



CETRA²⁰¹⁴

3rd International Conference on Road and Rail Infrastructure
28–30 April 2014, Split, Croatia

Road and Rail Infrastructure III

Stjepan Lakušić – EDITOR

Organizer
University of Zagreb
Faculty of Civil Engineering
Department of Transportation



CETRA²⁰¹⁴

3rd International Conference on Road and Rail Infrastructure
28–30 April 2014, Split, Croatia

TITLE

Road and Rail Infrastructure III, Proceedings of the Conference CETRA 2014

EDITED BY

Stjepan Lakušić

ISSN

1848-9850

PUBLISHED BY

Department of Transportation
Faculty of Civil Engineering
University of Zagreb
Kačićeva 26, 10000 Zagreb, Croatia

DESIGN, LAYOUT & COVER PAGE

minimum d.o.o.

Marko Uremović · Matej Korlaet

PRINTED IN ZAGREB, CROATIA BY

“Tiskara Zelina”, April 2014

COPIES

400

Zagreb, April 2014.

Although all care was taken to ensure the integrity and quality of the publication and the information herein, no responsibility is assumed by the publisher, the editor and authors for any damages to property or persons as a result of operation or use of this publication or use the information's, instructions or ideas contained in the material herein.

The papers published in the Proceedings express the opinion of the authors, who also are responsible for their content. Reproduction or transmission of full papers is allowed only with written permission of the Publisher. Short parts may be reproduced only with proper quotation of the source.

Proceedings of the
3rd International Conference on Road and Rail Infrastructures – CETRA 2014
28–30 April 2014, Split, Croatia

Road and Rail Infrastructure III

EDITOR

Stjepan Lakušić

Department of Transportation

Faculty of Civil Engineering

University of Zagreb

Zagreb, Croatia

CETRA²⁰¹⁴

3rd International Conference on Road and Rail Infrastructure

28–30 April 2014, Split, Croatia

ORGANISATION

CHAIRMEN

Prof. Stjepan Lakušić, University of Zagreb, Faculty of Civil Engineering

Prof. Željko Korlaet, University of Zagreb, Faculty of Civil Engineering

ORGANIZING COMMITTEE

Prof. Stjepan Lakušić

Prof. Željko Korlaet

Prof. Vesna Dragčević

Prof. Tatjana Rukavina

Assist. Prof. Ivica Stančerić

dr. Maja Ahac

Ivo Haladin

dr. Saša Ahac

Josipa Domitrović

Tamara Džambas

All members of CETRA 2014 Conference Organizing Committee are professors and assistants of the Department of Transportation, Faculty of Civil Engineering at University of Zagreb.

INTERNATIONAL ACADEMIC SCIENTIFIC COMMITTEE

Prof. Vesna Dragčević, University of Zagreb

Prof. Isfendiyar Egeli, Izmir Institute of Technology

Prof. Rudolf Eger, RheinMain University

Prof. Ešref Gačanin, University of Sarajevo

Prof. Nenad Gucunski, Rutgers University

Prof. Libor Izvolt, University of Zilina

Prof. Lajos Kisgyörgy, Budapest University of Technology and Economics

Prof. Željko Korlaet, University of Zagreb

Prof. Zoran Krakutovski, University of Skopje

Prof. Stjepan Lakušić, University of Zagreb

Prof. Dirk Lauwers, Ghent University

Prof. Zili Li, Delft University of Technology

Prof. Janusz Madejski, Silesian University of Technology

Prof. Goran Mladenović, University of Belgrade

Prof. Otto Plašek, Brno University of Technology

Prof. Vassilios A. Profillidis, Democritus University of Thrace

Prof. Carmen Racanel, Technical University of Civil Engineering Bucharest

Prof. Tatjana Rukavina, University of Zagreb

Prof. Andreas Schoebel, Vienna University of Technology

Prof. Mirjana Tomičić-Torlaković, University of Belgrade

Prof. Audrius Vaitkus, Vilnius Gediminas Technical University

Prof. Nencho Nenov, University of Transport in Sofia

Prof. Marijan Žura, University of Ljubljana



TOWARDS MAXIMIZATION OF THE ADDED VALUE OF STRATEGIC INFRASTRUCTURE PROJECTS IN SOUTH EAST EUROPE THROUGH IMPROVEMENTS AT BORDER CROSSING POINTS

