

Transport Node of Bratislava in Relationship with Pan-European Multimodal Corridors

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Abstract

Bratislava as a capital of the Slovak Republic plays a special role in transport network of Slovakia. This peculiarity is a consequence of several geographical circumstances: eccentric and border position in the state, closeness of Vienna, natural conditions as well as intraurban and spatial structure of the city and its specific development. In 1990s, Bratislava became a point of intersection of three pan-European transport corridors which has brought a new impulses to the city.

Key words: pan-European transport corridor, transport node

Introduction

Change of political and economic orientation of central and eastern Europe countries brought a demand to extend and link the transport network working in west Europe towards these countries, with an aim to create a pan-European transport network. Four of the ten pan-European multimodal corridors defined in Crete and Helsinki in 1994 and 1997 for the territory of central and eastern Europe cross the area of the Slovak Republic. Bratislava is an intersection point of three of these multimodal corridors (see Fig. 1):

- Corridor IV connecting Berlin/Nürnberg – Prague – Budapest – Constanta – Thessaloniki – Istanbul,
- Corridor VA connecting Bratislava – Žilina – Košice – Uzhorod - Lviv,
- Corridor VII – the Danube.

Defining the multimodal corridors means a concentration of investments into transport infrastructure aimed to construction of an efficient trans-European network being able to increase opportunities to cross borders and develop economies. The corridors are also a direct contribution to the pan-European integration and give a new start to the development of the central and eastern Europe.

Bratislava – a node of transport

The capital of Slovakia is an important national and international transport point. Owing to its position in central Europe, Bratislava became a natural crossway of continental transport routes. A detailed evaluation of the geographical position of Bratislava has been done by P. KOREC, S. GALASOVÁ (1994) who offer several views on the city's location. Bratislava is located at the point where the mountain systems of the Alps and Carpathians meet and where the Danube river crosses the lower parts of these two mountain ranges. This „gate“ position worked very well in Middle Ages when several historical trade routes were led through this point. At present time, Bratislava transforms into

a gate between western and eastern Europe, which is even intensified by its position between Vienna and Budapest. Eccentric position of Bratislava as a capital and crucial economic, social and political centre within the territory of Slovakia seems to be inefficient from the aspect of transport accessibility and is rather unusual. In spite of this fact, Bratislava is the most important and dominant transport junction of Slovakia.

Bratislava as a railway intersection. Bratislava is a junction of railways from six directions: from north-west (Brno, the Czech Republic), north-east (northern and eastern Slovakia, Poland), from east (central and eastern Slovakia, Hungary), south-east (southern Slovakia and Hungary), from south (Hungary) and west (Austria). The territory of the city includes 14 railway stations (of which 10 are for both passenger and freight transport and 4 for passenger transport only). Length of the railway lines in the city reaches almost 90 km (of which 59 km are double-tracks).

In passenger transport, a stagnation of daily amount of arriving and departing trains has been observed since the half of 1990s, balancing between 210 – 220 trains per day. The position of railways shows a tendency of descent in comparison to bus transportation and individual transport by passenger cars in particular (see Table).

As for freight transport, the number of freight trains processed in Bratislava runs into 140 – 150 per day. Volume of goods, loaded and unloaded in the railway cargo points of the city (including those owned by producing companies) is as high as 6.5 million tons per year (in 1995).

Table: Volumes of daily commuters to the city (in thousands) by different transport modes

<i>Transport mode</i>	1959	1968	1976	1981	1987	1995
Personal cars	8	16	34	45	59	122
Bus	15	28	45	62	66	58
Railway	75	65	55	52	48	46
TOTAL	98	109	134	159	173	226

Source: Dopravná situácia 1996 v Bratislave. Magistrát hlavného mesta SR Bratislavy

Bratislava as a road transport junction. Bratislava is a crossroad of several international roads and highways: E-65 route from Brno (the Czech Republic) to Budapest (Hungary), E-75 route from Austria to Žilina and the Czech Republic/Poland, E-571 from Bratislava to central and eastern Slovakia and E-575 route from Bratislava to Hungary; D-2 highway from the Czech Republic to Bratislava and Hungary and D-61 highway from Trenčín to Bratislava and Austria. Linking these routes and highways happens in the built-up area of the city by communications which hold the function of intraurban transportation as well. A total length of the city's road communications reaches 809 km (35 km of highways). A demand for a high-quality and capacious connection between D-2 and D-61 highways in the territory of the city which would separate the big volumes of transit transport from the intraurban transport was demonstrated by different authors (P. KOREC, 1996, P. KOREC, Z. KOVÁČIKOVÁ, 2000, M. HORŇÁK, E. SMATANOVÁ, 2000).

