

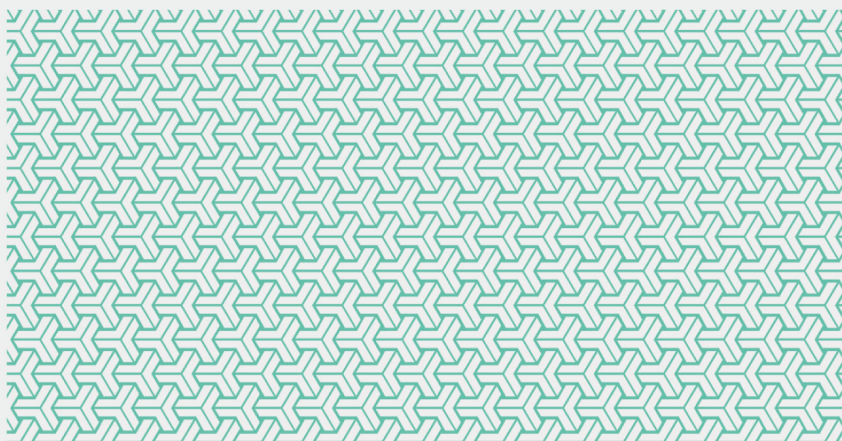
## 보도의 계획 및 설계기준 개선방안 연구

Planning and Designing Sidewalks : a practical review on guidelines

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# Planning and Designing Sidewalks : a practical review on guidelines



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Although many improvements have been made in pedestrian environment of Korea, it is still not enough to keep up with the level of efforts made in other advanced countries for pedestrian safety and convenience. Despite many efforts at the national and local government levels for the pedestrian environment, the performance of sidewalks experienced in many places has not improved significantly.

This characteristic is due to the existing conventional perception that sidewalks are only a part of additional facilities of civil structures such as roads, and the actual design or construction process does not sufficiently consider the needs and convenience of users. Therefore, there is a need to review the problems of existing sidewalks through in-depth analysis not only from the perspective of facilities but also from the perspective of users, and to prepare alternatives by examining the limitations at the institutional and practical level where these problems are repeated.

While responding to the changed pedestrian environment by comprehensively reviewing the problems of existing sidewalks, suggesting improvement plans for the planning, design, and operation of sidewalks that reflect the behavioral improvement direction, as an academic foundation for the revision of related laws and guidelines. It is the purpose of this study to construct.

#### □ Review on current regulation and guidelines on sidewalks

The results of the analysis on current regulation and guidelines on sidewalks, we found several problems to be improved, in terms of their status, effect, and contents, as follows:

- Pedestrians characteristics and their behavioral and functional requirements are insufficiently represented in current guidelines. Pedestrians are different from cars or bicycles, with very diverse spectrum of cognitive and physical abilities. Structural and physical performance criteria from current road-traffic system are inconsistent to accommodate pedestrians.
- Guidelines fail to address the overall process for planning and designing sidewalks. Logical structure of composition can be reorganized, starting with understanding of users and behavioral characteristics of sidewalks, installation requirements for sidewalks, requirements to be considered in design, and issues of operation and management.
- The characteristics of sidewalk users and the diversity of behaviors that should be accommodated on sidewalks are presented as the basis for design, and

accordingly, the point where sidewalks must be installed, the physical and functional specifications to be considered during installation, and the operation and management of sidewalks after construction. It would be desirable to present a series of logical flows leading to items to be reviewed, etc.

#### ☐ Survey on sidewalk users

We conducted an on-line survey on 1,140 sidewalk users, to understand their general experience and perception on sidewalks, to investigate public opinions on how to improve physical and operational problems, and what should be considered and reflected in future plans and guidelines.

In results, 80.7% of sidewalk users walk for more than 30 minutes a day, which includes commuting, but it means that the majority of residents have a lot of experience using sidewalks, which has great spatial implications in daily life. can see. The evaluation of the overall sidewalk was generous with only 13.8% of negative judgments, but there were more opinions that a pleasant sidewalk was not created than safety or convenience, which is closely related to the functional advancement of the sidewalk space. Regarding the regional difference, overall, the quality of the walking environment is evaluated to be poor in the order of dong and eup and myeon.

As for the direction of improvement in the future, the opinion that the pedestrian network should be strengthened by installing sidewalks in areas where there are no sidewalks and the effective width management of sidewalks should be strengthened to prevent violations of the right to walk on existing sidewalks was suggested as the top priority. It means supporting the establishment of an independent management system for the traffic area and the facility area through the strengthening of mandatory installation requirements and the classification of sidewalk areas.

