

2006 SNU Urban Design Seminar FINAL PAPER

Walkability for ALL

Through the Case of SNU Campus

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Purpose of the Study

Significance of Walkability

The development of our city has been mostly based on the car use. The main goal was to increase both amount and speed of transportation so it could meet the demand for the growth of the city. Cars provide a fast and convenient way to move. This automobility *car-based mobility and the economic and political systems supporting car-based society*¹ and its privileges makes more and more people wanted to use cars and cars became the most superior occupier of the city and the street environment. However, it is inevitable that such car-dependent use and planning of city involves serious *violations of safety, health, and mobility* for others who wish to or have to walk. It has led to an evacuation; *life and community that used to take place on the street have disappeared*.² Number of walkers and variety of their activities are the basic necessities to make city alive. Without walkers on the street, the city lost its vitality and became pale and monotonous.

As public interest has shifted from growth and development to quality of life issues, a new virtue of walkability is gaining importance in urban design area. Walkability is about how friendly the place is for pedestrians. More specifically, obtaining walkability is to make sure if it is *safe, comfortable, and pleasant to walk*.³ It concerns more tangible and human-oriented matters, including how they walk and what they experience on the street. For the improvement in pedestrian environment tends to contribute to local prosperity in various ways, the title of

¹ Carmona et.al., 2003, "Public Places and Urban Spaces", p.128

² Newman and Kenworthy, 2000, "Sustainable Urban Form: The Big Picture", p.109, "Problems of car dependency – SOCIAL", recited from Carmona et.al, 2003, p.31.

³ PBIC, "Walkability Checklist", <http://www.walkinginfo.org>

“Walkable Street” soon took place as a synonym for the general urban regeneration projects. Nationwide, numerous local government and non-governmental institutions including universities are competitively launching walkability projects to restore street environment, establish local identity, and achieve commercial vitalization. These projects also benefits because it initiates communication between neighborhood communities throughout the process.

Walkability and Diversity

In spite of the same environment, everyone would experience it in unique way. Therefore, what they want from the environment, too, must be different from each other. Since the urban environment cannot literally satisfy everyone, we must retreat to the bottom line. Urban design is not for everyone, but for as many of them as possible. The presumption of a virtual model is needed, and our virtual model is usually created upon the normality, majority, and average to represent people in general.

Streets are mainly for public use. When talking Walkability in public places, we unconsciously assume that it is for everyone. Variety of people who might walk on it is nearly unlimited. We all walk differently. Of course, we understand that streets cannot be adjusted for each and every one of us. However, if only the ‘people in general’ are regarded, urban design can *reduce* or eliminate *the choices available to certain social groups*.⁴ Then it is not just a matter of preference or choice, but of exclusion and discrimination. It is thoroughly against the belief that streets are public and walkability is for everyone.

Sometimes, exclusion is useful for the sake of public. Keeping harmful or

⁴ Carmona et.al., 2003, “Public Places and Urban Spaces”, p.127

threatening individuals away can make public places safe, comfortable, and available for more people. However, unintended physical barriers exclude some people with certain restraints for walking, even if they are extremely harmless. Among them, disabled or elder people dependent on wheelchairs or sticks and with children in pushchair are included. It is not because they are unwalkable for themselves, but because the society/environment is too rigid to recognize, absorb, and harmonize diversity.⁵ It shows the lack of tolerance in the society.



8동 강의실 앞, 계단 위에는 '장애인 전용' 화장실이 있다.
SNU 장애인권연대사업팀 제공⁶

Even when our streets are revised in the glistening prospects of the walkability projects, such exclusion are embedded, conserving benefits of walkability not for everyone. By adhering to normality, majority, or average and taking it for granted for everyone, design can deprive accessibility from quite a number of people, just because they walk differently. Without tolerating diversity, walkability is not equitably shared between people but becomes rather a privilege just for the limited, NORMAL walkers.

⁵ Carmona et.al., 2003, "Public Places and Urban Spaces", p.127, about the concept of 'social model' of disabilities.

⁶ 대학신문, 2006. 5. 27, "장애학생에 대한 인식개선이 우선—[미리보기] 제1회 장애인교육권문화제", 이지은 기자 에서 재인용



Image Source:
관악교지편집위원회,
“관악 31호 (2005. 봄)”,
‘낮익은 풍경, 낯선 시선’
중에서, p.11

Critical Point

The purpose of this study is to see how our ‘Walkable Streets’ is in a different dimension. From the different walker’s point of view, walkability can be experienced differently. Measuring and evaluating the gap while paying attention to barriers and obstacles that cause and deliver the exclusion, we may find way to secure diversity, hopefully.

Confining Boundaries

Meaning of Walking

If we adhere to restricted definition of 'To walk/walking', we must call people with wheelchairs unwalkable. However, as mentioned above, we will call them as 'different walkers' because we are going to use the extended definition of walking in this study.

First, walking is to include various physical types. Not only erect or balanced ones, those on wheels or with sticks are also different types of walking.

