MESOSCOPIC SIMULATION CONCEPT
FOR TRANSPORT CORRIDORS

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ABSTRACT

A transport corridor is a (generally linear) tract of land in which at least one main line is provided for transport, whether it is a road, rail or canal facility. In this paper under transport corridor we will understand a road which connects two geographical points. The need of research and analysis of the transport corridors is mainly connected with wish to locate bottlenecks of the corridor and to estimate different characteristics, for example, the average speed along the corridor, the average travel time etc. To find out the decision the traffic flow simulation on microscopic, mesoscopic and macroscopic levels could be applied [1]. This classification is mainly connected with the detailisation level of transport infrastructure and traffic flow. The paper describes the advantages and disadvantages of the application of microscopic and macroscopic levels for transport corridor simulation. Also the overview of the existing mesoscopic models is presented and their disadvantages are described [2].

The main goal of this paper is to present a concept of new mesoscopic traffic model which is developed for transport corridor simulation with the acceptable level of output results exactness. This model consists of two submodels: submodel of transport infrastructure and submodel of traffic. The submodel of transport infrastructure is a link-node based model; it means that the transport infrastructure is presented in the form of links which connect two nodes. The link itself is divided into two parts: running part and queue part. This division is dynamic and could be recalculated. The running part presents a jam free road part, where volume delay function is used for the calculation of vehicles speed. The queue part presents the part of road, where queue before the crossroad is standing. The traffic interaction model in this part of road is presented with the high level of detailisation [3, 4]. This should lead to more exact output results. So this paper describes the disadvantages of microscopic and macroscopic models for simulation of transport corridors; the overview of existing mesoscopic models; it presents the concept of new mesoscopic traffic models.

REFERENCES