TA to Connectivity in the Western Balkans EuropeAid/137850/IH/SER/MULTI

**Sub-Project** 

Code: CONNECTA-TRA-CRM-REG-04 Area: Connectivity Transport Reform Measures

Study for border crossing facilitation and improvement of the crossborder road transport on the indicative extension of TEN-T Road Core/Comprehensive Network in the Western Balkans

> FINAL REPORT (DRAFT) 12 April 2019





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# List of abbreviations

| AEO      | Authorised Economic Operator   |
|----------|--|
| ALB/AL   | Albania  |
| AO       | Administrative Order   |
| ANPR     | Automatic Number Plate Recognition                                     |
| ARA      | Albanian Roads Authority   |
| ВСР      | Border Crossing Point  |
| ВіН      | Bosnia and Herzegovina   |
| СА       | Contracting Authority  |
| CAGR     | Compound Annual Growth Rate  |
| САРЕХ    | Capital expenses   |
| СВР      | Cross Border Procedures (also acronym of present Connecta sub-project) |
| ССР      | Common Crossing Point  |
| CNC      | Core Network Corridor  |
| Connecta | Technical Assistance to Connectivity in the Western Balkans            |
| CONNECTA | The MMD led Consortium implementing Connecta                           |
| CRM      | Connectivity Reform Measures   |
| CRMMP    | Connectivity Reform Measures Management Plan                           |
| DG MOVE  | Directorate-General for Mobility and Transport                         |
| DG NEAR  | Directorate-General for Neighbourhood and Enlargement Negotiations     |
| EBRD     | European Bank for Reconstruction and Development                       |
| EC       | European Commission  |
| eQMS     | Electronic Queue Management System                                     |
| EU       | European Union   |
| EUR      | Euro (currency)  |
| FBiH     | Federation of BiH (entity)   |
| FR       | Final Report   |
| IBM      | Integrated Border Management   |
| ICD      | Inland Clearance Depots  |
| ICJ      | International Court of Justice   |
| IFI      | International Financing Institution                                    |
| IFICO    | International Financing Institution Coordination Office                |
| IPA      | Instrument for Pre-accession Assistance                                |

| IPF            | Infrastructure Project Facility                         |  |  |  |  |  |  |  |  |
|----------------|---|--|--|--|--|--|--|--|--|
| ITS            | Intelligent Transport Systems                           |  |  |  |  |  |  |  |  |
| IR             | Inception Report  |  |  |  |  |  |  |  |  |
| JBC            | Joint border crossing/checkpoint                        |  |  |  |  |  |  |  |  |
| jNKE           | Junior Non-Key Expert                                   |  |  |  |  |  |  |  |  |
| KE             | Key Expert  |  |  |  |  |  |  |  |  |
| KfW            | Kreditanstalt fur Wiederaufbau (Bank)                   |  |  |  |  |  |  |  |  |
| КоМ            | Kick-off-Meeting  |  |  |  |  |  |  |  |  |
| КОЅ            | Kosovo <sup>*</sup> (hereinafter referred to as Kosovo) |  |  |  |  |  |  |  |  |
| MAP            | Multi Annual Plan                                       |  |  |  |  |  |  |  |  |
| MED            | Mediterranean (corridor)                                |  |  |  |  |  |  |  |  |
| MKD            | North Macedonia   |  |  |  |  |  |  |  |  |
| MMD            | Mott MacDonald  |  |  |  |  |  |  |  |  |
| MNE/MON        | Montenegro  |  |  |  |  |  |  |  |  |
| MoTC/MoI/MoCTI | Ministry related to Transport and Infrastructure        |  |  |  |  |  |  |  |  |
| MTI            | Ministry of Transport and Infrastructure                |  |  |  |  |  |  |  |  |
| NIPAC          | National IPA Coordinator                                |  |  |  |  |  |  |  |  |
| NKE            | Non-Key Expert  |  |  |  |  |  |  |  |  |
| NSW            | National Single Window                                  |  |  |  |  |  |  |  |  |
| OEM            | Orient East Mediterranean (corridor)                    |  |  |  |  |  |  |  |  |
| OPEX           | Operating expenditure                                   |  |  |  |  |  |  |  |  |
| OSS            | One-Stop Shop   |  |  |  |  |  |  |  |  |
| PD             | Preliminary Design                                      |  |  |  |  |  |  |  |  |
| PDF            | Project Description Form                                |  |  |  |  |  |  |  |  |
| PE             | Public Enterprise                                       |  |  |  |  |  |  |  |  |
| PERS/PE RoS    | Public Enterprise Roads of Serbia                       |  |  |  |  |  |  |  |  |
| PM             | Project Manager   |  |  |  |  |  |  |  |  |
| RCC            | Regional Cooperation Council                            |  |  |  |  |  |  |  |  |
| REG            | Regional  |  |  |  |  |  |  |  |  |
| RFA            | Request for Approval                                    |  |  |  |  |  |  |  |  |
| RS             | Republic of Srpska (entity of BiH)                      |  |  |  |  |  |  |  |  |
| RS             | Road Safety   |  |  |  |  |  |  |  |  |
| RSA            | Road Safety Audit                                       |  |  |  |  |  |  |  |  |
| RSI            | Road Safety Inspection                                  |  |  |  |  |  |  |  |  |

<sup>\*</sup> This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

| RSWG            | Road Safety Working Group   |
|-----------------|---|
| SEETIS          | South East Europe Transport Information System                                      |
| SEETO           | South East Europe Transport Observatory   |
| SNKE            | Senior Non-Key Expert   |
| SRB/SER         | Serbia  |
| SWOT (analysis) | Strengths Weaknesses Opportunities Threats  |
| ТА              | Technical Assistance  |
| TAIEX           | Technical Assistance and Information Exchange instrument of the European Commission |
| TEN-T           | Trans-European Network – Transport  |
| TIR             | "Transports Internationaux Routiers" or "International Road Transport"              |
| TL              | Team Leader   |
| ToR             | Terms of Reference  |
| TRA             | Transport   |
| UNSCR           | United Nations Security Council Resolutions   |
| WB              | Western Balkan  |
| WB6             | Western Balkans 6 countries   |
| WB (G)          | World Bank (Group)  |
| WTO             | World Trade Organization  |
| WTO TFA         | World Trade Organization's Trade Facilitation Agreement                             |

## 1 Synopsis

| Project (sub-project) Title: | Study for border crossing facilitation and improvement of the cross-border road transport on the indicative extension of TEN-T Road Core/Comprehensive Network in the Western Balkans |
|------------------------------|---|
| Project Code:                | CONNECTA-TRA-CRM-REG-04   |
| Area:                        | Connectivity Transport Reform Measures in Western Balkans (WB6)   |
| Contracting Authority:       | European Commission - DG NEAR   |
| Main Beneficiary/Monitoring: | SEETO   |
| End Beneficiaries:           | Albania, Bosnia and Herzegovina, Republic of North Macedonia,<br>Kosovo* (hereinafter referred to as Kosovo), Montenegro, and<br>Serbia   |
| Context:                     | Regional  |
| Consultant:                  | Mott MacDonald Ltd. (UK) in Consortium with COWI A/S, WYG, CeS<br>COWI (CESTRA), TRENECON, SYSTEMA  |
| Administrative Order:        | 24 October 2017   |
| Mobilisation of NKEs:        | 07 November 2017 (Kick-off Meeting with SEETO)  |
| Sub-Project Duration:        | 16 months   |
| Anticipated completion:      | 30 April 2019   |
| Responsible Transport KE:    | Kostas Georgiou   |

<sup>\*</sup> This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

## 1.1 Executive Summary

The CONNECTA team has been commissioned to undertake an institutional, technical, economic and financial assessment of all Border Crossing Points (BCPs) and Common Crossing Points (CCPs) on the Core and Comprehensive Road Network in the Western Balkans as part of an initiative to validate the need for and subsequently implement one-stop-shops at BCPs/CCPs located on the core and comprehensive road network, and electronic border queuing management system (eQMS) for those located on the core road network.

The study area for the project is made up of Albania, Bosnia and Herzegovina, Kosovo, North Macedonia, Montenegro and Serbia – together these countries comprise the list of regional participants for this project. Across this area, there are 30 pairs of road border crossing points, plus two common crossing points on the extended TEN-T Road network in the Western Balkans.

The CONNECTA team carried out site visits and interviewed the different authorities responsible for the planning and day-to-day running of the BCPs/CCPs included in the project scope; this was done as part of the feasibility studies completed by CONNECTA to ascertain the business case supporting the implementation of one-stop shops and eQMS. This analysis was then further augmented with SWOT analysis to produce a short list of preferred sites, which were then subjected to a more detailed Cost Benefit Analysis in order to determine if these investments were justified.

Given the wide-ranging needs at each of the BCPs and CCPs evaluated, alternative improvement measures were proposed and subsequently tested. These measures comprised physical improvements, which involved the construction of new infrastructure, as well as softer policy changes and the introduction of information and communications technologies (ICT). Lastly, improvements in other cross-cutting areas and solutions to legal and institutional issues were also identified and recommended to further enhance the benefits of these measures.

Based on technical, financial and economic analyses carried out by the CONNECTA team, the following BCPs/CCPs were carried forward for further elaboration and implementation since there are clear and supportive business cases for these. This conclusion has been reached irrespective of the assumed growth scenario for the implementation of joint border facilities/separated border facilities both for OSS, eQMS or a combination of both, as listed below and illustrated in the adjoining figure:

- Qafe Thane/Kjafasan (OSS)
- Hani I Hotit/Božaj (OSS) MED Corridor
- Bijača/Prud (OSS) MED Corridor
- Neum I/Klek (eQMS) MED Corridor
- Neum II/Zaton Doli (eQMS) MED Corridor (could be implemented also as consolidated separated border facility)
- Gradiška/Nova Gradiška (OSS+eQMS)
- Deve Bair/Gyushevo (OSS)

- Blace/Hani i Elezit (OSS) OEM Corridor
- Batrovci/Bajakovo (OSS + eQMS) MED Corridor
- Horgoš/Rozske (OSS + eQMS) OEM Corridor
- Gradina/Kalotina (OSS + eQMS) OEM Corridor
- Merdare/Merdare (eQMS) OEM Corridor



## 1.2 Project Background

The purpose of the assignment is to undertake an institutional, technical, economic and financial assessment of all border crossing points (BCPs) and some common crossing points (CCPs) on the Core and Comprehensive Road Network in the Western Balkans, in order to implement one-stop-shops (OSS) for a core and comprehensive road network, and an electronic border queuing management system (eQMS) for a number of BCPs/CCPs.

The principal objective is to assist the South-Eastern Europe Transport Observatory (SEETO) Regional Participants in designing suitable systems to manage and facilitate the movement of cross-border road traffic. The expected result will be simpler and more efficient border controls, reduced waiting and processing times and consequently, reduced trade and logistic costs, and improved mobility as measured using metrics such as wait and clearance times.

Preliminary data gleaned from the recent pre-feasibility study on the viability of an electronic queue management system (eQMS) suggests that freight forwarders and road transport companies are suffering from lengthy waiting times in excess of 160 minutes (occasionally stretching to 280 minutes) on the Orient-East/Med corridor (Corridor X). This problem is especially acute in the Western Balkans region. A properly planned one-stop-shop system and/or eQMS, when operational and functional, is expected to reduce that time by half, resulting in significant time and cost savings for road transport companies and customers using lorries to ship goods.

