Cyclability Index
to Determine Bike Friendliness of
Weimar's Urban Environment

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Abstract

Many cities around the world have begun to incorporate non-motorized vehicle transportation types into their transportation systems after relying on motor vehicle-oriented transportation systems for years and facing numerous environmental issues. The idea of bicycle friendliness emerged in cities with the use of bicycles as a mode of transportation. The criteria that cities use is very strongly linked to this concept, but compared to walking or motorized transportation, certain characteristics have been less investigated. Also, it is well known that built environment has major effect on cycling in urban areas. Understanding cycling is essential to comprehending this effect. Therefore, the main aim of this study is to develop a bicycle index based on computational (GIS) data for a small-scale European city and visualize the impact of physical environment criteria and the city's bicycle friendliness with a case study. To create a concept for the study, theories and frameworks about urban cycling and the built environment will be investigated. The primary study methodology will use different bikeability indices determined from the literature and will be applied to the Weimar case. With the help of this index, bike friendliness in Weimar will be assessed, and the major data input will be evaluated and visualized. This study contributes to the literature by conducting a multi-criteria analysis-based city bikeability index. A comprehensive map according to bikeability score with highlighted transportation network and effects of indicators will be the main output of this research. Thus, outcomes of this study are a crucial step towards understanding the elements of a qualified bicycle network.

Keywords: Bikeability, Bikeability Index, Physical Environment, Spatial Analysis, Transport Planning, Urban Design