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Possibilities of using traffic planning software in Bratislava

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Abstract

This paper presents activities, which is PTV software, a traffic planning software (mostly VISSIM and VISSUM) in Bratislava used for, presents real data and results of projects, which helped to become the traffic in the capital city more fluent. Using this software helps also to keep sustainable mobility of the capital city on high level and brings the city closer to the West European cities.

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1. Introduction

The capital city of Slovakia, Bratislava is currently the only city in Slovakia which actually uses a traffic-planning software from PTV Group. Flexibility of use is constantly evolving and therefore in this article is presented at least a small part of its possible applications that facilitate traffic decisions of traffic engineers in Bratislava.

1.1. Modelling of transport

Transport modelling using computer is in the field of traffic engineering and building effective working of the

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multiple expansion options to solve complex tasks and problems. This is a relatively new discipline, which is the consciousness of a wider professional community in our country came up in the 80s of the 20th century. Traffic modelling does not include only traffic simulation, but it is a wide range of auxiliary tools from simple applications to complex special purpose tools allowing performing complex analysis of transport networks. Currently, the process of designing and assessing communications networks in transport these techniques are increasingly enforced and many times are also required by the project promoter. Their results are now generally considered to be sufficiently reliable and relevant and are thus the professional and lay public accepted. Outputs of transportation - engineering tools can be used for a wide range of activities. [1]

The advantage of the simulation techniques is that they allow insight into the existing system without disruption, as in some methods of the transport of the survey. Given that the vast majority of simulation tools using computer technology, the entire process can be repeated as necessary simulation and modify input data, in real-time and accelerated. With the progress in computer technology and choosing a suitable tool or software can model and simulate increasingly extensive network. The result can then be, for the general public, easy to understand models that can be put into a real environment and providing relevant data. [1,2]

One of the disadvantages of traffic modelling and simulation techniques is the explicitness of the output data. It is possible to assemble a completely accurate model of transport network, which is, however, in the absence of correct data about its load of useless. Data that is inserted into the models must be chosen with care and wisely. Definitely here does not apply any correlation, the more data, the more accurate model and its outputs. More input from a decision not to bring greater accuracy. Often this is due to the fact that the main attention is focused to create a geometric model of transport network and less attention is devoted to the collection and evaluation of data, or use older data, without the necessary detailed data. Another disadvantage is that transport model including simulation does not solve the problem itself. [1,2]

Simulation results can only indicate the right direction, which should be a designer or traffic engineer goes in. The obvious assumption is that the traffic engineer will understand the results which provides transport model. Traffic modelling can be used for many activities and it can be assumed that with further development (increase) of transport its importance will increase further. Currently, the assessment of transport and communications networks using different modeling software packages that include simple optimization calculation tools and sophisticated computer models that are used for detailed microsimulation of the environment [5]

2. Using traffic planning software in Bratislava

At present, the Traffic engineering department of Municipality of Bratislava is using PTV Group software, VISUM and mostly VISSIM.

The microscopic software VISSIM is especially designed for modeling multimodal transport flows, including cars, trucks, buses, rail vehicles (trams, trains, highway), cyclists and pedestrians (the essence of VISSIM is Wiedemann "car-following" model). [3]

VISSIM is most often used to evaluate proposals for transport infrastructure, traffic management proposal on the road, IDS analysis and simulation benefits of telematics traffic management, public transport simulation and so on. Very detailed input element of a transport network allows you to view accurate and adequate simulation where the user sees directly modelled status on the screen.

Advantage of VISSIM is the possibility of awarding the different input parameters that allows you to simulate almost any simulation and of course there are also quality outputs 3D animations. Even it is all about the microsimulation tool, the VISSIM allows modelling the large transport networks, too. But it is quite difficult in terms of time aspect and in need very detailed solutions of transportation hubs and capacity-intensive computation. In the case of high traffic load calculation time can exceed real time. [4]

2.1. Example of using VISSIM

Bratislava is currently characterized by the construction of large investment projects, which obviously has an impact on transport infrastructure.

For impact assessment of investment projects on the concerned transport network has been processed the methodology to determine approximately what percentage of vehicles generate different types of amenities in the

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