The expected specific objectives of the assignment are as follows:

- Preparing the feasibility study and cost benefit analyses (CBAs) for the implementation of one-stop shop controls at the candidate road BCPs/CCPs; the definition of a road map setting out the strategy to implementing the one-stop shops; and the drafting of international (bilateral) agreements for its implementation on pilot BCPs/CCPs
- Preparing feasibility studies and CBAs for the implementation of eQMS on the five BCPs/CCPs identified by the pre-feasibility study, and subsequently, if proven feasible and provided that there is a clear interest from Regional Participants, developing a pilot system for selected BCPs/CCPs in the next phase

The study area for the project is made up of Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, Serbia and Kosovo. Across this area, there are 30 pairs of road border crossing points, plus two common crossing points on the extended TEN-T Road network in the Western Balkans. The extensions of these corridors are illustrated in the wider EU context in Figure 1.



Figure 1 CONNECTA Study Area Corridors and TEN-T Corridors

Of these, 21 are on the core network and an additional 11 are on the comprehensive network. The list of 32 BCPs/CCPs is shown in Table 1 and illustrated in Figure 2.

| Table 1 List of BCPs / C | CPs |
|--------------------------|-----|
|--------------------------|-----|

| No. | Neighbouring economy<br>(1) | Neighbouring economy<br>(2) | Corridor/Route | Crossing point (1) | Crossing point<br>(2) |  |  |
|-----|-----------------------------|-----------------------------|----------------|--------------------|-----------------------|--|--|
| 1   | Albania                     | North Macedonia             | Corridor VIII  | Qafe Thane         | Kjafasan              |  |  |
| 2   | Albania                     | Greece                      | Corridor VIII  | Kapshtice          | Krystallopigi         |  |  |
| 3   | Albania                     | Montenegro                  | Route 2b       | Hani I Hotit       | Bozaj                 |  |  |
| 4   | Albania                     | Greece                      | Route 2c       | Kakavije           | Ktismata              |  |  |
| 5   | Albania                     | Козоvо                      | Route 7        | Morine             | Vermice               |  |  |
| 6   | Bosnia and Herzegovina      | Croatia                     | Corridor Vc    | Doljani            | Metkovic              |  |  |
| 7   | Bosnia and Herzegovina      | Croatia                     | Corridor Vc    | Віјаса             | Prud                  |  |  |
| 8   | Bosnia and Herzegovina      | Croatia                     | Corridor Vc    | Bosanski Šamac     | Slavonski Šamac       |  |  |
| 9   | Bosnia and Herzegovina      | Croatia                     | Route 1        | Neum (I) NorthWest | Klek                  |  |  |

| No. | Neighbouring economy<br>(1) | Neighbouring economy<br>(2) | Corridor/Route | Crossing point (1)        | Crossing point<br>(2) |  |  |
|-----|-----------------------------|-----------------------------|----------------|---------------------------|-----------------------|--|--|
| 10  | Bosnia and Herzegovina      | Croatia                     | Route 1        | Neum (II) SouthEast       | Zatoni Doli           |  |  |
| 11  | Bosnia and Herzegovina      | Croatia                     | Route 2a       | Gradiska                  | Nova Gradiska         |  |  |
| 12  | Bosnia and Herzegovina      | Montenegro                  | Route 2b       | Hum                       | Scepan Polje          |  |  |
| 13  | Bosnia and Herzegovina      | Serbia                      | Route 3        | Vardiste                  | Kotroman              |  |  |
| 14  | Bosnia and Herzegovina      | Serbia                      | Route 9a       | Karakaj                   | Mali Zvornik          |  |  |
| 15  | North Macedonia             | Greece                      | Corridor Xd    | Medzitlija                | Niki                  |  |  |
| 16  | North Macedonia             | Bulgaria                    | Corridor VIII  | Deve Bair                 | Gyuesevo              |  |  |
| 17  | North Macedonia             | Serbia                      | Corridor X     | Tabanovci                 | Presevo               |  |  |
| 18  | North Macedonia             | Greece                      | Corridor X     | Bogorodica                | Evzoni                |  |  |
| 19  | North Macedonia             | Kosovo                      | Route 6a       | Blace                     | Hani i Elezit         |  |  |
| 20  | North Macedonia             | Bulgaria                    | Route 10       | Novo Selo                 | Zlatarevo             |  |  |
| 21  | Montenegro                  | Croatia                     | Route 1        | Debeli Brijeg             | Karasovici            |  |  |
| 22  | Montenegro                  | Serbia                      | Route 4        | Dobrakovo                 | Gostun                |  |  |
| 23  | Montenegro                  | Serbia                      | Route 6a       | Dracenovac                | Spiljani              |  |  |
| 24  | Montenegro                  | Kosovo                      | Route 6b       | Kula                      | Kulina                |  |  |
| 25  | Montenegro                  | Albania                     | Route 1        | Sukobin                   | Murriqan              |  |  |
| 26  | Serbia                      | Croatia                     | Corridor X     | Batrovci                  | Bajakovo              |  |  |
| 27  | Serbia                      | Hungary                     | Corridor Xb    | Horgos                    | Roszke                |  |  |
| 28  | Serbia                      | Bulgaria                    | Corridor Xc    | Gradina<br>(Dimitrovgrad) | Kalotina              |  |  |
| 29  | Serbia                      | Romania                     | Route 4        | Vatin                     | Stamora<br>Moravita   |  |  |
| 30  | Serbia                      | Bulgaria                    | Route 5        | Vrska Cuka                | Vrska Cuka            |  |  |
| 31  | Serbia                      | Козоvо                      | Route 6a       | Ribarice (CCP)            | Banje (CCP)           |  |  |
| 32  | Serbia                      | Козоvо                      | Route 7        | Merdare (CCP)             | Merdare (CCP)         |  |  |



Figure 2 CONNECTA Study Area with 32 Road BCPs

For the purposes of this project, the OSS and eQMS components are defined as follows:

**One-Stop-Shop (OSS)**: the ability to complete all formalities in one place (i.e. joint controls from the two border sides). It is applied to many administrative processes, especially for the issuance of documents, permits and certificates to citizens. It can also be applied to export, import and transit processes.

The OSS requires that all Border Agencies – primarily Customs and Border Police – operate from a single office. By definition, a road BCP can be organised into two One-Stop-Shops: one on each side of the border or jurisdictional boundary.

This CONNECTA project has a more ambitious goal of creating Joint Border Crossing Points, operating as One-Stop-Shops. This would require the co-location of at least four Border Agencies from two neighbouring Regional Participants/ EU Member States – RP/MS A and RP/MS B – in a single facility to process cross-border traffic. In practice, Border Agencies would operate two windows – one per direction of traffic.



**Electronic Queue Management Systems (e-QMS):** typically consist of three main components: a) the underlying software system; b) a payment system; and c) a camera system. Software is used for pre-booking time slots via an online portal, which provides users with clear step-by-step information starting with a virtual waiting process, arrival and check-in at the waiting area, the actual (physical or in-presence) queuing, and finally exit from the waiting area (using licence plate recognition cameras).

The entire process is streamlined. Information sharing and the data clearinghouse that functions in the back-end of the system without active user participation, allows for background checks to take place in advance of the BCP. The e-QMS is connected with the Border Police's proprietary database, and electronically informs police officers which vehicles should arrive at the BCP and the risk profiles for each.



The ToR required the examination of five (5) BCPs for the implementation of e-QMS. At the onset of the project, the following locations were earmarked for possible e-QMS implementation:

- Batrovci/Bajakovo (SBR/CRO)
- Horgos/Roszke (SRB/HUN)
- Presevo/Tabanovci (SRB/MKD)
- Bogorodica/Evzoni (MKD/GRE)
- Sukobin/Muriqan (MNE/ALB)

The first four BCPs were found to have strong business cases supporting their implementation, as reported in the pre-feasibility report. A fifth location was to have been selected on the basis of the CBA results and in consultation with the Regional Participants. However, following the initial CBA and

feasibility study undertaken by the CONNECTA team, the list of candidates for implementation of the eQMS was subsequently revised and expanded to the following eight locations:

- Batrovci/Bajakovo (SBR/CRO)
- Horgos/Roszke (SRB/HUN)
- Neum I/Klek (BIH/CRO)
- Neum II/Zaton Doli (BIH/CRO)

- Gradina/Kalotina (SER/BUL)
- Merdare/Merdare (SER/KOS)
- Bogorodica/Evzoni (MKD/GRE)
- Presevo/Tabanovci (SRB/MKD)

As presented in the Cost Benefit Analysis Report<sup>1,</sup> the results of the economic and financial analysis undertaken for BCP Presevo/Tabanovci and BCP Bogorodica/Evzoni as stand-alone projects did not produce conclusive evidence supporting planned investments. However, by applying a corridor-based approach, the strategic inclusion of the above border crossings as a cluster is expected to produce catalytic and cumulative effects, due to the benefits to the users of Corridor X (including these two locations which by themselves may not have warranted investment).

The exercise resulted in expanding the list beyond the five originally anticipated BCPs at the start of this assignment.

#### 1.3 Project Reporting

#### 1.3.1 Project Deliverables

The agreed project programme sets out a series of deliverables required in the Terms of Reference for this Technical Assistance assignment. These are listed in chronological order in the table below.

| Out | tputs to date  | Planned<br>Date (*) | Actual<br>Date |
|-----|--|---------------------|----------------|
|     |  | Dute()              | Dute           |
| 1.  | Inception Report   | 07/12/2017          | 05/12/2017     |
| 2.  | Component 1 - Fact finding Report with SWOT analysis, Action 1(**)     | 04/05/2018          | 15/06/2018     |
| 3.  | Component 2 - Fact finding Report with SWOT analysis, Action 1(**)     | 01/06/2018          | 15/06/2018     |
| 4.  | Components 1 and 2 - Feasibility Study, Action 2 (***)                 | 14/09/2018          | 20/09/2018     |
| 5.  | Components 1 and 2 - CBA, Action 3 (***)                               | 31/10/2018          | 09/11/2018     |
| 6.  | Component 1 - Draft Road Map, Action 4 (****)                          | 28/02/2019          | 01/03/2019     |
| 7.  | Component 1 - Draft Template for bilateral agreements, Action 5 (****) | 30/11/2018          | 04/12/2018     |
| 8.  | First draft of final report - components 1 and 2                       | 15/03/2019          | 10/04/2019     |
| 9.  | Final Plan for Legal/ institutional restructuring, Action 4            | 28/02/2019          | 12/03/2019     |
| 10. | Final report for Components 1 and 2                                    | 19/04/2019          | n.a.           |

N.B.:

(\*) In accordance to latest revised work plan (December 2018)

(\*\*) One single report (comprising both components), as per agreement with SEETO

(\*\*\*) Single reports (comprising both components), as per agreement with SEETO

(\*\*\*\*) Revised submission dates as per agreement with SEETO

<sup>&</sup>lt;sup>1</sup> CONNECTA-TRA-CRM-REG-04\_BCP\_CBA

Several additional interim deliverables – technical notes have additionally been agreed with SEETO, DG-NEAR and DG-MOVE. These interim outputs supported high level discussions that took place at the TEN-T Days in Ljubljana from 25 – 27 April 2018, the EU-Western Balkans Summit that followed in Sofia on 17 May 2018, and the Regional Steering Committee of the Transport Community on 14 November 2018.

Additionally, on 25 November 2018, a technical note on "quick wins" was issued to support EC in Ministerial Council Meeting of coming December.

