EVALUATION AND ASSIGNMENT OF TRAFFIC VOLUME FOR URBAN PLANNING BASED ON PLANNER AND USER STANCES

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Motorization advances are more and more, thus the prediction and management of the network infrastructure such as road for traffic and efficient allocation of road space becomes an important part of urban planning. From the above mentioned we discuss the road transportation as an urban planning issue [1]. There are two purposes in this research:

One of the purposes is to provide useful information to urban traffic planners for drawing up their proposed strategies of transportation management or development. Such strategies should be planned based on the observation data during a certain period. As typical observation data about traffic information, we can list the traffic volume and average velocity curve (as Fig.1 shows) [2,3] and the traffic count data at origin-destination pair (as Table 1 shows) [4,5] and so on. The traffic volume and average velocity curve can be illustrated by taking the traffic volume as horizontal axis and average velocity as vertical axis. It is assumed that they can be observed by detector station, the traffic count data at origin-destination pair also can be collected by detector station at on-ramps and off-ramps. We estimate traffic volume at each segment of the transportation infrastructure by collecting data about the traffic volume and average velocity curve and the traffic count data at origin-destination pair on traffic. Traffic estimation can be used for several other key purposes in transportation planning on urban design. In order to lead useful evaluation of facilities location, estimation of road reliability and reduction air pollution and so on, transport estimation is first required.
The other purpose of this research is to evaluate the traffic volume from the view of stochastic phenomenon for supporting urban planning. The desirable utilization pattern is designed from planner stance however such desirable utilization pattern should reflect the psychology of user stance, because the assigned traffic volume is derived from the estimated elements of OD matrix. In this research, we propose a model for evaluation and assignment of traffic volume for urban planning based on planner and user stances. Proposed model consists of the gravity model about transportation, the flow control and path selection. It can be solved by observing the traffic capacity from Q-V correlation and prediction of zone traffic volume. The maximization of entropy and genetic algorithm are applied to solve problem.

From the results of numerical example, it is shown that the proposal method can provide a useful evaluation to target network. As further problem, we apply this model to pre-process of various urban planning issues, such as evaluation of facilities location, estimation of road reliability and reduction air pollution and so on.

**Reference**


