

# The presumptions of croatian entry into european traffic system in 21<sup>st</sup> century

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## Introduction

Traffic valorization of a certain area is defined by series of physical- geographical, economic, politic factors that can act as an object of faster linking of certain area with neighboring countries, in other words as a restrictive factor that makes the traffic linking impossible. In case of domination of the restrictive factors certain areas and even countries become traffic, economic, culturally and politically isolated.

By its natural-geographic situation, at the contact of the Alpine, Mediterranean, Dinaric and Pannonian area, Croatia stands out as geographic traffic key area on the way from Western to SE Europe, or as a link between Northern and Middle Europe with Mediterranean. Trans-european directions from Northern Europe and Baltic see the Croatian territory as the shortest link between ports on Mediterranean among which Rijeka has the remarkable traffic and economic potentials.

*Geotrafic situation of Croatia is an essential precondition of the key transeuropean direction development across its territory. The building of modern roads and railways is giving opportunity to Croatia for more intensive inclusion into the European traffic network.*

*In this matter, priorities should be directed on connecting with Middle and Eastern Europe across the main node Zagreb and with Western Europe along the Adriatic coast. The orientation of trade flow towards Croatian coast, gives an opportunity for Rijeka to develop as the leading port on the Adriatic, whose capacities are not enough used.*

**KEY-WORDS:** traffic policy, highway directions, high-speed railways, Zagreb, Rijeka

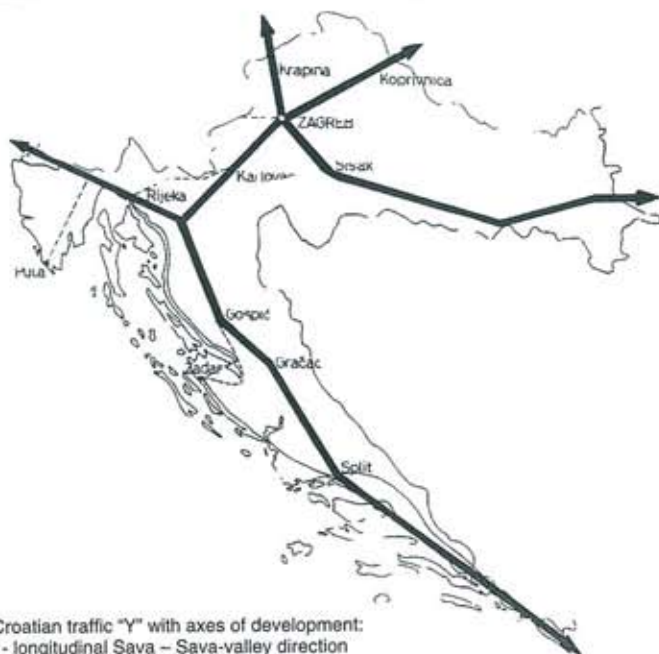
- South transversals, i.e., for joining Pannonia and Mediterranean area of Croatia.

## Traffic valorization of Croatia

Croatian traffic politics is a part of the general economic state of country, but also a perspective of further development which is primarily based on the advantages of geographical position. The position of Croatia opens the possibility for effective integration in European traffic network. With the traffic development of these two key corridors (Pannonian and the Adriatic), Croatia would obtain the strategic role in interstate goods exchange. Its geographic position that acts as a powerful push factor, is limited by still inadequately built infrastructure of qualitative motor-roads and high-speed double-track railroad networks. It resulted by the remarkable portion of traffic circulation's from Middle Europe being directed across the territory of the neighboring Slovenia. And that is why the main aim of the Croatian traffic politics is to modernize the existing infrastructure, by building new road and railway communications and by directing trade and travel directions along the main corridors.