This Final Report represents the capstone on the assignment, and is intended to be a concise summary of the findings and recommendations made in the interim reports produced over the course of the project. It is not intended to supersede previously the interim reports, and the reader is referred to these other studies throughout this report for further details.

## 2 Project Context

## 2.1 Project Background

The Western Balkans (C) initiative has long recognised that there is a clear imperative and need to continue investing in transport as it is seen as the economic engine and facilitating tool for growth in the region. Beyond the political statements made are Western Balkans Conferences to date, tangible progress has been made to formalise this position, including the 2015 accord by the six Western Balkan Prime Ministers on the regional core transport network, and the extension of the core network corridors (namely, the Mediterranean, Orient/East-Med and Rhine/Danube corridors) to the Western Balkans, as well as the agreement on the list of infrastructure projects and soft or non-physical measures to be implemented by 2020.

Among the agreed measures listed in the Connectivity reform measures management plan (CRMMP), previously monitored by SEETO, is the family of initiatives directly related to effective cross-border road transport. At present, it has one initial sub-action envisaged in the short-term leading up to 2020 and that is the assessment of the viability of introducing one-stop shops on the Core (road) Network's BCPs. The general objective of that particular initiative is the assessment of the appropriate system, the identification of candidate sites and subsequently, the development of a road map setting out the implementation process to ensure that the system is operational by 2020 and scalable in the time horizon beyond that.

Since the very first SEETO Report on Border crossing facilitation published in 2012 which clearly identified border crossing procedures as a significant barrier to trade and mobility in the region, more recent studies and joint action at the regional level between SEETO, Central European Free Trade Agreement (CEFTA), Regional Cooperation Council (RCC) and the international donors (i.e. IFC/World Bank, etc.) have provided further deeper understanding of the underlying root causes and the potential benefits to solving the border crossing inefficiencies.

The key message that became apparent following the completion of these various studies was that in order to improve the operational efficiency at the BCPs and truly produce time (and cost) savings for the end users, there was no single solution that resolve all the issues and that a viable way forward would have to comprise a mix of soft/non-physical and physical measures to tackle institutional and capacity problems, respectively. For instance, the Action Plan for the SEETO Flagship axes in 2014-2015 underscored the need for well-coordinated efforts to improve the time management at the borders and as a corollary, enable smooth and seamless transport of cross border freight and passengers, thereby increasing the attractiveness of the Western Balkans road corridors and routes.

This general theme was further extended and articulated in the Connectivity reform measures action plan endorsed within the Western Balkans 6 process (Measure 2.2.2 Effective cross-border transport, Sub-action 1 Assessment of the opportunities for introducing one-stop shop on the Core Road Network's BCPs) as well as in the CEFTA Joint Action Plan, adopted on 26 May 2017. This effort emphasised the merits of a two-pronged approach that consists of simplifying and harmonising procedures in accordance with Article 3 of the Additional Protocol 5 (AP 5), and by ensuring sufficient capacity to handle border trade.

When the Western Balkans region is set against a backdrop of increasing global competition (e.g. China's One Belt One Road initiative), it is a stark reminder of the need to improve the region's collective competitiveness in the immediate future, rather than wait for a more opportune time. Recent studies commissioned by SEETO, the EC or the various other donors have clearly shown that at present, the end-to-end costs for moving freight through the region is much higher – the 2015 REBIS Update Study estimated that the cumulative sum of inventory carrying costs, vehicle costs and driver costs attributable to border crossings in a Western Balkan participant is more than 5 times the cost in

an efficient EU country; this figure excludes the cost of the negative multiplier effect of unpredictability of waiting/processing times along the supply chain and at the border crossings themselves. They further estimated that this unpredictability at border crossings coupled with an excessive control has directly contributed to high logistics cost which equal some 16 percent of gross domestic product (GDP) for the Western Balkans, twice the cost measured in the EU and the US.

## 3 Methodology

### 3.1 General Approach

As previously mentioned, the purpose of the assignment is to undertake an institutional, technical, economic and financial assessment of all border crossing points (BCPs) on the Core and Comprehensive Road Network in the Western Balkans in order to implement one-stop-shops for core and comprehensive road network and an electronic border queuing management system (eQMS) for core road network.

By extension, the principal overarching objective of the assignment is to assist the SEETO Regional Participants in designing suitable systems to manage and facilitate the movement of cross-border road traffic which will eventually lead to simpler and more efficient border controls, reduced waiting and processing times and consequently, reduced trade and logistic costs, and improved mobility as measured using metrics such as wait and clearance times.

More specifically, the project was further disaggregated into the following sequential stages, with the OSS and eQMS treated separately when there was a need to do so:

Component 1 - OSS:

- Feasibility study for the implementation of OSS controls on the road BCPs and definition of a road map and international (bilateral) agreements for its implementation on pilot BCPs;
- Cost Benefit Analysis (CBA) for the implementation of OSS facilities demonstrating a clear business case supporting the introduction of these against the status quo;
- Preparation of a phased and timed Road Map for introducing OSS, highlighting the changes required; and
- Preparation of template for bilateral agreements (and respective protocols) for performing joint border controls.

Component 2 - eQMS:

- Feasibility studies for the implementation of eQMS and subsequently, if proven to be feasible and provided that there is a clear interest from Regional Participant(s), piloting the system for selected BCPs in the next phase;
- Cost Benefit Analysis (CBAs) with financial and economic scenarios quantifying the business case supporting the implementation on the selected BCPs;
- Proposals for legal and institutional restructuring needed to pave the way for the eQMS proposed locations, along with a SWOT analysis or multi-criteria based analysis.

## 3.2 Fact-Finding Missions

In order to adequately analyse the current situation on BCPs and to understand the potential for increases in traffic demand, avenues (either physical or non-physical) to increase the capacity of border crossing points, and the viability of implementing interventions in order to improve daily operations and controls, fact finding missions had to be carried out.

The main purpose of the missions was to obtain data that cannot be readily be provided by the relevant authorities and to allow CONNECTA experts to gauge the particular characteristics and constraints that are evident *in situ*.

Whilst it is not the only factor for consideration, traffic was nevertheless identified as one of the key determinants expected to drive the business case for eQMS and/or one-stop shops at the individual BCPs. Each BCP was evaluated on the following characteristics:

- Location on the road network, road type and category (i.e. between Western Balkans countries or with EU member country)
- Physical characteristics for each location, including the availability of lay-by areas, the number of lanes for passenger and freight traffic, parking and queue capacity
- Other facilities with which the BCP is equipped
- Historical traffic volume per direction for all months in last year
- Composition of the freight traffic (domestic/international) as well as type of payload
- Available or estimated projection of the future traffic
- Percentage of the trucks that are subject of physical inspection
- Duration and stepwise process of the overall inspection activity
- Waiting time for the inspection activity
- Total time needed for inspection activity and passing BCP

More detailed information collected during the missions are reported in the Fact-Finding Missions Report, including the template questionnaires circulated in advance of visits.

The final fact-finding mission schedule completed by the team is attached in the figure below.

#### Figure 3 Fact Finding Mission Tracker of Completed visits to BCPs and CCPs

| - |                        |                            |  |  |  |                 |                  |   |  |   |                              |                 |                     |                 |            |                 |             |                 |           |                 |           |                 |           |                 |           |                 |           |                 |           |  |
|---|------------------------|----------------------------|--|--|--|-----------------|------------------|---|--|---|------------------------------|-----------------|---------------------|-----------------|------------|-----------------|-------------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|--|
|   |                        | Mission                    | Meeting  | Date, Time                                     | & Location   |                 |                  |   |  | BCPs and ACPs   |                              |                 |                     |                 |            |                 |             |                 |           |                 |           |                 |           |                 |           |                 |           |                 |           |  |
|   |                        | T CHIOU                    | MoT  | MolA   | Customs  | BC              | P#1              | BC  | P#2  | BC  | P#3                          | BC              | P#4                 | BC              | P#5        | BCP#6           |             | BCF             | P#7       | BC              | P#8       | BC              | P#9       | BC              | P#10      | AC              | ACP#1     |                 | ACP#2     |  |
|   | Country                |                            |  |  |  | Home<br>Country | Neighbour        | Home<br>Country   | Neighbour  | Home<br>Country   | Neighbour                    | Home<br>Country | Neighbour           | Home<br>Country | Neighbour  | Home<br>Country | Neighbour   | Home<br>Country | Neighbour | Home<br>Country | Neighbour | Home<br>Country | Neighbour | Home<br>Country | Neighbour | Home<br>Country | Neighbour | Home<br>Country | Neighbour |  |
|   | ALB                    | 05/02/2018 -<br>09/02/2018 | 05/02/2<br>Infras  | 018, 10:00, I<br>tructure an                   | Ministry of<br>d Energy  | Han i Hotit     | Bozaj            | Morine  | Vërmica  | Qafe Thane  | Kjafasan                     | Kapshtice       | Krystallopigi       | Kakavia         | Ktismata   | -               |             | -               | -         | -               | -         | -               |           | -               | -         | -               | -         | -               | -         |  |
|   | MNE                    | 05/03/2018 -<br>08/03/2018 | 05/03/2018, 10:00, Ministry of<br>Transport and Maritime Affairs (Romar<br>square 46 (Rimski trg 46)                                 |  | Kulla  | Kulina          | Dracenovac       | Spiljani<br>(visited<br>during<br>mission in<br>Serbia) | Dobrakovo  | Spiljani<br>(visited<br>during<br>mission in<br>Serbia) | Scepan<br>Polje              | Hum             | Debeli<br>Brijeg    | Karasovici      | -          | -               | -           | -               | -         | -               | -         | -               | -         | -               | -         | -               | -         |                 |           |  |
|   | KOS                    | 2/23/2018                  | 19/02/2018, 10:00, Kosovo Customs H<br>(Drejtoria e Doganës, Rexhep Krasniq<br>Prishtinë)  |  | vo Customs HQ<br>exhep Krasniqi,                                       | -               | -                | -   | -  | -   | -                            | -               | -                   | -               | -          | -               |             | -               | -         | -               | -         | -               | -         | -               | -         | -               | -         | -               |           |  |
|   | MKD                    | 20/02/2018 -<br>22/02/2018 | 20/02/2018, :<br>and co  | 12:00, Minis<br>mmunicatic                     | try of transport<br>ons-MoTC   | Deve Bair       | Gyuesevo         | Tabanovci   | Presevo<br>(visited<br>during<br>mission in<br>Serbia) | Medzitlija  | Niki (visited<br>unofficaly) | Bogorodica      | Evzoni              | Novo Selo       | Zlatarevo  | Hani i Elezit   | Blace       | -               | -         | -               | -         | -               | -         | -               | -         | -               | -         |                 |           |  |
|   | він                    | 26/02/2018 -<br>02/03/2018 | 26/02/2018, 11:00, Friendship Buildii<br>between Greece and BiH (office on t<br>XVII floor).<br>01/03/2018, 10:00, Indirect Taxation |  | dship Building<br>4 (office on the<br>1.<br>rect Taxation<br>anja Luka | Gradiska        | Nova<br>Gradiska | Bosanski<br>Samac                                       | Slavonski<br>Samac                                     | Bijaca  | Prud                         | Doljani         | Metkovic            | Neum I          | Klek       | Neum II         | Zatoni Doli | -               | -         | -               | -         | -               | -         | -               | -         | -               | -         | -               | -         |  |
|   | SRB                    | 2603/2018 -<br>12/04/2018  | 26/04/2<br>Contru  | 018, 10:00, f<br>iction, Trans<br>Infrastructu | Ministry of<br>sport and<br>ire  | Horgos          | Roszke           | Batrovci  | Bajakovo   | Gradina<br>(Dimitrovgr<br>ad)                           | Kalotina                     | Vatin           | Stamora<br>Moravita | Vrska Cuka      | Vrska Cuka | Mali Zvornik    | : Karakaj   | Kotroman        | Vardiste  | Presevo         | -         | Spiljani        | -         | Gostun          | -         | Merdare         | Merdare   | Ribarice        | Banje     |  |
|   | visited<br>not visited |                            |  |  |  |                 |                  |   |  |   |                              |                 |                     |                 |            |                 |             |                 |           |                 |           |                 |           |                 |           |                 |           |                 |           |  |

## 4 Key Findings

## 4.1 Cross-Cutting Issues and Common Themes

Following the completion of the fact-finding missions, the CONNECTA team identified a number of deficiencies in the design, operation and management of road BCPs facilities when contrasted against best practices as taken from Western Europe and internationally. The detailed findings from the CONNECTA team's assessment of each facility are reported in the fact sheets attached in **Appendix A** of this report. These are summarised in this section, starting with the cross-cutting issues and themes that are common to many of the BCPs/CCPs.



