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Road Connections Affecting the Competitiveness Strengthening of the Port of Ploče

Summary

Due to its geographical situation, the port of Ploče has become a junction of land and sea routes within the Transport Corridor Vc, as a part of the Mediterranean Transport Corridor, passing through Bosnia and Herzegovina, Croatia and Hungary. The paper deals with the analysis of the connecting roads leading from the port of Ploče as well as with the evaluation of the respective road traffic volume. Although the congestion on certain road sections is related to the tourist transit traffic, the road traffic volume at the Transport Corridor Vc within Bosnia and Herzegovina indicates the need for the construction of a motorway to stretch out the Corridor. The planned modernisation will fundamentally improve the main road infrastructure on the Transport Corridor Vc that will facilitate the transport of goods and enable shorter travel time from the port of Ploče to the hinterland. Considering that the major portion of the freight transport from the port of Ploče uses road transport services, the envisaged modernisation will significantly increase competitiveness of the port, mostly due to the intermodal transport mode.

Key words: Transport Corridor Vc, the port of Ploče, road traffic.

1. Introduction

The port of Ploče is situated in the middle of the eastern coast of the Adriatic Sea. For the purpose of land shipping/delivery of cargo between the port of Ploče and its hinterland, bulk cargo is mainly transported by rail, while general cargoes, especially containerised ones, are transported by road. Although the rail transport mode is a cheaper mode for land shipment/delivery, the road transport as a flexible and fast mode (fast transit time, custom clearance time,..) is dominant for the land transport of containers from the port of Ploče to its hinterland and vice versa.

The backbones of road links connecting the port of Ploče with its hinterland consist of the following two roads [11]:

- the “Adriatic Motorway” that stretches from Trieste and passes through Rijeka and Split to the end point of the Republic of Croatia passing near the town and the port of Ploče. This transport route is a part of the European road network and is marked as E 65.
- the Transport Corridor Vc, as a part of the Mediterranean transport Corridor, that stretches from Budapest and includes the road connection linking the Hungarian border – Osijek – Bosanski Šamac – Zenica – Sarajevo – Mostar – Metković – Ploče (code E-73). It presents the shortest and most fitting traffic link between Central Europe and the Adriatic coast. Owing to this link, the port of Ploče is connected with its natural hinterland.

The aim of this paper is to show how the modernization of road connections linking the port of Ploče and primarily the Transport Corridor Vc will affect further development of the port of Ploče.

2. Road infrastructure links to the port of ploče

The Transport Corridor Vc connects central parts of the European continent with western Balkans. The overall length of the road Corridor is 702 km, out of which approximately 379 kilometres pass through Bosnia and Herzegovina.

In addition to the main access roads, other national, regional and local roads connecting these traffic routes are essential for the development of the port of Ploče, particularly in Bosnia and Herzegovina as the main catchment market of the port of Ploče.

2.1. Connecting roads from the port of Ploč

The port of Ploče as the starting point of the Corridor Vc from the south is connected to the Ploče interchange at the A1 motorway by a system of roads represented by the D425 Croatian state road. The D425 state road is 17.6 km long and connects the outskirts of Ploče with the D62 state road as well.

The Ploče interchange together with the slip road connects the motorway A1 with the port of Ploče, enabling connection from the state road D8 to motorways A10 and A1. The junction of the motorway track on the Corridor Vc (motorway A10) as an important traffic interchange enables the contact with the motorway A1, Zagreb – Split – Dubrovnik, and the port of Ploče [8].