There are two key traffic directions on the Croatian territory:

- 1) *longitudinal* - as a link of Northern and Middle Europe with Middle East



Croatian traffic "Y" with axes of development:  
- longitudinal Sava - Sava-valley direction  
!- the Adriatic longitudinal

Figure 1: Croatian traffic

2) *transversal* - as a part of direction Baltic - The Danube Basin - Northern Adriatic

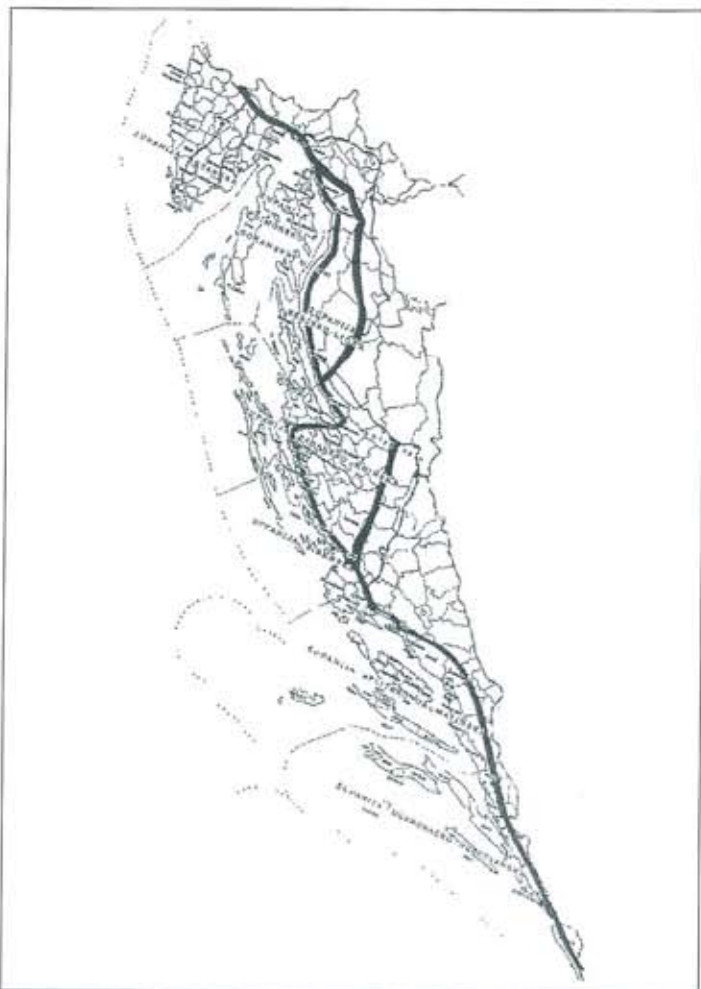


Figure 2: the route of the future Adriatic Railway

Both of these directions need the construction of qualitative road, railway and river-canal infrastructure. Zagreb stands as the key traffic-hub of the longitudinal direction which is also the part of X - Pan-European corridor with subdivisions Western Europe - Salzburg - Ljubljana - Zagreb - Belgrade - Skopje - Solun, and Vienna - Graz - Maribor - Zagreb, as well as of the transversal V corridor L'vov - Budapest - Zagreb - Rijeka - Trieste.

The importance of Zagreb is reinforced by the fact that there is a possibility of connecting all parts of Croatia to the European directions (Drava -Basin, Sava- Basin, East Slavonia, Lika, Dalmatia).

The Croatian "Y" road-railway represents the shortest and the fastest link of Bohemia, Slovakia, Hungary towards Mediterranean. As distinguished from Sava - Sava basin longitudinal direction, the Adriatic one was neglected in the past. The Adriatic Highway direction : Trieste - Istra (The Istrian "Y") - Rijeka - Split (Zadar - Šibenik) - Dubrovnik doesn't have a qualitative road-network while the railway link that would connect all the Adriatic ports and canalize travel and trade directions is not built yet.

And that's why it is necessary to build fast double-track railways as well as fast motor - road links on this direction.