Marios Miltiadou, Efstathios Bouhouras, Christos Taxiltaris, George Mintsis
*Aristotle University of Thessaloniki, Faculty of Rural and Surveying Engineering,
Dept. of Transportation and Hydraulic Engineering, Greece*

Abstract

South East Europe (SEE) is a particular region of Europe regarding transport infrastructure development and international transport operations, due to the fact that the region includes an interrupting zone of the Trans-European Transport Networks (TEN-T), namely the Western Balkans (WB) countries. Concerning strategic transport infrastructures development, substantial investments have been made during the last decades or are underway. In the current period of economic recession, the TEN-T programme and the programme for the development of the SEE Comprehensive Transport Network still promote large infrastructure projects, but seek to ensure maximum return of investments. Major obstacle for the maximisation of the benefits and return of investments, but also for increased accessibility and mobility, is the existence of borders along the main international routes crossing SEE. In mid-2013 Croatia accessed European Union and the same is foreseen for the rest of the WB countries, but with it is unknown when this will be realised. Therefore, borders will remain for long time ahead and continue to impede international transport. In the framework of “Accessibility improved at border CROSSings for the integration of SEE” project (ACROSSEE) a large survey campaign has been performed, in order to register the current situation at several Border Crossing Points (BCPs) of the region. Specifically, questionnaire-based and field surveys have been performed at 30 Road and 29 Rail BCPs, which comprised observations of border procedures, registration of waiting and procedural times, interviews of BCPs authorities and truck drivers, etc. This paper presents the surveys’ methodology and preliminary results, targeting at defining short term measures and recommendations for the facilitation of trade and transport in SEE.

Keywords: transport infrastructure, border crossings, international transport and trade facilitation, South East Europe, ACROSSEE

1 Introduction

SEE region is still a discontinuity zone of the TEN-T. The authors in the recent past [1] discussed about the planning experience and the perspectives for strategic transport infrastructure development in the region in the context of European Transport Policy, based inter alia on the SEE Transport Axis Cooperation (SEETAC) project [2]. SEETAC (a project also co-funded by the SEE Programme), elaborated while the TEN-T new regulation was still under preparation, concluded to priority transport infrastructure projects, but moreover to the ascertainment that large scale infrastructure projects implementation in a period of scarcity of funds should be very carefully planned, considering that capacity limitations are rare in the region and that it is very important to tackle the problems of interconnectivity of the SEE network with the TEN-T

and the problems at border crossings. In other words, why spend millions in large infrastructures that have long preparation period under the current circumstances just to save minutes in travel time and why not reduce times at borders from hours just by half in the short term? While for the first time the TEN-T guidelines [3] include indicative maps of the TEN-T extensions in SEE and indicating the important interconnecting points, the ACROSSEE project, co-funded by the SEE Transnational Cooperation Programme [4], had set an ambitious goal to survey and identify the problems for international transport, with special focus on border crossings. The project's technical activities are divided in three main pillars: a) the establishment of an institutional platform and enhanced administrative cooperation for transport development and facilitation of movement of passengers and goods in the region, b) the development and use of a transport model to assess the existing and future bottlenecks and the needs for short term improvements and c) the analysis of border crossings in order to identify problems and measures to ease up international traffic.

This paper presents the methodology and preliminary findings of the cross border surveys and analysis in the framework of ACROSSEE.

2 Methodology for the surveys

The surveys in the framework of ACROSSEE had been planned to serve both the needs of the analysis of border crossings and the transport model development. Especially for the latter, it is quite common that the border authorities and national agencies provide traffic data that most of the times differ. Therefore, it was decided to perform two-day traffic counts at Road BCPs and five-day traffic counts at Rail BCPs, to capture the rail traffic irregularities during a working week.

