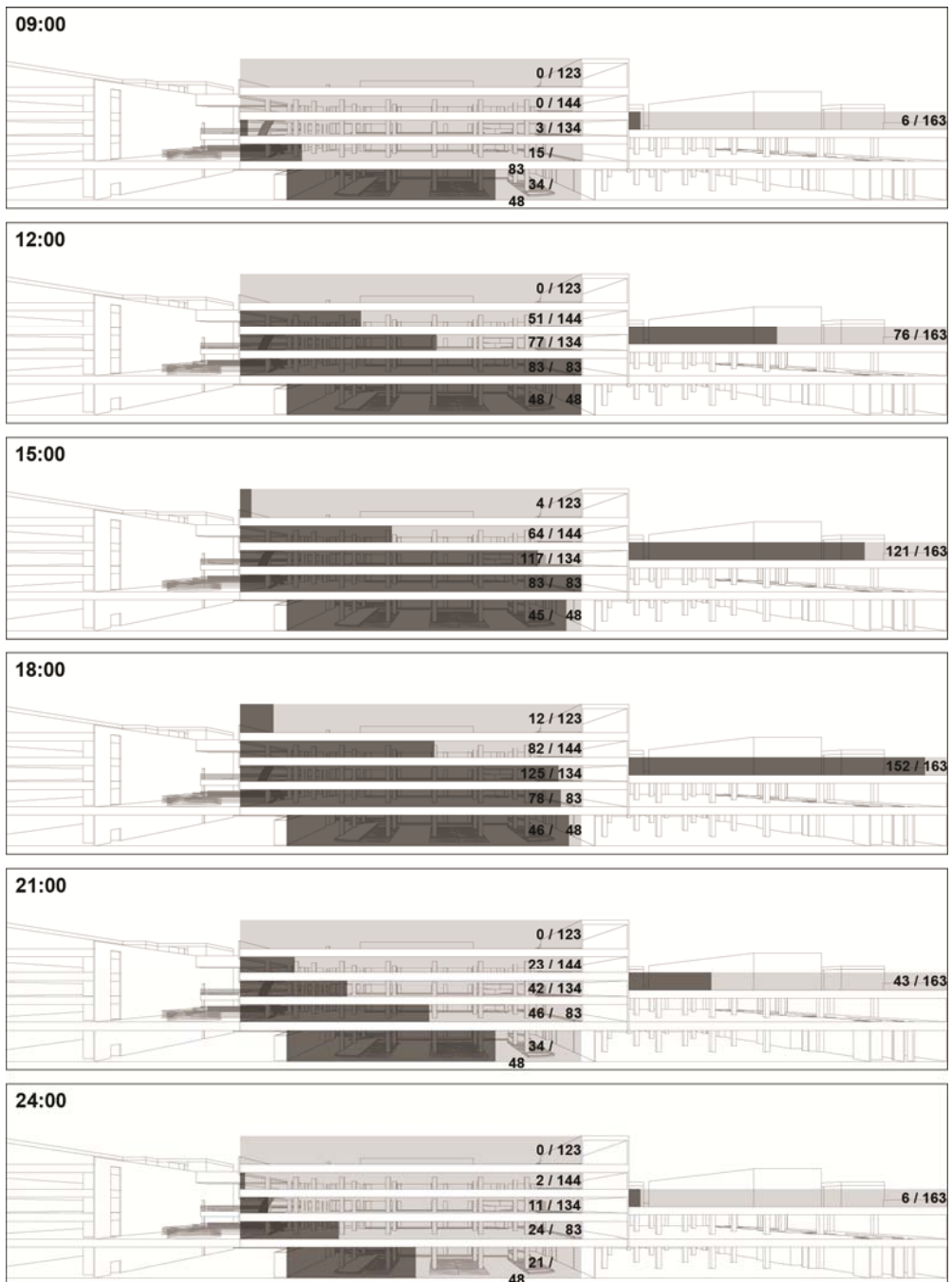


Figure 4-4 Current Status of Use per Time on Lotte mart Parking lot in Seoul Station

In the aspect of spatial form, they could be classified as roof floor type and indoor type. As I mentioned in chapter 4-1, the purpose of this project is not a complete change, but the empty spaces of parking lot are active as the urban park through the temporary spatial occupation. Therefore, it should need quick response for required function, so it has to consider about method of movement, storage and installation for park module. Two roof floors are easy to secure storage space, so there should find the mechanical way to enable for movement, storage, and installation of container module.

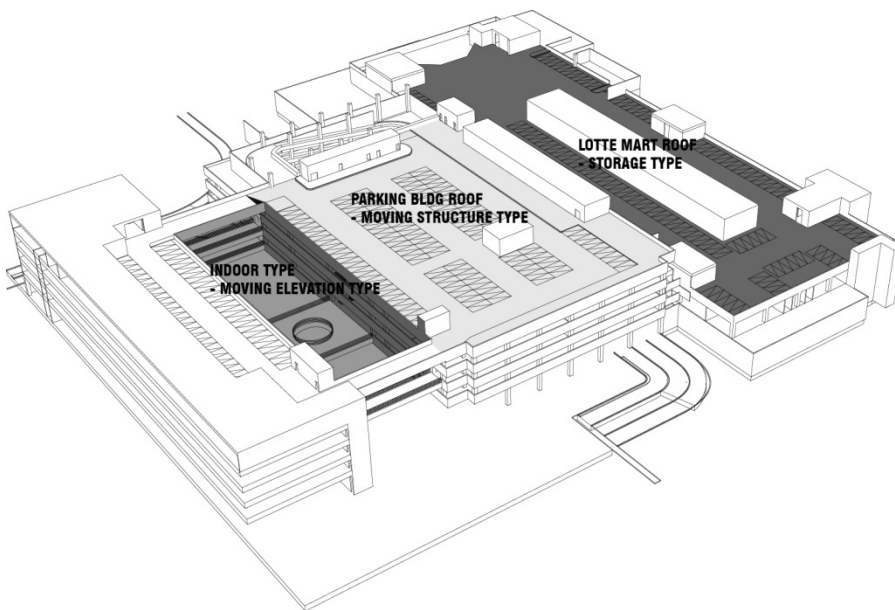
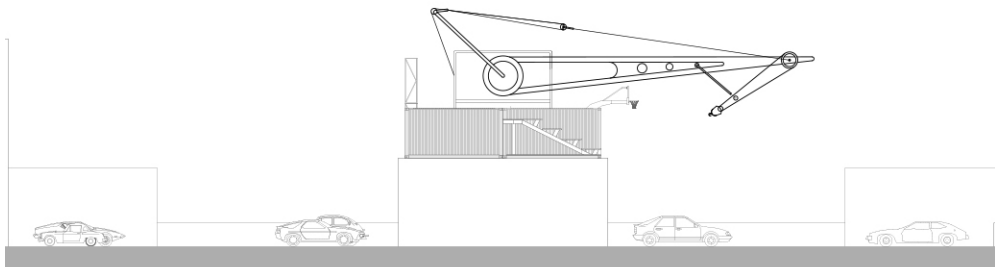


Figure 4-5 Three part of target space

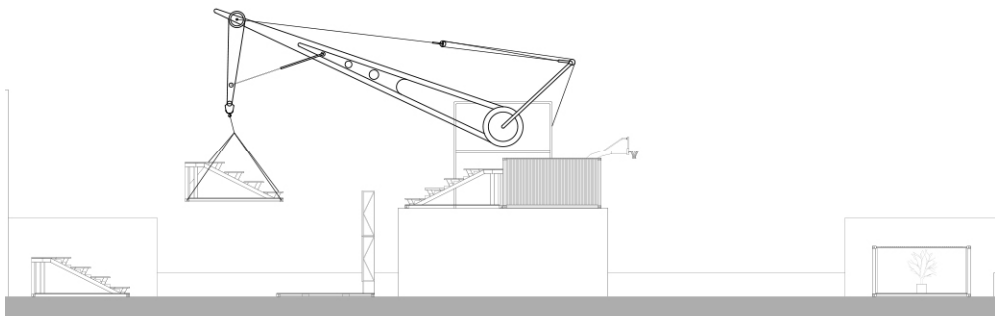
In the case of the Lotte Mart roof floor, upper space of a machine room mass is used for the storage space. And a crane is installed to move the unit module. Figure 4-6 is the diagram about the schematization about the process of change from

parking lot into the urban park, using the crane. When this space is used as parking space, whole Park(ing) units are gathering on the storage. The installation of Park(ing) is finished, through the move Park(ing) module into parking area using the crane.

Parking USage



Occupation Method: Using Crane



Park(ing)

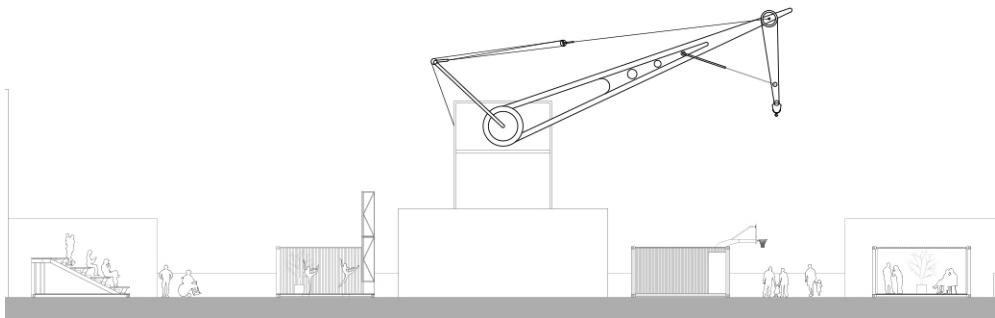


Figure 4-6 Installation Process on the Lotte Mart Roof Floor

In the case of the parking lot roof floor, the storage space is located on one side of the site. The movement and installation of Park(ing) unit is using the forklift truck. Figure 4-7 is the diagram about the schematization about the process of change from parking lot into the urban park, on the parking lot roof floor. Having taken full advantage of the spacious land and concrete flooring, this place is selected as the X-sports zone.