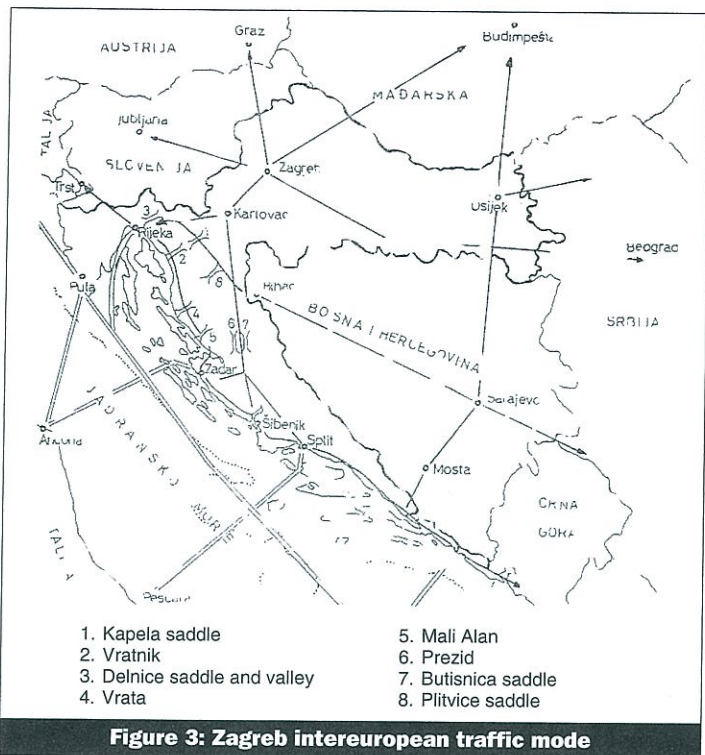
Both of these ways of communication have wider geographical meaning, primarily as a part of transeuropean main-road that links Western and Southeastern Europe (Spain / Great Britain - France - Genova - Northern Italy - Trieste - Rijeka - Zadar - Šibenik - Split - Dubrovnik - Bari - Drač - Athens). Croatian traffic politics must be directed on the Adriatic orientation as one of the strategic potentials of further economic development of the country.

### Continental traffic system

In the past, the aim of the construction of the railway-road network on Croatian territory was to link Croatia with existing power centers in Vienna and Pest. Although Croatia had been given the first railway in 1860 (Budapest - Pragersko - Èakovec) the real traffic and geographical importance had the junction of Zagreb to the railway Vienna - Trieste across Zidani Most, in 1862, and after that a railway Budapest, Zagreb, Karlovac, Rijeka. In spite of the fact that the railroads were built for the interests of Vienna and Budapest, Croatia gained very important role on the traversal between Middle Europe and the Adriatic. Even today it still remains one of the key axes of Croatian economy and traffic development.

There are two potentially the shortest traffic directions towards North and Northwest on their way from the Mediterranean to Middle Europe (across Krapina and Pragersko to Vienna), i.e. to Eastern Europe (across Koprivnica to Budapest and L'vov) stretching from Zagreb, a main traffic node. In European traffic node network, Zagreb has not only the key function in acceptance of traffic on the way to ports of Northern and Middle Adriatic, but also towards Southeastern Europe by Sava - corridor. In order to integrate in European railway networks it is necessary to partly modernize these two directions, i.e. to reconstruct them completely for the acceptance of high - speed trains.

Railway direction Zagreb - Pragersko must be adjusted for high-speed trains, at the beginning for those speeding up to  $\geq 200$  km/h in passenger traffic and 120 km/h for cargo traffic on electricity broad double- gauged train. In that way the shortest link to Middle Europe would be realized. The direction Zagreb - Koprivnica - Budapest must also achieve that sort of modernization. That line is supposed for traffic of high-speed trains (min. 200 km/h, or 120 km/h), too. Both of these railways are directed towards Rijeka, which contributes to the strengthening of its importance as the most remarkable port on the Adriatic the trade traffic streams of Austria, Hungary, Bohemia and Slovakia are directed towards Rijeka. Rijeka would then bring back a part of lost transition during the Croatian War of Independence when the great deal of traffic neighboring countries had been directed to Trieste and Kopar. It esp. refers to the strengthening of container traffic for whose necessities Rijeka has enough capacity. The building of the Adriatic Railway, which would bring all Croatian parts on the Adriatic into unique transition streams, is of a great importance for the economic and tourist linking of Croatia to West European and Mediterranean countries. There are 2 solutions predicted for this road both route Rijeka -



