

Route Design of Free-Fared Bus System Based on Service Gaps and Equality

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Abstract

To solve the problems of rapidly growing number of motor vehicles and underutilization of public transportation systems in Taiwan, the Ministry of Transportation and Communications has been investing tremendous amount of funds to develop public transportation systems. Among them the fixed route, fixed schedule, but free-fared bus system has become one of the commonly used alternatives for promoting public transportation usage. However, without proper design of the free-fared bus routes would not only cause negative impacts to the existing bus system but also discount the transport function of the free-fared bus. Consequently, how to properly design free-fared bus routes that take into account the transit service gaps and equality of the existing bus system has become an important subject. The main task of this study was to develop criteria for evaluating free-fared bus route design that consider the requirements of filling service gaps and meeting the need of equality. This study further proposed applying Geographic Information Systems (GIS) to evaluate the network performance and route designs. A case study using the data collected in Hsinchu County concluded that the proposed free-fared bus route design method could increase service equality and reduce the service gaps of the studied bus system.

Keyword : Route Design, Free-Fared Bus, Transit Service Gap, GIS