Parking USage

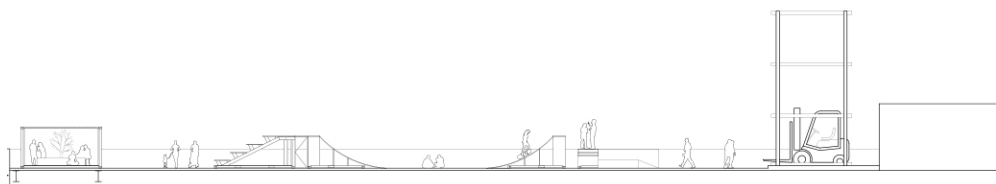
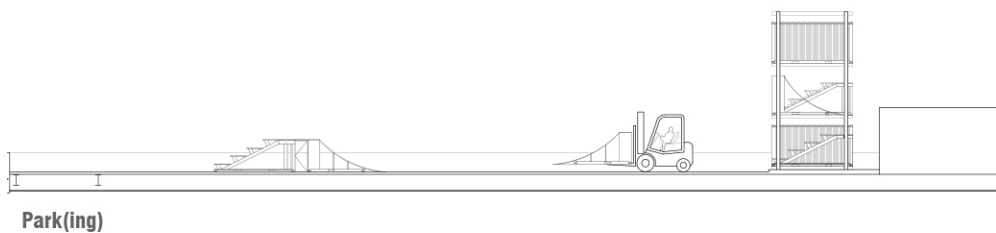
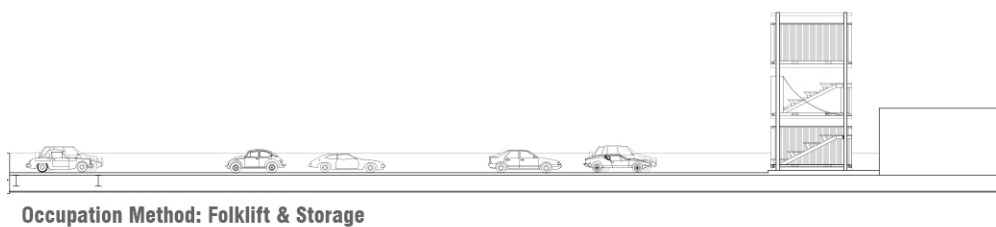
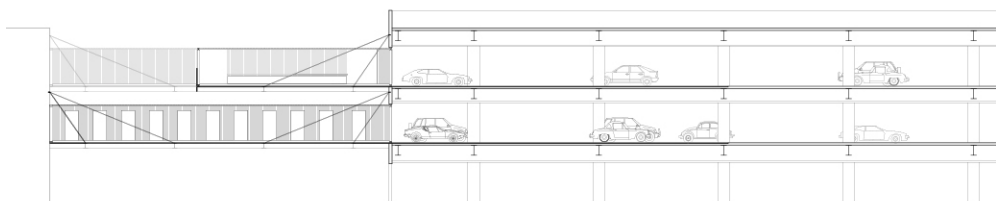


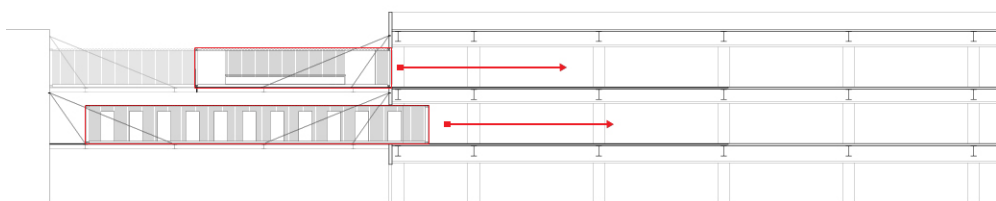
Figure 4-7 Installation Process on the Parking lot Roof Floor

Figure 4-8 is the diagram about the schematization about the process of change from parking lot into the urban park, on the indoor type. In the case of the indoor type, it is hard to secure the installation space for storage because of limitation by the floor height. Therefore, it needs others storage method. I paid attention to the this building elevation and midair for public square. Installed the railway, which is same level for the floor. The movement and installation of Park(ing) unit is using these railway.

Parking USage



Occupation Method: Mobile Box, using Rail way



Park(ing)

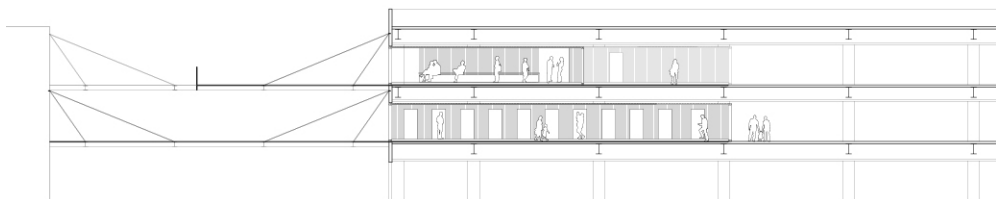


Figure 4-8 Installation Process on the Indoor type

4.1.4 The Spatial Effect of Park(ing) Occupation

There are several advantages in this park(ing). Of course efficient spatial usage, these aren't fixed, so it could be changing the proportion of program or facilities fluidly. And it influences not only occupation space but also surrounding. In other words, Park(ing) uses the more space as the urban park than parking area, which is occupied by the park facilities.

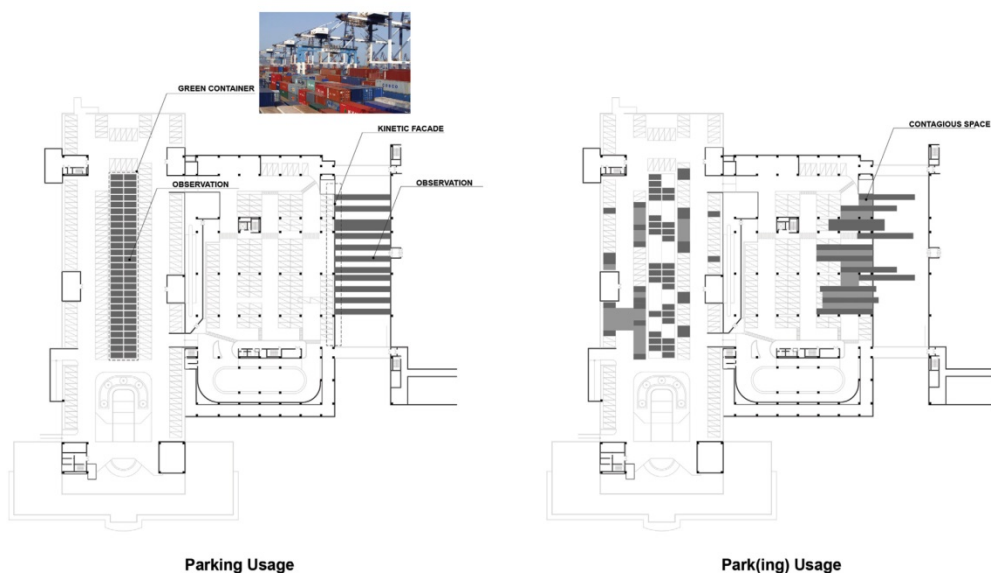


Figure 4-9 The Spatial Effect according to each function

Figure 4-9 is showing the spatial change according to each function, parking and park(ing). Storage of park(ing) units is acting the conservation park. That means, in parking usage, there is also remain park function.

4.2 Design

4.2.1 Design Unit of Park Facilities

In the chapter 2, the Park(ing), which is the new type of park, was defined that human activities are consistently kept, in the aspect of people's action. And also in the chapter 3.3.2, the characteristics of the urban park, which are applied through the consideration of appropriate scale of site, are defined as three things, such as Rest & View, Sports & Amusements, and Entertainment & Cultural. The analysis and design about the necessary park facilities, according to each characteristic, and the components, by which park facilities are constructed, are as following figure 4-10, 4-11, 4-12.

Figure 4-10 is showing the park facilities and components about park characteristic of Rest & View. The park facilities are composed green, picnic, rest, and observatory. The components of park facilities are consist of grass, tree, pots, bench, table, pergola, and stand.

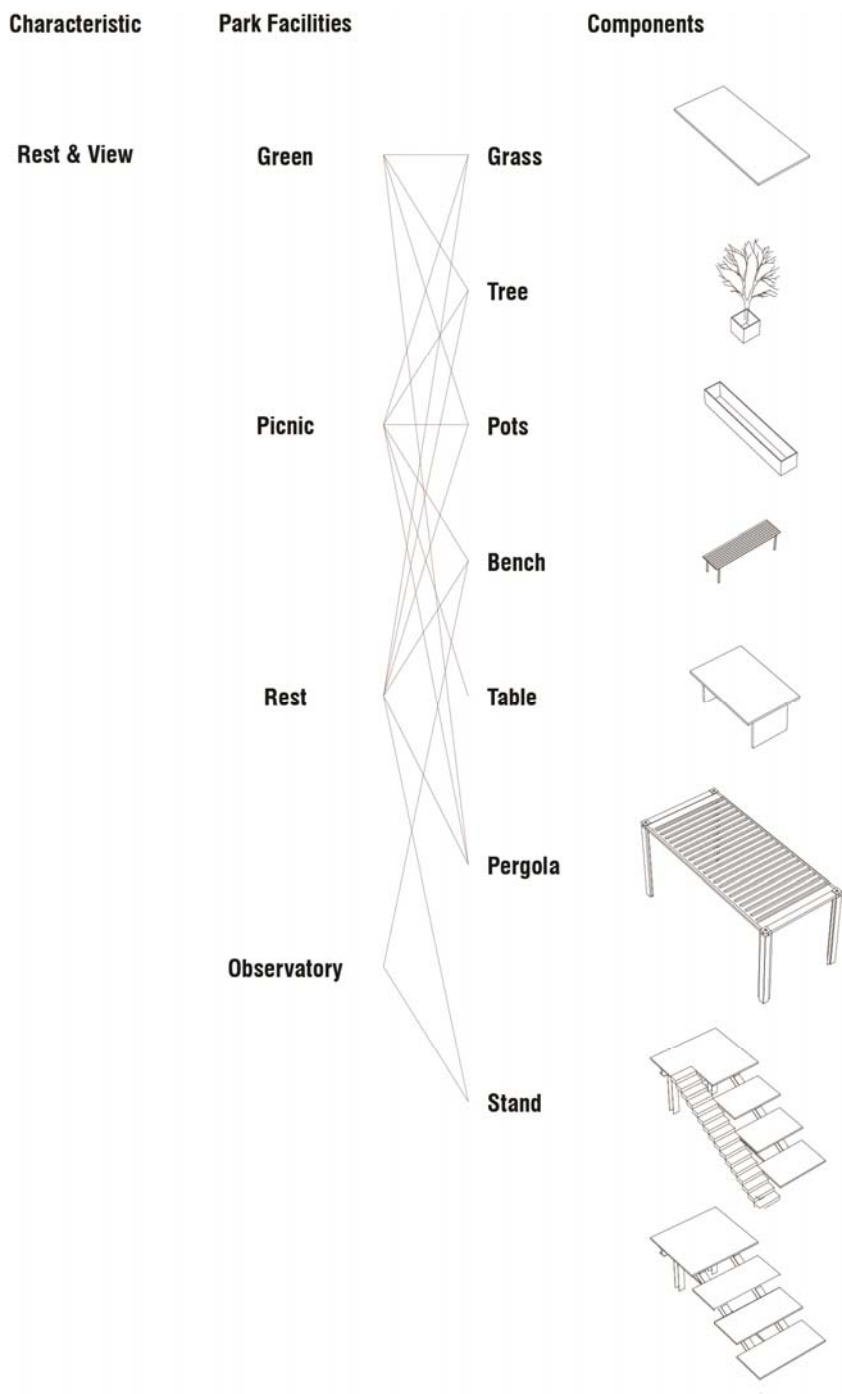


Figure 4-10 Park Components – Rest & View

Figure 4-11 is showing the park facilities and components about park characteristic of Sports & Amusements. The park facilities are composed X-sports, Basketball, Futsal, and supporting facilities. Components, those make up the facilities, are jump stand and installation of X-sports, goal post of basketball and futsal and stand. In the case of the supporting facilities, that is consist of locker room, dressing room, medical room, waiting room, shower room, and warehouse.

