

Analyze and map the safety of sidewalk for a case study of Tsukuba campus, Japan

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1 Motivation

Bicycling is an important mode of transportation in Tsukuba campus for passengers. But more than 35 traffic accidents occurred in the University of Tsukuba from 2009 to 2012. It could be very indeed to analyze the safety of sidewalk in Tsukuba campus.

2 Introduction

For a bicyclist, the qualitative terms comfort, convenience and freedom to maneuver are critical factors with respect to determining the quality and safety of bicycle lane on a given facility. Unfortunately there are limited bicycle lanes existed in my study area, so that passengers and bicyclist mixed using the sidewalk and led to frequent accidents.

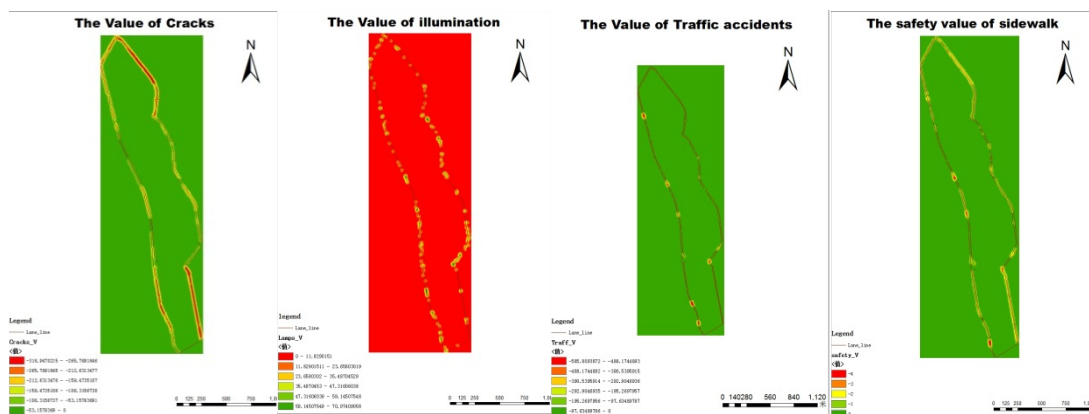
This report proposes a comprehensive classified the value of factors methodology, using GIS, to evaluate the quality of facilities utilizing objectives. During this study, Analyses were conducted at three factors of influence, which are cracks, roadway illuminations and traffic accidents. Since the whole of campus has limited bicycle lane for bicyclists and the roots of asides of sidewalk planting are breaking the limited sidewalk almost. In this case, those three of factors are taken of amount proportion in this study.

3 Methodology

An objective of this study was to apply the developed methodology used for rating each segment to intersections of accident occurred and assess whether such an approach was valid for rating the safety of sidewalk, as well as areas of illumination. As with the lane segment methodology, those variables, the damage of cracks, roadway illuminations and traffic accidents, used by passenger to assess the "walking friendliness" of sidewalk were identified, and a limited amount of data were collected and analyzed to assess the effectiveness of the methodology.

4 Data Analysis

As previously noted, the primary objective of this study was to distribute the spatial safety of sidewalk in Tsukuba Campus. The analyses are based on the data combined of observations. Thus the analysis primarily focused on the combined data of crack ratings, including the overall rating as well as those related to sidewalk width, and conducted the overall value of each segment of sidewalk. The results indicated that the spatial map of each factor of influence, ratings of all three variables examined and adding weight factors. The final one shows the value of safety value of sidewalk.



5 Results and Discussions

Overall, the results from the data analysis showed that crossroads in the campus of Tsukuba will be very dangerous for bicyclists and passengers, and east ichinoya area and oikoshi area, there are no sidewalk and motor road may not be suitable for walking and bicycle use. And west ichinoya and hirasuna, the bus lane was

break by the root of street tree and street may need altering and/or have compensating conditions to accommodate experienced bicyclists and passengers, not recommended for casual or youth bicyclists.