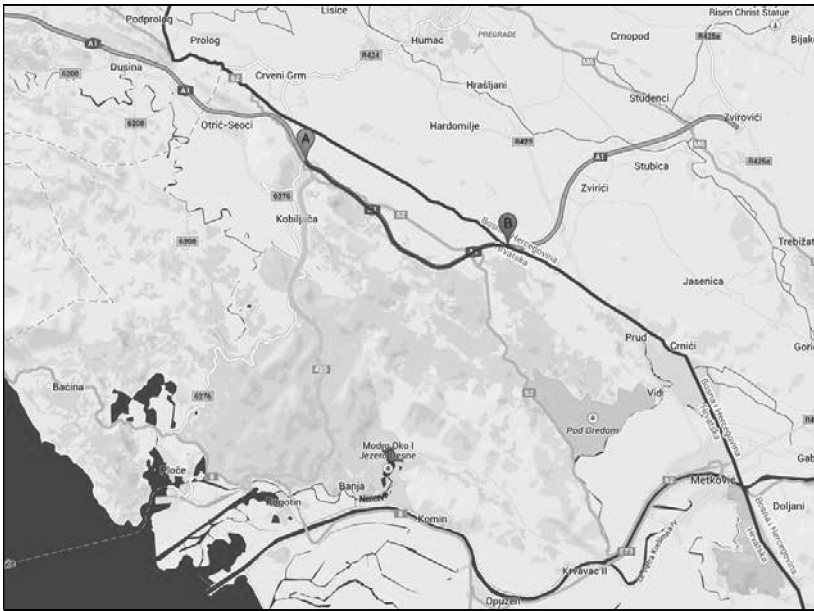


Figure 1 - Connecting roads from the port of Ploče to the state border (D425, A1 and A10 section) and further to the Corridor Vc in Bosnia and Herzegovina (green)

Source: [6]

The state road M17 (international code E73) that follows the Corridor Vc route through Bosnia and Herzegovina begins at the Croatian/BH international state border Metković and continues along the following route: Čapljina – Počitelj – Mostar – Jablanica – Konjic – Hadžići – Sarajevo – Zenica – Žepče – Maglaj – Doboj – Odžak – Bosanski Šamac. The total length of the state road M17 from Čapljina to Bosanski Šamac is 400 kilometres. Along this state road there are 17 counting sites allocated on 13 sections. The section between Bilješevo and Jošanica southward to the city of Sarajevo comprises the dual carriageway part of the route respectively the section of the highway A1 of the total length of 46.6 kilometres [1].

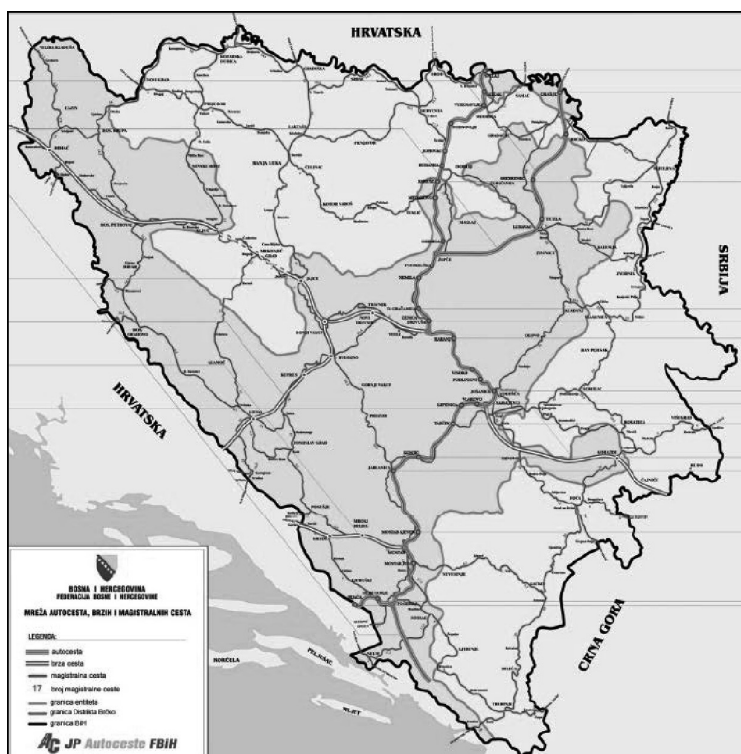


Figure 2 - The network of motorways, state and regional roads in Bosnia and Herzegovina

Source: [11]

The route of the Transport Corridor Vc branch continues through the Republic of Croatia by the motorway A5 with the total envisaged length of 88 km. The motorway A5 stretches by the following sections: BH/Croatia border - Svilaj - Sredanci - Đakovo - Osijek - Beli Manastir – Croatia/Hungary border. There have been 53.5 km of the motorway constructed so far, i.e. the section Sredanci - Đakovo (21 kilometres) and the section Đakovo - Osijek (32.5 kilometres) [3].

The construction of the motorway Sredanci – Đakovo – Osijek included Osijek in the Croatian motorway network, thus creating better connectivity with all transport and economic centres. In addition, the new motorway opened the revitalization process of the large south route and the central part of the Pannonia region.

After the border crossing Duboševica/Udvar the Corridor Vc continues across the Republic of Hungary along 196 kilometres of the route on the Hungarian territory. The route consists of the following sections: Udvar – Boly – Szekszard Dunaujvaros

– Erd – Budapest. The Motorway M6 (E73) was built as a full profile one from the interchange Boly to Budapest in the total length of 183 kilometres.