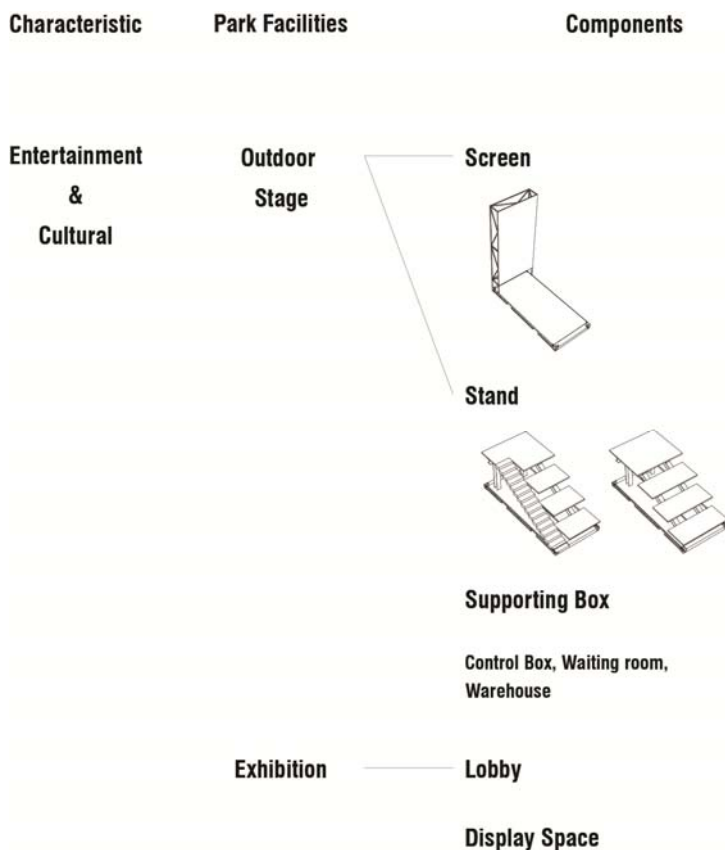


Figure 4-12 Park Components – Entertainment & Cultural

Figure 4-12 is showing the park facilities and components about park characteristic of Entertainment & Cultural. The park facilities are composed outdoor stage, and exhibition. The components of outdoor stage are consists of screen, stand, and supporting facilities, such as control box, waiting room, warehouse. The components of the exhibition are made up lobby, and display space. In the case of the display space, the scale of this space is defined as S, M, L, according to a size of exhibit.

In summary, S scale park facility are made up through the combination of components. And the forms of each characteristic park are designed according to the combination of park facilities.

4.2.2 Define Each Partial Program

In this chapter, I'd like to define the suitable program for each spatial type. As I have explained, the site falls into two categories, roof floor type and indoor type, in terms of the spatial form. Moreover, it should take on a three characteristics, in terms of the characteristics of an urban park. Considering these two classifications, suitable program for each spatial type are arranged as follow.

First, in the case of the Lotte mart roof floor, this place is planned on the basis of the characteristics of Entertainment & Cultural. Outdoor stage, exhibition facilities and supporting facilities are arranged preferentially. After that, rest and view facilities and sports facilities are placed everywhere. This would be help to use the space by the various groups at the same time.

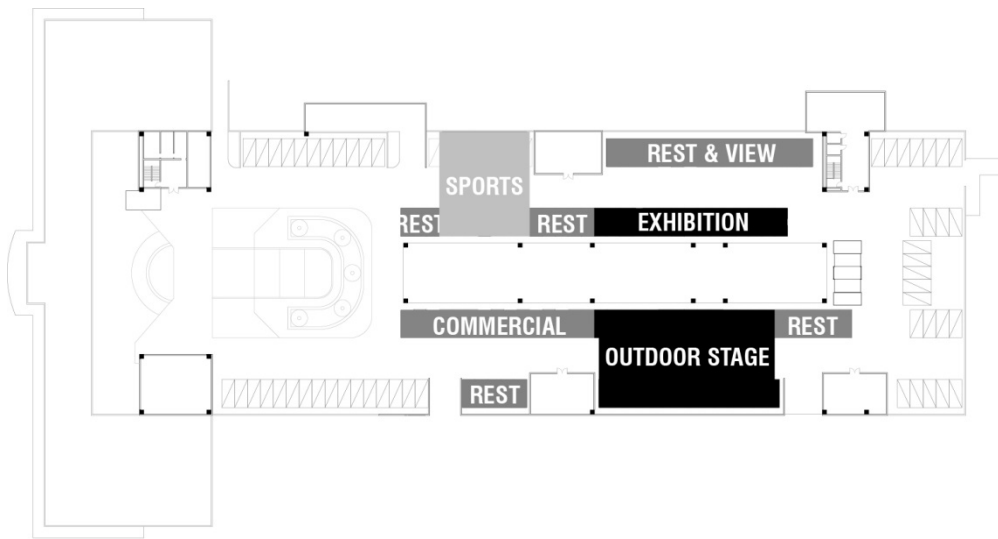


Figure 4-13 Define Program on Lotte mart Roof Floor

Second, having taken full advantage of the spacious land and concrete flooring, parking lot roof floor is selected as the X-sports zone. And also, using the car circulation paths, there are installed the jogging paths, to make exercise place for everyone.

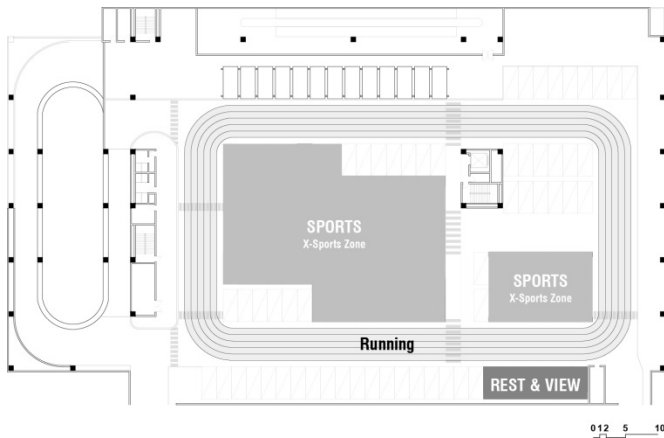


Figure 4-14 Define Program on Parking lot Roof Floor

The Last, in the case of the indoor type, this place is planned for the futsal, because of its height limits. Accordingly, the supporting facilities, such as locker room, dressing room, medical room, warehouse, and waiting area are located. In addition, resting area also planned.

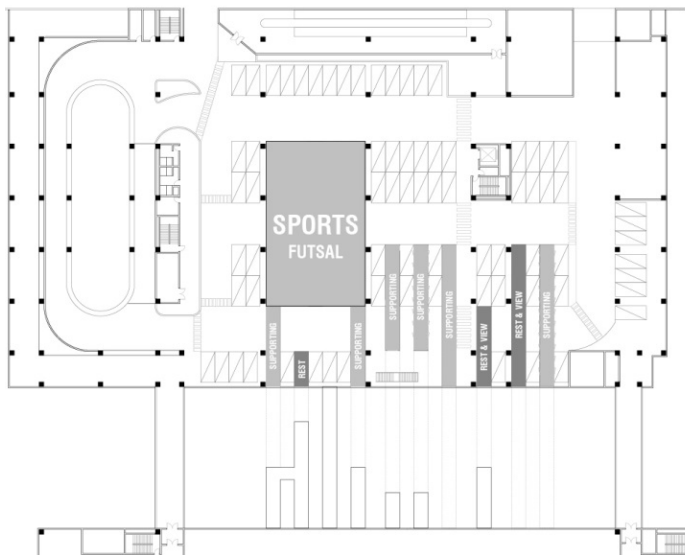


Figure 4-15 Define Program on Indoor Type

4.3 Each Partial detail Design

In this chapter, I would like to propose detail design of each spatial part, such as Lotte Mart roof floor, parking lot roof floor, and indoor floor, on the basis of program for each area defined in the previous chapter 4.2.

4.3.1 Lotte Mart Roof Floor

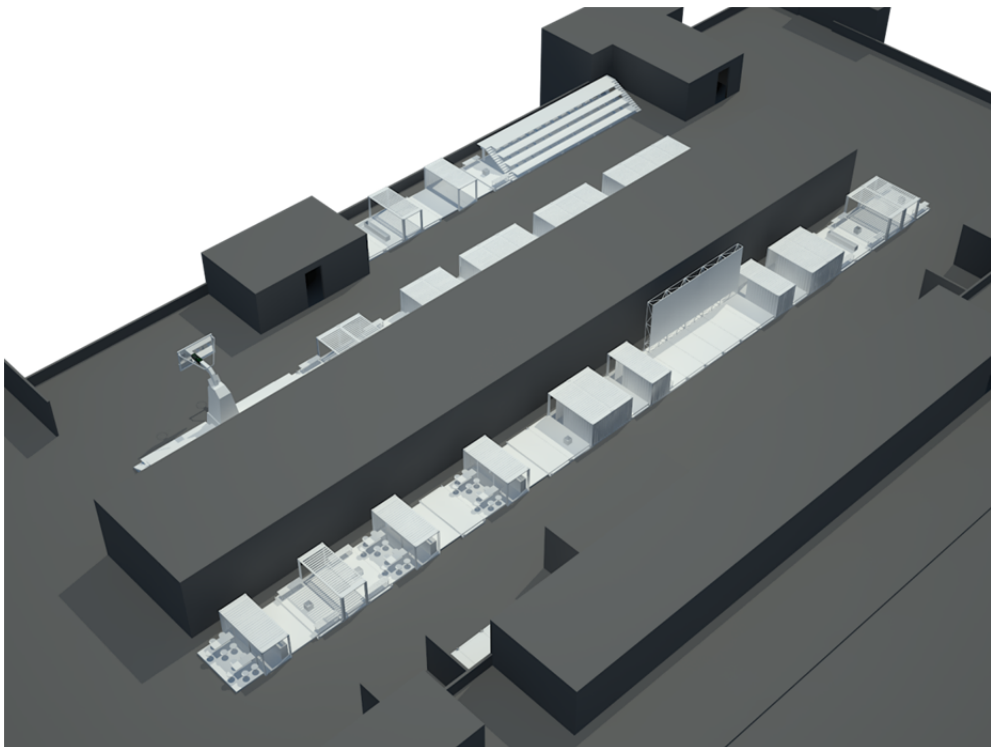


Figure 4-16 Axonometric of Lotte Mart Roof Floor

The Lotte mart roof floor is developed for a multi-purpose urban park on the basis of the characteristic of Entertainment & Cultural. Total ninety eight park(ing) units are used in this place, and the number of one hundred eight parking squares is occupied at the same time. The program of this place is composed of outdoor stage, exhibition, commercial, three rest area, and basketball court.