**Figure 3: Zagreb intereuropean traffic mode**

Zadar. According to the 1<sup>st</sup> variant of the track is located next to the shore, above present the Adriatic Railway with an assumption of building shields for NE wind on the coast under the Velebit. The 2<sup>nd</sup> one assumes the track being located behind the mountain massif of Velebit, on the side of Lika, making in that way possible the valorization of depopulate area of Lika, and at the same acting as an important pull factor of economic development. The limiting factor in this area is the climate, esp. strong drifts of snow during the cold part of year. This 2<sup>nd</sup> track should get some advantages in further analysis just because of its impulsive factor in economics. The construction of Croatian railway "Y" and the Adriatic railway opens perspectives of development of Rijeka as a leading port-industrial center on the coast, but also for its outgrowing into one of the leading European ports. The additional impulsive possibility opens up with a construction of canal Sava - Dunav, from Slavonski Šamac to Vukovar. That again enables the shortest link to Northern as well as to SE Europe, and Mediterranean, esp. for intermodal transition (canal Rhein - Main - Dunav - linked to Sava to Zagreb and high speed train to Rijeka and Split). The construction of the Adriatic Railway presents also an alternative to Sava corridor which links Western and Middle Europe with Belgrade, Solun and Sofia across Ljubljana and Zagreb through Sava Valley. Trains speeding up to 140 - 160 km/h travel on the section Zagreb - Vinkovci - Tovarnik.

The modernization of the Lika track in the 1<sup>st</sup> phase and its complete reconstruction in the 2<sup>nd</sup> phase, is of a great importance for the interregional linking of Croatia, because it connects the Pannonic- Peripannonic area with the South. The existing condition of Lika track does not satisfy neither the realized speeds nor the quality of transportation, as a result of that, a great deal of trade and passenger traffic is re-oriented on road communica-

tions. The construction of high speed railway track from Zagreb to Split would not only strengthen Split as a the biggest urban whole on the coast but would also work as an impulse to its economic and maritime development. The 1<sup>st</sup> phase of the railroad construction includes the reconstruction of the speeds of 160-200 km/h for passenger trains and 120 km/h for cargo train with the use of Pendolino - tilting trains. The construction of this new railroad would open perspectives for economic recovery of Lika as the "spine" of Croatia, considering its present negative demographic condition and almost ceased economics. In the eastern part as of the country, the axis of passenger traffic in direction North - South, would represent the railroad stretching from Eastern Europe across Osijek to the South of Croatia, i.e. to the port of Ploče. In that way Osijek and Ploče would become new traffic nodes of intercontinental traffic. Osijek would get new possibilities with it because of the river channel linking (Drava - Dunav) and railway transportation. However, the construction of this axis railroad can only be possible in corporation with neighboring Bosnia and Herzegovina across which territory passes the greatest part of this route. The construction of these high speed double track railroads is of a great strategic importance for both Croatian politics and economy and its realization must start as soon as possible. On the other hand, the problem is in the way of constructing railways:

- 1) at the 1<sup>st</sup> place constructing railways for the trains speeding up to 200 and more km/h, and then Maglev - Transrapid levitation systems;
- 2) or to start at the very beginning with the construction for the trains of 500 km/h and more.

Considering the present negative economic conditions of the country, high expense of building necessary infrastructure (tunnels, shields for NE wind) and means of transportation it is more acceptable to build these tracks in 2 phases next 30 years.

The present day traffic politics of Croatia is directed to giving priority to building road communications instead of railways on directions:

- 1) Middle Europe - Ljubljana - Bregana - Zagreb - Karlovac - Split (corridor VB1)
- 2) Middle Europe - Goričani - Zagreb - Karlovac - Rijeka (corridor VB)
- 3) X corridor - Salzburg / Vienna - Zagreb - Be - Solun / Sofia

HAY (Croatian Highway "Y") is a part of great trans-european transversal (so called Phyrin highway) that links Middle and Eastern Europe with Mediterranean and SE Europe. The construction of highway - corridor VB1 across Lika (Karlovac - Bosiljevo - Gospić - Sv. Rok), and high-speed road across Plitvice is a pre-condition of demographic revitalization of this extremely depopulated area. The corridor VB1 is of a great politic and economic importance for the integration of Croatian territory, in other words for stronger linking of Dalmatia and NW Croatia. Present E-71 road do not satisfy

conditions for qualitative, fast and safe development of passenger and trade-truck traffic.

