Modeling Transport and Land Use in Micro-Level (A Case Study of Colombo DS Division, Sri Lanka)

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In transport planning, two major approaches can be seen: namely, micro-level (local, intra-city) and macro-level (regional, inter-city) planning. The different nature of the micro-level and macro-level travel behavior is well acknowledged in the literature. Therefore, to make informed transportation planning decisions on micro level, planners and engineers have to be able to predict travel characteristics and usage of transport services under different socio-economic scenarios, transport services and land use configurations comparing macro-level travel demand estimations (Litman, 2008). Therefore, separate transport and land models also need to be prepared to micro-levels as well.

In micro-modeling aspect, absorbing the minor level data is a difficult task. The task becomes harder in areas where a complex interaction of transport and land use is visible. Further, micro models needs to incorporate the macro-models' outputs to a certain extent. Therefore, the modeling process, which comprises the collection of data, preparation of maps and databases, development of algorithms becomes more multifaceted.

This paper explains the modeling process involved in an attempt made for the development of micro-level transport and land use model for the Colombo DS Division. The Colombo DS Division has the most complex interaction between transport and land use in the western region as well as in the whole country and further, this model has been developed using the activity based modeling process in the micro-simulation approach. Here, household interview travel surveys, railway passenger origin-destination surveys and GIS analysis were primary used for supporting the modeling process. Moreover, matters and questions encountered while developing the model were also included in the paper.

Key words: Transport and Land Use, Modeling, Micro-Level, Interaction