

## **Design Development of Street Furniture for Improvement of Urban Environment - Focusing on "Y" District, a part of the Seoul Design Street Project<sup>1</sup>**

**Kook-sun Kim<sup>2</sup>**

### **ABSTRACT**

Under 'The Design Street' Project, one of the urban environment improvement projects of Seoul, the facilities on the street have been greatly varied in terms of design. In addition, the municipal authority has pushed each district to develop its own identity based on the integrated design of the city. This study was aimed to propose a design which could solve the current problem in street furniture in terms of environmental improvement through an analysis on current street conditions in "Y" District as a part of Seoul Design Street Project. It has attempted to propose 11 street furnitures based on the basic strategy of 'Soft City' which has been promoted by Seoul City in accordance with the Seoul Public Facility Guidelines as 1. Airy Design, 2. Integrated Design, 3. Collaborative Design and 4. Sustainable Design. Among them, for the total design in Seoul six facilities - kiosk, manhole, traffic signal controller, public phone, road sign and waste receptacle were proposed by Seoul City have been accepted. For local differentiation, on the contrary, five items - planter bench, bollard, lifter, bike rack and fence have been newly designed and proposed. Furthermore, it is essential to carry out systematic supervision and continuous management on the detail design and construction of current regional design development projects.

**Key words:** *'The Seoul Design Street', street furniture, public environment.*

### **1. Introduction**

These days, the world's major cities have developed design-oriented environment with their own urban brand instead of focusing on development and growth. Unfortunately, however, Seoul has failed to construct good urban environment despite rapid economic development and gradual population growth. Mayor Oh Se-hoon has emphasized 'Design Administration,' and the city has been designated as 'World Design Capital.' As a result, the urban environment has greatly improved through design implementation. Under the Design Street Project, one of the urban environment improvement projects of Seoul, the facilities on the street have been greatly varied in terms of design. In addition, the municipal authority has pushed each district to develop its own identity based on the integrated design of the city.

Both new modern and old shabby towns coexist in the "Y" District. In fact, this residential area is in need of environmentally friendly street. For example, the main street should be improved and harmonized with surroundings. This study is aimed to propose a design which could solve the

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1) This work was supported by the research grant of Kimpo College in 2009.

2) Ph.D, Department of Interior Design, Kimpo College, Kimpo, Korea. E-mail: sun01@kimpo.ac.kr.

current problem in street furniture in terms of environmental improvement through an analysis on current street conditions in "Y" District as a part of Seoul Design Street Project.

The spatial scope of this study will be restricted to the approximately 600m-long section from Sinwol-ro to Sinjeong Negeori Station with 30 meters of road width and 4 meters of sidewalk width. On the contrary, the scope of the research is limited to basic survey on ground structure, reduction of conventional facilities based on a concept of integration and emptiness, preparation of design guideline on street components based on the principles of integrated design and development of integrated design for street furniture

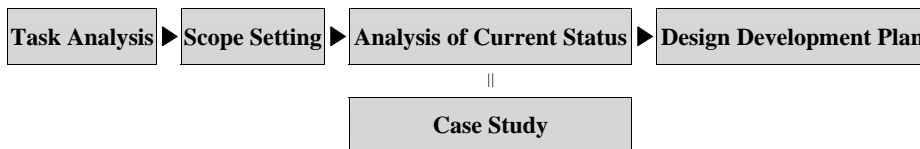


Fig. 1. Study process for street furniture design development.

## 2. Analysis of current status

### 2-1 Street environment

The project site is adjacent to the urban street park called 'Street With Stream Running Alongside' and under redevelopment with systematic equipment. Because it is a dense residential area mixed with busy commercial zone, street improvement is necessary. It is expected that the distinctive urban landscape design would boost local economy and improve citizens' quality of life.

### 2-2 Current status

This project site is close to residential area, school, welfare center for the aged and other citizens' community facilities. Especially, many schools and private institutes are clustered, students are easily found on the street.

### 2-3 Floating population

A lot of office workers and students commute by subway. Citizens use the street to go to a market, while students pass the street to go to school.

### 2-4 Street facilities

In the absence of regulations, many facilities are scattered all over the street. As a result, they have not been properly managed in terms of urban design. The narrow sidewalk and excessive street facilities have caused great discomfort to pedestrians (Table 1).