The construction of the Adriatic Highway has a great role in the plans of Adriatic orientation of Croatia, considering the fact that in that way the Croatian territory would be connected to Western Europe. It would also open the possibility of dispersing urban and industrial development of some regions (Northern Croatian coast, Middle Dalmatia, South Dalmatia). That's why the construction of highway and railway communication is necessary as well as building container terminals in three leading port-industrial centers on the coast: Rijeka, Split, Ploče, but also in Zagreb as the leading traffic center of the country.

The dispersal of urban and industrial functions is opened by the traffic communications across the Lika territory (Lika Railway, Lika's Highway "Y") and the construction of trade terminals in Karlovac, Gospić, Zadar and Knin.

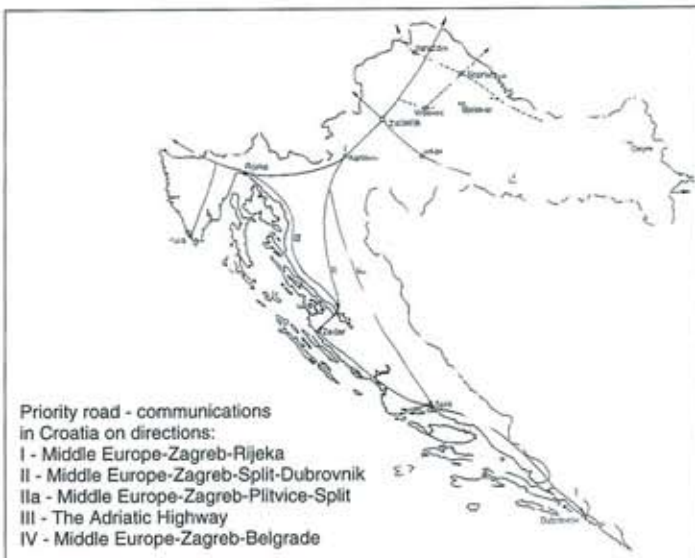


Figure 4: priority road-communications in Croatia

The Croatian economy greatly depends on marketing of some products of homemade industry, on European and world market. The majority of foreign trade exchange is done with the countries of Middle and Western Europe, among which Italy, Germany, Slovenia and Austria take the leadership. Therefore, traffic directions must also be in function of qualitative trade exchange. In tourist way Croatia is also oriented to this market. The high qualitative traffic network is one of the necessary pre-conditions of tourist development on the Adriatic.

Countries	Export	IMPORT
Germany	839 477	1 610 803
Italy	948 982	1 421 279
Slovenia	611 442	769 169
Austria	198 006	597 482
Hungary	55 299	192 665
Belgium	40 976	108 456
Bosnia and Herzegovina	548 619	63 480

\* Source: Statistical Yearbook 1997, Central Bureau of Statistic of the Republic of Croatia, Zagreb, November, 1997

Table 1 Export and import with major trade partners (European countries) in 1996 (in 000 US \$) \*

**Conclusion**

The construction of the modern highways and high-speed broad gauged trains is one of the decisive activities which can help Croatia take a step with the developed part of Europe at the beginning of the 21st century. It is inevitable to establish prior directions in which where the country policy has the key importance. Directions towards Middle, Eastern and Western Europe open perspectives in development of Rijeka and Split as the leading port-industrial centers on the coast and to Rijeka also as one of the leading ports of Europe.

It is possible to detach few main axes of development in the Croatian traffic policy framework:

- 1) Middle Europe - Graz - Maribor - Zagreb - Rijeka (branch towards Zadar - Split - Dubrovnik)
- 2) Eastern Europe - Budapest - Zagreb - Rijeka (branch towards Zadar - Split - Dubrovnik)
- 3) The Adriatic transversal: Trieste - Rijeka - Zadar - Split - Dubrovnik and
- 4) Osijek - Bosnia and Herzegovina - Ploče and Varazdin - Koprivnica - Osijek

The railway traffic can develop in few phases: the 1<sup>st</sup> phase consists of modernization and reconstruction of the railroad tracks for the speeding up to ≥200 km/h, on the main transversal and longitudinal directions and then follows the planning of the long-termed construction of new railroads for Maglev - transrapid technology.

Croatian traffic policy has double meaning: fitting of Croatia into trade-traffic and travel streams of Europe, and also stronger integration of country area, esp. its North and South across Lika - the "spine" of Croatia. In that way disperse development of urban and economic functions in depopulate areas of country is enabled.

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