These traffic surveys have been only part of an extensive field survey, which was finally conducted by the project partners in each country at selected BCPs along the main international transport corridors in the region, in the periods May – June and September – October 2013, i.e. excluding the summer season. The surveys' part regarding BCPs operation comprised autopsies and questionnaire-based surveys addressed to the authorities present at each BCP and to truck drivers. In parallel, questionnaire-based survey addressed to the National Customs Agencies and the ministries responsible for borders and Customs of the involved countries was conducted (this way they were informed also about the BCPs surveys and on-site visits). Other relevant questionnaire-based surveys also performed concerned the different stakeholders, transport operators and enterprises active in SEE.

2.1 Field of survey

A major issue to confront during the planning of the surveys was the different statuses of the various SEE countries (EU member state, Schengen Treaty country, non EU member state). As a result different approaches were followed in each case: In the case of two bordering Schengen countries only traffic flows data could be performed, since stops are not obligatory and no controls are performed at those border points. In all other cases, of two neighbouring non-Schengen countries, of an EU country or a Schengen country with a non-EU country the entire set of surveys had been planned to be implemented.

As a result, the surveys had been planned to be performed at 35 Road BCPs and 30 Rail BCPs, as listed in Table 1 and presented in Figure 1. However, the BCPs actually surveyed are less, mainly due to the fact that in specific cases the surveys couldn't be performed due to unforeseen circumstances, misspecification of the BCPs names or actual operation (e.g. Vidin – Calafat Danube Bridge II was not yet operational, another BCP was dedicated only to passenger vehicles, etc.).

Table 1 BCPs selected to be surveyed in the framework of ACROSSEE

No	Country/ Bordering Country	Rail BCPs	Road BCPs
1	SI/ HR	Dobova/ Savski Marof	Obrezje/ Bregana
2	HR/ RS	Tovarnik/ Sid	Lipovac/ Batrovci
3	RS/ FYRoM	Ristovac	Preševo
4	AL/ ME	Bajza	Hani I Hotit
5	EL/ FYROM	Idomeni	Ezonoï
6	EL/ BG	Promachonas/ Kulata	Promachonas/ Kulata
7	EL/ AL	–	Krystallopigi/ Kapshticë
8	EL/ AL	–	Kakavia/ Kakavijë
9	RS/ BG	Dimtrovgrad/ Dragoman	Gradina/ Kalotina
10	BG/ RO	Vidin/ Calafat (not operational)	Vidin/ Calafat
11	RO/ BG	Giurgu/ Ruse	Giurgu/ Ruse
12	RO/ MD	Holboca	Vama Albita
13	HU/ UA	Záhony	Záhony
14	RO/ HU	Curtici/ Lőkősháza	Oradea-Bors/ Ártánd
15	HR/ HU	Koprivnica/ Gyékényes	Gorican/ Letenye
16	HR/ BA	Slavonski Šamac	Županja
17	RS/ HU	Subotica/ Kelebia	Horgoš/ Roszke
18	RS/ BA	Brasina	Trbusnica
19	RS/ ME	Koprovat	Vrbnica
20	RS/ RO	Vatin/ Stamura Moravița	Vatin/ Moravița
21	BG/ TR	Svilengrad	Kapetan Andreevo
22	UA/ RO	Dornești	Siret
23	AL/XK	–	Morine