Increasing the transit transport volume and a progressive rise of private passenger car ownership as well as increasing intensity of car movement between particular parts of the city are the main new features of contemporary city's transport development. In the period of 1990 – 1999, amount of cars registered in Bratislava increased by 63.5 per cent. In 1990, 278 cars were registered in the city per 1,000 inhabitants. In 1999, this value reached 435 cars. As a consequence of this, a decrease of public city transportation means and frequent traffic congestions have occurred in Bratislava, since the city road network was constructed overwhelmingly before 1989 under different traffic demands.

Bratislava as a river port. In 1990s, a considerable decrease of river transportation volumes has been observed as a result of economic reasons and a crisis and belligerency in former Yugoslavia. Existing streams of goods transportation passing through Bratislava along the Danube river have been prolonged up to the inland and sea ports in north-west Europe after the Rhine-Main-Danube Channel was open. Bratislava lies in the middle of trans-European water route between the North Sea and the Black Sea. Closeness of Vienna and Budapest and advantageous road and railway connection with economic hinterland in Slovakia and the Czech Republic predetermine the port of Bratislava to become an important point of goods exchange to all above mentioned directions. In 2000, volume of goods loaded and unloaded in Bratislava river port reached 2.2 million tons.

Air transportation. In comparison with volumes and significance of other modes of transportation, air transport in Bratislava is still of a lesser importance. Freight transport volumes of Štefanik's Airport in Bratislava balance between 2,000 – 3,000 tons/year. Volume of passengers in 2000 (130,000 passengers) represents only 66 per cent of the volume in 1990. This is an effect of several factors: influence of Vienna airport intensified after the opening the state border with Austria, division of former Czechoslovakia which has caused a fall of interest for Prague – Bratislava flights and disintegration of COMECON market (P. KOREC, E. SMATANOVÁ, M. HORŇÁK, 1997, P. KOREC, 1998).

Multimodal transport corridors – stimulation of development

The process of qualitative transformation of Bratislava transport node has been started up in 1990s. Defining the multimodal corridors has only fastened the process of these changes.

As for the road transport, an intensive construction of highways which would complete the highway network in the city to separate the transit transportation has been observed in Bratislava. After 1990, 23 km of new highways (66 per cent of their total length in the city area) have been constructed. Completing the highway connection to the state borders with Austria and Hungary was a remarkable advance in this process. The length of highways in the area of Bratislava should reach 49 km in total.

Qualitative changes in railway infrastructure of the city are noticeable, as well. In the very first step, attention was paid to Bratislava – Vienna (Slovakia – Austria) railway connection. Construction

of a new station of Bratislava-Petržalka, construction of a railway connection with Kittsee (Austria), a reconstruction of a railway track between Bratislava ÚNS (Central Freight Station) and Bratislava-Petržalka station as well as a reconstruction of railway connection with Hungary took place. Further investments into Bratislava railway network will be concentrated into a reconstruction of transit railway lines (included in Corridors IV and VA) and a reconstruction of railway stations.

Considering demands on the transit transport volumes, the highways and the railway network represent the key elements of infrastructure of multimodal Corridors IV and VA in the territory of Bratislava.

The river port of Bratislava includes a container transfer terminal and a RO-RO system loading site, which in co-operation with the railway freight terminal Bratislava-ÚNS (Central Freight Station) forms a key intermodal point of combined transport, eligible for water – railway, water – road and road – railway freight transfer. Area of the combined transport terminals located south-eastward from the city centre plays a crucial role as a point of goods transfer between waterway Corridor VII (the Danube) and road/railway Corridors IV and VA (see Fig. 2).

In comparison with the volume of investments directed to the other modes of infrastructure of the corridors in Slovakia, air transport does not play an important role, but prospering corridor intersection point will certainly help develop the air transportation in Bratislava, especially after completing the connection of Štefanik's Airport with the city by a high-quality communication (highway, railway or a line of underground).

