

Digital Transport Model EMME/2 as Tool in Transport Planning in Riga City (Abstract)

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During the past years, the transportation economy in the context of globalisation is becoming much significant for all cities in the world not excepting Riga. The geographical location of Riga always serves the good possibilities for city development. In this respect in Riga, which is significant junction of international traffic routes, transport played the important role in the history of city.

However, from the beginning Riga had to face difficulties connected with transportation. The main problem was caused by the narrowness of the city already in the middle ages. All the city functions and communications were concentrated in the small Old Riga. Nowadays this serves the overflows and bottlenecks in the streets especially in the historical centre as well as close to the bridges across river Daugava. Moreover, since 1990 the process of auto-mobilization in Latvia and especially in Riga has grown up very rapidly.

With this respect, the problems of traffic in Riga have been increasing so critically that it can disturb the possibilities for future development both in Riga and in Riga metropolitan region.

The research of transport and appropriate planning are the essentials that can enable transportation improvement in urban territories. Therefore, this paper deals with transport modelling in Riga and its contribution to urban transport development.

In this regard, the computer-based EMME/2 model is being used. Therefore, the modelling approach and methods are used according to this software and related databases. EMME/2 software allows making the modelling and complete analysis of the transportation network for area the database is created for. Due to this The Riga Model represents current traffic volumes of morning peak hour as well as future forecasts and modelling of various scenarios of Riga transport infrastructure development.

The essential part of the model is matrix that describes the trips between different areas in Riga. Therefore, there are coded street network into EMME/2 software that contains the important streets and connections in order to describe traffic flows and travel times between several places. In addition the studied area is divided into statistical zones (124). Consequently, the related transport database is created including the input of population and employment data representing each zone.

To calibrate the model the traffic volumes at peak hour (8–9 AM) were observed at 126 essential links in Riga city and surroundings. Besides, in order to map the pattern of vehicle movements during the morning hours, additional information regarding destinations of car and truck trips was collected through a travel survey at the technical control stations of vehicles.

Originally, the model was elaborated in 1997 within co-operation project between City Development Department of Riga City Council and INREGIA AB (Sweden). Furthermore, the model is powered by Riga City Development Department and has been updated, refurbished and improved in 2004 under the same co-operation framework.

EMME/2 is the incremental model and it is valid for modelling at least 5 years with annual updates of demographic and employment as well as car ownership statistics.

The system provides possibility to analyse and to forecast transportation flows in the city, taking into account inhabitants' choices regarding destinations, travel modes and routes of their trips during the morning peak hour.

Since 1997, the model was used in several important projects (e.g. the Northern Bridge study by PHARE, Riga Traffic Master Plan), providing basis for strategic planning decisions. At now, the most important project is the elaboration of new Riga City Development Plan 2006 – 2018 and EMME/2 model is the essential tool for evaluation of different infrastructure developments like, for instance, bridges over the river Daugava as well as major expressways.

Using the computer based EMME/2 transportation model database and its results for Riga city, the current and anticipated traffic situation was analysed. This will facilitate development of a sustainable, comfortable, economical and environment friendly transportation system in Riga city.

According to the results of the model the crossing of the river Daugava and the dense traffic in the city core were determined as the particular features of Riga transportation system.

In relation to these problems it has been concluded that such problems are necessary to solve by improving the traffic infrastructure and organisation as well as to encourage the economical development in the suburbs and surroundings of Riga. Besides, the particular attention has to be paid to the improvement of effectiveness of public transportation system, which plays significant role to the mobility of inhabitants of Riga.