Table. 1. Analysis on street facilities

Current Status											
Facilities	kiosk	Manhole	Traffic signal Controller	Public Phone	Sign	Waste Receptacle	Bollard	Lifter	Bike Rack	Fence	Total
No. of Facilities	4	75	4	7	5	4	42	3	1	+	145+

### 3. Design development process

The project is planned to i) promote integration-oriented development in terms of improvement of the functions and landscape of environmental facilities taking pedestrians into consideration, ii) boost local economy by proposing a design that establishes local identity through redevelopment of public space and iii) develop the public space into a tourist attraction.

For establishment of integration concept, it is important to aware and take advantage of the municipal public design strategy for "Y" District and public facility guideline. furthermore, it is necessary to examine local conditions and pay attention to the administrative principles of the district and citizens' voices.

#### 3-1 Seoul design strategy

For development of street furniture design plan for 'Seoul Design street' project, first of all, it has to be well acquainted with 'Design Seoul' 4 Strategy -1.Airy design, 2 Integrated Design, 3. Collaborate Design, 4. Sustainable Design under the objective ' Soft City'(Fig. 2).

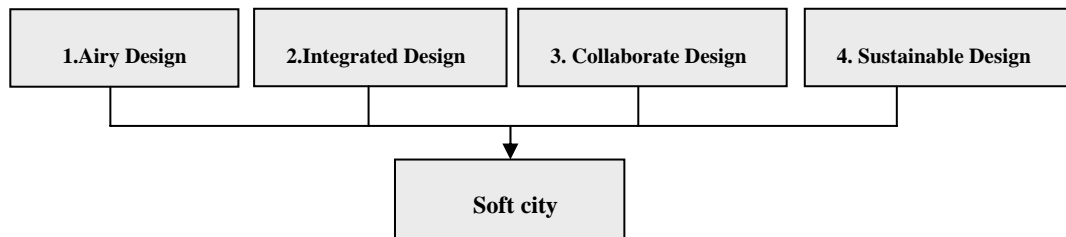


Fig. 2. Seoul design strategy.

#### 3-2 Public facility guidelines

To develop street facilities, the guidelines provided by Seoul City should be fully understood. Based on the analysis on current status and basic directions, they include the following 10 basic principles which must be observed:

- 1) The design should focus on functions rather than decorative factors.
- 2) Both size and shape should be optimized, and facilities should be integrated if possible.
- 3) With visual and mental openness, the design should improve continuity in urban landscape.
- 4) The street occupation by facilities should be minimized to keep sidewalk spacious.
- 5) The unplanned use of color should be avoided, and natural color should be used as much as possible.
- 6) With environmentally friendly and durable materials, the design should be sustainable.
- 7) Safe and ergonomic design should be created for users' safe and convenient use.
- 8) With the design which takes the poor into consideration, users' diverse needs are satisfied.
- 9) Based on simplicity and connectivity, standardized public facilities should be designed.
- 10) Facilities should be installed and kept stable and secure.

#### 3-3 Public design concept of "Y" district

For development design plan for 'Y'district street furniture, public design concept of 'Y'district was studied and adopted basically(Fig. 3).