2.2. Evaluation of road traffic volume

The rate of congestion respectively the volume of traffic along the roads connecting the port of Ploče with its hinterland can be considered separately for sections on the territory of Croatia and sections in Bosnia and Herzegovina.

The first part of the connecting roads includes the section to the Croatian state border. The analysis of available traffic data shows that the traffic volume in 2016 according to the Annual Average Daily Traffic (AADT) on the counting section Ploče interchange – Karamatići (5.4 kilometres long) at the counting site Ploče interchange-south was 3.502 vehicles, while the Annual Summer Daily Traffic (ASDT) shows 7,892 vehicles. The same year, on the counting section Karamatići – D425 (7.4 kilometres long) at the counting site Borovci the AADT was 3,346 and the Annual Summer Daily Traffic (ASDT) 7.701 vehicles. Looking through the percentage, the portion of around 15% of the total amount of AADT and ASDT traffic volumes refer to freight vehicles.

Substantial variations between the Annual Average Daily Traffic and Annual Summer Daily Traffic volumes are attributed to the fact that the road serves as a connection road to the motorway A1 and the state road D425, which carry considerable tourist traffic. Analyzing the data obtained from the road infrastructure company *Hrvatske ceste d.o.o.*, there was no congestion spotted on the road infrastructure in the area of the port of Ploče, i.e. Ploče – state border sections.

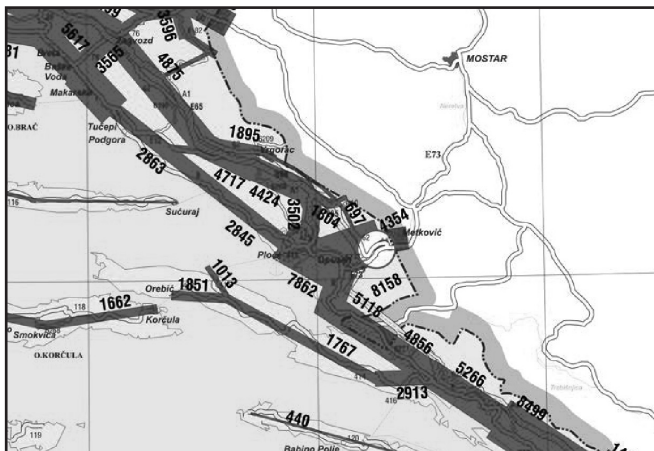


Figure 3 - Traffic volume on Ploče road directions in Croatia- AADT (2016)

Source: [14]

Similarly, traffic volume is counted on sections of the motorway A1. Particularly important is the section directly connected to the port of Ploče. Table 1 presents the total traffic volume (motorway A10) for 2017 by the month and by the vehicle category.

Table 1 - The road traffic volume structure on Motorway A10 by the vehicle category and their share in total traffic (from January to December 2017)

Month	Light vehicles	Share (%)	Heavy vehicles	Share %	Motor-cycles	Share (%)	TOTAL
January	26,488	82.05	5,781	17.91	15	0.05	32,284
February	25,331	80.67	6,058	19.28	17	0.05	31,401
March	32,447	81.37	7,385	18.52	43	0.11	39,875
April	45,590	83.61	8,720	15.99	219	0.40	54,529
May	45,083	80.94	10,164	18.25	451	0.81	55,698
June	59,084	85.07	9,372	13.49	995	1.44	69,456
July	101,739	90.77	9,535	8.51	808	0.72	112,082
August	120,016	90.38	11,594	8.73	1,177	0.89	132,787
September	57,298	84.65	9,823	14.51	566	0.84	67,687
October	47,011	82.49	9,802	17.20	177	0.31	56,990
November	32,004	80.40	7,782	19.55	22	0.06	39,808
December	34,167	82.05	7,156	17.31	17	0.04	41,340
TOTAL	626,258	85.32	103,172	14.05	4,507	0.63	733,937

Source: Adopted from [15].

Looking at the total road traffic on motorway A10 by the month, there is evidently quite a difference between the winter and summer traffic rates. The average daily traffic of heavy vehicles accounts for 186 to 374 trucks, whereby the heavy vehicle traffic corresponds to the maximum 20% of the total traffic. Based on the presented data, the average Annual Daily Traffic results in 2,011 vehicles only, while the average daily traffic of heavy vehicles is 283 trucks. That data indicate low traffic intensity as well.

In general, all the data shown above illustrate extremely low intensity of traffic even during the summer period when huge difference in traffic volume is noticeable. The summer season traffic is related to tourist movements.

Based on the average data for the maximum road capacity and the traffic rate of:

- for two-line road – 14,000 vehicles per day,
- for motorway (with stopping lane) – 45,000 vehicles per day,

it can be concluded that the existing road infrastructure connection to the port of Ploče absolutely satisfies the traffic transport demand.