Second, it includes variety of associated activities. We walk, not only to move from one point to another, but we experience the street and the city itself while walking. We see, hear, smell, and feel the physical elements of the street; we make use of supporting facilities; or actively participate in presented programs and activities. Even sitting on a table set aside from the path, can be the part of walking experience. As streets serve as important background for community life where social interaction and communication occur, walking includes such social intercourse, too.

As implication of walking is extended, implication of the exclusion from walking also increases its significance—not only mobility but the whole opportunity of experience and participation of street and city can be withheld with the exclusion.

Case of SNU Campus

For our 'Walkable Streets' to examine, this study focuses on a recent project of "Construction for Walkable Street" in Gwanak Campus of Seoul National University. There are several reasons—SNU Campus is large enough to provide a city-like phenomena; its boundary is clearly visible and relatively isolated; the

membership of primary users are also defined and limited; its entity is obviously for the use and benefit of the public; and most of all, it is where my daily experience is oriented.

A Different Dimension

Among those, who are widely excluded from walking for various reasons, this study focuses on who are dependent on wheelchairs, to reserve consistency of a dimension. They are most obviously affected from physical barriers, so their point of view is most valid and suggestive examining the tolerance of built environment specifically.

Framework for Analysis

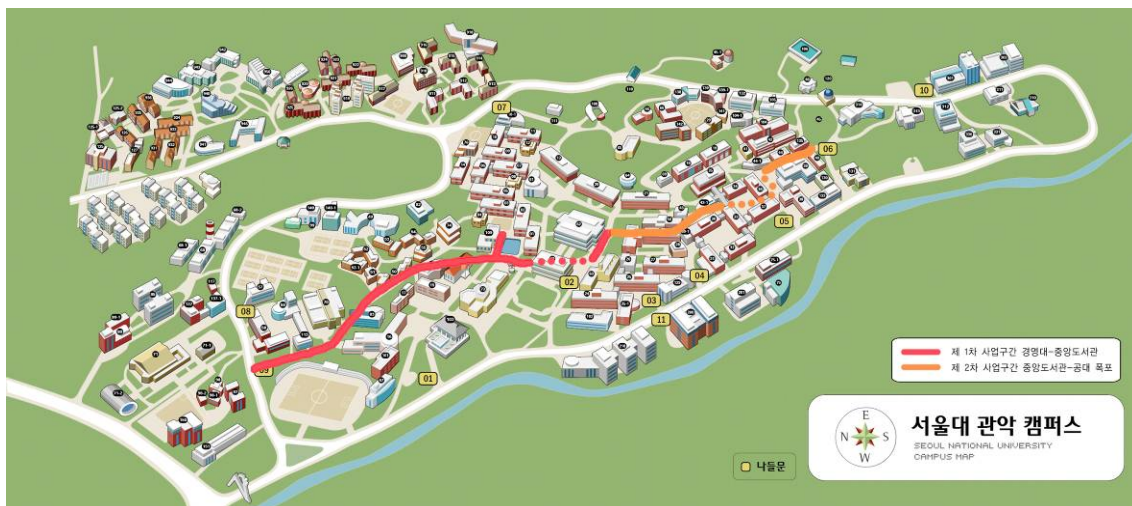
To proceed to a campus walkability analysis in a different dimension, we will start with what has been improved along the selected street through the project by comparing the initial targets and outcomes of the project in the general usage. Then, in the viewpoint of a wheelchair user, we will take a walk along the same street. All notable obstacles and hardships will be recorded on the map with photographs. We will focus on the alteration of the route itself because of discouragements, along with the consequent changes that affects the whole experience. After summarizing and clearing the differences and problems of Wheelchair experience on the campus streets, evaluation will be focused on embedded reasons and its implications concerning walkability and diversity.

Analysis

Walkability Project in SNU Campus

(1) Virtual Targets

“Construction for Walkable Street” is a full-scale campus revision project to convert streets in campus into “*environmentally friendly*”, *pedestrian-oriented*, and fancy” ones. The project includes— 1) eliminating cars from selected streets; 2) expanding and re-paving of sidewalks to enhance walking environment; 3) replacing asphalt and concrete into environmentally-friendly materials; 4) create a favorable streetscape to represent the image of the university; and 5) open campus and its facilities to neighborhood community.



Source of campus map: <http://moose.snu.ac.kr>

In 2005, one of the most frequently used streets from the College of Administration to the Central Library (1.2km) was reconstructed. The second phase of project covered from the Central Library to the Waterfall in the College of Engineering (0.8km). Though not constructed yet, three squares are included in

⁷ 국민일보, 2005. 9. 4, “서울대 보도블록 다시 깔린다... ‘걷고 싶은 거리’ 조성” 허윤 기자

⁸ 대학신문, 2005. 10. 8. ““차 없는 날’을 만들자[연재기획] 에코캠퍼스 ③ 차 없는 캠퍼스”, 김이선, 최효석 기자

plan—one in front of the College of Administration, Acropolis in front of the Student Center and the Red Square in the college of engineering. These are *left aside to collect the public opinions* and take time to elaborate the plan.⁹

(2) General Improvements

The quality of walking environment along the selected street has been improved a lot in general. At least, pedestrians are no longer suffered from aggressive vehicles and sidewalks are wide and paved well, so the overall sense of safety and comfort is increased. The streetscape created by greenery, lights, and harmonious materials is neat and fair.