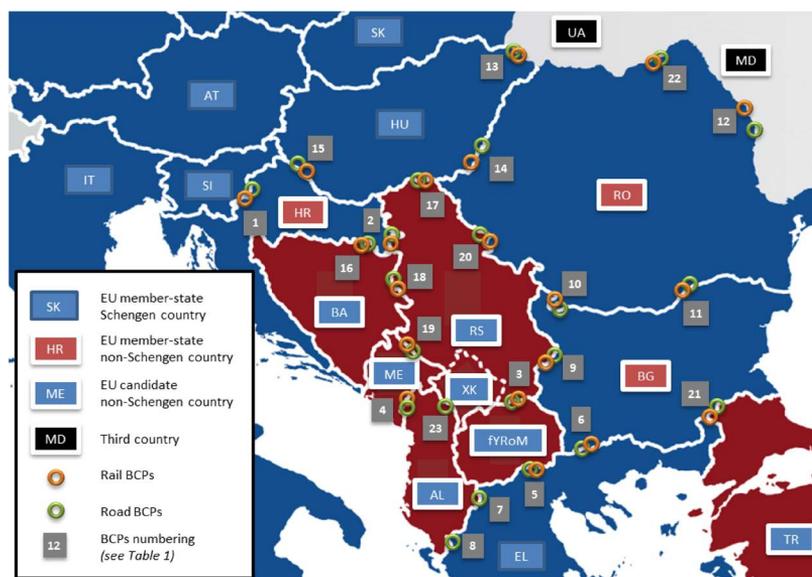


Figure 1 BCPs surveyed in the framework of ACROSSEE

2.2 Tools used

The questionnaires were developed on the basis of those used in relevant surveys performed in the past by the same team at the Road and Rail BCPs along the Pan – European Corridor X [5], and thus their effectiveness had been successfully tested. These questionnaires were further improved, in order to cover the scope of the surveys; for example they included a part referring to the “mirror” BCPs, to cover the cases that they were not surveyed because not all SEE countries are represented in ACROSSEE project.

2.2.1 BCPs’ Authorities questionnaires

The questionnaires addressed to the authorities of the BCPs were obviously different for the Road and Rail BCPs, following however a similar structure, in parts with thematically more or less common requested information:

The first part of the questionnaires concerned the general description of the station’s infrastructure (available lanes/ tracks and their distribution, buildings, power and water supply, lighting), facilities (banks, restaurants, coffee-shops, duty free shops, etc.) and equipment (X-Rays machines, weighbridges, telephone and internet connections, tracing means, service lines and storage areas); including an assessment of their condition.

The second part referred to the operation of the station. Specifically, it included details about the agencies present (Customs, Border Police, Veterinary and Phyto-sanitary services), about their working hours and their sufficiency (in terms of number of staff, level of knowledge of computer and English).

Moreover, this second part incorporated questions in tabular form, concerning the minimum, average and maximum waiting and procedural times per type of vehicle/ train and the times. It also included questions regarding the foreseen procedures and their sequence, and details such as if some of the procedures are performed simultaneously or at separate areas. Furthermore, information concerning the cooperation and communication of the BCP authorities with those of the neighbouring BCP were also enquired.

The third part contained statistics requirements concerning traffic flows of the previous years (on annual basis), traffic characteristics (e.g. peak periods during day/week/month/year), percentage of transits, percentage of empty trucks, percentage of traffic requiring phyto-sanitary or veterinary controls, etc.). Finally, a request for estimation of the BCP’s capacity usage by the authorities was included.

The fourth and last part of the questionnaires was specifically dedicated to the level of cooperation with the adjacent BCPs and the identification of any problems occurred at the station from the performance of the neighbouring BCP. Additionally, the authorities were asked to state the main problems of the BCP and about future development plans.

2.2.2 National Customs Agencies questionnaires

The questionnaire addressed to the National Custom Agencies has been developed in order to obtain information on the legislation under which the BCPs perform, the policies adopted and applied (including implementation of Integrated Border Management strategies) and finally the best practices application on issues concerning the BCPs spatial and internal organization and operation.

2.2.3 Truck drivers questionnaire

Finally, the questionnaire for truck drivers included questions about the type and weight of transported commodities, the origin and destination points and the route followed for the specific trip but also for other trips of the same driver, the waiting time and the time needed for the procedures to be performed and the problems perceived by the driver at the specific BCP as well as other BCPs along the route.