The road traffic volume in Bosnia and Herzegovina relevant for the evaluation of the road infrastructure linking the port of Ploče with its hinterland is mainly related to the Corridor Vc roads.

The largest traffic volume in 2016 was recorded on the counting section Jošanica 1 – Stup 1 where there were 21,454 vehicles recorded at the counting site Imzit Brijesće AADT. In addition, the following counting sites can be considered as sites with higher level of traffic: Rimski most (section Stup 3 – Blažuj) where the AADT showed 16,104 vehicles, Ortiješ (section Gnojnice – Buna) with the recorded AADT of 14,725 vehicles, Binježevo (section Blažuj – Tarčin) with the counted AADT of 13,282 vehicles and Imzit Zabrđe (section Jošanica 1 – Stup 1) where AADT was 1,643 vehicles [1].

Substantial differences between the annual (AADT) and summer (ASDT) traffic volumes on several sections are reported due to travel and/or transit functions of the road. Thus, the greatest differences were recorded at the counting site Ortiješ on the section Gnojnice - Buna where there were recorded 19,058 ASDT and 14,725 AADT vehicles. Likewise, a significant ASDT volume and differences between the AADT volume and ASDT volume were measured at the counting sites Salakovac on the section Jablanica 1 - Potoci (AADT – 7,378 vehicles, ASDT – 10,423 vehicles), Čelebići on section Konjic - Jablanica 1 (AADT – 9,662 vehicles, ASDT – 13,191 vehicles), and Raštelica on section Tarčin - Konjic (AADT – 7,385 vehicles, ASDT – 10,634 vehicles). At the counting site D. Golubinja the ASDT accounted to 11,721 vehicles in 2016 while at the counting site Maglaj, section Karuše – Ozimica, the traffic volume was 10,813 vehicles.

Analyzing the structure of AADT and ASDT by groups of vehicles on the state road M17, it can be concluded that the share of passenger vehicles per section is between 76 and 95% respectively and that the proportion of trucks is between 4 and 19% of the total traffic volume [1].

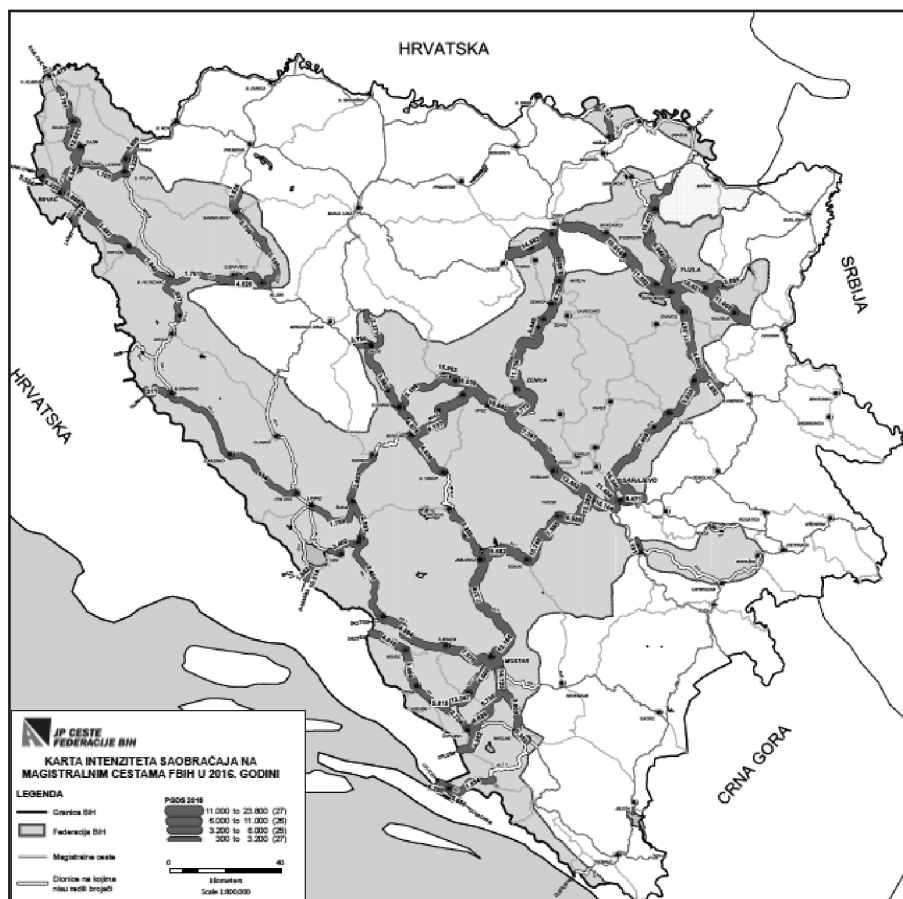


Figure 4 - Traffic intensity on state roads of Bosnia & Herzegovina in 2016

Source: [1]

Although the congestion on certain road sections is related to tourist transit traffic, the aforementioned data on the traffic volume at the Corridor Vc in Bosnia and Herzegovina indicate the need for faster construction of the motorway on the Pan-European Corridor V, branch C route.