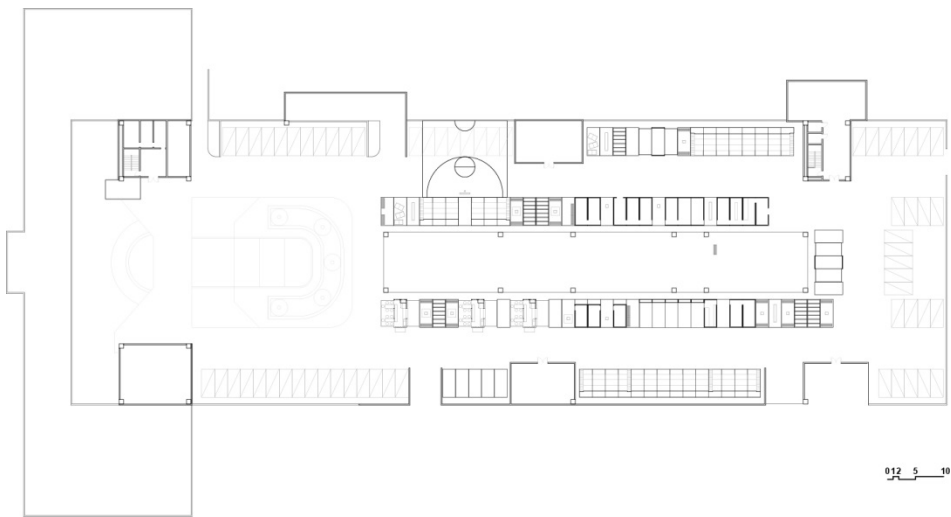


Figure 4-17 Plan of Lotte Mart Roof Floor

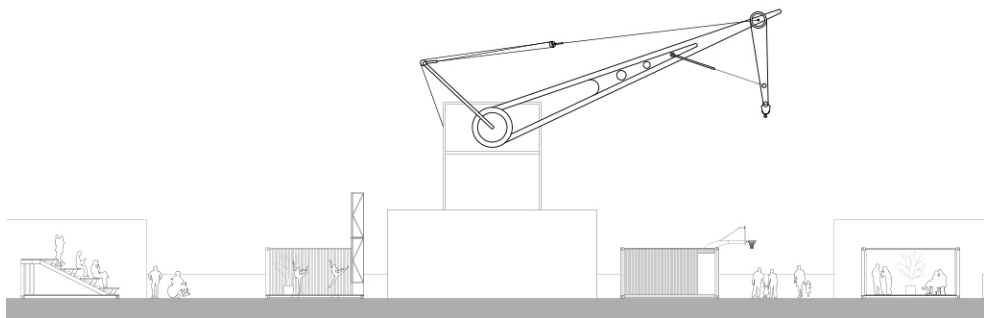


Figure 4-18 Section of Lotte Mart Roof Floor

(1) Outdoor Stage

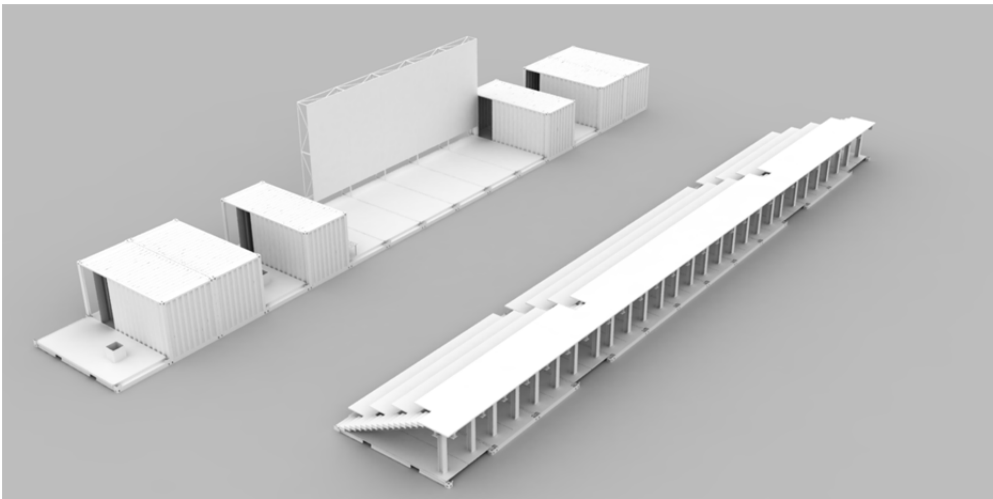


Figure 4-19 Axonometric of Outdoor Stage

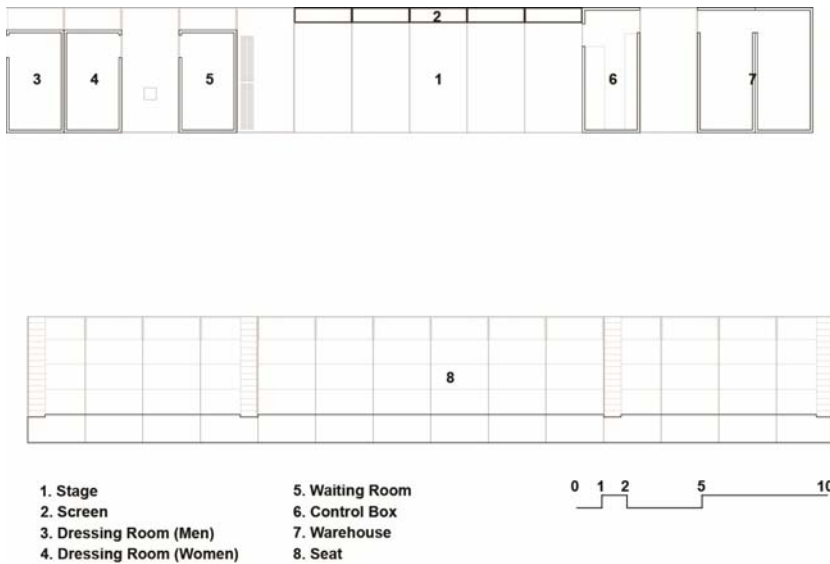


Figure 4-20 Plan of Outdoor Stage

Through the combination of five screen units, outdoor stage is installed. And its left side, dressing room, and waiting room, its right side, control box and warehouse are located. Through the installed resting area in the intervals, intend the spatial

diversity. The stand, located opposite side, consists of fourteen units, and total 250 people could be accommodated.

(2) Exhibition

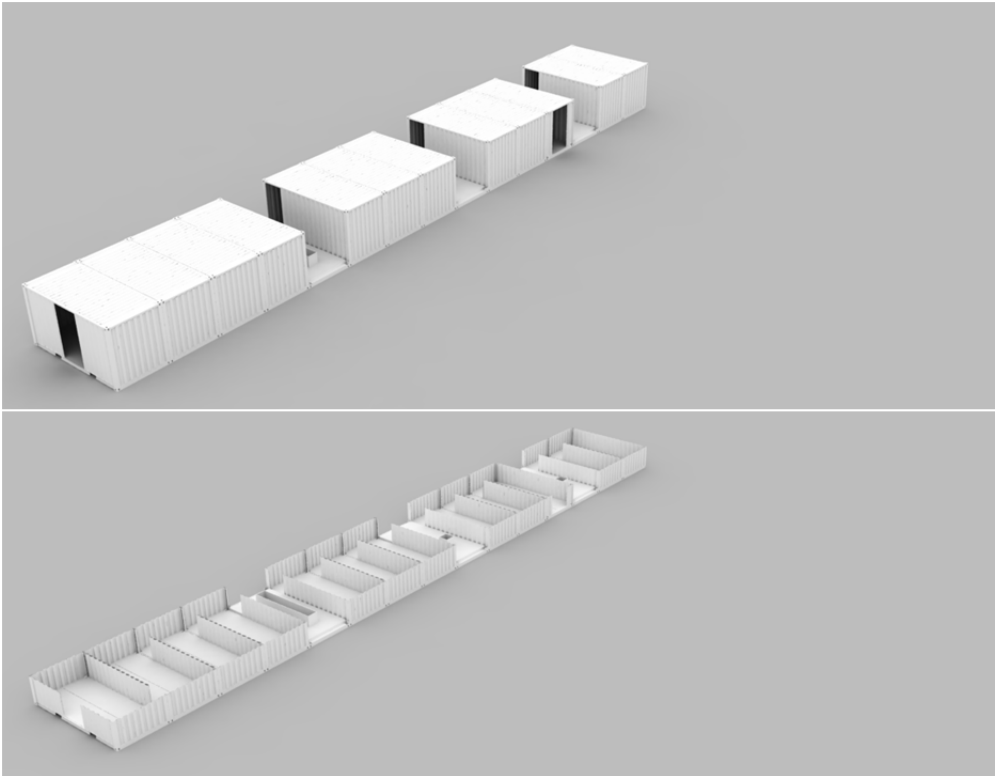


Figure 4-21 Axonometric of Exhibition

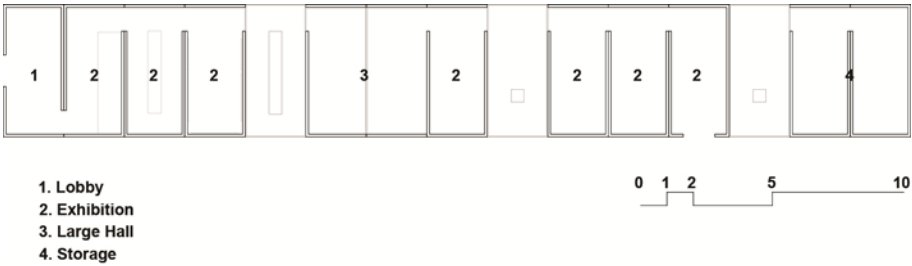


Figure 4-22 Plan of Exhibition

Exhibition facility is composed of twelve box type units and three resting functional bar type units, located between exhibition spaces. According to size of exhibit, spatial open and shut, or spatial combination method can be changed.