#### **Exponential Growth of Freight Traffic:**

In 2015, the Regional Balkans Infrastructure Study (REBIS) Update report was published and in this study, updated traffic forecasts to horizon year 2030 saw the greatest road traffic growth on Corridors V, VIII and X. An alternative

moderate/high traffic growth scenario was also tested and showed that the traffic forecasts in the network throughout the entire South-Eastern Europe would be approximately 12 percent higher on average as compared to the more conservative scenario.

From our review of the historical traffic data made available to us by the regional participants, it is evident that the entire Western Balkans region is indeed experiencing substantial growth in traffic volumes, and in particular, freight traffic. Of the 32 BCPs and CCPs assessed, 10 of these facilities processed over 100,000 trucks (in both directions) in 2017. In all 32 BCPs/CCPs assessed, the year-on-year freight traffic growth either equalled or exceeded the general car traffic growth rates – BCP Hum / Scepan Polje along the Bosnia & Herzegovina - Montenegro border has experienced a year-on-year growth rate over 25% p.a.; even the busiest crossing in this study, BCP Bajakovo / Batrovci which processes nearly 400,000 trucks per year continues to grow at nearly 2% p.a.





#### Design Deficiencies in BCP Layouts and General Design

In general, all the existing and even newer crossing facilities assessed are based on an outdated arrangement and layout where for the most part, the HGVs and

buses (which are typically in the adjacent lane) are processed in a linear first-in, first out manner. This means that if the first truck is being examined more thoroughly there is no opportunity to remove the vehicle from the through lane therefore all downstream trucks will have to wait in line for their turn and consequently delayed.

At many of the BCPs/CCPs assessed in this study, a considerable number of buses are also processed at the same facilities and often share the same lane as HGVs e.g. at BCP Hani i Hotit/Bozaj and BCP Kakavija/Ktismata. Having a separate, dual-purpose bus lane that can be used for other vehicles when there are no buses, will provide fall-back capacity to help reduce congestion. This flexible arrangement can be further augmented by equipping Border Police officers with hand-held passport and ID scanners so that staff scan the documents on-board and avoid having to force the passengers to alight. In many BCPs/CCPs, the installation of additional weighbridges immediately adjacent lane to the existing truck lane would also provide future-proofing in terms of added truck processing capacity which can be repurposed for other vehicles as and when needed.



#### Need for Ancillary Facilities at BCPs/CCPs

From the assessment carried out by the CONNECTA team, there are several additional features and ancillary facilities that should be implemented at the BCPs/CCPs – best practice has shown evidence of improved operational efficiency

with the introduction of these features:

- The need to introduce non-intrusive scanning technology such as fixed or mobile x-ray scanners to support the risk management systems in place, speed up inspections and improve sampling / detection rates. Ideally the tunnel or mobile scanner should be located at the import ICD.

- Customs, border guard and freight forwarding staff cars are typically parked inside the Customs Control Zone (CCZ) of the BCPs/CCPs. Ideally, these cars should be parked in a separate fenced and secure parking area outside the BCP.

- Installing Automatic Number Plate Recognition (ANPR) systems at each BCP to help enhance the risk management systems in place, facilitate vehicle identification and help detect stolen or non-taxed vehicles.

Introduce sniffer dogs to detect narcotics, other contraband and smuggled currency.



#### **Quick-wins through Improved Institutional Frameworks**

There appears to be a number of opportunities for quick-wins comprising non-physical measures with minimal cost. These include:

- Streamlining processes at BCPs by introducing a revised mandate to remove burden on BCPs from any and all controls/activities that are not strictly related to the border crossing, such as: Road Tax Collection, Check of Transport Licences, Technical Compliance, Weight Limit Compliance and similar tasks that can/should be performed elsewhere

- Eliminate system-wide repetitive weighing of trucks (even empty ones) as this creates unnecessary work and delays to freight companies. Moreover, this practice is contrary to the UNECE Convention on Harmonization of Frontier Controls, EC Decision 2009/161/EC, as well as the Kiev Convention (Black Sea Economic Cooperation - BSEC).

- Uninterruptible Power Supply (UPS) and local data backup and IT system redundancy should be standardised; at present, some sites have these features but most do not. Nevertheless, the basic ICT elements in all 32 sites are present and appear to require minimal additional investment if a One Stop Shop and/or eQMS system is introduced.

- Ensuring that World Trade Organization's Trade Facilitation Agreement (WTO FTA) is put to practice in all BCPs as this can generate estimated truck import time-savings between 15-30 minutes. For example, the CONNECTA team has observed at several border crossings instances where the freight forwarding staff wait until a truck arrives before preparing and submitting the documents to Customs – this process takes on average 15 minutes. The WTO TFA suggests that freight forwarding and broker staff notify Customs prior to the arrival of each truck and at the same time submit all the documents and obtain an advance ruling. This will enable Customs, Border Guard and other services such as Phytosanitary to carry out their respective risk management and if need be select trucks for secondary examination.

- Ideally all BCPs and CCPs should not function as principal customs clearance facilities and instead should serve as exit and entry registration facilities. To this end, import and export clearance must get carried out at inland clearance deports (ICDs).

- With the exception of handful of BCPs, the majority of the facilities visited still maintain separate booths for the Customs officers and Border Police officers. There is the opportunity to colocate the agents and speed up the processing of vehicles whilst also providing the officers to share intelligence.

## 4.2 Legal and Institutional Issues

A basic underlying premise for any properly functioning border crossing facility is that the abolition of internal border controls cannot come at the expense of security. Since no checks are carried out at the borders between Schengen states, EU States have decided to join forces to attain the dual objective of improving security through more efficient external border controls, whilst facilitating access of those with a legitimate interest in entering the EU territory.

In keeping with the EU accession process, all six Western Balkans partners have introduced the concept of Integrated Border Management (IBM) and have relatively new (i.e. recently adopted) and modern laws on border control and laws on customs. These laws are the centrepiece underpinning the concept of IBM and of the wider domestic legal system in conformity with the EU acquis-related requirements in the fields of the Customs Union; free movement of goods; justice, freedom and security; and common foreign and security policy.

The institutional set-up for the implementation of IBM is straightforward and unified across the Western Balkans. The main institutions involved are: the Border Police, usually under the ministry in charge of internal affairs, the Customs office under the Finance Ministry, and the veterinary and phytosanitary inspectors, usually under the ministry in charge of agriculture.

These four agencies have the most important roles and by working jointly at borders, guarantee basic pre-conditions for an efficient system of control and surveillance. While each body has a specific task

and role in the system, it is of utmost importance that their work be harmonised, and that mechanisms that ensure cooperation are established.



A system for IBM and its individual elements is built on the following eight key parameters:

Unlike the general legal framework for border control existing in the Western Balkans, which provides the basis for the organisation of joint controls (various forms of one-stop-shop controls), eQMS elements are not immediately recognised in current legal acts.

In essence, the main legal framework for border crossings is in place, as all partners in the Western Balkans have gradually implemented the different components comprising Integrated Border Managements. As a pre-condition for EU accession, the system is under regular scrutiny and assessment by the European Commission, and therefore it is assumed that those Western Balkan countries aspiring to accession in the immediate future can be expected to be fully aligned with the EU acquis is due course. The institutional capacity needed to fulfil the obligations arising from international law and to implement national law however requires further work. Practices must also be brought in line with the current regulatory framework.

The EC Guidelines on IBM encourage one-stop controls as an advanced level of international cooperation (which presupposes intra- and inter-agency cooperation). This should be viewed by the authorities in the Regional Participants as the next stage in the evolution of their IBM system. The establishment of one stop controls at the BCPs would not entail any substantial changes of the legislation, as all the main aspects of joint border controls must be defined in bilateral (international) agreements. These would therefore prevail over national border control laws.

As for the establishment of eQMS, some legal amendments would need to be introduced *a priori*; the current legal framework does not clearly regulate waiting areas at BCPs or elsewhere on the territory of the countries. When it comes to time-based or slot-based management systems, the inspection of vehicles and the operator of the waiting area should also be defined in a legal act. The CONNECTA team has reviewed a number of successful case studies, including Estonia, Poland, Sweden, and other countries.

Whilst no other case study is fully transferable due to the local nuances in the Western Balkans, the lessons learned have been identified and reported by the CONNECTA team in the Feasibility Report and subsequent Road Map and Institutional / Legal Restructuring Reports.

Amongst the key lessons learned include the need for bi-lateral agreements governing OSS to cover the following areas listed in Table 2, as a minimum:

#### Table 2 Operational Areas pertinent to Bi-Lateral Agreements for OSS

| General Objectives                 | General objectives of the two countries regarding the operational activities  |
|------------------------------------|---|
| Legal Status of BCP/CCP            | <ul> <li>These facilities do not have an extra-territorial legal status and are under the complete jurisdiction<br/>of the host country.</li> </ul>   |
| Legal Status of Staff              | <ul> <li>As a rule, staff do not have special immunities other than being guaranteed unlimited access to the checkpoint while on duty.</li> <li>Depending on the relations between the two states, the staff of the guest country possesses service identification cards and national identification documents or/and service passports</li> </ul>  |
| Security of OSS & Staff            | •There is a general rule that the host country of the territory in which the JBC is located assumes full responsibility for ensuring the security of equipment, infrastructure, and staff on duty   |
| Uniforms                           | <ul> <li>Wearing a national uniform in border checkpoint territory is mandatory</li> </ul>  |
| Use of Firearms                    | • Current practices within the European Union establish the mandatory carrying of arms while on duty in the territory of the border checkpoints, and the use of these arms on the territory of the foreign state only for self-defense  |
| Telecommunications                 | •As a rule, agreements regulate only those aspects related to telecommunications that ensure avoiding interference in the activity of the telecommunications of the host country, or general issues of reciprocal assistance in the field   |
| Right to Control, Inspect & Arrest | •A general rule respected by EU countries stipulates that the right to control and inspect at JBC checkpoints located in the territory of another state should be similar to the respective rights in force on the national territory   |
| Mode of Seizing Goods              | •Respective agreements usually stipulate the rights of the control agencies (services) of the guest country to seize illegal goods, and the protocols to be followed in doing so  |
| Financial Issues                   | • Agreements stipulate the financial responsibilities of the parties related to the maintenance of the JBCs, the procedures of payments and applying the customs rights, etc  |
| Governing Protocols                | •Issues for which regulation is authorised by protocols and working documents at the services (departmental) level: the physical boundaries of the JBC; the physical demarcation dividing the authority limits; work procedures; interaction between the teams of the two states; administration and maintenance of the infrastructure at the JBCs; the order of actions in exceptional cases; organisational issues, etc |

In order to provide the legal basis for the establishment of OSS at BCPs/CCPs within the Western Balkans as well as between the Western Balkans and neighbouring countries, the following steps need to be taken:

#### The first step (Basis/Platform of the Government for Negotiation of Bilateral Agreement)

The first step of any Government, usually is that the Government adopts/approves the document called Basis/Platform of the Government for Negotiation of Bilateral Agreement (name of the Agreement e.g. on opening JBC); this document should comprise the following sections:

- Constitutional and legal base for conclusion of the Bilateral Agreement
- Assessment of the relationship between the future parties to the agreement
- Reasons for conclusion of the Bilateral Agreement
- Main topics for negotiations
- Assessment of the funds needed for the implementation of the Future Agreement
- Needs for harmonisation/amendments to the laws and regulation
- Government Team for negotiations and data related to the cost of negotiations
- Draft of the Agreement that will be negotiated

For the purposes of this study, a draft Bilateral Agreement along with ancillary supporting documents have been prepared by the CONNECTA team and attached in Annex 2 of the Bi-Lateral Agreement Report.