Several scientists (O. LUPTÁKOVÁ, 1994, P. KOREC, E. SMATANOVÁ, M. HORŇÁK, 1997, P. KOREC, 1998, V. FILO, 1999, P. KOREC, J. MLÁDEK, J. BUČEK, 1996) have demonstrated a progressive role of Bratislava-Petržalka in the forthcoming period of Bratislava transport node development. The original function of this part of the city was residential function (about 130,000 inhabitants), however today, it becomes an international crossroad. Important international railway lines from Hungary and Austria meet four highways in this area. The first one is a highway from north-west (the Czech Republic, north-west Europe), the second from south-east (Hungary and south-east Europe), both of them are included in Corridor IV. The third highway leads from Austria and western Europe and the fourth one from north-east (the territory of Slovakia, Poland and north-east Europe) as a part of Corridor VA. Besides that, the territory of Bratislava-Petržalka is a place of international border crossings with Austria and Hungary.

We can state that determination of Bratislava as an intersection point of multimodal pan-European corridors has been a logical consequence of its geographical position. This is what puts high demands on the transport infrastructure quality, including highway and railway networks, high-capacity stations and terminals of freight terminals, transfer points, river port, airport, lay-by and parking areas, warehouses and custom-houses, etc.. A sufficient information network is an essential prerequisite for efficient operation of this system to co-ordinate activities of particular transport operators. All above mentioned elements of the transport node require for financial investments as well

as space in the city's area. This will involve remarkable changes in the spatial and functional structure of the areas related to transport infrastructure. On the other hand, internal demands of the city and its residents have to be considered at the same time to prevent a disruption of intraurban transport system, future social, economic and spatial development of Bratislava and environment of the city.

We can conclude that a construction and development of transportation infrastructure involves progressive economic development of neighbouring region. Nowadays, especially highways show a strong attractivity for industrial activities and business and shopping centres, including different services, which support employment and economic development. This „gravitation“ of highways can be observed very clearly predominantly in highly urbanised areas of cities and their neighbourhood (A. VAISHAR, 2000, P. KOREC, Z. KOVÁČIKOVÁ, 2000).

On the other hand, some geographers (mainly from west European countries) offer somewhat different experiences which doubt about the absolutely positive influence of an important international route on the regional growth. F. R. BRUINSMA, S. A. REINSTRAS, P. RIETVELD (1997) studied the relation between the construction of A1 highway infrastructure and regional economic development in Holland and concluded that the impact of constructing highways on regional development growth was not significant, except for the transport and communications sectors. One of the reasons might be a high density of road network before the highway construction. Similar conclusion can be found in the study of K. BUTTON (1995). An extreme implication was given by R. VICKERMAN, K. SPIEKERMANN, M. WEGENER (1999) who indicate that „completion of trans-European networks may in certain circumstances widen rather than reduce the differences in both accessibility and the economic opportunities of regions“.

Referring to the above mentioned authors was done only to demonstrate the differences in experiences with the relationship between regional development and construction of trans-contintal (international) networks. Our experience with this phenomenon is too short to make any ultimate statement.

Conclusion

Thanks to its geographical position, Bratislava is a point where several European transit routes in west – east, south-west – north-east and north-west – south-east directions meet. As a consequence of this, the city of Bratislava acts as an intersection and a gate between western and eastern Europe. Relationship between the city of Bratislava and the defined pan-European corridors can be summarized into following points:

- Presence of the three corridors brings increased demands on the transport infrastructure of the city. Growth of transit transportation volumes leading through the territory of Bratislava must be expected.
- Defining the multimodal corridors stimulates new impulses in the development of railway, road and waterway transport modes in the city territory, which will lead into investment into

the infrastructure. Local changes of intraurban spatial and functional structure in the neighbourhood of transport elements can be expected.

- The most intensive changes can be anticipated in the areas where transfer of goods between different modes of transportation takes place. These are the points where real contact of the three corridors happens. In case of Bratislava, we can identify two major areas of this quality. The first one is located eastward of the city centre between the river port and Central Freight Railway Station (ÚNS). The second one can be expected to grow up in western and north-western part of Bratislava-Petržalka.
- Very similar development can be expected in the areas located along the railway and highway communications leading to Bratislava from north-west and south-east (direction of Corridor IV), north-east (Corridor VA) and south-west (direct linkage to trans-European transport network of the European Union).

