Identification of Side Walk Edge Height at Road Crossings and Its Vulnerability in the Campus Area

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1. Motivation

Bicycle riding is an essential activity for human being not only for transportation but to lead a healthy life. Both in day and night, most of the university students in the university, use bicycles to fulfill their requirements especially, to and from lectures. Most of the student's back dormitory from the university late night after the educational purposes. In this case Side Walk Edge Height (SWEH) is very important place on the road particularly, when crossing the main road and entering to the main road. This side walk edge should be suitable enough for the safety of the cyclists. Therefore, side walk edge height and its riskiness is an important factor to be considered to prevent accidents due to side walk edge height.

2. Objective

The condition and height of the edge in the sidewalks will be considered in the study area (university area). The students of the university rush during early morning and late evening in and around the university. As well as their dormitories are located more than 500 m away from the lecture halls. The risk of sidewalks edge height influence more during night time specially in dark areas of the university between the lecture halls and the student's dormitories. Therefore, study on this matter is important. The main objective is to identify the side walk edge heights in and near the university.

3. Methodology

The first step of this study is to conduct the field survey to find the condition of the side walk edge height using Survey 123 and other measuring instruments for example tape to measure the edge height. Survey 123 was used to mark the locations of sidewalk edges. The university map and its road map were used to do mapping process based on criterion of side walk height. In this study the data were taken clock wise along the C10 road while considering the Main Road Inner Side (MRIS), Main Road outer Side (MROS), Inner Side Side Walk Inner Side (ISSWIS), Inner Side Side Walk Outer Side (ISSWOS), Outer Side Side Walk Inner Side (OSSWIS), Outer Side Side Walk Outer Side (OSSWOS). Figure H shows spatial structure of the diagram according to the criteria.

4. Results and Discussion

Differences in the distribution of risks between the outside and the inside, which were 5. 8 cm on the outside and 0.2 cm on the inside and highest level of the step where 8 points, while total points measured were 246.

Table 1. levels of light

	MRIE /MROS	ISSWIS/ ISSWOE	OSSWIS/ OSSWOS
Light availability	98	46	48
Moderate	24	16	8
Dark	3	1	2
Total	125	63	58

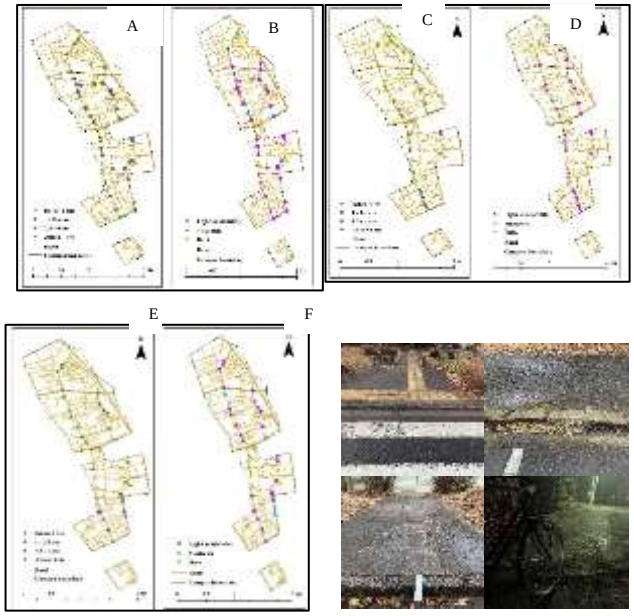

Fig: **A** - MRIE and MROE height and **B** - levels of lights, **C** – ISSWIE and ISSWOE height, **D** - levels of lights, **E** – OSSWIE and OSSWOE height, **F** - levels of lights.
Photo 1 – photos of SW height

The total number of 125 points were taken along the both side of main road (table 1). The dangers were surprised at side walk edge, especially in northern part because the deciduous leaves of the cedar buds filled with the soil and water puddles. On the other hand, autumn trees are planted in the north western parts, but their leaves are large, however this effect for cyclists during night time. In the vicinity of the Daigaku Chuo bumps were filled with concrete. It is a normal condition. Also, the western part filled with bumps. It was suggested that, the danger is influenced by the distribution of vegetation and height of the SW edge. Steps should be taken to avoid night time darkness in both side of main road and INSW edge. Because moderate dark places are comparatively high. Nighttime conditions in the winter season of the campus area is with high risk due to the fallen leaves of the deciduous trees and darkness areas in the night time.