#### The second step (Signing/Conclusion of the Bilateral Agreement)

As a result of negotiations, the Governments will adopt the final text of the Agreement and will authorise their representatives to sign the bilateral agreement.

#### The third step (Ratification of Bilateral Agreement)

The signed Bilateral Agreement, along with the text of the Law on Ratification, will be submitted by the Government to the National Parliament for the Ratification as an International Agreement, after which it will be published in the respective Official Gazette in its part dedicated to International Agreements.

## Parallel or Simultaneous Steps (Negotiations, Signing and Ratification of the respective Protocols of the Bilateral Agreement)

Usually, Bilateral Agreements on opening JBC, are supplemented by the respective Implementing (detailed) Protocols. The latter are either negotiated from the offset as an annex to the Bilateral Agreement, or are negotiated separately after signing of the Basic Bilateral Agreement and are signed, adopted and ratified in the same procedure as described above.

#### The "forth" step (Implementation of Bilateral Agreement and Protocol)

After the legal process of signing, adoption and ratification of the Bilateral Agreements on opening JBC and accompanied protocols, the Parties/Countries must initiate a series of steps, measures (physical, financial, administrative, organisational etc.) to initiate and complete the implementation of everything that was agreed between the Countries – Parties to the Agreements and Protocols.

## 4.3 Traffic Management Technology & ITS: Helping to Maximise Use of Assets

From the CONNECTA teams review of the current use of intelligent traffic system (ITS) technology at the different BCPs and CCPs, it is evident that the further roll-out of appropriate ITS technology will enable the regional participants to get the most from the existing and future planned assets at these crossings.

More specifically, the following operational areas have been identified as the ones that offer the greatest benefits for the BCPs/CCPs reviewed.

#### 4.3.1 Segregation of BCP users

Different vehicle categories require different processing times at the BCPs – vehicles carrying goods have the highest number of procedural steps, including customs processes, especially when customs clearance activities are being conducted at the BCP/CCP.

Buses have a simplified process, but the most time-consuming aspect is the control of passports for a high number of passengers. Passengers' luggage is also subject to customs processes, but this is a far simpler procedure than it would be with vehicles carrying goods. Formalities for passenger cars are the simplest, and do not require much time on an individual basis.

With processing times varying between these three modes, segregating the traffic lanes would minimise queueing in cases where additional control is needed, or an issue is identified with a vehicle, driver, passenger or goods being transported. At a minimum, freight should be segregated from passenger traffic; if possible, bus traffic should also be segregated from passenger cars.

The use of the BCP zone for truck drivers' daily rest should be discouraged where this is a common practice and can be mitigated to some degree with the implementation of eQMS and on-route waiting areas. Measures can include parking charges, or the provision of appropriate parking a short distance (up to 5km) outside of the BCP zone.

Other simple solutions such as raising booths to the height of vehicle windows would eliminate the need for drivers to leave the vehicle to show or submit documentation. It has been noted that most BCPs are dependent on hard copy documents. Even where information and communications technologies (ICT) equipment is available, internal procedure still requires hardcopies of documentation to be provided at the BCP. Redefining these procedures would reduce time spent on processing while other vehicles are queueing.

#### 4.3.2 Lane management

Traffic statistics show that there are significant differences in inbound and outbound traffic during different times of day, and on different days of the week. While increasing the number of lanes available to accommodate these peaks would be inefficient, managing the existing number of lanes to accommodate flow during peak times would reduce waiting times. This should be supported by elements of the ITS system, such as traffic counters, variable message signs (VMS), info boards, etc. An appropriately designed system for lane management would lead to efficiency increases and reduce delays on BCPs. This measure must be supported by proper staff allocation at BCPs to ensure that all lanes can be used.



Figure 4 Example of lane management signage<sup>2</sup>

Other technical measures for lane management should be provided as well. This includes mobile safety barriers such as stackable new jersey guardrails, and traffic cones with belts as shown below. This equipment is easy to handle and position in order to guide the traffic in line with proposed lane management measure.



Figure 5 Mobile equipment for lane management

**4.3.3** Automatisation of procedures

As the majority of procedures presently undertaken at BCPs require a human presence and autonomous equipment is rarely used, most are staff dependent. Some of the most time-consuming procedures are the weighing of trucks, vehicle recognition and radiation detection. Introducing automated systems at the entrance of the controlled zone could significantly reduce time invested.

If it is necessary to weigh trucks at the BCPs in lieu of inland clearance depots, the process can be combined with passport control, with trucks stopping on the weighing bridge as papers are controlled. Alternatively, a weight in motion system could be implemented, which would not require vehicles to stop as their weight is recorded. This system is usually used on motorways.

An automatic weighing system could be integrated with an automatic number plate recognition (ANPR) system and video cameras and sensors to capture vehicle dimensions and container codes. This information, collected simultaneously, could then be transferred to a centralised database and be readily available together with other information from passport control, customs procedure, etc.

<sup>&</sup>lt;sup>2</sup> <u>https://www.ebovanweel.com/en/traffic-systems/products/permanent-vms/</u>



Figure 6 Weight in motion system

At present, many of the visited BCPs are not equipped with a radiation detection system. Their installation at the entrance of a BCP would ensure that detection is completed before a truck approaches passport control. Were the system to send an alert signal, the vehicle could then be stopped and guided to an appropriate zone to be processed.

The implementation of these automated measures would certainly reduce the time needed for the overall processing of a vehicle. Security would also be enhanced: before a vehicle even approaches the first control line, all data on its license plate, vehicle type, weight, container code, etc. would be available to the officers. Additional benefits would include reduced manpower and workspace requirements, and mitigation against man-made errors.

Data collected by this automatic system should be kept in central database and can serve for appropriate planning and improvement of the procedures on BCPs.

#### 4.3.4 Approach road capacity

A significant issue identified at some BCPs is lack of approach road capacity. Having one lane per direction is insufficient, with a long queue of trucks having the potential to completely block access to free lanes for passenger cars or buses.

Two potential solutions exist: The first is to widen the road and provide a separate lane for heavy vehicles. This is not feasible in all situations due to heavy terrain conditions. The second viable solution is to provide parking capacity for trucks nearby where their approach to the BCP can be controlled. This option must be supported by automated data collection on traffic flow for the approach road, and ITS, which would inform trucks that they are approaching a congested section and must park while they wait for their turn to access the BCP. At minimum, the equipment needed to support this option includes traffic counters (inductive loops, cameras, or other types of counters), a central data processing unit and info boards. Parking zones could be used for the installation of the necessary equipment (central system/control unit) if it has not already been installed as a part of the wider ITS system.



Figure 7 Possible layout of truck parking with respective number and estimated waiting time<sup>3</sup>

#### **4.3.5** Real-time data collection

Having a system that collects data on BCP traffic flow and estimated waiting times could significantly improve the operation of all BCPs as the information generated can then feed into the risk management and profiling systems at the BCPs. This system requires collecting data on arrival, by implementing vehicle counters, as well as data on departure.

By comparing this real-time data generated by traffic counters on the approach road, information on waiting time could be made publicly available on a given website. Users can then make decisions based on available information and change their itinerary if necessary. This data could be validated by comparing the BCP records of vehicles actually processed. In combination, this process would provide more accurate waiting time measurements.

Real time data collection and processing could:

- Improve planning for manpower allocation at BCPs
- Provide pre-arrival information to users in real time
- Estimate waiting and processing time
- Improve lane management.

The benefits of real time data collection have been amply demonstrated as this feature is the underlying premise for the EU-funded Systematic Electronic Exchange of Data (SEED) system that has been successfully trialled in a number of Western Balkans countries and is currently being rolled out in the region. For instance, the SEED system in Albania has allowed the real-time monitoring and benchmarking of waiting and processing times for all BCPs in the country, and has sufficient granularity to discern seasonal variations as illustrated in the figure below.

<sup>&</sup>lt;sup>3</sup> <u>https://ursamajor.its-platform.eu/activities/activity-2-enhancement-truck-parking-services</u>



Figure 8 SEED recorded waiting and processing times at several Albanian BCPs<sup>4</sup>

<sup>&</sup>lt;sup>4</sup> <u>SEED presentation at 6<sup>th</sup> TFWG Meeting in Ulcinj (2017). Vladimir Obucina, SEED Operations</u> <u>Manager.</u>

#### 4.3.6 Pre-arrival information

Information on traffic conditions at BCPs should be made available to users in several ways:

#### **Motorway sections**

The Western Balkan road network is currently developing ITS. This could be a good opportunity to include additional information on BCP conditions. Information should be available once a vehicle enters the country, and at all important interchanges where a decision to change ones route can be made. Information should be provided on VMS information boards so it can be noticed without stopping.



Figure 9 Information on delays on travel time (delays) on alternative routes<sup>5</sup>

#### **Road-side facilities**

Road-side facilities should also be covered, especially on motorway sections where such facilities (service stations, rest areas, etc.) are provided. Information could be provided on screens similar to airport or railway station display boards. Drivers can then make an informed decision on changing their route or waiting at a service station without creating additional queues on approach roads.



Figure 10 Live traffic information display at service station<sup>6</sup>

<sup>&</sup>lt;sup>5</sup> <u>https://www.rfid-im-blick.de/de/201801044244/stockholms-verkehr-wird-mit-ble-sensoren-smart.html</u>

<sup>&</sup>lt;sup>6</sup> <u>https://www.alamy.com/stock-photo-medway-services-m2-motorway-england-3-january-2016-highways-england-92703589.html</u>

#### Highway radio system

Information on BCP conditions could be provided to drivers approaching a BCP via highway radio systems as part of an active traffic management system. Alerts on queues could be sent by breaking broadcast to vehicles approaching the BCP with their radios turned on.



Figure 11 Information on radio frequency for live traffic information<sup>7</sup>

#### 4.3.7 On-Line Information Dissemination

Pre-arrival information could be made publicly available on a specialised website or the webpage of the customs administration or border police of each country. Listed information could include estimated wait times, and the number of lanes open for traffic. Incident reports or a temporary closure at any BCP could also be made available to any website visitors.