(3) Commercial Area

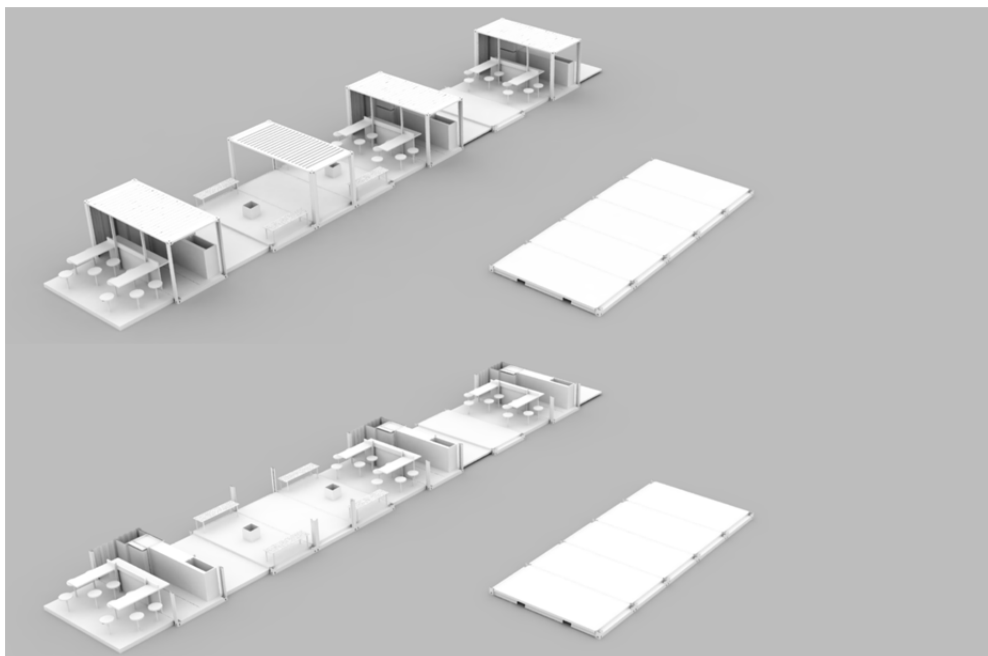


Figure 4-23 Axonometric of Commercial Area



Figure 4-24 Plan of Commercial

Commercial Area is composed box type food store container, green functional bar type units, pergola unit, and picnic ground bar type units. There are occupying total 18ea parking areas.

(4) Rest Area



Figure 4-25 Axonometric of Rest Area 1

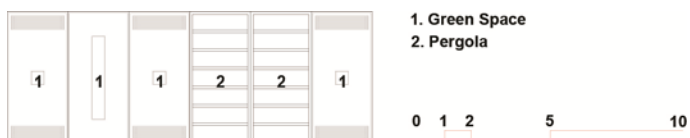


Figure 4-26 Plan of Rest Area 1

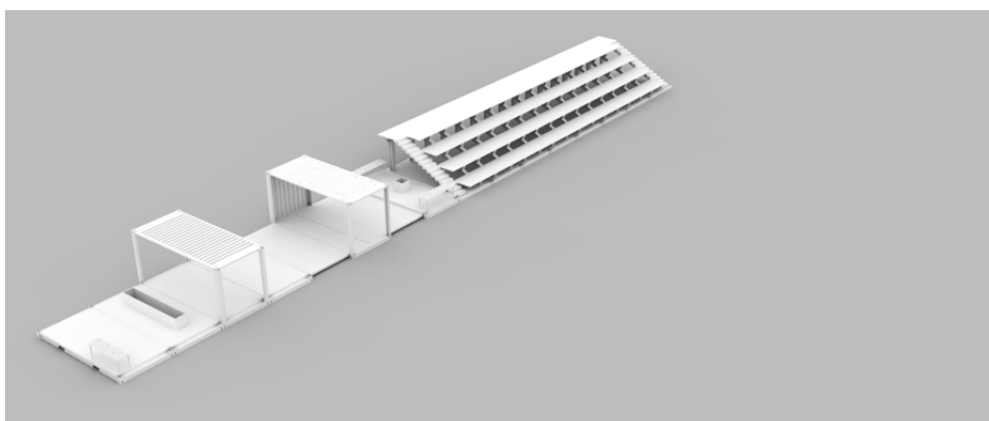


Figure 4-27 Axonometric of Rest Area 2

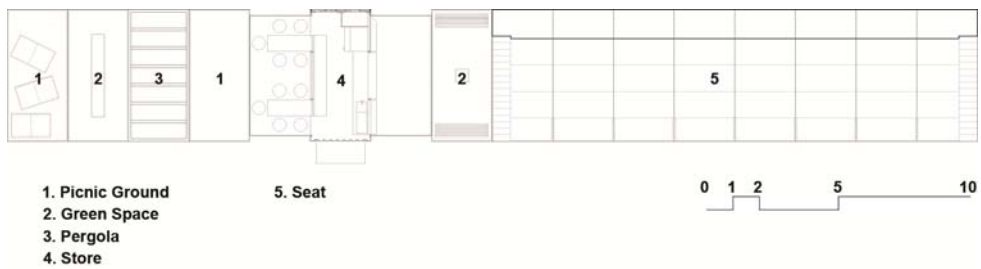


Figure 4-28 Plan of Rest Area 2



Figure 4-29 Axonometric of Rest Area 3

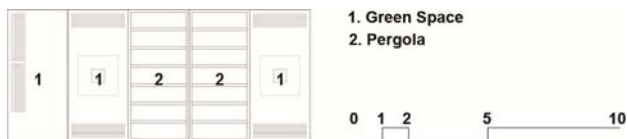


Figure 4-30 Plan of Rest Area 3

In this floor, there are total three resting areas. Almost are constructed by combination of green space, pergola, and stand. Of course each rest area is act alone though they are also combined with other function area.

(5) Basket Ball



Figure 4-31 Axonometric of Basket Ball

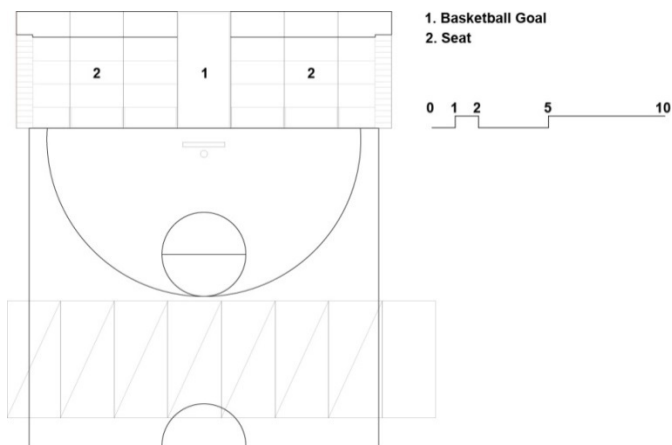


Figure 4-32 Plan of Basket Ball

Basketball area is composed one goal post and six stands. This area occupied opposite parking area to use basketball court.

4.3.2 Parking lot Roof Floor

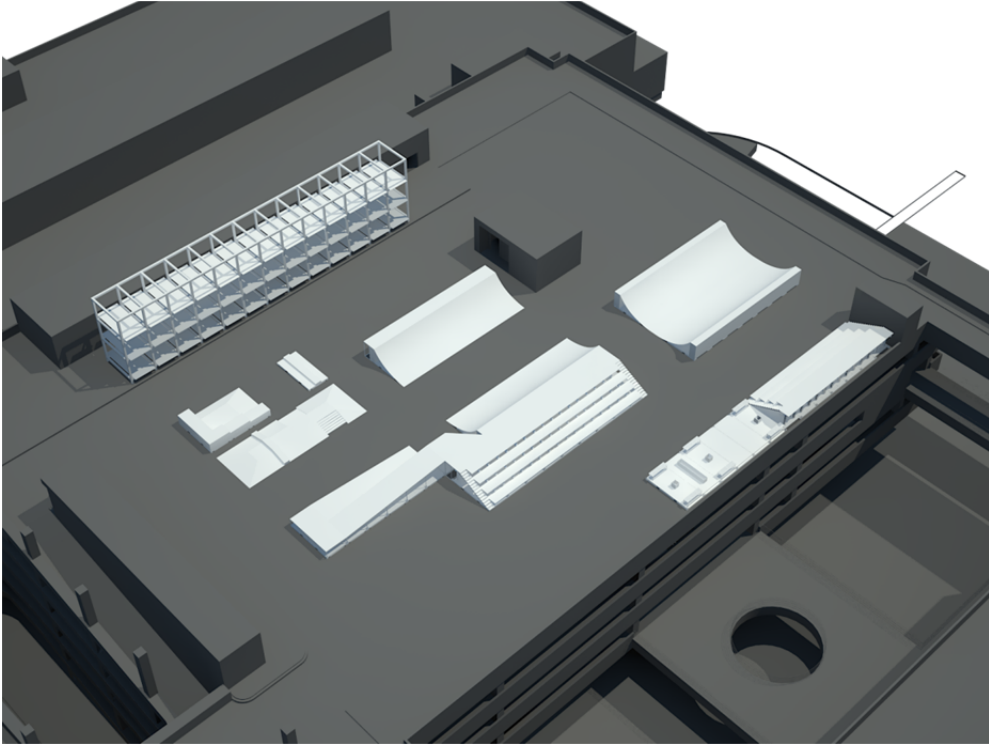


Figure 4-33 Axonometric of Parking lot Roof Floor

The parking lot roof floor is developed for an X-sports zone on the basis of the characteristic of urban park, Sports & Amusements. Total sixty four park(ing) units are used and occupied at the same time, in this place. The program of this place is composed of some kinds of slope and jump stand, rest area, and running track.