2.3 Application of the tools

It has been planned from the beginning that the surveys at BCPs should be combined with the traffic counts and therefore, in order that the BCPs authorities would have prepared the statistics data requested, the questionnaires addressed to the BCPs and the National Customs Agencies had been sent out initially and then the field surveys (traffic counts, autopsies, interviews) followed.

All data collected by the various partners have been submitted in appropriate templates and an integrated database for all BCPs has been developed for the analysis. The analysis, especially of the data concerning waiting times, procedural times and the main problems of the BCPs, included comparison of the data collected by the BCPs authorities with the respective data collected from the National Custom Agencies and other sources (e.g. enterprises, transport operators and associations) and – especially for the cases of Road BCPs – from the drivers of commercial vehicles crossing the BCPs. Most important results of the on-going analysis are presented in the following paragraphs.

3 Data analysis

The results of the analysis are presented in the series of figures below and refer to the pairs of Road and Rail BCPs as presented in Table 1 and Figure 1. Figure 2 illustrates the evaluation of the level of equipment and installations for 29 Rail BCPs and 29 Road BCPs (where relevant data have been obtained). The majority of the Road BCPs are experiencing lack of equipment of phyto-sanitary controls. Moreover, the existence of the necessary tracing means at Road BCPs increase the time for the controls. The equipment and installations of Rail BCPs overall are in good level, except the equipment of phyto-sanitary controls, which do not exist.

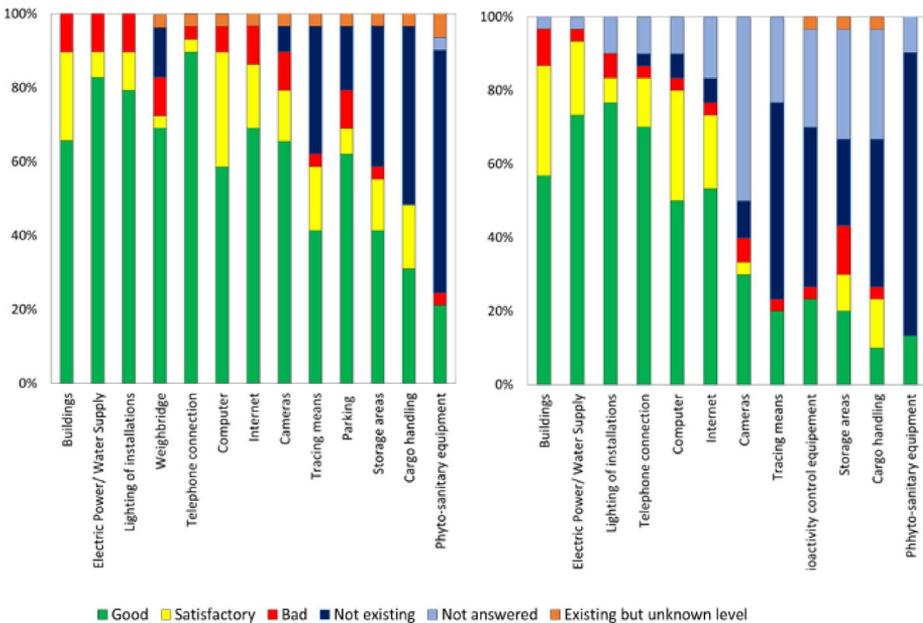


Figure 2 Aggregation of Road (right) and Rail (left) BCPs self-evaluation on the level of existing infrastructure and equipment

Figure 3 presents the Road and Rail BCPs evaluation of capacity usage (%) on daily basis, as assessed and estimated by the BCPs authorities. Overall, many Rail BCPs have higher unexploited capacity due to the low traffic and many Road BCPs cannot serve more traffic (even it is low) due to the existing problems, mainly regarding understaffing and lack of equipment.