Figure 12 Website showing traffic condition and waiting time on border crossing between USA and Canada<sup>8</sup>

<sup>8</sup> <u>http://www.niagarafallsbridges.com/index.php/services/traffic-conditions</u>

<sup>&</sup>lt;sup>7</sup> http://www.silcom.com/~pordecon/gcwsp\_am\_radio.htm
### 4.3.8 Traffic equipment in support of eQMS system

The CONNECTA team have identified three potential technological options for the introduction of eQMS in the Western Balkans region.

Where eQMS is implemented, separate traffic lanes should be provided for users that have prebooked a time slot at the BCP. This lane should be equipped with VMS, showing the license plate number of the vehicle that has been allotted the upcoming time slot for access to the BCP. Equipment for border enforcement should also be provided, including automatic barriers or traffic lights that give a signal to the next vehicle in the queue.



Figure 13 Traffic equipment for separate traffic lane for eQMS

If a separate waiting area upstream of the BCP is provided, similar equipment will be needed. In addition, signage on the road in front of the waiting area will be needed, including standard traffic signs, and guiding signals that clearly show where the waiting area for the BCP is located.



Figure 14 Traffic equipment on waiting area

A third option for the eQMS would be an automated system that is fully automated and equipped with info boards, variable message signs, a plate recognition system and automatic barriers.



Figure 15 Traffic equipment for automated eQMS

As mentioned in the preceding sections, there are a number of measures that have been proposed to provide information to the users of the eQMS systems; these are intended to fulfil several functions including active travel management and to allow for pre-trip/pre-arrival planning through the

dissemination of information including realtime and forecast congestion, processing and waiting times, and also the availability of time slots for booking (see depiction to the right).

Additionally, information about the availability of different services/amenities at each BCP (e.g. showers, restaurants, wi-fi, etc.) and corresponding rest area are also useful to truck drivers, especially those who are on long journeys.

UTC +2 EET

| 17.03.2016 Thu | 18.03.2016 Fri  | 19.03.2016 Sat  | 20.03.2016 Sun  |
|----------------|-----------------|-----------------|-----------------|
| 00-01 Full     | 00-01 Full      | 00-01 Available | 00-01 Available |
| 01-02 Full     | 01-02 Full      | 01-02 Available | 01-02 Available |
| 02-03 Full     | 02-03 Full      | 02-03 Available | 02-03 Available |
| 03-04 Full     | 03-04 Available | 03-04 Available | 03-04 Available |
| 04-05 Full     | 04-05 Available | 04-05 Available | 04-05 Available |
| 05-06 Full     | 05-06 Full      | 05-06 Available | 05-06 Available |
| 06-07 Full     | 06-07 Available | 06-07 Full      | 06-07 Available |
| 07-08 Full     | 07-08 Available | 07-08 Full      | 07-08 Full      |
| 08-09 Full     | 08-09 Available | 08-09 Full      | 08-09 Full      |
| 09-10 Full     | 09-10 Available | 09-10 Full      | 09-10 Full      |
| 10-11 Full     | 10-11 Full      | 10-11 Full      | 10-11 Full      |
| 11-12 Full     | 11-12 Full      | 11-12 Full      | 11-12 Full      |
| 12-13 Full     | 12-13 Available | 12-13 Full      | 12-13 Ful       |
| 13-14 Full     | 13-14 Available | 13-14 Full      | 13-14 Available |
| 14-15 Full     | 14-15 Available | 14-15 Full      | 14-15 Available |
| 15-16 Full     | 15-16 Available | 15-16 Full      | 15-16 Ful       |
| 16-17 Full     | 16-17 Available | 16-17 Full      | 16-17 Full      |
| 17-18 Full     | 17-18 Available | 17-18 Available | 17-18 Full      |
| 18-19 Full     | 18-19 Full      | 18-19 Available | 18-19 Full      |
| 19-20 Full     | 19-20 Full      | 19-20 Available | 19-20 Ful       |
| 20-21 Full     | 20-21 Full      | 20-21 Available | 20-21 Available |
| 21-22 Full     | 21-22 Full      | 21-22 Available | 21-22 Available |
| 22-23 Full     | 22-23 Full      | 22-23 Available | 22-23 Available |
| 23-00 Full     | 23-00 Full      | 23-00 Available | 23-00 Available |
|                |                 |                 |                 |

## 4.3.9 Concluding Remarks About Technology and ITS Deployment

Table 3 summarises the family of measures proposed at each BCP/CCP; the priority locations as recommended in the CBA/Feasibility Report are in the highlighted cells in the table.

Table 3 Implementation of traffic measures

| BCP / CCP                              | Traffic technology measures  |
|--|--|
| 1 BCP Qafe Thane - Kjafasan            | <ul> <li>Automatic weighting system</li> <li>Extension of approach road capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on internet</li> <li>Real time data collection</li> </ul>  |
| 2 BCP Kapshtice - Krystallopigi        | <ul> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on internet</li> </ul>   |
| 3 BCP Hani I Hotit - Bozaj             | <ul> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on internet</li> </ul>  |
| 4 BCP Kakavije - Ktismata              | <ul> <li>Automatic weighting system</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on internet</li> </ul>  |
| 5 BCP Morine - Vermice                 | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul> |
| 6 BCP Doljani - Metkovic               | <ul> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>   |
| 7 BCP Bijaca - Prud                    | <ul> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>   |
| 8 BCP Bosanski Samac - Slavonski Samac | <ul><li>Automatic weighting system</li><li>Real time data collection</li></ul>   |

| BCP / CCP                                | Traffic technology measures   |
|--|---|
|  | <ul> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>   |
| 9 BCP Neum (I) NorthWest - Klek          | <ul><li> Provision of additional parking capacity</li><li> Real time data collection</li></ul>  |
| 10 BCP Neum (II) SouthEast - Zatoni Doli | <ul> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> </ul>   |
| 11 BCP Gradiska - Nova Gradiska          | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul> |
| 12 BCP Hum - Scepan Polje                | <ul> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>  |
| 13 BCP Vardiste - Kotroman               | <ul> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>  |
| 14 BCP Karakaj - Mali Zvornik            | <ul> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on internet</li> </ul>   |
| 15 BCP Medzitlija - Niki                 | <ul> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on internet</li> </ul>   |
| 16 BCP Deve Bair - Gyuesevo              | <ul><li>Real time data collection</li><li>Pre-arrival information on internet</li></ul>   |
| 17 BCP Tabanovci - Presevo               | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> </ul>   |

| BCP / CCP                         | Traffic technology measures   |
|-----------------------------------|---|
|                                   | <ul> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>   |
| 18 BCP Bogorodica - Evzoni        | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>  |
| 19 BCP Blace - Hani i Elezit      | <ul> <li>Extension of approach road capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>  |
| 20 BCP Novo Selo - Zlatarevo      | <ul><li> Real time data collection</li><li> Pre-arrival information on internet</li></ul>   |
| 21 BCP Debeli Brijeg - Karasovici | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul> |
| 22 BCP Dobrakovo - Gostun         | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul> |
| 23 BCP Dracenovac - Spiljani      | <ul> <li>Extension of approach road capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>  |

| BCP / CCP                                | Traffic technology measures   |
|--|---|
| 24 BCP Kula - Kulina                     | <ul> <li>Extension of approach road capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on internet</li> </ul>   |
| 25 BCP Sukobin - Murriqan                | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul> |
| 26 BCP Batrovci - Bajakovo               | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul> |
| 27 BCP Horgos - Roszke                   | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul> |
| 28 BCP Gradina (Dimitrovgrad) - Kalotina | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul> |
| 29 BCP Vatin - Stamora Moravita          | <ul><li>Lane management on BCP</li><li>Automatic weighting system</li></ul>   |

| BCP / CCP                             | Traffic technology measures   |
|---------------------------------------|---|
|                                       | <ul> <li>Extension of approach road capacity</li> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul> |
| 30 BCP Vrska Cuka - Vrska Cuka        | <ul> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on internet</li> </ul>  |
| 32 CCP Ribarice/Brnjački most - Banje | <ul> <li>Provision of additional parking capacity</li> <li>Real time data collection</li> <li>Pre-arrival information on internet</li> </ul>  |
| 32 CCP Merdare - Merdare              | <ul> <li>Lane management on BCP</li> <li>Automatic weighting system</li> <li>Real time data collection</li> <li>Pre-arrival information on motorway sections</li> <li>Pre-arrival information on road-side facilities</li> <li>Pre-arrival information on highway radio system</li> <li>Pre-arrival information on internet</li> </ul>                            |

Irrespective of the final technological solution or variant for OSS and eQMS, the CONNECTA team has found that in the majority of the border crossing points visited, the situation in regards the availability of ICT software and hardware is good as modern hardware and software, and data connection are in use:

- In all the BCPs assessed, there are no major concerns regarding the connectivity in terms of speed and capacity as they are generally connected via fibre optic cable or other type of hardwired access to connect to their information systems. In some of the BCPs there is also a backup connection available.
- In most of BCPs the server rooms are in generally good condition and the facilities have spare capacity for the installation of additional hardware as needed. UPS systems are available and used during power disruptions so as to ensure continued operational capability and resilience against these unplanned events.

As detailed previously in the ICT gap analysis undertaken as part of the Fact Finding Mission report, in all Western Balkans countries, Customs and the Border Police have their own, separate information systems including software, hardware, local area network, broadband access etc. Their respective information systems are typically centralised and most of them have local copies of databases to carry on performing their duties during interruptions to the data connection. Moreover, it appears that interruptions in the work of information systems and data connections are very infrequent, even for those BCP locations which are remote.

Depending on the design, current Information Communications Technology (ICT) solutions of one or both countries (border points) will need to be transferred from the current to a new location but this is considered to be a minor issue to overcome. In practice, this means extending the broadband network and moving current IT systems to the new location.

# 4.4 Physical/Infrastructure Improvements

Following the completion of the fact-finding missions, a number of improvements were identified at each of the BCPs/CCPs inspected and these are highlighted in this chapter.

Given the focus on the possible implementation of OSS and joint border crossings with the staff from each country pair being co-located in a single building, the CONNECTA team reviewed the physical constraints present at each BCP/CCP site included in the study. These findings are reported in greater detail in the Fact-Finding Mission Report and more specifically, in the BCP/CCP-specific fiches attached in that report's appendix which have now been updated and attached in **Appendix A** of this deliverable.

