



**Institute of Transportation,
Ministry of Transportation
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The Application of Big Data for Convenient Transfer

The “Railway and Highway Transfer Seamless Transportation Checking System” has been developed by the Institute of Transportation, MOTC. Through the “public transportation integration and information circulation service platform” of the MOTC Information Management Center, information on scheduled runs of public transportation can be obtained to calculate bus routes and the degree of connection to scheduled runs of railway trains. In addition, information of contactless smart card and electronic tickets for railway and highway transfers can be obtained to analyze possible transfer demands and propose recommendations for adjusting schedule runs of highway buses and city buses, thereby facilitating more convenient passenger transfers.

Take the Taiwan Railway Changhua Station for example, 11 peripheral bus routes with actual transfer conducts were selected through electronic ticket data. In addition, based on the computed adjustment of scheduled runs, it is recommended that the dispatch time of the 58 scheduled runs of bus routes be adjusted, ranging from 5~20 minutes to reduce the average passenger waiting time and amplify the result of transferring to connecting scheduled runs within 20 minutes of waiting time.

In order to verify the results of scheduled run computation, the Institute of Transportation, MOTC cooperated with the National Federation of Bus and Passenger Transport Associations of the Republic of China and Chang Hua Bus. The 18 scheduled runs of eight routes peripheral to the Taiwan Railway Changhua Station have been selected for adjustment and implementation. The scheduled runs for transferring to railways or buses can be extended, or the passenger waiting time can be reduced. After adjusting three scheduled runs of the 【6918】 Changhua→Nantou (via Linzitou) bus route, there will be four additional connecting scheduled runs for passengers on average.

In addition, after adjusting the scheduled run of the 【6901】 Yangmingli→Lugang (via Dingfanpo) bus route from 18:20 to 18:30, the average passenger waiting time was decreased to four minutes. After actual operation for one month and after analyzing the adjusted scheduled runs displayed, the number of passengers has been increased from 4,062 people per month to 4,726 people per month, accounting for a 16% increase in number of passengers. Moreover, no adverse responses have been received from passengers, indicating the improvement results of bus, railway, and highway transfer.

In order to extend the application of the results, in addition to conducting education training on the “Railway and Highway Transfer Seamless Transportation Checking Systems”, with the participation of personnel dispatched by eight bus companies including Chang Hua Bus, Kaohsiung Bus, etc., the Institute of Transportation, MOTC has authorized the National Federation of Bus and Passenger Transport Associations of the Republic of China to promote and access the system developed. It is expected that bus operators apply big data analysis to improve service quality and extend the services and passenger carrying capacity.

The Institute of Transportation, MOTC will continue to apply big data in the future in travel and public transportation related analyses and research. Taiwan’s public transportation services will in turn better meet the needs of the general public and passengers, thereby providing seamless services with better quality.