Total length of the section is too long to cover on foot at once. As same landscape patterns lasts for too long without any significant activities, it can be dull and monotonous when walked through just to pass by. Fortunately, there are several relaxing nodes—i.e. small open spaces, resting places with benches and outdoor tables, vendors for refreshment—once in a while, available as pleasant places to gather around and take a break.

⁹ 연합뉴스, 2005. 9. 4, “서울대 30년만에 보도블록 다시 깔리는 이유… 아크로폴리스'는 시대적 상징성 감안해 일단 원형 유지” 임화섭기자

How Do 'THEY' Walk?

(1) Walking Constraints

- Standard dimensions of a wheelchair¹⁰
 - overall length (l) : 1200mm
 - overall width (b) : 700mm
 - overall height (h) : 1090mm
- Physical requirements for movement¹¹
 - valid width : 1200mm, for passing and stepping aside, 1.5m X 1.5m cross-passing zone every 50m
 - levels and slopes : prominences no higher than 3cm, recommended slopes of 1/18, no steeper than 1/12, avoid slopes between left and right
 - surface, material and texture : non-slippery, flat and even surface, no gaps, trenches or bumps in and between elements, sound and thorough edge treatment

(2) Actual Routes¹²



Walkability Project: conceptual division of the selected street¹³

¹⁰ 산업자원부기술표준원, "Wheelchairs: Maximum overall dimensions" 2003. <http://www.standard.go.kr/>

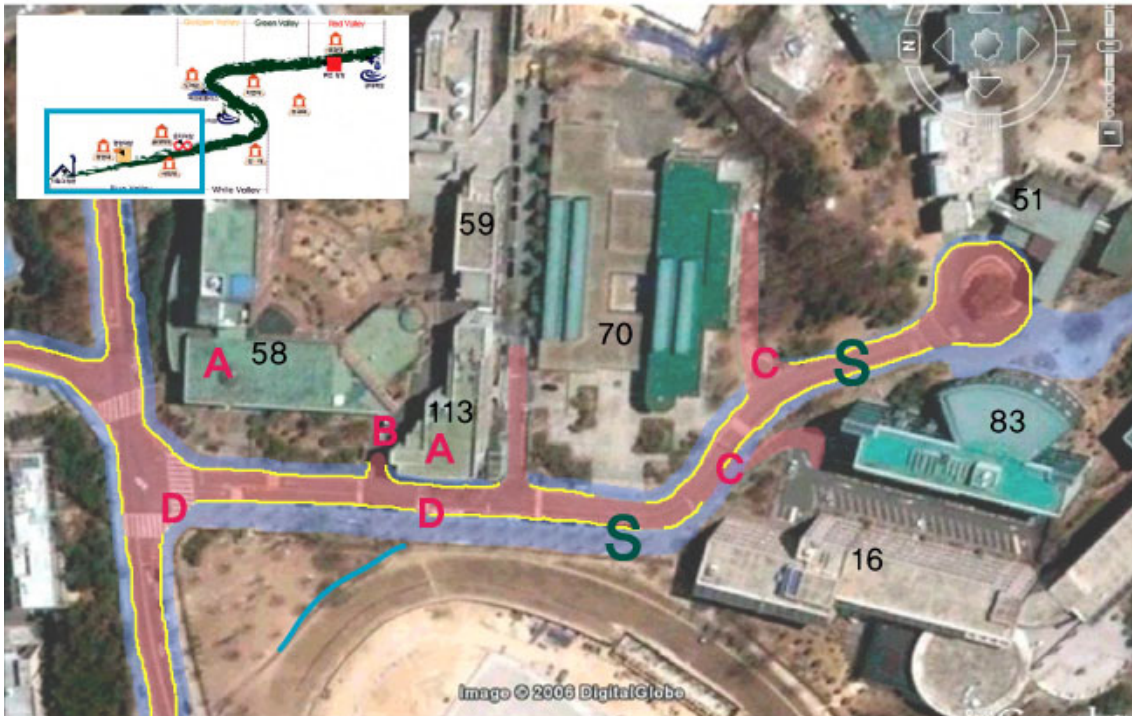
¹¹ 강병근, 2004, "대학 내 장애인 편의시설의 효율적 설치방안에 대한 연구", 교육인적자원부

¹² All the satellite images used as base maps are from <http://earth.google.com/>, in same scale and orientation

¹³ 대학신문, 2005. 6. 8, "올 가을, '걷고 싶은 거리' 생긴다", 김성규 기자

We are starting at the lowest position, climbing up gradually. In addition to the 5 divisions of the projects indicated here, we will consider the central district including library, student center and the Headquarter as an independent division.