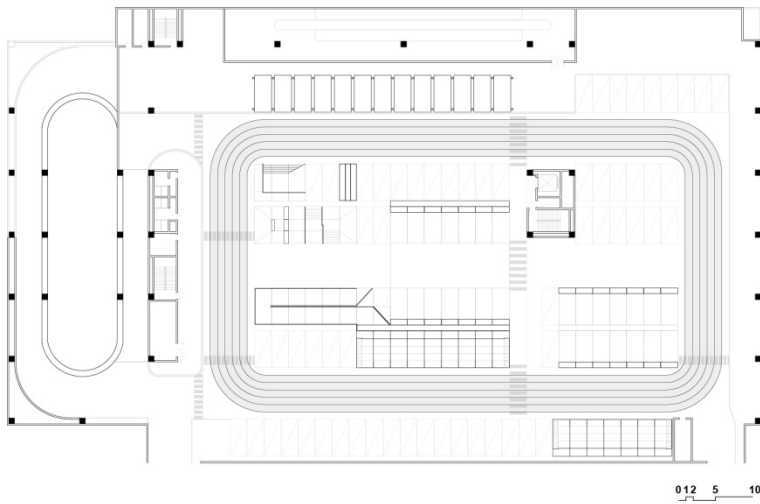


Figure 4-34 Plan of Parking lot Roof Floor

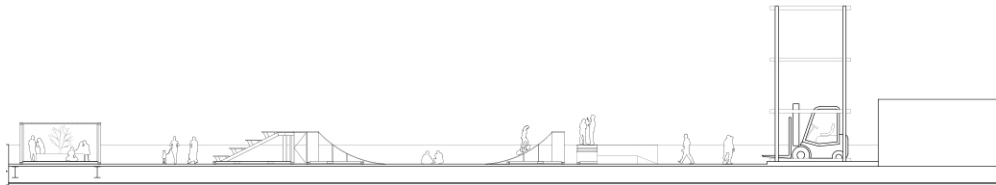


Figure 4-35 Section of Parking lot Roof Floor

(1) Slope

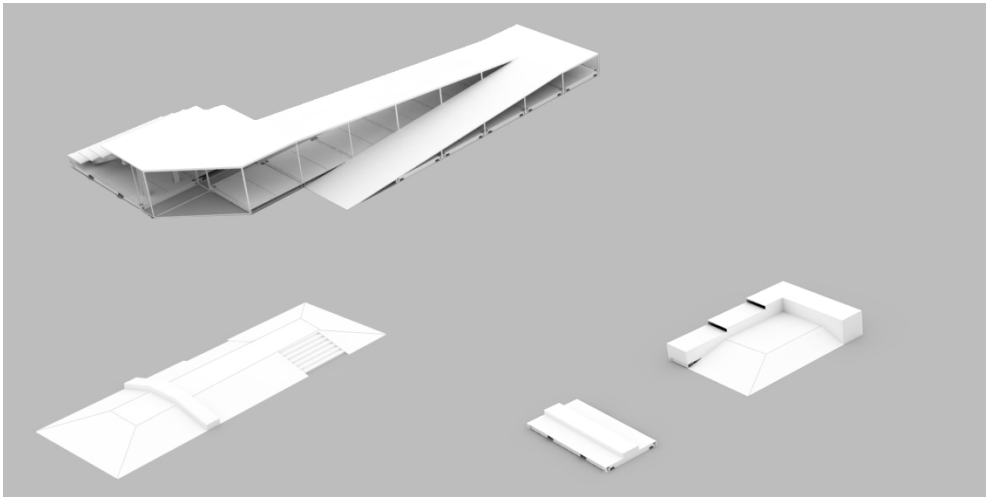


Figure 4-36 Axonometric of Each Slope

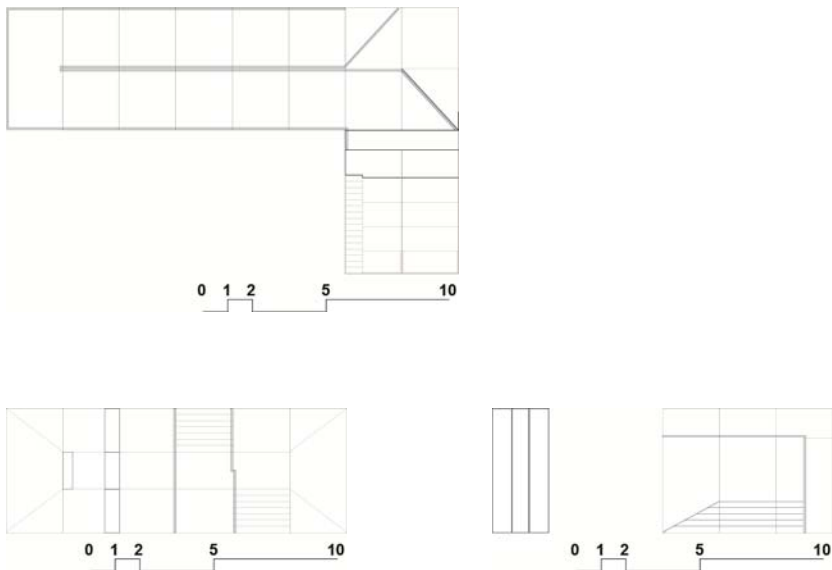


Figure 4-37 Plan of Each Slope

(2) Jump Stand

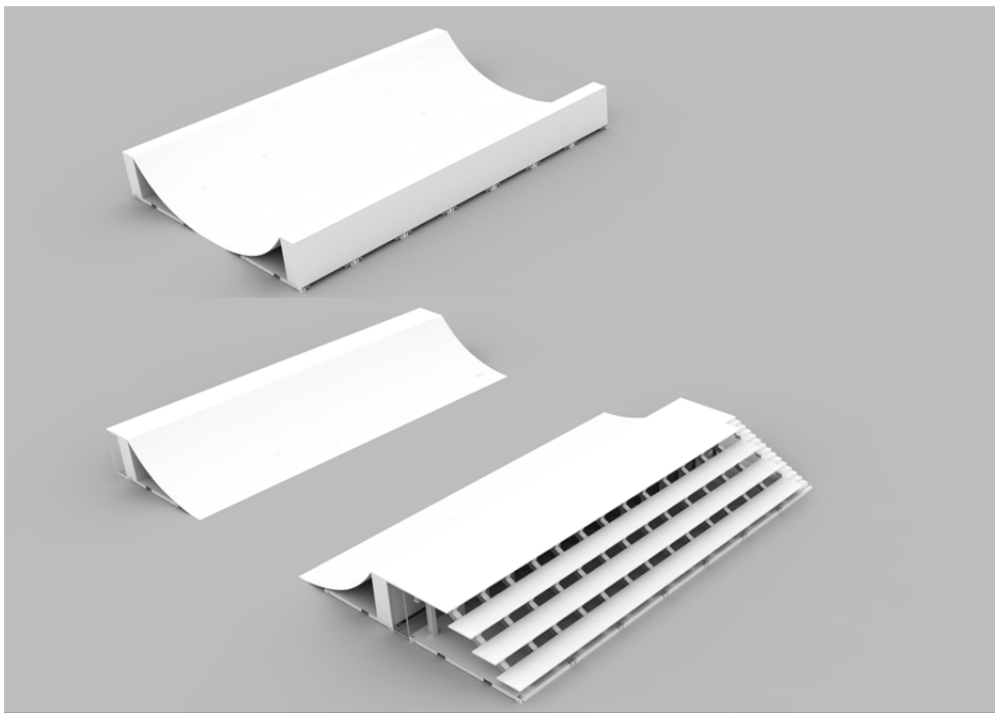


Figure 4-38 Axonometric of Each Jump Stand

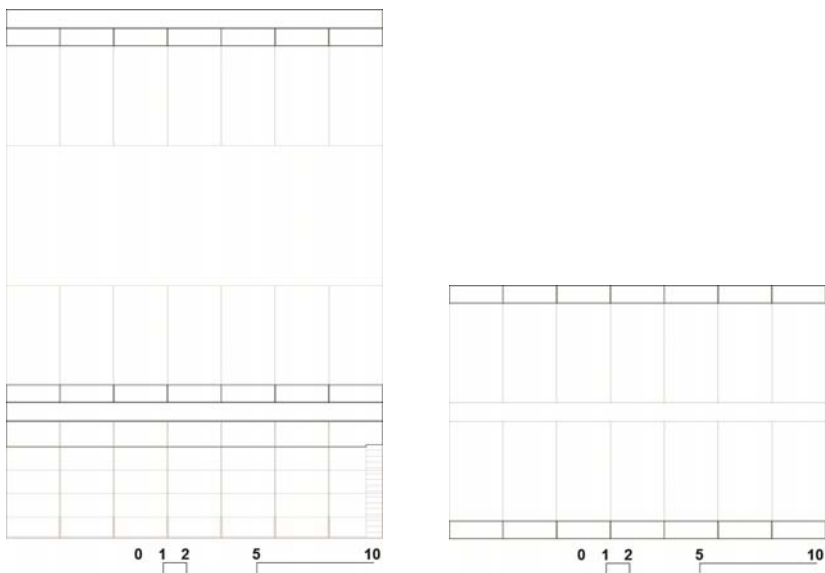


Figure 4-39 Plan of Each Jump Stand

4.3.3 Indoor Floor

The Indoor floor is composed of a futsal field and supporting facilities. Total twenty two park(ing) units are used in this place, and the number of fifty parking squares is occupied at the same time. This space uses different unit types, which are much longer than parking area. The program of this place is composed of dressing room, locker room, medical & warehouse, view & rest area, waiting area, and futsal field.

