

Activity-based traveler analyzer using mobile and socioeconomic bigdata

JIN KI EOM(jkom00@krri.re.kr)

Korea Railroad Research Institute

Abstract

An activity-based model has been actively studied recently, recognizing limitations of the widely used traditional four-step transportation demand forecasting models. This paper introduces the development of the ABATA (Activity-BAsed Traveler Analyzer) activity-based analytical system. ABATA consists of multiple components, including hourly total population estimator, activity profile constructor, hourly activity population estimator, spatial activity population estimator, and OD estimator. The distinguishing feature of ABATA is the adoption of simulating presence hourly population based on service population using mobile phone, instead of creating synthetic population. This study presented the performance of ABATA using an aging society in the future as a case study in Gangnam, Korea. As results, hourly numbers of activity population for work, school, and private educational institute were decreased, while those of activity population for home, shopping, recreation and other activities were increased. The results of the mobility changes were also found to be rational and reasonable, so that older people tend to have a flexible working time, make a short-distance trip, increase number of trips for shopping, recreation, home and other activities, and finish their trips early before the evening. ABATA is expected to be a valuable system for simulating the impacts of changes of population, activity schedules and land use in the future on activity population and travel demand.

Keywords: *Activity-based model, Travel demand forecasting model, Hourly service population, Mobile phone data*

Biography

Dr. Jinki Eom is a principal researcher of KRRI (Korea Railroad Research Institute) and an adjunct professor of the UST (University of Science and Technology).

He received his Ph.D. degrees in 2007 on the field of civil engineering from North Carolina State University in USA. Since 2007, he joined KRRI and has worked for many projects for railway and transportation planning, especially for railway travel demand model and feasibility studies.