제 1 구간 경영대 - 음미대



This division has not achieved complete exclusiveness for pedestrians through the project. Cars are still allowed, so the separation between traffic lane for vehicles (red) and sidewalks for pedestrians (blue) is important factor concerning walkability. Yellow lines indicate the edge of the sidewalks those heights cannot be overcome by wheelchairs. On the regulation, edges have to be lower than 3cm for the wheelchair access, but we assume the maximum of 6cm is also acceptable. The erased parts represent permeable points where the height is reduced.

Two buildings marked A on the east side are thoroughly surrounded by sidewalks about 15 cm high. Wheelchair access is allowed only through the

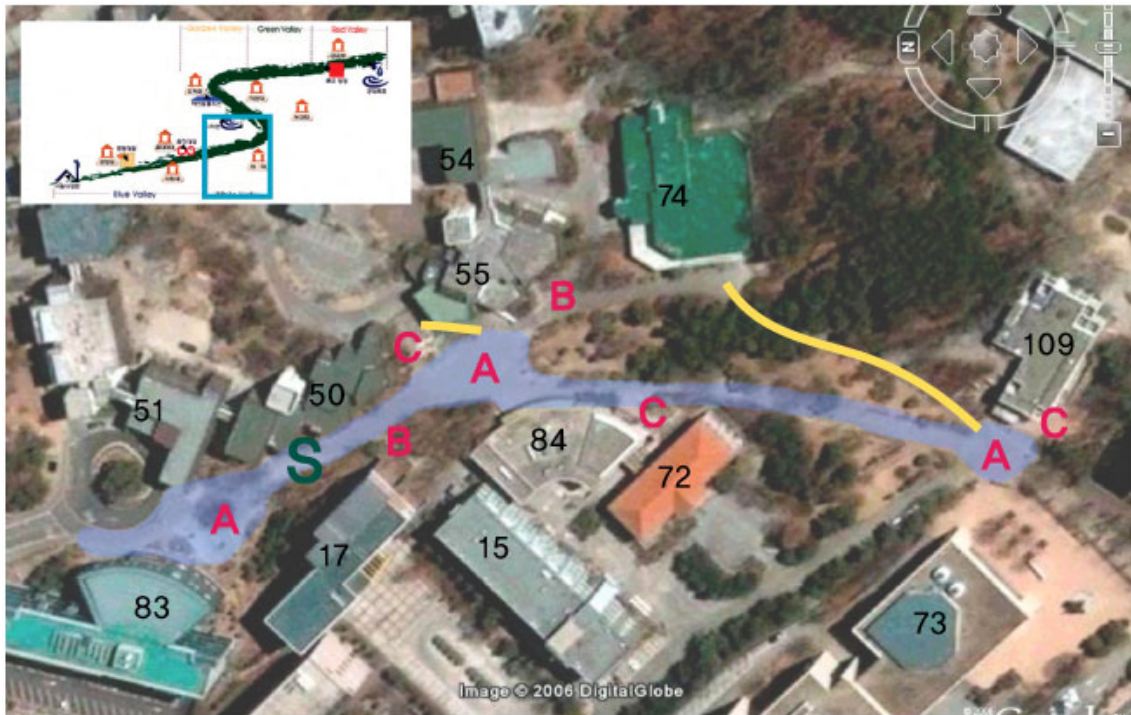
backdoors gathered at B point, where slopes start not from the sidewalks but directly from the traffic lane. Main entrances are not available for wheelchairs. There is a huge plaza in front of main entrance of 58 and a snack corner on the street side of 113. These amenities are nearly unavailable, because they cost too much effort to get there. C is for where the height reduced but for the vehicles, so the people on the sidewalks experience discontinuity. D is for the crosswalks that lead to dead ends. Started with the reduced point, but while wheeling across, one can discover they cannot climb onto the sidewalk on the other side.

The sidewalks are renewed, widened, and relatively walkable only on the west side of the road, because the project was not applied on both sides. For the renewed side, the requirements are fairly met, but on the other side they are not. Most of facilities are on this side where the sidewalks are extremely fragmented and inaccessible, while the relatively walkable side leads to no building except one (83) at the end of the road. If you're not just walking for fun, but intend to use those facilities, renewed side won't help much. You and your wheelchairs would rather prefer to use the traffic lane, because it is more continuous and well-coordinated and provides better opportunities for getting in.

S is for the excessive slopes where it is hard to climb even for erect walkers. Wheelchairs have more difficulty to control in these parts, so must be propelled by fuel, electricity or other's hands, or you'd rather choose an automobile.

Along the vivid blue line around the track we can find an absurd situation. A pathway looks gentle and accessible, but it soon abruptly falls into a steep decline. If you are wheeled, you would not be able to stop. This kind of dangerous absurdity, however, happens quite frequently.