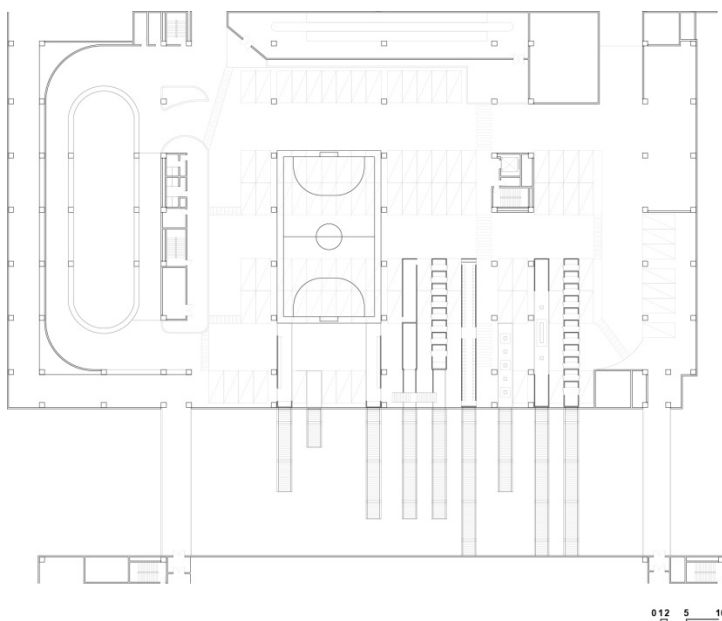


Figure 4-40 Plan of Indoor Floor

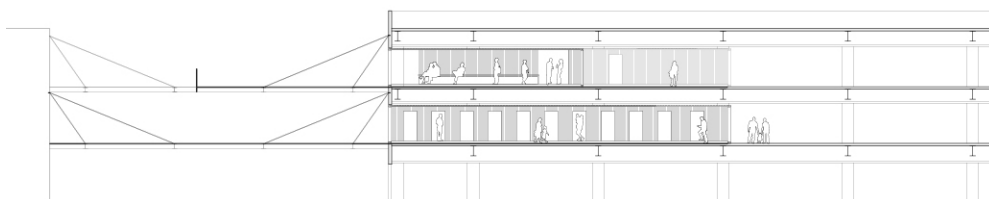


Figure 4-41 Section of Indoor Floor

(1) Dressing Room

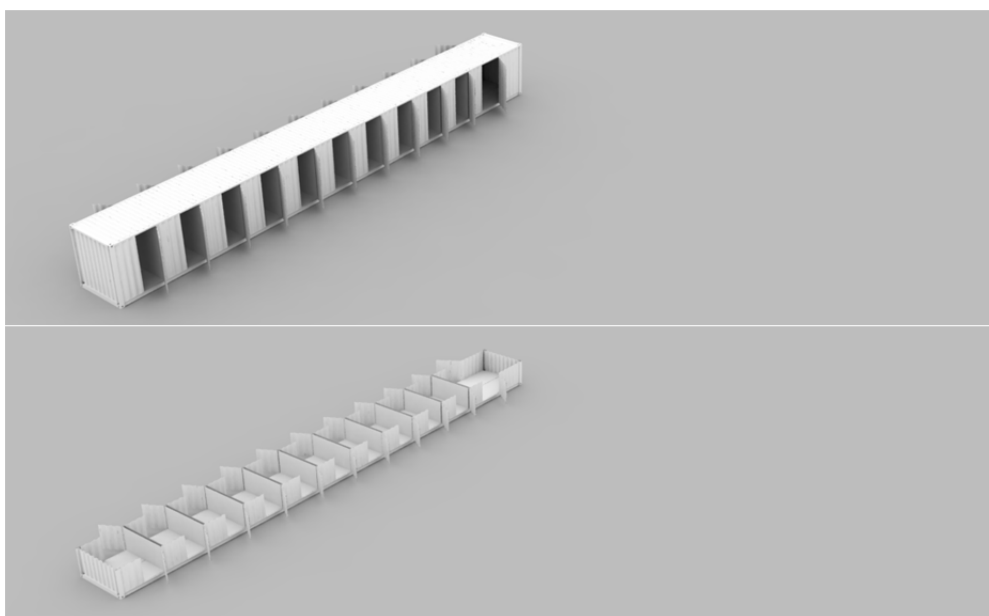


Figure 4-42 Axonometric of Dressing Room

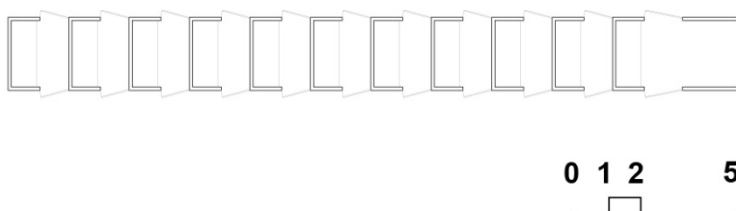


Figure 4-43 Plan of Dressing Room

(2) Locker Room

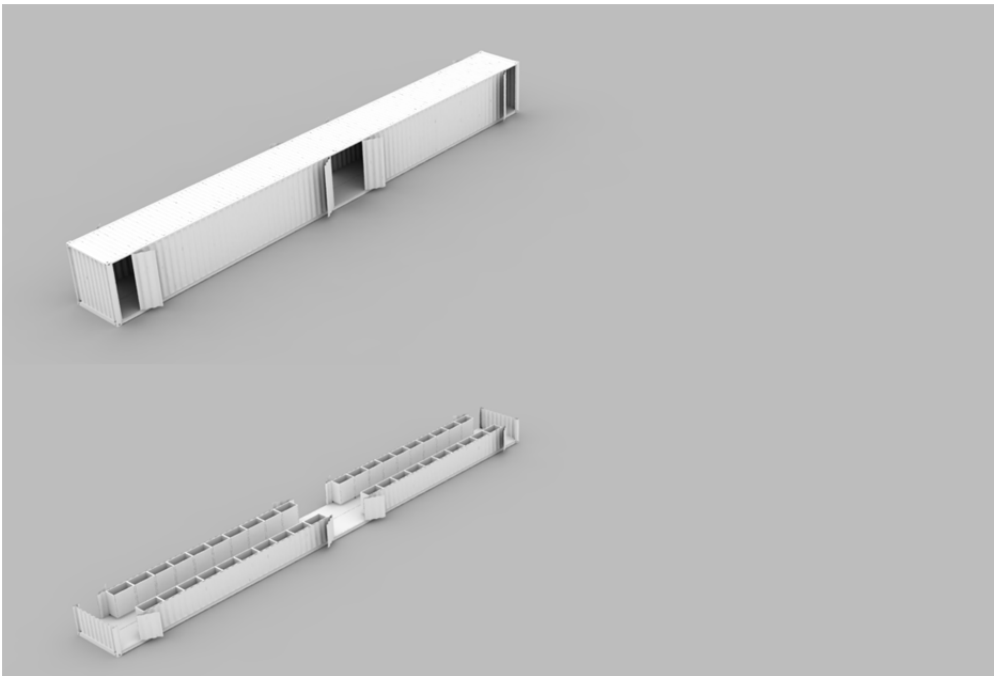


Figure 4-44 Axonometric of Locker Room

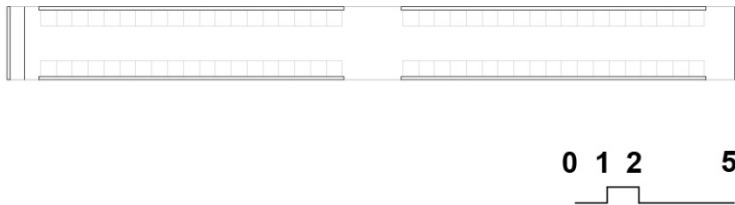


Figure 4-45 Plan of Locker Room

(3) View & Rest

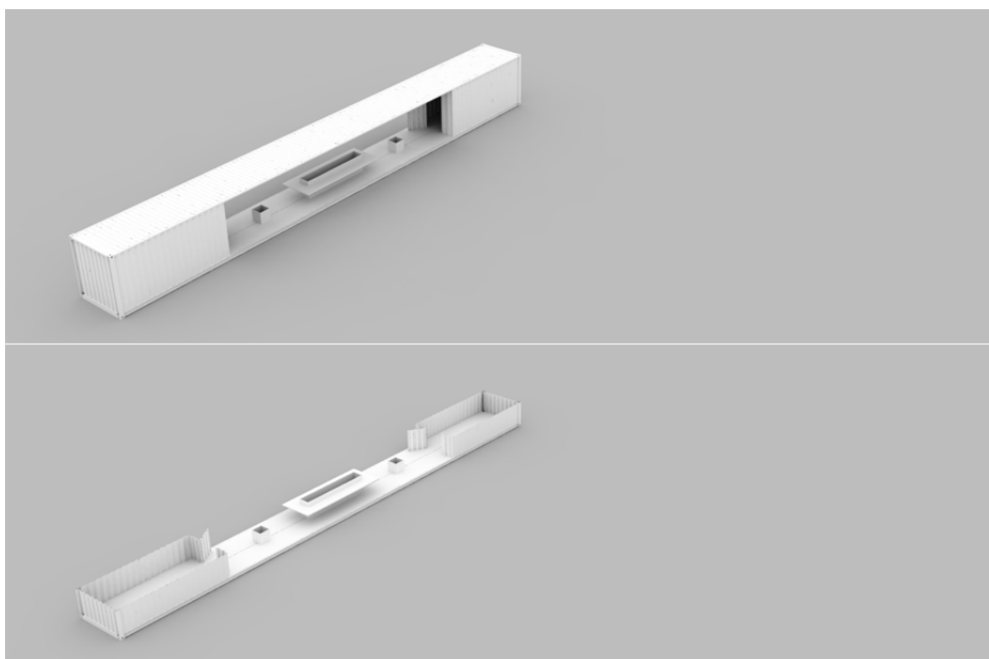


Figure 4-46 Axonometric of View & Rest



Figure 4-47 Plan of View & Rest

(4) Medical & Warehouse

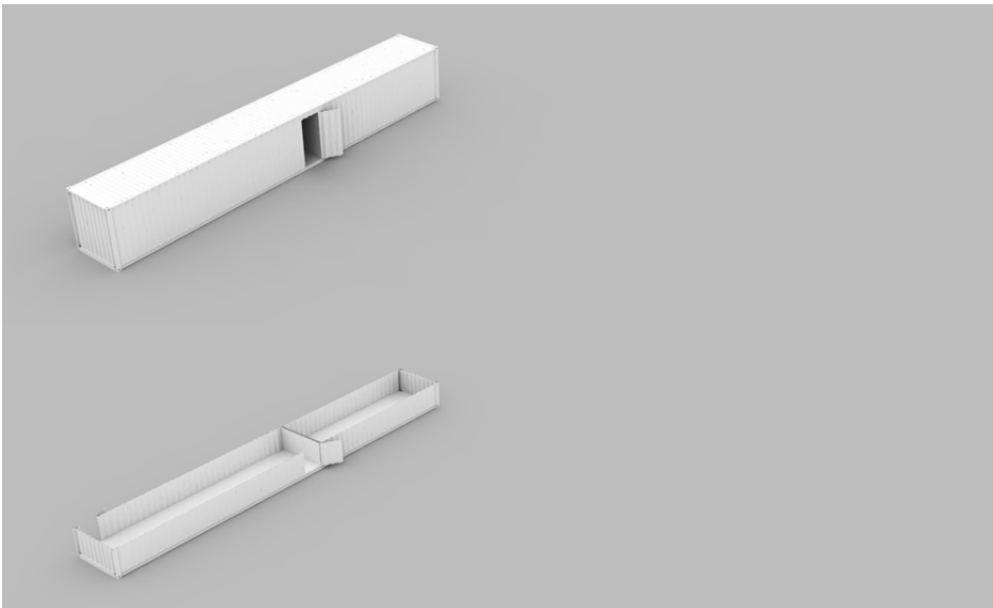


Figure 4-48 Axonometric of Medical & Warehouse

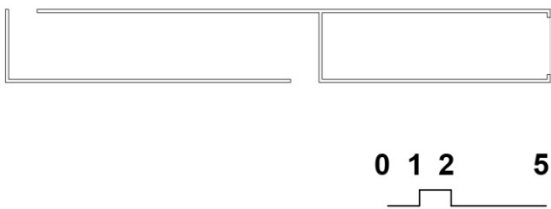


Figure 4-49 Plan of Medical & Warehouse

(5) Waiting Area

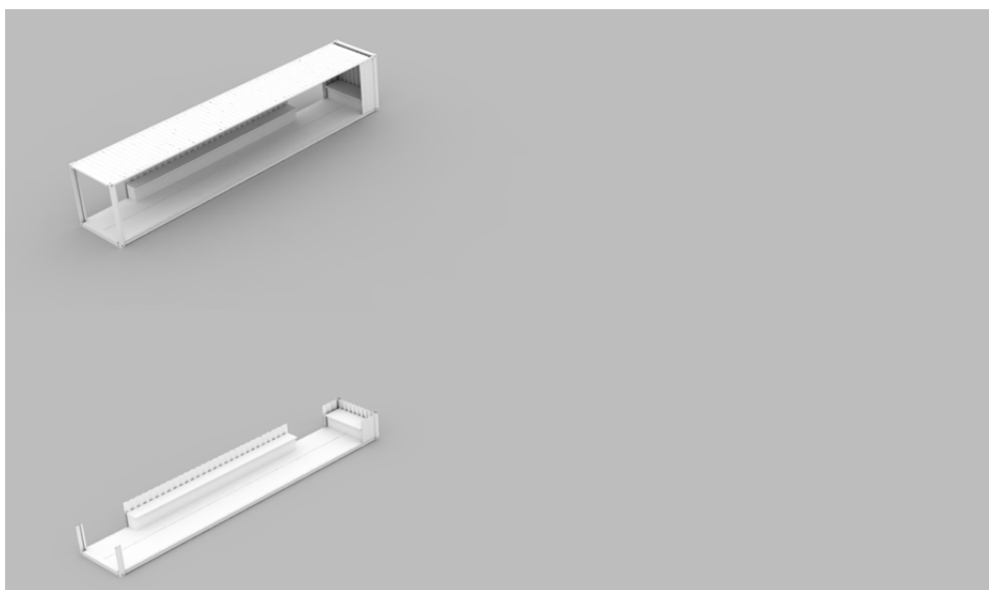
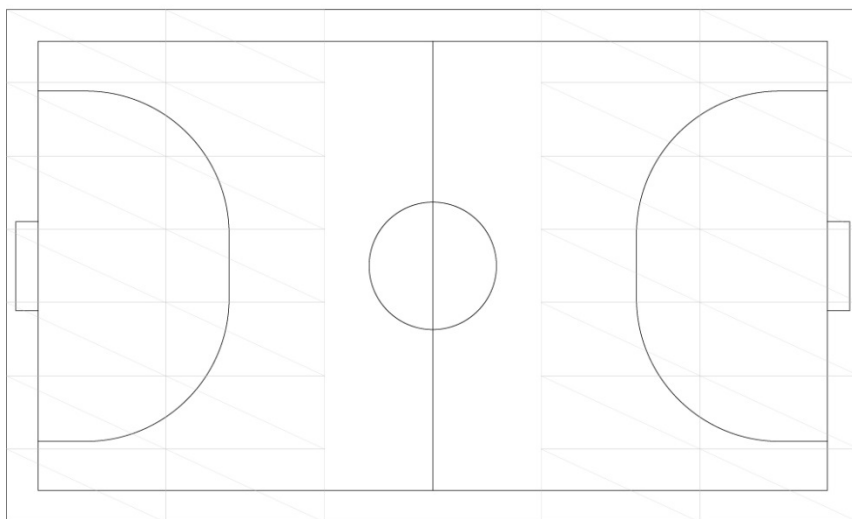


Figure 4-50 Axonometric of Waiting Room



Figure 4-51 Plan of Waiting Room

(6) Futsal Field



0 1 2 5

A small diagram of a futsal field with a scale bar. The scale bar is a horizontal line with a small vertical tick mark in the middle. The numbers 0, 1, 2, and 5 are placed above the line, indicating a scale of 0 to 5 meters.

