

Causes and tools to solve the critical traffic situation in Bratislava

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The incorrectly set city development is at fault

„Dynamic and static traffic are two inextricably linked vessels: the dynamic always begins and ends with the static and vice versa. The volume of dynamic traffic, however, is not only to summarize, but also assign to appropriate directions, "explains Vladimír Mikuš, the head of the transport planning and traffic management at the Municipality of the capital city of Slovakia Bratislava. In addressing the future of transport he recommends to start by that of which it is a part: a city-planning scheme.

The irony is that just the planning scheme was always ahead of the infrastructure - the most expensive and the most important urban organism. Therefore, according to Mikuš, the most important task is to set the city development in terms of an adequate transport infrastructure. He just this considers be a certain "deficit in the development of Bratislava“, which options have been incorrectly estimated. Likely not without cause in last three years the city began required from the holders of large investment projects to clearly demonstrate their impact on the traffic situation.

Each transport zone contains a network of concerned transport infrastructure that ought to meet the development potential of the city. In the event that it does not, there are tools and measures that can increase its capacity. Following the established standardized calculations then compare the parameters such as capacity, load and throughput. It is reported that even the estimated length of columns of vehicles can be calculated.

The key is the transport-capacity calculation

The following description is demonstrating generally how „the proofing the capabilities of transport project“actually takes place.

1. The investment project must be first defined by the scope of functions (such as F1 - F4) and, depending on them, then calculated the capacity of parking areas for each function individually (P1 - P4) in the light of the valid STN 73 6110.
2. The following is the calculation of volumes (PO1 - PO4) of rush hours traffic destination (arrivals) and source (departures) individually for each function according to their typical daily course.
3. The next step is to assign the calculated new volumes of destination and source traffic to the proposed communication network and their summarization with volumes of basic traffic as well as the calculation of dimensional values of the rush hours direction load of the affected crossings.
4. The final result is the transport-capacity calculation of the affected crossings loaded by the dimensional values (depending on the shape and form of the crossing management).
5. In the last stage of the calculation to assess the findings: in the case of exceeded capacity of the crossing the extent of the investment project is modified (reduced), respectively, measures in the transport solutions are proposed.

But also the static traffic is not collisionless - it often asserted itself at the expense of green vegetation or other, for example, relaxation functions of public spaces. If from the total number of parks or playgrounds one third is revitalized, the remainder is converted into car parking, the intention will go astray.

The tool of radical surgical incision

It seems that besides the implementation of the carrier transport system (which will not be on trial to Bratislava so early), building road and motorway tunnels may be the effective tool for the implementation of radical surgical incision into the system of transport infrastructure in terms of the city and across the country. About their currently unsatisfactory state in our country we have already informed in the article [Transport tunnels - in Slovakia fettered by misapprehension and myths \(June 11, 2009\)](#).

Sitina - our most modern, first two-tube and simultaneously the only urban motorway tunnel, the holder of the title the Building of the Year in 2007, celebrated its second birthday on June 23, 2009. For two years it significantly contributes to the traffic disburden in the western part of Bratislava and saves time lost in traffic jams on the motorway section D2 Lamačská cesta - Staré grunty. "At present, monthly passes through this tunnel, on an average, 1.2 million vehicles, which would otherwise pass through the crossing of Patrónka. Of these, around 80 percent consists of person (960 thousand) and 20 percent of cargo (240 thousand) vehicles," says the press release of Slovakia Tunnel Association (STA).

The European Directive n° 54/2004/EC on the minimum safety requirements for tunnels in the trans-European road network is valid for tunnels with the length above 500 m and refers to over 500 European tunnels. The main safety requirement is for it the establishment of emergency exits and separate escape routes. Determining criteria whether to build the tunnel with 1 or 2 tubes is the estimate for the intensity of traffic - for two-way traffic maximally 10-thousand vehicles in one lane per a day.

The tunnel Sitina in facts and figures

Route length

- Through the tunnel about 1.5 km (to compare: 11.6 km Mont Blanc and 16.9 km Saint Gotthard)
- Outside the tunnel about 3 km

Average velocity

- Through the tunnel 80 km/h
- Outside the tunnel 50 km/h + 2 light crossings

Time consumption

- When passing through the tunnel about 2 minutes
- When passing through Patrónka about 8 minutes, respectively. 40 minutes, unless the tunnel is in operation

Time saving

- In normal operation 3.5 minutes to a cargo vehicle and 2.6 minute to a passenger vehicle
- In difficult winter conditions (icy, snow) 5 minutes to a cargo vehicle and 3.1 minutes to a passenger vehicle
- During rush hours - maximally 6 minutes to a personal vehicle

Fuel saving

- In normal operation 40% to a cargo vehicle, 28% to a passenger vehicle
- In difficult winter conditions (icy, snow) 44% to a cargo vehicle and 35% to a passenger vehicle
- During rush hours - 45% to a passenger vehicle

Reduction of particulate emissions and gas pollutants

- 550 ton of particulate emissions per year and 11.5 thousand tons of CO₂ over two years of its existence

Traffic intensity in the tunnel

- 40 thousand per day
- 1.2 millions per months

Technological and safety equipment

- Information system, lighting, ventilation, fire alarm, 5 cross-links between tubes and an independent escape route.

Photo and map - The Municipality of the capital of SR / STA

1 - The existing bridges over the Danube do not master the every-day ram of transport

2, 3 - Sitina (Bratislava) - the first two-tube tunnel

4 - The current unsatisfactory state of motorway tunnels in Slovakia

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