Abstract

A Study on the Late-Night Mobility Analysis based on Mobile Data

With the development of advanced technology, various big data is being collected in the transportation sector. In developed countries with advanced transportation, empirical studies are being conducted using this data to monitor and analyze transportation phenomenon. Also, due to changes in economic activities, the economy of the metropolitan area is operated on a 24-hours system. Analysis of citizens' mobility characteristics and guarantee of the right to trip during the late-night and early morning are becoming an important issue.

Until now, the most representative method for analyzing the characteristics of late-night mobility is the use of sample survey data such as household travel survey. However, due to the limitation of the travel survey targeting only daily travel, There have been difficulties in accurate and in-depth analysis about late-night mobility characteristics. Using mobile data, one of transportation big data, this study accurately analyses late-night mobility characteristics that have recently increased in importance and presents case of application.

The spatial scope of this study covers the metropolitan area centered on Gyeonggi Province and the time scope is the late-night from

00:00 to 06:00. In this study, using mobile data, the characteristics of late-night mobility were analyzed for six parts: ① Characteristics of late-night trip flow and distribution, ② Characteristics of late-night trip on weekdays and weekends, ③ Characteristics of late-night trip by class of passengers, ④ Characteristics of late-night trip distance and time , ⑤ Characteristics of late-night trip by metropolitan area, ⑥ Characteristics of late-night trip by the metropolitan corridors. In addition, using the results of the analysis of late-night mobility characteristics, case analysis was performed on bus route improvement and women safety trip service in late-night.

The characteristics of late-night mobility in the metropolitan area varied by region such as province, cities, metropolitan area, metropolitan corridors, and differed by time of day and class of passenger. Also, It contained a extensive and various travel information that could not have be analyzed so far. In the future, it is necessary to reflect these characteristics and carry out more in-depth study on transportation policy development by specifying the areas and classes for which the transportation policy is to be established. Academically, it is necessary to conduct a study on developing late-nigh travel behavior model, building basic late-night trip data and statistical analysing related to land use and social economic Indicators.

Keyword mobile data, transportation big-data, late-night, late-night mobility