제 2 구간 음미대 - 자하연



The real pedestrian-oriented part of the campus starts from here. After getting over a single step point, street is completely easy and comfortable for walking. What matters here is

not along the street itself but accessibility to further steps for getting into adjacent buildings. In this division, there are three main open spaces (A) from where a number of routes branches out. As you can imagine, however, choices available routes for wheeled persons are extremely limited. B is for the branches that are too steep for wheels. C is for the stairways. Yellow lines are the roundabout routes wheels must take instead of B or C. 84 is the only building on the street that is fully accessible from the street level. Many other buildings are completely not even accessible from this direction.

제 3 구간 자하연-중앙도서관



In the central district, the route is not linear. Routes encounter and mingle with each other, running through and between the major institutions of the university. For this division, our discussion will not be arranged in climbing order, because it is hard to tell which way is up or down. Instead, we will start with the most significant one. Green means some amenities created or strengthened by the project. Blue lines represent routes that are accessible in wheelchairs.

The route A, connecting the Central library with the Student Center—two of most accommodating facilities—is where the most critical exclusion occurs. It is the most frequently used route in campus. It consists of four sets of gigantic stairs. Therefore, it is genuinely beyond wheel's reach, and more miserably, the only alternation to go from A to A' is B. The wheelchair users have to move all the way around, covering the distance more than three times longer. Imagine you are misinformed of this and take wrong route of C at the point of B to reach A'. You will find out, as you arrive at the end of the road, that you have no choice but to retrace your way and start all over again. This particular piece of information is only obtainable through this kind of experience

In addition to the dead end, another problem of C is in the maintenance. The cement pavement is old and destroyed here and there, serving an unpleasant environment for walking. The surface is uneven and lumpy with cracks and craters. Like shown in the picture, drains have too wide openings, so not only wheels but heels also can be stuck in.

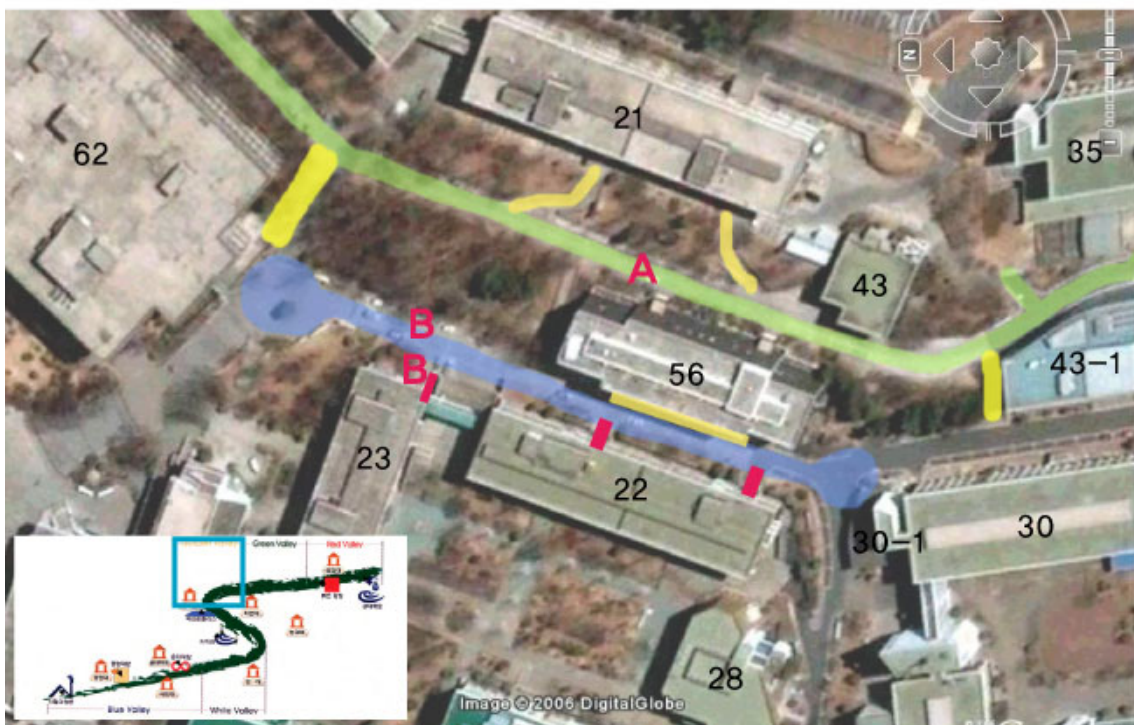
D is the main stairway of Jahayeon. There used to be a slope here, but it has been changed into wooden decks and steps according to the projects. Instead, a narrow path E on the opposite side of the pond is recommended for wheelchair users. The same destination is still accessible, but the street experience turned out to be totally different.

Jahayeon Pond is one of the most active spot of social intercourse in the campus. Seasonal view of the pond is enjoyable, and because of its convenient location and brilliant atmosphere, many appointments take place in Jahayeon Cafeteria. Many people are bustling around the pond, but this vitality is contained

mostly on the north side of the pond where the sun shines. On the contrast, the other side, where recommended alternative pathway is, is shady, silent and vacant. The point is, again, that you don't have choice on you wheels, but to be rejected from where people are gathering, unwillingly or not.