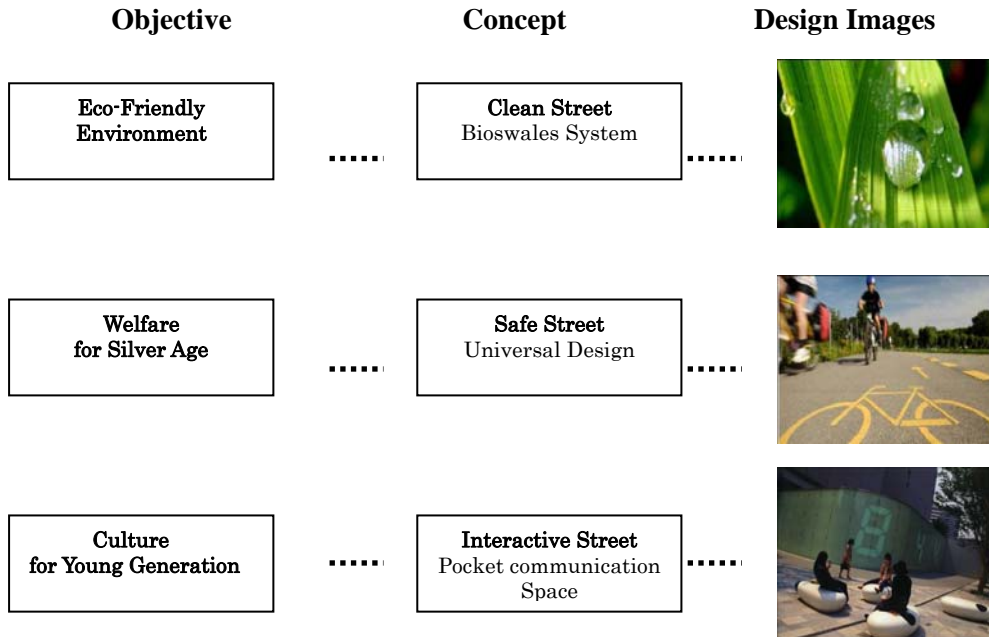


Fig. 3. Public design concept of "Y" district for 'Seoul Design street'.

### 3-4 Street furniture development plan

In terms of design development direction, the facilities that can symbolically improve local image should be installed. In addition, natural, durable, economic and stable facilities should be designed using the materials that can properly express characteristics by unit space. Based on the standardized plan of Seoul, integrated and well-designed facilities are developed.

Street furniture is a collective term for objects and pieces of equipment installed on streets and roads for various purposes, including traffic lights, benches, bollards and traffic signs. In this study, the scope of street furniture has been classified into 11 categories (Table 2).

Table. 2. Street facilities subject for improvement

Category	Description	Facilities
Access Road	Easily noticeable / sidewalk-linked shelter	Traffic signal controller, bench, road sign and bollard
Sidewalk	Safe, refreshing and convenient pedestrian space	Kiosk, bike rack, manhole, bollard, public phone, fence, etc.
Pocket Park	Sidewalk-linked open shelter / shelter for a short period of time	Landscape planter, bench, trash waste receptacle, bike rack, etc.

#### 4. Proposal of street furniture design

With the development of integration identity with a street improvement concept, it has been tried to design street facilities with the unique identity of Sinwol-ro. In particular, integrated environment will be developed by following the design proposed by Seoul authority. At the same, unique facilities with local identity will be developed as well. The 11 categories include six proposals provided by Seoul City and five proposals by local district as follows (Table 3):




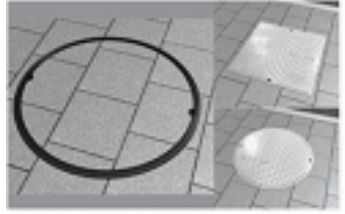
Table. 3. Classification of development design proposal







Category	Facilities	Remark
Proposals by Seoul City	Kiosk, manhole, traffic signal controller, public phone, road sign, waste receptacle	6 proposals
Proposals by "Y" District	Planter bench, bollard, lifter, bike rack, fence	5 proposals

##### 4-1 Design plan proposed by Seoul Authority

For integrated design for 'Seoul Design Street', It has been adopted the design proposed by Seoul design Authority for 6 facilities like kiosk, manhole, traffic signal controller, public phone, road sign, waste receptacle (Table 4)

Table. 4. Seoul City Design-based improvement in terms of integrated street concept

Facilities	Current Status	Improvement Design
1) Kiosk		
		
	Design Direction	- Prohibition of the unauthorized modification or installation of facilities in accordance with 'Design Seoul Public Space Guidelines'
	Design Spec	Dimension - 2,800(W) x 1,400(D) x 2,590(H) Material - Stainless steel, galvanized steel sheet, tempered glass, aluminum
2) Manhole		
		
	Design Direction	- Keeping continuity with sidewalk surface
	Design Spec	Material - Spheroidal graphite cast iron, granite Color - Granitic material




