

Deriving Dynamic OD Matrix from Mobile Phone CDR for Transportation Planning in Developing Country

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Abstract: To support the deployment of dynamic urban traffic management, the origin-destination matrix plays an important role in the planning process and the evaluation of the transportation policy. This paper shows the formulation of origin and destination (OD) matrices estimation model using the observed data from the telecommunication network. The call detail record (CDR) is used to capture daily and long-distance travel as effectively as the survey effort. The proposed method is feasible for real-time process and results in better understand of dynamic traffic change in complex urban system. We calculated the OD matrix from 5 millions mobile phone users in Dhaka city, Bangladesh and validated it with traditional trip surveys. The results show promising potential to improve data quality and reduce respondent burden in the collection of household travel survey data.

Keyword: Mobile location, Origin-destination Matrix, Transportation planning, People mobility, Trip survey