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Analysis of Cycling Accessibility on Chengdu Tianfu Greenway Based on Improved Two-Step Floating Catchment Area Method: A Case Study of Jincheng Greenway

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Abstract : Under the background of accelerating the construction of Beautiful and Livable Park City in Chengdu, the Tianfu greenway system, as an important support system for the construction of parks in the whole region, its accessibility is one of the key indicators to measure the effectiveness of the greenway construction. In recent years, cycling has become an important transportation mode for residents to go to the greenways because of its low-carbon, healthy and convenient characteristics, and the study of greenway accessibility under cycling mode can provide reference suggestions for the optimization and improvement of greenways. Taking Jincheng Greenway in Chengdu City as an example, the Baidu Map Application Programming Interface (API) and questionnaire survey was used to improve the two-step floating catchment area (2SFCA) method from the three dimensions of search threshold, supply side and demand side, to calculate the cycling accessibility of the greenway and to explore the spatial matching relationship with the population density, the number of entrances and the comprehensive attractiveness. The results show that: 1) the distribution of greenway accessibility in Jincheng shows a pattern of "high in the south and low in the north, high in the west and low in the east", 2) the spatial match between greenway accessibility and population density of the residential area is imbalanced, and there is a significant positive correlation between accessibility and the number of selectable greenway access points in residential areas, as well as the overall attractiveness of greenways, with a high degree of match. On this basis, it is proposed to give priority to the mismatch area to alleviate the contradiction between supply and demand, optimize the greenway access points to improve the traffic connection, enhance the comprehensive quality of the greenway and strengthen the service capacity, to further improve the cycling accessibility of the Jincheng Greenway and improve the spatial allocation of greenway resources.

Keywords : accessibility, Baidu maps API, cycling, greenway, 2SFCA
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