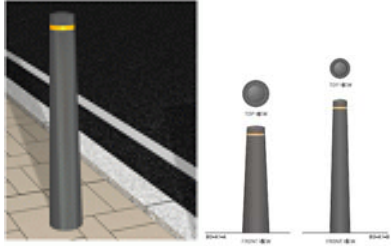
3) Traffic Signal Controller				
	Design Direction	<ul style="list-style-type: none"> <li>- A small and simple design without a cover</li> <li>- The plans (ex: special paints, etc.) to prevent illegal stickers and posters are recommended</li> </ul>		
	Design Spec	<p>Color / font - Seoul color (SCN 014) / Seoul Namsan (Type B)</p> <p>Dimension - A small controller with 763 x 425 x 368 (reduced to 54% against the area) installed</p>		
4) Public Phone				
	Design Direction	<ul style="list-style-type: none"> <li>-Inside-visible design recommended</li> <li>- An installation of lights (ex: motion sensor lights, etc.) is recommended for a user's safety and to prevent vandalism</li> </ul>		
	Design Spec	<p>Material - Stainless steel, powder coating steel, polycarbonate (front and side windows)</p>		
5) Road Sign				
	Design Direction	<ul style="list-style-type: none"> <li>- Integrated with other pole signs</li> <li>- Plain and simple expression without too much color</li> </ul>		
	Design Spec	<p>Material - stainless steel, silicon, aluminum casting</p>		




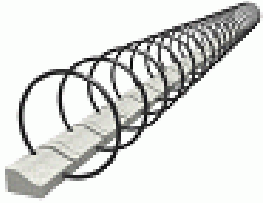


6) Waste Receptacle				
	Design Direction	- Recycling containers recommended - Observation of Seoul Public Space Guidelines		
	Design Spec	Dimension -500(W) x 500(D) x 1,000(H) Material - stainless steel, silicon, aluminum casting		

#### 4-2 Design plan proposed by "Y" district

For unique identity for 'Y' district, it has been tried to design with street improvement concept of eco-friendly environment, welfare universal design, interactive space for 5 street facilities as planter bench with barrier-free plan, bollard, transformer, bike rack, fence (Table 5).

Table. 5. Internal development plan and the improvement design

Facilities	Current Status		Improvement Design	
1) Planter + Bench + Barrier-free Plan				
	Design Direction	- Focus on convenience, efficiency and aesthetic beauty in connection with planters and benches - Securing barrier-free space based on universal design		
	Design Spec	Material - Designated stone, wood with stain		
2) Bollard				
	Design Direction	- Round-edged for safety - Visual continuity with sidewalk is kept		

	Design Spec	Dimension - $\varnothing$ 200 x h:800(mm) x $\varnothing$ 150x h:1000(mm) Material - Aluminum casting, steel plates for general structure Color - 6PB 4/0, 6YR 7/15
3) Lifter, Transformer		
	Design Direction	- Unnecessary decorations are avoided - Unified design for continuity with planters
	Design Spec	Material and dimension are applied in connection with the planter.
4) Bike Rack		
	Design Direction	- New design for efficient use of narrow space - Functionally unuseful shape is avoided.
	Design Spec	Material - Stainless steel, granite Color - Powder coating Shape - Plain and simple design
5) Fence		 
	Design Direction	- New design for efficient use of narrow space - Plain and simple design, avoiding complicated patterns
	Design Spec	Material - Stainless steel Color - Powder coating



## 5. Conclusion

Ever since being designated as 'World Design Capital,' Seoul has changed every day. In particular, the 'Design Street' project by each district has improved public environment, changed citizens' point of view and created expectation effect by expanding environmental improvement to other districts

'Y' district had been selected as a '2008 Seoul Design street' project member and environment improvement design guideline processed with special task force team including several specialists.

I as a Master Planner emphasized total integrated design plan for 'the Seoul Design Street' with unique identity for sinwol-ro street, 'Y' district.

Therefore this study has attempted to propose 11 street furnitures in "Y" District based on the basic strategy of 'Soft City' which has been promoted by Seoul City -1. Airy Design, 2. Integrated Design, 3. Collaborative Design and 4. Sustainable Design- in accordance with the Seoul Public Facility Guidelines. Among them, six facilities -kiosk, manhole, traffic signal controller, public phone, road sign and waste receptacle- that were proposed by Design Seoul Facility have been accepted. For local differentiation, on the contrary, five items -planter bench, bollard, lifter, bike rack and fence- have been newly designed and proposed.

A variety of efforts have been made by each district to make itself stand out. However, the public facilities that are installed as a part of differentiation strategy could be another barrier to pedestrians. Therefore, it is very important for each district to follow the municipal integration design strategy and propose citizen-participatory design for many users' convenience. Furthermore, it is essential to carry out systematic supervision and continuous management on the detail design and construction of current regional design development projects.

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