The portion of the Corridor Vc in the eastern part of Croatia continuous from the state border between Croatia and Bosnia and Herzegovina towards Osijek and onward to the border between Croatia and Hungary. The following figure shows the corresponding traffic volume.

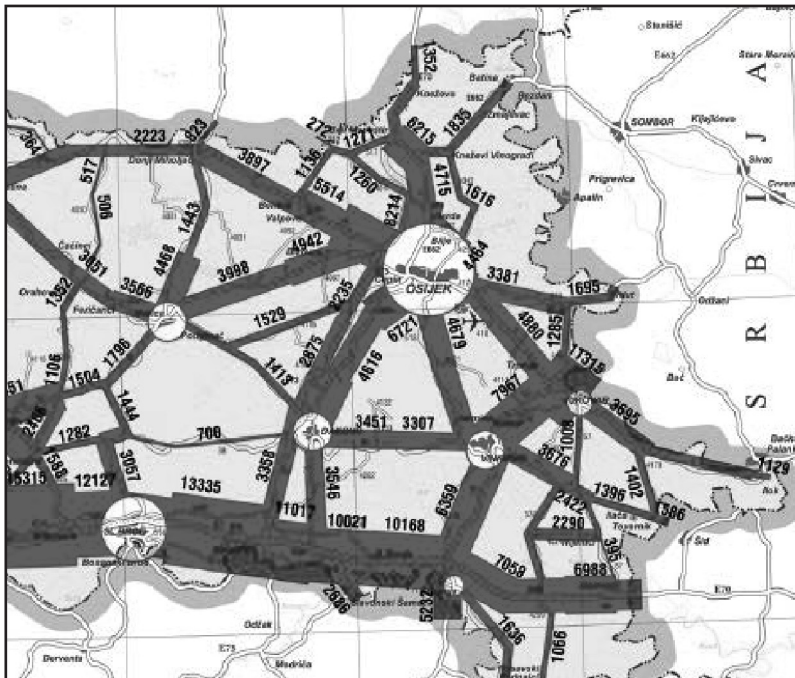


Figure 5 - Traffic volumes on Osijek road directions in 2016 - AADT

Source: [14]

The average daily traffic accounts for about 6,000 vehicles. On the other hand, the average annual traffic volume (AADT) on the motorway A5 is smaller by almost one half. In 2016 it accounted for 2,832 vehicles while the summer traffic volume (ASDT) was 3,315 vehicles [14]. Based on comparisons with the results of traffic counting on other motorways in Croatia, it can be concluded that the traffic on the motorway A5 is by far the lowest one with respect to other motorways.

Likewise, on the route of the Corridor Vc passing through the Republic of Croatia, on the section through the Republic of Hungary, there were no congestions or bottlenecks spotted.

The traffic volume on the roads connecting the port of Ploče with the hinterland on the Corridor Vc is relatively low in general. However, there is a difference between volumes in Croatian parts of the Corridor, particularly the one on the portion leading to the port of Ploče and the one on the Corridor in Bosnia and Herzegovina. The traffic volume on the portion from the state border to Sarajevo is highest and on some sections congestions and bottlenecks are inevitable.

3. The significance of the construction of the motorway on the transport corridor vc for the development of the port of Ploče

The quality of the road infrastructure connecting the port of Ploče with its hinterland is not identical for the whole catchment area. While the immediate connection to the road network is adequate and sufficient in terms of capacity, the part of the road infrastructure in Bosnia and Herzegovina needs to be modernised.

The road network in Bosnia and Herzegovina is very important for the port of Ploče because the main freight flows are coming from that area. The existing roads are mainly two line roads with inadequate roads and with the maximum road capacity. The existing traffic volume in some sections reaches the maximum road capacity. In addition, on some sections the maximum speed is limited due to road curves and high inclination.