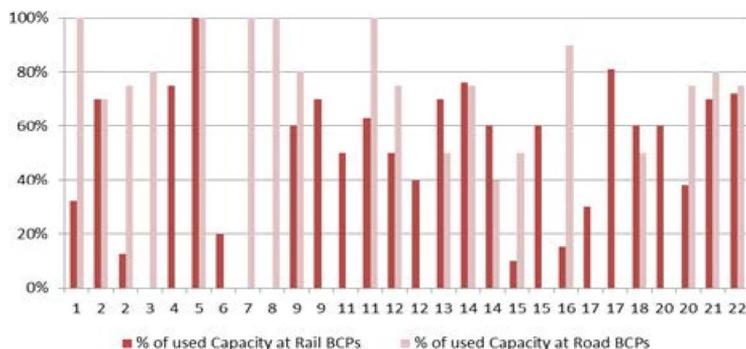


Figure 3 Single BCPs self-evaluation of daily capacity usage (%)

In Figure 4 are presented the total time for crossing a pair of BCPs as the average of the times required to do this in both directions. Where data refer to only one BCP (and not a pair) this is indicated by an asterisk (*), while if no data exist for a BCP the value appearing in the diagramme is zero.

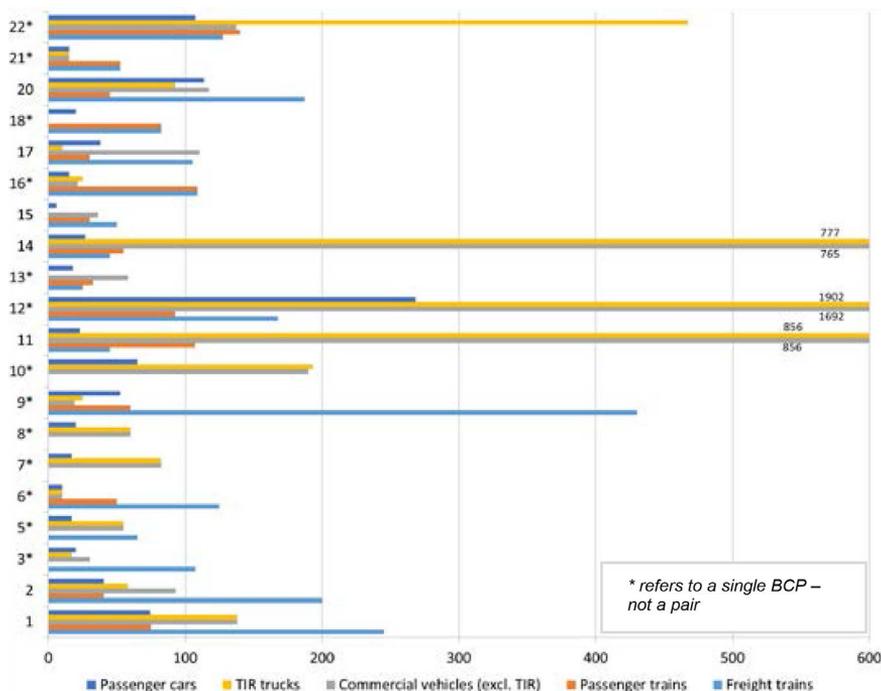


Figure 4 Total (waiting and procedural) transit times for crossing each pair of Road and Rail BCPs (average in both directions, in minutes)

As expected, commercial vehicles and freight trains face the most significant problems in terms of waiting and procedural times required. The reason for this is the inexistence of appropriate equipment and the insufficiency of working staff (in terms of number and not effectiveness). At Rail BCPs the main reason of delays is the change of locomotive and the unavailability of locomotives in the neighboring country, which usually is not ensured for hours. The following figures present the comparison of data obtained from the BCPs users. Figure 5 presents the average transit times reported by rail operators for five BCPs with the values reported by the respective Rail BCPs authorities. Times reported by operators are much higher than those reported by BCPs authorities (this does not apply only at one BCP).