Other amenities are not so friendly for wheelchairs, either. Plaza in front of the Culture Center is only permeable through F point. Other part of boundary is mostly enclosed by street furniture and steps. The deck G is quite a good viewpoint for the pond and fountain, but you have to step up to be there.

제 4 구간 중앙도서관 - 공강



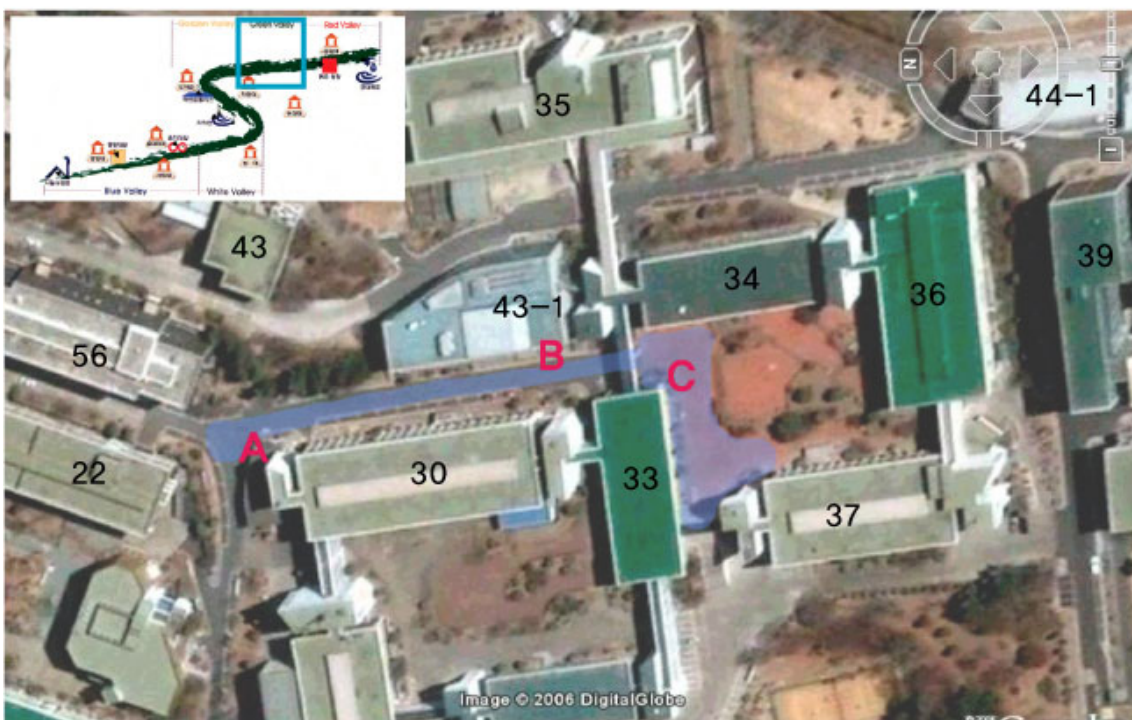
Perhaps the fourth is the most walkable of all divisions because the street is straight and level throughout the division. Since the campus is

situated in a steep valley of Mountain Gwanak, it is hard to avoid incline or declines. Unusually, this part of street connects places of same level, yielding a comfortable walking environment for all types of walkers.

About 1.5 stories higher, there goes parallel route A in same straight and level way. However, the connection between the two routes is limited. To be on A, what you have to do is to 1) climb up the stairs colored in yellow, or 2) get in the building 56 through the outdoor stairs and climb the inner staircase. Both are impossible on wheels.

We can find another problem of amenities here. Along the street, there are two different types of resting place (B) in this division, and they have one thing in common. Their levels are entirely raised up from the street level, being kept out of reach of wheelchairs. You can see it right before the eyes, but cannot use it. What you can do is just to move on to the destination you're allowed.