Table 4 below lists the proposed physical measures which are expected to provide tangible benefits to the users in the form of time savings and potentially vehicle operating cost savings and environmental benefits through decreased vehicle idling and more streamline traffic flow through these crossing points.

| No. | Border Crossing<br>Point     | New buildings  | New layout                        | Extra lanes  | Detection<br>equipment(s)   |
|-----|------------------------------|--|-----------------------------------|--|---|
| 1   | Qafe Thane /<br>Kjafasan     | Secondary vehicle<br>inspection facility;<br>combined customs and<br>border guard booths   | Herringbone<br>vehicle<br>parking | NCTS/TIR<br>lanes  | X-Ray scanner;<br>vehicle number<br>plate scanner<br>(ANPR); sniffer<br>dogs and kennels;<br>extra weighbridge;<br>radiological<br>detection<br>equipment |
| 2   | Kapshtice /<br>Krystallopigi | Bus passenger processing<br>facility; combined customs<br>and border guard booths  | N.A                               | Empty truck<br>lane  | Vehicle number<br>plate scanner<br>(ANPR); sniffer<br>dogs and kennels;<br>extra weighbridge  |
| 3   | Hani I Hotit/Bozaj           | Secondary vehicle<br>inspection facility; bus<br>passenger facility; parking<br>for the customs and<br>border guard cars outside<br>the BCP area; combined<br>customs and border guard<br>booths; primary truck lane<br>booth to the height of the<br>truck window | N.A                               | Empty truck<br>lanes;<br>access lane<br>to the<br>secondary<br>vehicle<br>inspection<br>facility | X-Ray scanner;<br>vehicle number<br>plate scanner<br>(ANPR); sniffer<br>dogs and kennels  |
| 4   | Kakavije /<br>Ktismata       | N.A  | N.A                               | NCTS/TIR<br>lane   | Extra weighbridge;<br>vehicle number<br>plate scanner<br>(ANPR); sniffer<br>dogs and kennels  |
| 5   | Morine / Vermice             | Bus passenger processing facility; secondary vehicle inspection facility   | N.A                               | NCTS/TIR<br>lanes  | Radiological (2);<br>sniffer dogs and<br>kennels (2); X-Ray<br>scanner; vehicle   |

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|------------|-----------------|------------------|--------------|-----------------|-----------|--------|--|
| 1000P 4 PD | ~~~             | THE THE HIVOH    | ι ποπορς οπο | n P P P (1000 P | 'uuunneni | перпеп |  |
| TUDIC TITI | ysicai niji ast | , acture, rayout | chunges una  | actection       | gaipment  | necucu |  |

| No. | Border Crossing<br>Point             | New buildings  | New layout  | Extra lanes   | Detection<br>equipment(s)  |
|-----|--------------------------------------|--|---|---|--|
|     |                                      |  |   |   | number plate<br>scanner (ANPR)<br>(2); extra<br>weighbridge  |
| 6   | Doljani / Metkovic                   | Ideally a bus passenger<br>facility, but the delay is<br>created by the processing<br>method   | N.A   | N.A   | Mobile passport<br>and ID scanners<br>linked to respective<br>databases; sniffer<br>dogs during high<br>season   |
| 7   | Bijaca / Prud                        | Secondary vehicle<br>inspection facility; bus<br>passenger processing<br>facility; combined customs<br>and border guard booths                                   | Herringbone<br>vehicle<br>parking   | N.A   | Radiological<br>scanner; X-Ray<br>scanner (not<br>needed if scanning<br>takes place at an<br>ICD); weighbridge;<br>hand held passport<br>and ID scanners;<br>vehicle number<br>plate scanner<br>(ANPR); sniffer<br>dogs and kennels          |
| 8   | Bosanski Šamac/<br>Slavonski Šamac   | Bus passenger processing<br>facility; secondary<br>inspection area; truck<br>driver rest facilities<br>(private); combined<br>customs and border guard<br>booths | N.A   | Designated<br>commuter<br>traffic lanes<br>during am<br>and pm;<br>extra traffic<br>lanes and a<br>bus lane | RFID tags for<br>regular and<br>registered<br>commuters; X-Ray<br>scanner (2); vehicle<br>number plate<br>scanner (ANPR);<br>radiological<br>scanner; CBNR<br>scanner; sniffer<br>dogs and kennels;<br>hand held passport<br>and ID scanners |
| 9   | Neum (I) North<br>West/ Klek         | Approach road lighting<br>50m both sides   | If possible<br>arrange the<br>lanes with<br>herringbone<br>vehicle<br>parking | N.A   | N.A  |
| 10  | Neum (II) South<br>East/ Zatoni Doli | Approach road lighting<br>50m both sides   | If possible<br>arrange the<br>lanes with<br>herringbone<br>vehicle<br>parking | N.A   | N.A  |
| 11  | Gradiska/ Nova<br>Gradiska           | Bus passenger processing<br>facility; secondary<br>inspection area; combined<br>customs and border guard<br>booths   | If possible<br>arrange the<br>lanes with<br>herringbone                       | Empty truck<br>lane   | X-Ray scanner (1);<br>vehicle number<br>plate scanner<br>(ANPR);<br>radiological   |

| No. | Border Crossing<br>Point | New buildings  | New layout  | Extra lanes                               | Detection<br>equipment(s)   |
|-----|--------------------------|--|---|---|---|
|     |                          |  | vehicle<br>parking  |   | scanner; sniffer<br>dogs and kennels<br>(2); hand held<br>passport and ID<br>scanners   |
| 12  | Hum / Scepan<br>Polje    | Combined customs and<br>border guard booths; bus<br>passenger processing<br>facility   | If possible<br>arrange the<br>lanes with<br>herringbone<br>vehicle<br>parking | N.A                                       | Weighbridge;<br>vehicle number<br>plate scanner<br>(ANPR); sniffer<br>dogs and kennels;<br>hand held passport<br>and ID scanners  |
| 13  | Vardiste /<br>Kotroman   | Combined customs and<br>border guard booths; if<br>possible build the new<br>administrative building on<br>one side of the BCP and<br>not in the middle; bus<br>passenger processing<br>facility | If possible<br>arrange the<br>lanes with<br>herringbone<br>vehicle<br>parking | Extra traffic<br>lanes if<br>space allows | Weighbridge<br>(Serbia); vehicle<br>number plate<br>scanner (ANPR)<br>(Serbia); sniffer<br>dogs and kennels<br>(2); hand held<br>passport and ID<br>scanners; X-Ray<br>scanner (Serbia);<br>radiological<br>detection |
| 14  | Karakaj/ Mali<br>Zvornik | Combined customs and<br>border guard booths; bus<br>passenger processing<br>facility   | Herringbone<br>parking in the<br>terminal area                                | N.A                                       | X-Ray scanner<br>(BiH); vehicle<br>number plate<br>scanner (ANPR)<br>(2); radiological<br>detection; sniffer<br>dogs and kennels<br>(2); CBNR detection   |
| 15  | Medzitlija / Niki        | Combined customs and<br>border guard booths; bus<br>passenger processing<br>facility   | N.A   | N.A                                       | CBNR scanner;<br>Sniffer dogs and<br>kennels (2)  |
| 16  | Deve Bair /<br>Gyuesevo  | N.A  | N.A   | Dedicated<br>truck lanes                  | X-Ray Scanner (2);<br>vehicle number<br>plate scanner<br>(ANPR) (2); sniffer<br>dogs and kennels<br>(2); extra<br>weighbridge; road<br>signs  |
| 17  | Tabanovci/<br>Presevo    | Bus passenger processing<br>facility with baggage<br>scanners and CBNE<br>detection; secondary car<br>inspection facility;<br>combined customs and<br>border guard booths                        | If possible<br>arrange the<br>lanes with<br>herringbone<br>vehicle<br>parking | Empty truck<br>lane                       | X-Ray scanner (2);<br>sniffer dogs and<br>kennels (2); hand<br>held mobile<br>passport and ID<br>scanners   |

| No. | Border Crossing<br>Point     | New buildings  | New layout                                      | Extra lanes  | Detection<br>equipment(s)  |
|-----|------------------------------|--|---|--|--|
| 18  | Bogorodica/<br>Evzoni        | Combined customs and border guard booths   | Herringbone<br>vehicle<br>parking<br>spaces     | N.A  | X-Ray scanner (1);<br>sniffer dogs and<br>kennels (2); hand<br>held mobile<br>passport and ID<br>scanners; CBRN<br>detection;<br>weighbridge (1)   |
| 19  | Blace / Hani i<br>Elezit     | Combined customs and<br>border guard booths;<br>secondary vehicle<br>inspection facility                     | Herringbone<br>vehicle<br>parking<br>spaces     | Empty truck<br>lanes; slip<br>lane to the<br>secondary<br>inspection<br>facility | Vehicle number<br>plate scanner<br>(ANPR) (2); X-Ray<br>scanner (2); sniffer<br>dogs and kennels<br>(2); weighbridge (1)   |
| 20  | Novo Selo /<br>Zlatarevo     | N.A  | Herringbone<br>vehicle<br>parking<br>spaces     | Empty truck<br>lanes, which<br>could be<br>used for<br>AEO                       | X-Ray scanner<br>mobile (1); sniffer<br>dogs and kennels<br>(1)  |
| 21  | Debeli Brijeg/<br>Karasovici | Bus passenger processing<br>facility complete with the<br>CBRN detection and floor<br>level baggage scanners | N.A   | Empty truck<br>lanes, which<br>could be<br>used for<br>AEO on both<br>sides      | X-Ray scanner<br>mobile (2); vehicle<br>number plate<br>scanner (ANPR)<br>(1); weighbridge (1);<br>hand held mobile<br>passport and ID<br>scanners for both<br>sides (2); sniffer<br>dogs and kennels<br>(2)         |
| 22  | Dobrakovo /<br>Gostun        | Combined customs and border guard booths   | Herringbone<br>vehicle<br>parking<br>spaces (2) | Extra truck<br>lanes, which<br>could also<br>get used for<br>AEO (2)             | X-Ray scanner<br>mobile (1); sniffer<br>dogs and kennels<br>(2); weighbridge (1);<br>vehicle number<br>plate scanner<br>(ANPR) (1);<br>radiological (1);<br>CCTV (2); RFID for<br>national transit BCP<br>to ICD (1) |
| 23  | Dracenovac /<br>Spiljani     | Combined customs and<br>border guard booths (2);<br>secondary inspection<br>facility on both sides           | Herringbone<br>vehicle<br>parking<br>spaces (2) | Extra truck<br>lanes, which<br>could also<br>get used for<br>AEO (2)             | X-Ray scanner<br>mobile (2); sniffer<br>dogs and kennels<br>(2); weighbridge (2);<br>vehicle number<br>plate scanner<br>(ANPR) (2);<br>radiological (1)  |