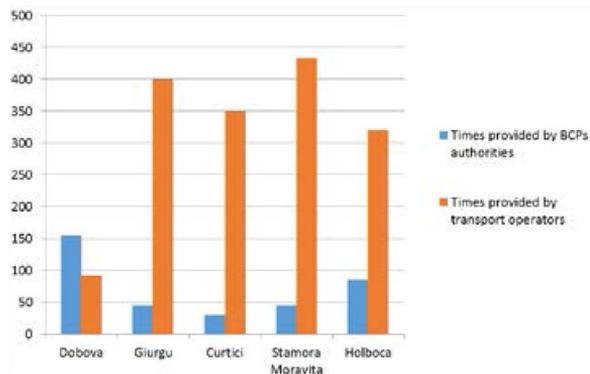


Figure 5 Comparison of total (waiting and procedural) transit times reported by users and BCPs authorities at 5 single Rail BCPs (average in both directions, in minutes)

Figure 6 presents a comparison of the transit times reported by BCPs authorities with the respective reported by truck drivers. It clearly shows the difference on how the users and BCPs authorities perceive the times spent at borders, even though users could exaggerate. However, there are several cases, for which the total transit times reported by the BCPs authorities oversubscribed the respective time reported by the truck drivers. Only two are the cases for which the times reported both by the BCPs authorities and the truck drivers were similar. The reasons for these differences in the times reported in order to be fully understood must be linked with the problems reported at each BCP both by the authorities and the truck drivers (in the majority of the cases they both have the same perception in this issue) and be fully analysed case by case, which exceeds the purpose of the current paper.

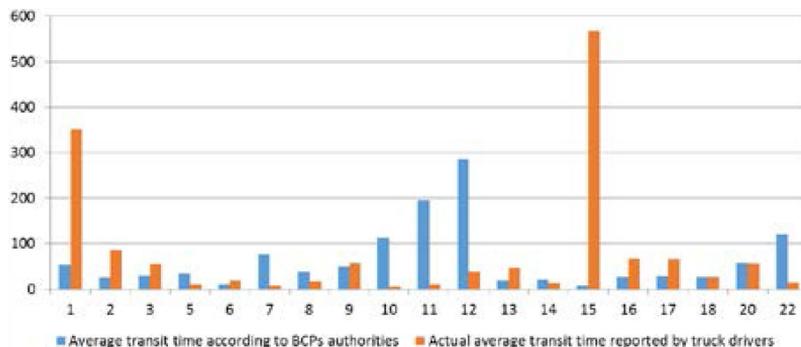


Figure 6 Comparison of total (waiting and procedural) transit times reported by truck drivers and BCPs authorities (average in both directions, in minutes)

Figure 7 presents a comparison of the transit times required at some BCPs according to the ACROSSEE survey with times reported by truck drivers and have been extracted from diagrammes of the International Road Transport Union (IRU) during various periods in the past, and thus the comparison is indicative. However, it clearly presents the difference on how the users and BCPs authorities perceive the times spent at borders, even though users could exaggerate.

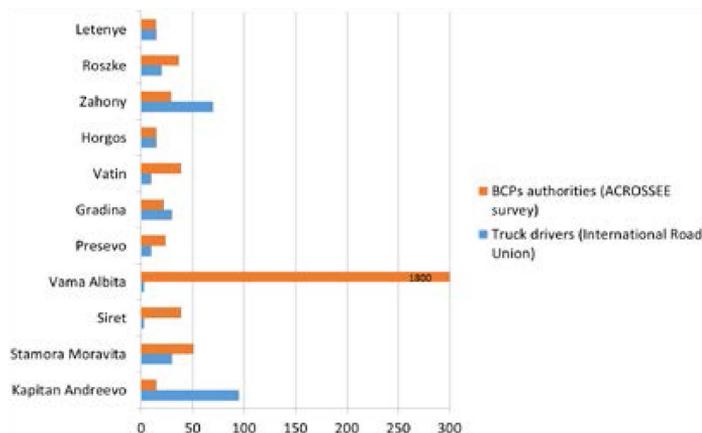


Figure 7 Comparison of total (waiting and procedural) transit times reported by truck drivers to IRU and by BCPs authorities at 11 single Road BCPs (average in both directions, both for TIR / non-TIR trucks, in minutes)

4 Conclusions

As experience shows from previous similar surveys, many problems could emerge, mainly due to a) the nature of the subject, i.e. regarding sensitivity of data related to borders that lead to unwillingness of some BCPs authorities to provide data or actual information and b) the large geographical coverage and the simultaneous performance of the surveys that make the supervision a very hard task, if not impossible (at least for the developer of the surveys' methodology).

