**Institute of Transportation,
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A Diagnostic Tool for Bus Services Developed by IOT

In order to enhance the ability of local governments to plan bus route networks, the Ministry of Transportation and Communications' Institute of Transportation (IOT) has developed an APTS Application System with an integrated database to assist local governments to diagnose local public transport seamless service environments. Once identified, improvement programs can be planned to resolve gaps in bus service, increasing the convenience of local residents.

Aiming to ensure the basic mobility of people in rural areas as well as to reduce traffic congestion in metropolitan areas by increasing the market share of public transportation, the Ministry of Transportation and Communications offers subsidies to local governments for implementing road public transport development plans. However, at times local governments feel powerless when drafting subsidy proposals because of lack of sufficient information and manpower. To overcome this problem, the IOT has developed a system to assist local governments using information analysis technology. The system quickly finds gaps in bus services in local administrative areas and helps transport planners understand the impacts of the reallocation of transportation resources.

The IOT stated that data such as GIS, population distribution data and bus operation data was applied with current APTS databases created by the

Directorate General of Highways and city and county governments to develop this decision-making support system. The system has numerous evaluation index calculation and spatial analysis functions which can help transport authorities to make transport services that better satisfy public needs by eliminating management blind spots created due to insufficient information or simply relying on the experience of the past. Because of the novelty of some functions of the system, a patent has been issued for it by the Intellectual Property Office, Ministry of Economic Affairs.

Based on a willingness survey, the IOT started offering guidance to seven local governments—Taoyuan County, Hsinchu City, Chiayi City, Tainan City, Pingtung County, Yilan County and Kinmen County—in the middle of this year on using the system to analyze actual cases. The analysis reports will be good references for local governments applying for subsidies from the central government for improvement programs. They will also lead to better outcomes of funding allocation by the Directorate General of Highways.

When developing the system's functions with Chung Hua University in 2012-2013, the IOT used Hengshan Township in Hsinchu County as an example with which to diagnose gaps in bus service and evaluate the expected benefits of possible improvement programs. Based on the analysis reports, the Hengshan Township office added five new bus routes. After the new bus routes began operation on November 4, 2014, households within 500 meters of a local bus stop increased from 3,100 (72% of households in Hengshan Township) to 3,583 (83% of households). Transportation services for tourists and local residents have seen concrete improvements.

In addition, the Directorate General of Highways has also applied this system to diagnose local public transport seamless service environments in 30 indigenous villages across Taiwan. It is anticipated that such programs will improve bus services to better satisfy the needs of residents of indigenous villages.