Customer:
Project dates: 01.04.2007 - 10.08.2007

ANALYSIS AND FORECAST OF THE URBAN PUBLIC TRANSPORT SYSTEM FLOW IN JURMALA CITY

Problem definition

The main goal of the project is to forecast volumes of passengers' flows in Jurmala city for 2008 - 2015. Passengers transportations in town are provided on 10 routes of the public transport, from which 6 routes include buses and 4 routes mini buses. At the same time the part of passengers transportations is executed by suburban electric trains.

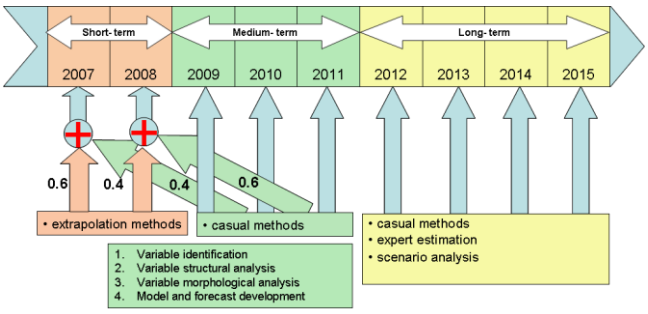
The main tasks of the projects are:

- Development of the passengers' flow volume forecast methodology
- Define internal and external factors which influence the passengers flow volume
- Forecast of internal and external factors
- Different scenarios development
- Forecast of the passengers' flows for each scenario
- Development of the passengers flows distribution model over Jurmala transport network

Proceeding

This methodology defines 3 level of forecast according to time horizons:

- Short-term forecast
- Medium-term forecast
- Long-term forecast



For each forecast level the set of methods was determined. They are: extrapolation methods, casual methods, expert estimation, scenario analysis etc.

For forecasting 3 scenarios were developed: **Height**, **Base** and **Low**. Each scenario evolution is based on 4 factors evolution:

- Demographic situation
- Economic situation, GDP growth
- Motorization level (number of private cars on 1000 cit.)
- Alternative public transport (Rail)

The Base scenario is the most realistic and reflects economic trends and business existing today. The Low scenario is reflected by more pessimistic look on economy development in Latvia (disjoined and weak economy). The High scenario is yet more optimistic, than Base (hasty economic growth).

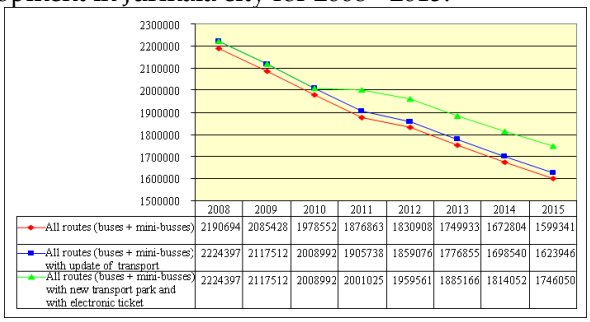
For each scenario at first the forecast of factors was done using methods described above and based on it for each public transport route regression model was developed. The final passengers' flow volume forecast was corrected by the expert estimations for 2008 by the results of time series models.

Also model of the passengers' flows distribution over transport network was developed with PTV VISION VISUM software. Numerical characteristics of the realized model are as follows:

- 9 internal zones
- 90 nodes, which represent crossroads in model
- 216 links, which represent different type of roads in model
- 43 main public transport stops
- 11 public transport lines with 23 routes

Results

As the results of the project passengers' flow volume forecast was developed. The final data are presented as quantities of passengers on each public line, for each scenario of development in Jurmala city for 2008 - 2015.



	2008	2009	2010	2011	2012	2013	2014	2015
All routes (buses + mini-busses)	2190694	2085428	1978552	1876863	1830908	1749933	1672804	1599341
All routes (buses + mini-busses) with update of transport	2224397	2117512	2008992	1905738	1859076	1776855	1698540	1623946
All routes (buses + mini-busses) with new transport park and with electronic ticket	2224397	2117512	2008992	2001025	1959561	1885166	1814052	1746050

The example of forecast for base scenario and expert corrections are presented in graphs

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