The BCPs surveyed (presented in bold in Table 1) might not represent all the BCPs of the region, but certainly represent the majority of them along the most important international routes. Moreover, the biggest part of the surveys were conducted before the accession of Croatia in the EU, and thus the effects on BCPs operation, due to the displacement of the EU external borders, are not reflected in this analysis.

The knowledge of the current situation and the identification of the problems are the cornerstone for providing solutions. This applies also to the specific case of BCPs in the framework of ACROSSEE. Even having to face specific difficulties due to the particularities of the subject and – mainly – due to its sensitivity that additionally hampers data collection, the volume and quality of the data collected are considered satisfactory for the scope of the project.

More thorough analysis of the BCPs and, after the transport model is established, the representation of the main international transport corridors in time-distance diagrammes with the presentation of all bottlenecks at BCPs, other nodes or links of the road and rail networks (also in terms of capacity shortage) are expected to highlight the importance of the time lost at each BCP.

The results of the surveys, despite any weaknesses, can present the problem of border crossings at its real dimension, and could be a mean for highlighting the importance of measures

at BCPs, versus large-scale infrastructural investments, which require substantial maturity, financing and implementation time. These measures could bring equal or more benefits in terms of travel time reduction, minimal risks for environmental degradation, within shorter period of time and with submultiple investment costs.

ACROSSEE results in general could affect decision making, by enhancing the argumentation of the permanently affected and potentially benefited communities (importers, exporters, transport operators, chambers, etc.) against the politically driven large-scale projects, which are differentiated many times according to the switching of persons in the governments and Ministries of the various countries.

The facilitation of transport of persons and goods should be a permanent point of national agendas. The framework offered by the EU to its member states, as well as the efforts of the non-EU countries towards the integrated border management according to international best practices that are promoted by the international organisations, comprise a promising framework, which is anticipated to be further enhanced very soon, with the establishment of the Transport Community Treaty in South East Europe (between the EU and Western Balkan countries).

References

- [1] Miltiadou, M., Basbas, S., Mintsis, G., Taxiltaris, C. & Tsakiropoulou, A.: Transport infrastructures in South East Europe. The planning experience and perspectives in the context of the European Transport Policy”, 2nd International Conference on Road and Rail Infrastructure (CETRA 2012), Department of Transportation Faculty of Civil Engineering, University of Zagreb, 7 – 9 May 2012, Dubrovnik, edited by Stjepan Lakušić, ISBN 978-953-6272-50-1, pp. 203-212.
- [2] SEE/A/071/3.3/X “South Eastern European Transport Axis Cooperation” (SEETAC) Project, Transnational Cooperation Programme South East Europe, Mobility report in the SEETAC study area, 2012.
- [3] European Union: Regulation No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU.
- [4] SEE/D/0093/3.3/X “Accessibility improved at border CROSSings for the integration of South East Europe” (ACROSSEE) Project, Transnational Cooperation Programme South East Europe, Shared methodology for common standards analysis on border crossing points, 2013.
- [5] Miltiadou, M., Taxiltaris, C., Mintsis, G. & Basbas, S.: Border crossings along the Pan-European Corridor X: Infrastructural and procedural improvements and derived benefits, 12th World Conference on Transport Research (WCTR '10), Lisbon, 11 – 15 July 2010, Proceedings paper ID 2783, pp. 1-25.
- [6] International Road Transport Union, Border Waiting Times Observatory, <http://www.iru.org/bwt-app>.