

# Application of GIS to Analyze the Spatial-Temporal Service Gap for Hsinchu City Bus System

蘇昭銘, 郭正成, 沈美慧, 何文基, 張志鴻

Transportation Technology and Logistics Management

Management

jmingsu@chu.edu.tw

## Abstract

With the vision of sustainable transportation development, government authorities in Taiwan have been aggressively developing seamless environment for public transportation services in the hopes of satisfying the general users need for spatial as well as temporal seamless transportation services. The main objective of this study was to develop indexes capable of assessing the spatial-temporal service gaps of Hsinchu City bus system. The developed indexes could provide the Hsinchu City bus system with a basis upon which to measure the investment benefit and to evaluate the existing service status of the supplied bus routes and frequencies. The studied results reveal that in 2009 the mean value and standard deviation of spatial-temporal service gaps of Hsinchu City bus system was 11.14% and 9.90%, respectively. In 2010, with the newly added three free-fared bus routes subsidized by the central authorities, the above mentioned two targets were respectively reduced to 9.27% and 8.93%. Although the addition of the new bus routes has effectively promoted the seamless environment of public transit services, there are many districts in the city yet still experience transit service gap requiring the city to provide them with basic public transit services and more frequent bus services to ensure the access rights of the residents are met.

Keyword : Geographic Information System(GIS); bus system; sustainable transportation; seamless transportation; service gap.