Figure 4-52 Plan of Futsal Field



Figure 4-53 Perspective – Park(ing) Space on Lotte Mart Parking lot



Figure 4-54 Perspective – Park(ing) Space on Parking Lot Roof Floor



Figure 4-55 Perspective – Park(ing) Space on Indoor Floor

Chapter 5. Conclusion

To meet the world trend to change the urban environments as human-centric, this thesis seeks to the method about using parking space, which are typical car-centric space, for people-centered. The parking lot is handful wide space within the city but it is not efficient for the aspect of the space usage. On the basis of these, differs from the precedent researches, the purpose of this thesis is to seek possibility for using the parking lot as human centric space, when parking lot is empty.

In the aspect of the program solution, the urban park is noted. The role of urban park within the city is being acquired the role as social space for increasing of citizen's living quality, beyond providing the natural green space simple. As above, though the necessity and importance of the urban park are emerged, in contrast securing the space for creating a new park is difficult status. Accordingly, this thesis proposes a method for using the parking space as new space for neighborhood parks, which are scant within city.

This thesis should propose the method of changing the parking lot, as the urban park. This method is not a simple radical transformation. With the keeping the existing function of parking, the method is aimed at the proposal that the space could be used as park according to frequency of parking usage. The concept of hacking is used for architectural method of this thesis. In the context of architecture and urban, hacking is allowing design and creative process to the user. That means

to suggest an alternative for misused space and to generate architectural spaces previously unimagined by the designer of the architecture or urban. As cases studies for adapting similar concept, rebar's two projects, related with parking, have been analyzed. On the basis of these analysis, I have noticed that the design project should be adopted the reversible, module system, but also improved the storage method and harmony with the existing structure.

The new urban park, which is proposed in this thesis, is defined as a word, park(ing), based on the previous background research and considering. The concept of park(ing) is inserting the function of the urban park into the existing parking structure or space. It has the merit of the location, all around in the city. The main usage target for the Park(ing) is the human. Because, this thesis main purpose is to research about utilizable method that space occupied by car could be used for people simultaneously.

In the chapter 3, the site of design project is limited to the bus terminal and the station, on the basis of the five selecting condition. Additionally, to accept the importance of the station as new public space, the Seoul station Lotte mart parking lot is selected as the site of this project. After that, analysis about macro and micro scale, and definition about the scenario of urban park in this site is implemented. After developing private-funded station, the Seoul station is performed irrational function, weighted towards commercial, in terms of public function. If the parking lot in Seoul station is possible to use the urban park according to the parking usage, it could solve the lack of relaxing area. At the same time, it could be helped for the

increasing of the publicness.

On the design part, through the preceding analysis, the following methods are applied. As the occupation method, this project select the temporary occupation way. Due to it should play role of existing parking lot. In the case of the project scale, the design of this project is planned as considering parking standard for efficient space use. The basic form is designed as module system, on the basis of container box, for the convenience of movement and storage. And also, in the aspect of the activity within characteristic of urban park, adaptable park program is selected and is divided as park facilities and components, considering each program. To increase the mobility, the components are made based on the container, and they are also adopted the size of the parking module, for the efficient space usage. Furthermore, to adapt the urban park components, this thesis analyze space condition of the site. As a result, the site is divided as three parts of the space, such as Lotte mart parking lot roof floor, parking lot roof floor, and indoor space. And also, the urban park programs are arranged in accordance with the characteristics of each area. In addition, considering the method of the storage and installation according to space form of each spatial type, the spatial change process is also proposed.

Even if the parking lot has many potential, it has been got a little attention. The parking lot can be changed to be attractive, because of its characteristic, such as plenty space and wide base location in the city. If the parking space could be changed the embracing public space for people, it would be great advantage of city. In this respect, this thesis proposes a possibility for use the parking space as urban

park. However, this thesis has also limitations. The architectural concept of hacking, which is applied for urban park, is unfamiliar so far. Therefore, this thesis is insufficient about quantitative study, because of lack of its architectural and urban preceding studies. And, in the design part, the solution, only proposing for small scale architectural furniture, is also limitation of this study. Nevertheless, I expect that additional research about the efficient usage of parking space might be implemented, starting with this thesis.

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Design Study about the Parking lot as an Urban Park

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이 논문을 공학석사학위논문으로 제출함

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주차시설의 도시공원화에 관한 연구

서울대학교 대학원 건축학과 이 민 호

지도교수 Peter W. Ferretto

현재 도시는 과도한 개발로 인하여 계속해서 고밀도화 고층화 되어가고 있다. 또한 자동차 중심의 도시로 발달되며, 도심 속 사람들을 위한 장소는 점점 더 없어지고 있다. 자동차가 중시되는 현황에서, 자동차와 관련된 문제들을 단순히 교통과 기름, 환경오염 등으로 바라보지 않고 조금 더 새로운 시각에서 바라보고 접근해야 될 필요성이 대두되고 있다. 이 논문은 자동차가 점유하는 공간에 집중하여 자동차의 문제를 바라보았다. 도시 내 가장 대표적인 차량공간은 도로와 주차장인데, 이 논문에서는 주차장을 그 대상으로 삼았다.

현재 고밀도의 도시 속 곳곳에 자리하고 있는 주차시설들은 분명히 도시에 새로운 공공공간으로의 가능성을 가지고 있다. 그 가능성을 활용하기 위하여 조사한 주차시설의 속성은 다음과 같다. 첫째, 주차장의 경우 행위의 측면에서 연속적이지 못하다는 점, 둘째, 서울시의 7.4%에 해당하는 44.9km²의 면적이 단순히 차를 보관하는 용도의 주차장으로만 사용되고 있는 실적, 마지막으로 현대의 고밀도화 된 도시 환경 속 주차장의 모순점들. 이를 통해 주차시설은 도심 속 얼마 남지 않은 넓은 공지임에도 아직 공간 활용의 측면에서 효율성을 보이지 못하고 있는 것을 알 수 있었다. 이를 토대로, 이 논문에서는 기존의 다른 연구들과는 다르게 주차장이 차량으로부터 비어지는 시간에 사람들의 공간으로 사용될 수 있는 가능성에 대하여 연구하고자 하였다.

이 논문에서는 도시환경을 사람 중심으로 바꾸고자 하는 전세계적인 추세에 부합하여, 자동차 중심 공간인 주차장을 사람중심으로 활용하는 방안에 대하여 연구하였다. 이를 위한 프로그램 측면의 해법으로 도시공원을 주목하였다. 현대 도시에서 사람들의 삶의 질을 변화시키는데 공원이 기여하는 바는 점점 증대되고 있다. 도시 속 공원의 역할은 단순히 녹음의 제공을 넘어 시민들의 삶의 질을 향상시키는 사회적 공간으로서의 역할이 더해지고 있다. 이처럼 도시 공원의 중요성과 필요성이 부상하는 것과는 상반되게 현재 도시에서 새로운 공원을 조성하기 위한 공간 확보는 어려운 상황이다. 현재 서울시의 경우 공원율은 다른 대도시들에 비하여 부족함이 없으나, 대부분 도시외곽에 위치한 자연에 접하여 계획된 공원들이 많기에 생활권 공원의 측면에서는 많은 부족함을 보이고 있다. 이에 이 논문에서는, 현재 도심 속 부족한 생활권 도시공원의 새로운 장소로서 주차장을 활용하는 방안에 대하여 제안하였다.

이 논문에서 제안하는 방법은 단순히 주차장을 공원으로 바꾸는 것이 아닌, 주차장의 기능을 유지하되 사용량에 따라서 언제든지 융통성 있게 도시공원으로 변화하는 것이다. 이를 위한 건축적 개념으로 해킹을 주목하였다. 건축과 도시의 맥락에서 해킹은 사용자에게 디자인과 창조적인 과정을 허용하는 것으로, 사용자 스스로가 계획가가 이전에(계획 당시) 생각할 수 없었던 건축 공간을 생성하거나 혹은 잘못 사용되고 있는 공간의 대안을 제시 하는 것을 의미한다. 이때 해킹은 주로 도심 속 차량 혹은 건물에 의해 공용공간을 빼앗기고 있는 사람을 그 대상으로 하여, 고밀도화 된 도시 속에서 새로운 공용공간을 창출 하기 위한 대안으로 제시된다. 이 개념을 주차시설에 적용한 사례로서 이 논문에서는 Rebar의 두 개의 프로젝트를 사례조사로 분석하였다. 사례 연구를 통하여 논문의 설계 프로젝트에는 사례들의 회복성과 모듈 시스템은 수용하되, 모듈의 저장 방법과 기존 구조와의 조화 방법 등은 개선시키는 방안으로 진행되었다. 디자인 프로젝트는 서울역 롯데마트 주차장을 그 대상지로 선정하여 거시적 관점과 미시적 관점에서의 대상지 분석 및 공간의 특성에 따른 각각의 도시공원의 특성을 정의하는 방식으로 진행한다.

이 연구를 통하여 제안되는 주차장의 도시공원화는 아직 단편적인 시선일 수도 있다. 하지만 도심 내 위치하며 넓은 공지를 갖고 있는 주차장은 충분히 매력적으로 바뀔 수 있는 가능성이 있다. 도심 내 주차장을 사람들이 사랑할 수 있는 공공공간으로 바꿀 수 있다면 이는 도시에 엄청난 이점이 될 것이다.

주요어: 주차장, 도시공원, 헤킹, 유연성, 회복성, 유희공간

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