The port of Ploče has become a junction of land and sea routes of the Pan-European Corridor V, branch C passing through Hungary, Croatia and Bosnia and Herzegovina, due to its favourable geographical location. Beside a very important role in the transport system of the Republic of Bosnia and Herzegovina, this Corridor is also significant for the transport system of the Republic of Croatia since it connects the Danube region and the Adriatic coast. With respect to the position of Croatia as a country situated in Central Europe, in the Danube region, along the Adriatic Sea and in the Mediterranean basin, that Corridor is also important as a link between Central European countries and the Adriatic and the Mediterranean.

3.1. Construction of the motorway on Transport Corridor Vc

The Existing roads leading to the hinterland in Bosnia and Herzegovina that stretches across the Corridor Vc mainly consist of two lanes roads, e.g., a relatively small portion (of about 35 kilometres which represent around 20% of the total length) of road sections towards Sarajevo is constructed as a four lane motorway. Two lane roads are generally inadequate since passing through urban areas where the speed is limited. In addition, on some sections the maximum speed is limited due to a high road inclination and the number of curves. Thus, the traffic volume has already reached the maximum road capacity and it represents a bottleneck for the road transport service.

The complete construction of the motorway A1 which follows the Corridor Vc in Bosnia and Herzegovina is of the utmost importance. The motorway comprises the following road sections in BH: state border Svilaj – Modriča – Doboј – Žepče (A3) – Zenica – Kakanj – Visoko – Jošanica – Sarajevo – Jablanica – Mostar – Počitelj (A4) – state border Bijača.

The valorisation of the road part of the Corridor Vc in Bosnia and Herzegovina is not progressing according to the originally adopted plan. With the total length of approximately 335 kilometres, the construction of the full profile motorway will enhance the connectivity of Bosnia and Herzegovina with neighbouring countries and

improve the potential for economic development of the port of Ploče. For the most part the trace of the Corridor Vc through Bosnia and Herzegovina relies on the state road M17.

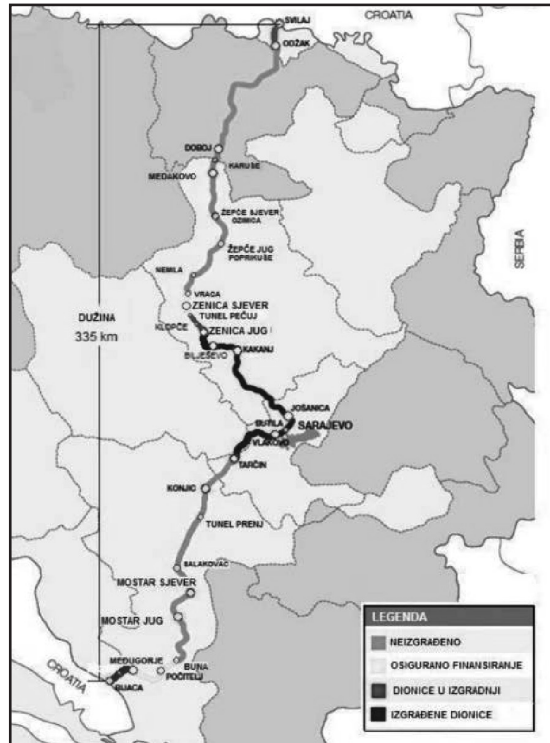


Figure 6 - Planned route of the motorway A1 in Bosnia and Herzegovina (in operation – violet, in construction – blue and red, planned section – green)

Source: [7]

The construction of the highway that follows the Corridor Vc is currently the largest infrastructure project in Bosnia and Herzegovina strongly supported by the government. The planned route includes four main sections [7]:

- Lot 1: Svilaj on river Sava (connection to Corridor X) – Doboj South;
- Lot 2: Doboj South – Srajevo South (Tarčin);
- Lot 3: Sarajevo South (Tarčin) – Mostar North;
- Lot 4: Mostar North – Bijača on the south Croatian border.

The second and third sections are proceeding to the already constructed motorway network in the Sarajevo region, while the first and fourth sections are connections to motorways in Croatia.

The construction of 52 kilometres on the section Jošanica – Bilješevo (from Sarajevo towards Zenica) as well as the subsection Kravice – Bijača including the border crossing to Croatia has been already realised [11]. The “Sarajevo bypass” as a part of the motorway with the length of 9 kilometres was opened to traffic in June 2014.