제 5 구간 공장 - 붉은 광장



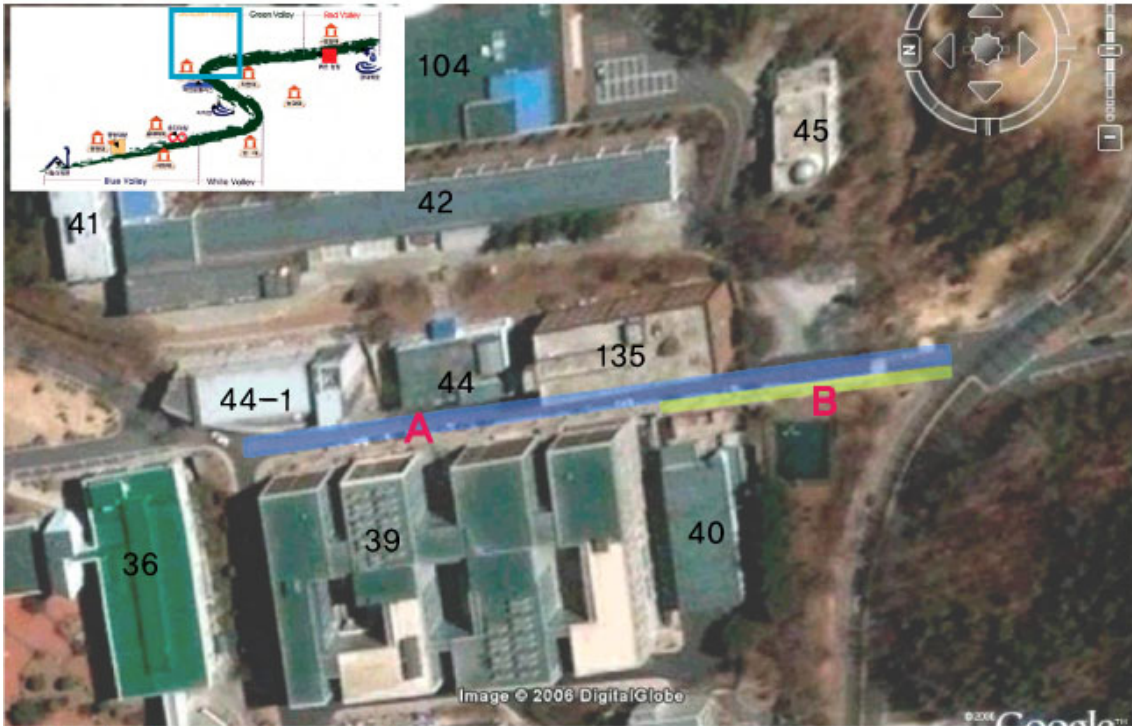


The 5th division starts with a steep open space (A) and gradually incline continues all the way up. A couple of miscellaneous problems are here. A handrail (pink line) is installed along the side of the space A. It is too marginal, so it is hard to see where it is, far to reach from main passage near the center (arrow), and hard to grip because it is frequently intervened with shrubs. Shown in the picture B is the only entrance to building 83-1 a wheelchair can permeate. While there have been three more openings of street furniture, this one at last is the only one that is not cut away in steps.

At the end of the slope is dead end again (C). The ground is heaved up with wide stairs. To go further, you have to get in the building and take inner routes entangled like a labyrinth. Around the Red Square, 37 is the only building with Elevator. As all of your vertical movement depends on this, your horizontal routes inevitably increase in distance and complexity.

Though our accessibility on wheels already has met the termination here in the Red Square, the walkability project continues on for another division. To move on to the 44-1 where the next division starts, there is no outdoor route available on wheels but we still have routes through the buildings, using elevators in 43-1 or 37.

제 6 구간 붉은 광장 - 공대 폭포



Actually, this route with constant steepness is not used that much. The benefit from the project is trivial to be compared with the influence of newly built facilities like 39 and 44-1. The route was formerly a traffic lane, but car entries at both ends were shut down to make it walkable. The surface of asphalt has been partly replaced (A) but it still looks like a traffic lane, so the walking on A makes one feel odd and uncomfortable. Narrow sidewalks have been covered with grass and trees. Erect walkers are still walkable on it, but wheelchair walkers are not.

Evaluation

(1) Summary of Problems

All problems found along the selected street divisions can be categorized into certain types. First three is concerning the accessibility to facilities. Count is out of limited number of buildings that are facing the selected streets. 'Not accessible' means the case you cannot access on wheels 'from the selected street.' You have to use vehicle or start your approach from the different direction. 'Fully accessible' includes the cases have main entrances without steps, or with adequate slopes side by side. Other counts are for prominent cases only.

A	To facilities	Not accessible	6
B		Only through the altered route	12
C		Fully accessible	14
D	To amenities	Not available	7
E	Safety issues	Having to use the traffic lanes	6
F		Steep slopes	8
G		Uneven surfaces	2

Overall, the experience on wheels is insufficient, consisting of fragments, subsidiaries, and limited choices.

(2) Reasons and Implications

For sure enough, the fragmented nature of walking experience—physical barriers, dead ends, and traffic interventions—comes from the lack of coordination, combining all elements of environment as a whole. Improvements, solutions, and alternatives for wheelchair accessibility are added occasionally on individual demands. The edge of sidewalk is reduced without consideration for how it is on the opposite side of the crosswalk. Both buildings are accessible but one can't find the route between the two. Examples are abundant.

Considerations for environment are contained to meeting the basic requirements that is secured in the regulation. Buildings are acceptable no matter how far, small, or unfairly-treated access they offer is, as long as they 'have' one. It is not an obligation to have 'extra' access for different approaches, but an option. That's why more than half of the buildings turned out to be not 'fully' accessible. Like some inaccessible buildings can be accessible from the other direction, some of fully accessible buildings from this side can be unreachable from the other. In either case, our wheels have to submit to longer distance for destination. For outdoor spaces and amenities, it is not even regarded as 'requirement.' Guidelines for width, slope, level, and surfaces are not thoroughly applied for outdoor spaces, reserving many amenities as pies in the sky.