In fact, the improvement direction and individual problems of sidewalks are largely interconnected, because the behaviors of various user groups appearing in a limited facility called sidewalks overlap. Therefore, it is a way to enhance the safety and convenience of users to prepare standards and operation policies for facilities while comprehensively considering individual issues.

#### ☐ Critical review on sidewalk planning and designing issues

From shortcomings of current guidelines, we derived major issues in the planning and designing process of sidewalks. Regarding each issue, current situation,

conflicts, considerations, and related examples are investigated and discussed in-depth, to specify alternatives.

– Decision of where to install sidewalks

It presents requirements for points where installation of sidewalks is compulsory and points where installation is prohibited, and at other points, it is necessary to install sidewalks according to site conditions. Regarding the need for sidewalk installation, the hierarchy of the road where the sidewalk is to be installed, the density and use of the surrounding land, and the traffic and pedestrian volume at the location should be comprehensively reviewed.

– Physical specifications of sidewalks such as the effective width

The effective width of the sidewalk should be calculated and presented based on the standard dimensions of pedestrians and the required space for different types of specifications and behaviors of various user groups. The effective width of the sidewalk should be calculated only in the traffic area, and should be calculated to secure the mobility and accessibility of the sidewalk. The effective width should be calculated by comprehensively reviewing the hierarchy of the road where the sidewalk is to be installed, the density and use of the surrounding land, and the traffic and pedestrian volume at the location.

– Lowering the curb on the sidewalk

It is necessary to reduce the frequency of vehicles entering and exiting through sidewalk lowering. In a situation where this is not feasible, the height of the curb must be lowered to an appropriate level in order to alleviate the slope problem of the sidewalk due to frequent lowering of the sidewalk. Excessive height of curb causes danger and inconvenience to pedestrians because it is difficult to maintain the inclination of the curb slope of existing sidewalks in cities where there is no room for width.

– Sub-section of sidewalk and functional zoning

Considering the various user groups and different behavioral types of sidewalks, it is inefficient to organize and manage sidewalks in a single area, so the area classification of sidewalks must be made. It is roughly divided into general traffic area, facility area, and buffer area, but it is necessary to present the minimum and recommended values for the width required by these areas in consideration of the

road hierarchy and the surrounding land use status.

– Interaction with adjacent buildings and roadsides

Goal-oriented facility supplementation should be made at the point where the sidewalk is in contact with the road and activities occur. In order to prevent blocking at the access point where passengers getting on and off the road, the protective fence must be allowed only on a part of the road.

In addition, at the crossroads where pedestrians cross, sufficient pedestrian space should be secured to prevent conflicts between pedestrians, and safety and convenience of pedestrians should be secured in the treatment of slopes.

Indiscriminate exclusive use of parking spaces in front of buildings, frequent parking entry and exit, and installation of drive-in facilities are not to be allowed in principle, except when they are inevitable to ensure the safe passage of pedestrians. Even when vehicles on the sidewalk are allowed, it should be clearly stated and regulated that pedestrians always have priority in the right of way.

– related street facilities and trees

Street facilities require various support facilities in addition to the traffic area required for pedestrians' walking activities, which include facilities that provide information required for walking activities, getting on and off the sidewalk, getting on and off the road, transfer, waiting, conversation, observation, rest, entry and exit, etc. In consideration of various activities other than movement, there is a need for the facilities to be arranged periodically.

Therefore, the sidewalk guideline should clearly identify the standards regarding street facilities such as : 1) The list of types of street facilities on sidewalks including all necessary and non-necessary, public and private, traffic- and place-oriented facilities, 2) Their installation criteria like size, shape, quantity, location, frequency and other requirements, 3) the related factors to be considered for planning and management.

#### □ Conclusion and suggestions for future policy

First, it is important to identify the user group, along with their physical standards, different abilities, and functional, behavioral, and perceptual needs towards the sidewalks.

Second, it is essential to accommodate various users, facilities, and activities, in both spatial and temporal context, so that sidewalks can contribute to improving the quality of life and creating a vibrant urban space.

Third, the overall process of deciding where to install a sidewalk, and dimensions and components the sidewalk should be built with, should be declared and managed consistently by guidelines

Fourth, current guidelines need to be reorganized based on the actual process of plan, design, and management process, to support broader functional goals.

Fifth, criteria on location, width, pavement, curb, sub-section, adjacent use, and facilities needs further articulation, to adapt to the site-specific conditions and to reduce conflicts between users and functions.

#### Keywords :

Sidewalk, Walking Environment, Walking Behavior