The EIB and the World Bank have funded four new sections within the above four main sections (lots), which have been marked as high priorities by the Government of the Federation of Bosnia and Herzegovina. These sections are:

- Section 1: Drivuša – Kakanj, section within the Lot 2 (15.2 kilometres);
- Section 2: Vlakovo – Tarčin, section within the Lot 2 (20 kilometres);
- Section 3: Počitelj – Bijača (south border with the Republic of Croatia) within the Lot 4 (20 kilometres);
- Section 4: Odžak – Svilaj (north border with the Republic of Croatia) within the Lot 1 (10 kilometres).

The completion of the first three sections was realised during 2014 and the construction of the fourth section was finished in December 2017. Thus the total constructed length of the Corridor Vc motorway in Bosnia and Herzegovina is about 125 kilometres, making around 37% of the total motorway length already completed.

In addition to the traffic volume and bottlenecks on particular sections of the state road M17, the good reason for the construction of the motorway on Corridor Vc is represented by the fact that this transport route is naturally oriented (the valley of rivers Neretva and Bosna), that there are about 56% of the Bosnia and Herzegovina population and about 59% of the total number of employees concentrated around the Corridor, and that this area generates 63% of the national GDP [12]. Therefore, within the Bosnia and Herzegovina roadways developmental plans for market performance, the Corridor has a significant role as a motorway with very large financial incomes envisaged to be possibly generated in the near future. It should be noted that the current economic crisis has significantly reduced the planned investment due to the lack of funds and this has consequently delayed the construction of the motorway A1.

In addition to the construction of the Corridor Vc, the construction of the Adriatic-Ionian motorway (Trieste - Rijeka - Zadar - Split - Dubrovnik - Tirana - Athens) has been planned as well. There are different views on the possible route of the future Adriatic-Ionian motorway. Thus, one of the plans envisages the route passing through Croatian territory until Osojnika, and the second route entering the Bosnia and Herzegovina territory and passing through the Popov field. The construction of this part of the motorway has been still short of a clear definition.

The final route of the Adriatic-Ionian Corridor will be defined later after the completion of the Feasibility Study and the Study of Environmental Protection for both routes in order to define which section has a better economic efficiency. It could be estimated that the completion of the Adriatic-Ionian motorway up to the border with Montenegro will not be realized in the 10 year period.

A more efficient exploitation of road Corridors on the Bosnia and Herzegovina territory gives a basis for growth in the traffic in transit from the direction of Romania, Bulgaria, Turkey, Greece and Serbia towards Southwest and Central Europe.

It can be summarized that in the following 10 year period the construction of the motorway on the Corridor Vc from the port of Ploče to Budapest will be completed. Consequently, the port of Ploče will significantly increase its competitiveness in the gravitational area outside Bosnia and Herzegovina.

3.1. Analysis of road distances and travel time from the port of Ploče and gravitational centres

The efficiency and quality of the road transport service to the hinterland mainly depends on the road distance. In the following tables the existing and planned road distances and travel times from the port of Ploče to the main centres/cities in the gravitational area are presented. In addition, a comparison is carried out for the port of Ploče and the neighbouring competitive port of Rijeka.

Table 2 - Road distance and approximate travel time from the ports of Ploče and Rijeka to relevant gravitational centres

Road distance and approximate travel time				
GRAVITATIONAL CENTRE	PLOČE		RIJEKA	
	km	h	km	h
Sarajevo	195	3:00	576	7:22
Tuzla	294	4:33	487	5:35
Beograd	493	7:14	558	5:45
Bosanski Šamac	376	5:52	397	4:07
Đakovo	408	6:30	404	4:08
Osijek	458	7:00	440	4:37
Budapest	711	9:52	509	5:13

Source: Adopted from [16]

The port of Rijeka, as a starting point of the Pan – European Corridor V – Vb branch, in relation to the port of Ploče is currently more competitive for the delivery/dispatch of cargo from/to all the observed economic centres situated in the hinterland, except for Sarajevo and Tuzla which are considered natural gravitational areas of the port of Ploče.

Table 3 shows the expected road distances between the port of Ploče and transport centres in the hinterland after the completion of the motorway through the Pan – European Corridor V – Vc branch as well as the expected approximate travel times.

Table 3 - Expected road distance and travel time between the port of Ploče and the gravitational centres after the construction of the motorway Ploče – Sarajevo – Osijek – Budapest.