We concentrated predominantly on the territory of Bratislava, though we understand the process of creation of new intensive relationships with transport happens in a wider region. In the submitted paper, we could offer only a general view on the expected development of transport infrastructure of Bratislava in the period of European transport integration.

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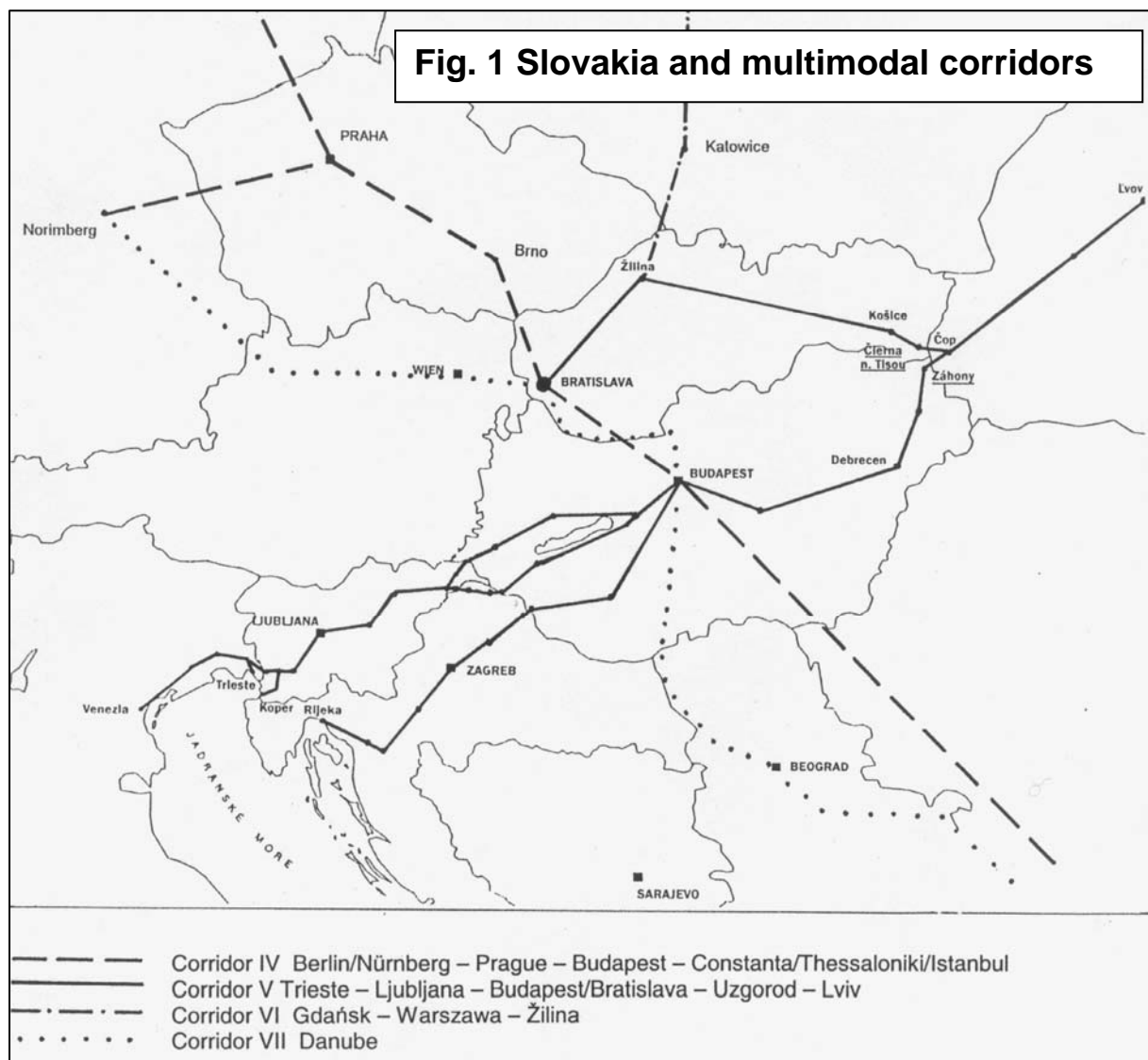


Fig. 2 Basic transport network of Bratislava