As the accessibility is limited or altered, one might lost more than expected. Exclusion from various opportunities is more crucial part of the problem. Streets are more than just path for the destination. It is also an important background for activities and communications. That's why the various street furniture and amenities are needed and considered as parts of street. If you are forced to take another route, or rejected from certain areas by physical barriers, it is not just matter of where you can go or not, but of rights for participation and association. While meeting only basic requirements, access to other opportunities on the street is sacrificed and abandoned.

Toward Advanced Tolerance

One has said, “Inclusive design is about attitudes and processes as much as about products.”¹⁴ It is a fundamental truth. Those two have power to make what is possible impossible, and vice versa. The key is how to change the attitudes and processes.

(1) Changes in attitudes

- Specialty → Basic discipline
 - If you take wheelchair access as special add-ons for just a few individuals, time, space, and money spent for them are unaffordable waste. Rather, one should take it as a gauge, showing how tolerable the society’s basic discipline is. If wheelchair access is well-established, we may think that the overall built environment is based care for people.
- Regulation-oriented → Consideration-based
 - We don’t call it tolerance just for not breaking the law. Tolerance can be accomplished by thorough understanding of the difference, not forced obligations. Close and thorough attention must be paid properly to what it is like to be on wheels, considering street entity as a whole experience. Equitable access is needed for the activities and communications, as well as to the facilities.

(2) Intervention in the Process

- Reactive → Proactive
 - Reactive and regulative mode of public intervention can make no changes in attitudes. More proactive and encouraging approaches like can help. Beyond the basic criteria, guidelines for advanced accessibility can be made in detail with ranks and incentives.
- Whether or not → How
 - Till now, accessibility question has been a matter of whether/or not. It fails to catch delicate features both in the experience and in the

¹⁴ Imrie and Hall, 2001, “Inclusive Design: Designing and Developing Accessible Environments”, p.10. Recited from Carmona, et. al., 2003, p.127

process of environmental production. How-questions are needed to examine how far, safe, or pleasant the routes are, as one passes through to reach the destination. The process of approach is as important as the destination itself. How-questions are also needed to examine whether the accessibility is acquired through fair and proper consideration process.

(3) Roles of Players

Creative roles of players are the most important element proving tolerance.

For the public sector, its interest and control on static end products have to be expanded toward the dynamic process¹⁵. It has to understand the process mechanism of built environment to enhance overall accessibility. To work in more creative and sufficient way, it has to listen more from the actual experiences and associate and intermediate various forces with the decision-making process.

Requests from the related organizations—like the Associated Project Team for Human Right of the Disabled (장애인권연대사업팀) of SNU—helps to be informed what is needed the most. If possible, it is desirable to include them in the table as actual workforce, to have proactive attitude.

Designers are not in the decisive position, but they are responsible for the overall quality of built environment.¹⁶ Their roles are to materialize the considerations, to create better environment for all, and to accomplish accessibility in harmony with other elements. It is most important to have interest on the ‘actual’ experience on the street including ‘different’ dimensions.

¹⁵ Punter, 1998, “British Planning: 50 years of Urban & Regional Policy” , p.138. Recited from Carmona, et. al., 2003, p.239

¹⁶ McGlynn and Murrain, 1994, “Planning Practice & Research” , Recited from Carmona, et. al., 2003, p.229–230

Conclusion: Walkability for All

Walking is vital for human being for various reasons—not only for movement. To walk is to experience the street, to participate in activities, and to associate with social intercourse, communication, and education. Exclusion from walking, therefore, causes serious deprivation.

Observing from a different dimension of wheelchair walkers, we can learn that our ‘walkable street’ contains several types of mechanisms producing exclusion, which are mostly physical barriers that limit or alter the routes or destinations. This makes the street experience on the wheel insufficient with fragments, subsidiaries, and limited choices.

It takes more than the time and effort, to achieve ‘Walkability for all’ literally. Among the prerequisites, wide definition of ‘walkability’ must be pursued primarily, including open-mindedness for all kinds of differences. Considerations for the minor users are not the additional requirements, but a basic discipline to keep the society healthy and sustainable. There are various workforces related to our built environment including decision-makers, users, and designers. Change in the attitudes is need for all forces. Active participation and proper coordination is also necessary to enhance the accessibility beyond the requirements. Be sure to keep in mind that, the process of making decision is as important as the final products, and the process of approach is as important as the destination itself.

Streets must be considered as an entity to accommodate diverse wants and needs as a public place. Only when coordinated with such diversity, Walkability will truly enhance our environment for all kinds of people.

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- All the satellite images used as base maps are from <http://earth.google.com/>, in same scale and orientation

- All pictures, diagrams, and maps without endnotes are taken and elaborated by Jihee Namgung, Dec. 2006