Expected approximate road distance and travel time						
GRAVITATIONAL CENTRE	PLOČE - motorway		PLOČE – existing road		Differences	
	km	h	km	h	km	h
Mostar	73	1:00	66	1:00	0	0
Sarajevo	146	1:53	195	3:00	-49	-1:07
Tuzla	271	3:00	294	4:33	-23	-1:33
Bosanski Šamac	350	3:47	376	5:52	-26	-2:05
Beograd	525	5:40	551	7:45	-26	-2:05
Đakovo	387	4:00	408	6:30	-21	-2:30
Osijek	437	4:30	458	7:00	-21	-2:30
Budapest	667	6:55	711	9:52	-44	-2:57

Source: Adopted from [16]

It is noticeable that the road distance and particularly the travel time will be significantly shorter after the completion of the motorway. The most essential savings in the travel time will be for the area of central and northern Bosnia and Herzegovina (Sarajevo, Tuzla and Bosanski Šamac) with the travel time reduction exceeding 30%.

The new motorway Ploče – Sarajevo – Osijek – Budapest will be the backbone of the transport route that connects the port of Ploče with its gravitational area. With the construction of a new motorway Ploče – Budapest the shortening of travel time to Budapest from the current 10 hours to approximately 7 hours has been envisaged. Likewise, the road connection between Ploče and Beograd via Sarajevo shortens the cargo traffic travel time by approximately 1.5 hour. Once the project will have been realized, the length of the motorway Ploče - Budapest will be 667 kilometres.

By reducing travel times to the gravitational hinterland the port of Ploče will become more competitive for the transport of goods to/from certain economic centres. Thus, the road transport travel time from Ploče and Rijeka to Osijek and Belgrade will be almost the same.

It should be emphasised that after the construction of the motorway on the Corridor Vc the travel time from port of Rijeka to Budapest will remain significantly shorter as compared to the travel time from the port of Ploče by approximately 1,5 hour. Thus, it can be concluded that the port of Ploče could become quite competitive with the port of Rijeka in terms of travel time for cargo transports up to Budapest.

4. Conclusion

Given that the road connections linking the port of Ploče are not at the appropriate level and the existing share of road in the transport of goods which have their source or destination in the port of Ploče is approximately 80%, the construction of a modern motorway towards the gravitational market imposes itself as a necessity.

In that sense, the current plan for modernisation of the road infrastructure is based on further development and construction of a motorway on the Corridor Vc in Bosnia & Herzegovina towards Sarajevo and onwards to the state border between Croatia and Bosnia & Herzegovina. Only with the realisation of the motorway project the precondition for significant reduction in transport time to the existing and new hinterland areas outside Bosnia & Herzegovina will be possible, while conditions for greater traffic exploitation rate on the port of Ploče transport route will be improved.

An important prerequisite for the efficient operation of Ploče as a transit port for Central European countries and for further economic development of the areas in its hinterland is the modernization of road transport links between the hinterland and the port. As the most important transport route having the starting point at the port of Ploče, the Corridor Vc serves both by road and rail links the Central European region (Austria, Czech Republic, Slovakia, Hungary, Bosnia & Herzegovina, Serbia) as strategic transit markets.

The Transport Corridor Vc should have adequate modern transportation infrastructure that would enable the expansion of the port of Ploče and the entire transport route. Corridor Vc is a link between North - Central and Southern Europe and represents an excellent value in the context of economic and trade integration of Central Europe. The construction of a new motorway Ploče - Budapest will enable significant shortening of travel time and improve roadway connections of South East Europe with its central and western parts, thus greatly improving traffic exploitation conditions on the port of Ploče transport route.

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Utjecaj cestovne povezanosti na jačanje konkurentnosti luke Ploče

Sažetak

Zahvaljujući svojem zemljopisnom položaju, luka Ploče je postala prometno čvorište kopnenih i pomorskih puteva u okviru Transportnog Koridora Vc, kao dijela Sredozemnoga Transportnog Koridora, prolazeći kroz Bosnu i Hercegovinu, Hrvatsku i Mađarsku. Ovaj rad donosi analizu prometnih puteva koji vode iz luke Ploče te procjenu odnosnog opsega cestovnog prometa. Iako je opterećenost određenih cestovnih dionica povezana s turističkim provoznim prometom, opseg cestovnog prometa na Transportnom Koridoru Vc u Bosni i Hercegovini ukazuje na nužnost izgradnje autoceste koja bi proširila Koridor. Planirana modernizacija će temeljito unaprijediti infrastrukturu glavnih prometnica na Transportnom Koridoru Vc koja će omogućiti prijevoz roba i skratiti trajanje putovanja od luke Ploče do unutrašnjosti. Budući da se za veći dio prijevoza tereta iz luke Ploče koriste usluge cestovnog prijevoza, predviđena modernizacija će značajno pojačati konkurentnost te luke, uglavnom zahvaljujući intermodalnom načinu prijevoza.

Ključne riječi: Transportni Koridor Vc, luka Ploče, cestovni promet.