| No. | Border Crossing<br>Point                | New buildings   | New layout   | Extra lanes  | Detection<br>equipment(s)  |
|-----|---|---|--|--|--|
| 24  | Kula / Kulina                           | Secondary inspection facility on both sides   | Herringbone<br>vehicle<br>parking<br>spaces (2)  | Extra truck<br>lanes, which<br>could also<br>get used for<br>AEO (2)   | X-Ray scanner<br>mobile (2); sniffer<br>dogs and kennels<br>(2); vehicle number<br>plate scanner<br>(ANPR) (1)   |
| 25  | Sukobin /<br>Murriqan                   | N.A   | N.A  | N.A  | N.A  |
| 26  | Batrovci /<br>Bajakovo                  | Bus passenger processing<br>facility complete with the<br>CBRN detection and floor<br>level baggage scanners  | N.A  | Extra truck<br>lanes, which<br>could also<br>get used for<br>NCTS/TIR<br>and AEO (2)   | Sniffer dogs and<br>kennels (2); hand<br>held mobile<br>passport and ID<br>scanners for both<br>sides (2)  |
| 27  | Horgos / Roszke                         | Bus passenger processing<br>facility complete with the<br>CBRN detection and floor<br>level baggage scanners<br>on both sides; secondary<br>inspection facility on both<br>sides for cars; combined<br>customs and border guard<br>booths on both sides | N.A  | Extra truck<br>lanes, which<br>could also<br>get used as<br>dedicated<br>lanes for<br>NCTS/TIR<br>and AEO on<br>both sides   | Vehicle number<br>plate scanner<br>(ANPR) (1); sniffer<br>dogs and kennels<br>(1); hand held<br>mobile passport<br>and ID scanners for<br>both sides (2)   |
| 28  | Gradina<br>(Dimitrovgrad) /<br>Kalotina | Bus passenger processing<br>facility complete with the<br>CBRN detection and floor<br>level baggage scanners<br>on both sides   | Herringbone<br>vehicle<br>spaces in the<br>truck and bus<br>primary lanes<br>on both sides   | Extra truck<br>lanes, which<br>could also<br>get used as<br>dedicated<br>lanes for<br>NCTS/TIR<br>and AEO on<br>both sides   | Weighbridges in car<br>lanes (2); sniffer<br>dogs and kennels<br>on both sides   |
| 29  | Vatin / Stamora<br>Moravita             | Bus passenger processing<br>facility complete with the<br>CBRN detection and floor<br>level baggage scanners<br>on both sides; trucks<br>booths in the primary<br>lanes to get built to the<br>height of the truck window                               | Herringbone<br>vehicle<br>spaces in the<br>truck and bus<br>primary lanes<br>on both sides;<br>expanded<br>truck parking<br>with<br>herringbone<br>angled spaces | Dedicated<br>bus lanes on<br>both sides;<br>extra truck<br>lanes, which<br>could also<br>get used as<br>dedicated<br>lanes for<br>NCTS/TIR<br>and AEO on<br>both sides | Hand held mobile<br>passport and ID<br>scanners for both<br>sides; X-Ray<br>scanner mobile (1);<br>sniffer dogs and<br>kennels (2); vehicle<br>number plate<br>scanner (ANPR)<br>(1); weighbridges in<br>car lanes (2) |
| 30  | Vrska Cuka/<br>Vrska Cuka               | Bus passenger processing<br>facility complete with the<br>CBRN detection and floor<br>level baggage scanners<br>on both sides; secondary<br>inspection facility on both<br>sides for cars   | Herringbone<br>vehicle<br>spaces in the<br>truck and bus<br>primary lanes<br>on both sides   | Dedicated<br>bus lanes on<br>both sides;<br>extra truck<br>lanes, which<br>could also<br>get used as<br>dedicated  | Hand held mobile<br>passport and ID<br>scanners for both<br>sides; X-Ray<br>scanner mobile (2);<br>sniffer dogs and<br>kennels (2); vehicle<br>number plate  |

| No. | Border Crossing<br>Point        | New buildings  | New layout   | Extra lanes  | Detection<br>equipment(s)   |
|-----|---------------------------------|--|--|--|---|
|     |                                 |  |  | lanes for<br>NCTS/TIR<br>and AEO on<br>both sides  | scanner (ANPR)<br>(2); radiological (1)   |
| 31  | Ribarice (CCP)/<br>Banje (CCP)  | Bus passenger processing<br>facility complete with the<br>CBRN detection and floor<br>level baggage scanners<br>on both sides  | Herringbone<br>vehicle<br>spaces in the<br>truck and bus<br>primary lanes<br>on both sides | Dedicated<br>bus lanes on<br>both sides;<br>extra truck<br>lanes, which<br>could also<br>get used as<br>dedicated<br>lanes for<br>NCTS/TIR<br>and AEO on<br>both sides | X-Ray scanner<br>mobile (2); sniffer<br>dogs and kennels<br>(2); vehicle number<br>plate scanner<br>(ANPR) (2);<br>radiological (2);<br>CBNR scanners on<br>both sides;<br>weighbridge on<br>both sides (2); hand<br>held mobile<br>passport and ID<br>scanners for both<br>sides |
| 32  | Merdare (CCP)/<br>Merdare (CCP) | Bus passenger processing<br>facility complete with the<br>CBRN detection and floor<br>level baggage scanners<br>on both sides; combined<br>customs and border guard<br>booths on both sides;<br>secondary vehicle<br>inspection facility | N.A  | Dedicated<br>bus lanes on<br>both sides;<br>extra truck<br>lanes, which<br>could also<br>get used as<br>dedicated<br>lanes for<br>NCTS/TIR<br>and AEO on<br>both sides | X-Ray scanner<br>mobile (2); sniffer<br>dogs and kennels<br>(2); vehicle number<br>plate scanner<br>(ANPR) (2);<br>radiological (2);<br>weighbridge on<br>both sides (2); hand<br>held mobile<br>passport and ID<br>scanners for both<br>sides                                    |

In summary, a battery of measures has been identified to improve the operations at the BCPs/CCPs ranging from the construction of secondary inspection facilities, to separate bus passenger processing facilities and the installation of chemical, biological, radiological and nuclear (CBRN) detection equipment.

The simplest and cost effective of these measures is the combined use of relatively low-cost solutions such as non-intrusive scanners and automation, and also a shift in the design of future to move away from first-in-first-out processing of HGVs by having inspections done away from the flow-through lanes. This last measure includes new design features such as herringbone design for truck parking to reduce traffic friction (i.e. friction between stationary and moving traffic), and these concepts are illustrated in Figure 16, Figure 17 and Figure 18.



Figure 16 Typical BCP linear design with three lanes in and three lanes out i.e. 'first-in first-out' management method, which results in traffic queues and time delays. The administrative building is on one side. The central reservation does not allow lane switching.



Figure 17 This BCP utilises herringbone angled parking spaces where trucks will not impede other trucks, and the central reservation is small enough to allow lane switching. The administrative building is on one side and does not impede traffic flow. Multi-lane entry and exit lanes are not inhibited by secondary inspection, weighing and scanning and import, export and transit procedures. The primary truck lanes are separated from the car and bus lanes.



Figure 18 Proposed reconstruction of the Morina (Kukes) BCP in Albania separates the truck traffic from the cars and buses. Tunnel X-Ray scanners will check imports. A small bus passenger processing facility should help make it more user friendly for passengers and drivers. Using advance notification and or transponders and or RFID technology will help get buses processed more swiftly.

# 5 Economic and Financial Appraisal Results

## 5.1 Methodology and Approach

## Cost Benefit Analysis (CBA):

CBAs are an invaluable tool in assessing investment projects and account for the opportunity costs of the schemes being considered over the long-term, and allow evaluators to calculate economic performance expressed in monetary terms.

By expressing the expected capital and operating expenditure, as well as the quantifiable benefits in a discounted cash flow model, the overall project performance can then be expressed in standardised indicators such as the Economic Net Present Value (ENPV), the Internal Rate of Return (IRR) or Economic Rate of Return (ERR), and Benefit to Cost Ratio (BCR).

The basic underlying premise of CBAs as prescribed by the EC (and adhered to here) is that the CBA compares the scenario "With Project" or "Do Something" Scenario with a counterfactual baseline scenario without the project (i.e. a "Do Minimum" or "Do Nothing" Scenario).

#### **Financial Analysis:**

As set out in Article 101 of Regulation (EU) No 1303/2013, a financial analysis must be included in the CBA to compute the project's financial performance indicators. Financial analysis is carried out in order to:

- Assess the consolidated project profitability,
- Assess the project profitability for the project owner and key stakeholders,
- Verify the project financial sustainability,
- Outline the cash flows, which underpin the calculation of the socioeconomic costs and benefits.

The following indicators of financial performance of the project have been quantified:

- Financial Net Present Value (FNPV): from an economic standpoint, for the desired projects, this should be greater than zero (0), and
- Financial Internal Rate of Return (FIRR): this should be greater than financial discount rate.

#### **Scenarios Considered**

In this project, we are dealing with assets that are already operational, therefore the "Do Nothing" Scenario can also be thought of as the "Business as Usual" or BAU Scenario in which no material investments and/or operational changes are made to the existing facilities. To summarise, the CBA effectively only considers the difference between the discounted cash flows in the with-the-project and the counterfactual scenarios – that is, the financial and economic performance indicators are calculated on the incremental cash flows only.

For the purposes of this project, we have defined the "Do Something" and BAU Scenarios as follows:

• **Business As Usual (BAU) Scenario**: All 32 BCPs/CCPs included in this study are operational. As such the BAU scenario for each is simply the maintenance of the status quo with the existing facilities operating as of today, that is with two separate facilities being managed by each regional participant (or EU member state as the case may be). Whilst it is recognised that over

the duration of the CBA (which takes a long-term view) material changes may occur, including substantive expansion, relocation or even decommissioning of these facilities may take place, the CONNECTA team has opted to avoid speculation in this regard and simplify the counterfactual scenario.

- "With Project" or "Do Something" Scenarios: The CONNECTA team have defined two basic categories of "Do Something" Scenarios, each of which have several variants within. The principal distinction between two categories is whether or not the "with project" case involves the continued use of the two separate facilities each managed by a regional participant, or if these two separate facilities are decommissioned and combined into a single site with all the officers co-located in that facility. To this end, the "Do Something DS" Scenarios are the following:
  - DS1: One-Stop Shop (OSS) with separate facilities;
  - DS2 OSS with one consolidated site (i.e. a Joint Border Crossing or JBC facility);
  - DS3 eQMS only with separate facilities;
  - o DS4 OSS with eQMS, separate facilities; and
  - DS5 OSS with eQMS, JBC facility.

### 5.2 Initial Sift of BCPs – Multi-Criteria Analysis Framework

At the onset of the project, the full list of BCPs/CCPs for consideration included the 32 crossings. However, over the course of the project leading up to this stage, a SWOT analysis of each of the 32 crossing points was undertaken to identify the strengths, weaknesses, opportunities and threats present in each. In so doing, the results of the SWOT analysis and the observations made by the CONNECTA in situ, it became evident that a number of sites were no longer appropriate for the implementation of either an OSS or eQMS system.

From the supplementary visits undertaken by the CONNECTA team to the Baltic region (Estonia, Lithuania and Finland), the need for the appropriate legal and institutional changes was further underlined – for instance, a variety of legal instruments were introduced in Finland and Estonia to facilitate the better sharing of workload between Customs and Border Police officers, in addition to allowing the eQMS systems to collect biometric and facial recognition data from passengers. In all three countries visited, laws requiring the mandatory registration of all trucks have also been ratified.

In order to have a verifiable and logical framework to help guide the initial sift of candidate sites, the CONNECTA team have followed up the SWOT analysis reported in the Fact-Finding Missions Report with the application of a Multi-Criteria Framework approach to sift through all 32 sites, and to qualitatively score each site based on a number of determining factors.

The four principal qualitative criteria used are:

- **Political will on both sides**, which is used to score the current political climate and relations between the two countries. In some instances, the scores have been adjusted to reflect the level of cooperation at the BCP/CCP, rather than just assuming a uniform score between country pairs;
- Need for Reconstruction, which we have considered as a proxy for the age of the present facilities and infrastructure on site. At a number of locations such as BCP Karakaj Mali

Zvornik, the need has been assigned a low rating despite the older infrastructure. These adjustments have been made to reflect each BCP/CCP's unique circumstances so for instance, in the case of BCP Karakaj, this has been adjusted down in view of the government's plans to construct a new, nearby BCP at Bratunac and Ljubovija,

- Institutional Frameworks in place, reflects the perceived level of cooperation present at each specific BCP/CCP, as well as the standard operating procedures put to practice.
- **Maturity** is used to denote the level of readiness for project implementation. For instance, locations where detailed designs have been prepared will rate higher than another location with only conceptual plans, or no design work carried out.

This framework uses a RAG (i.e. red-amber-green) qualitative scoring system to denote the perceived appropriateness of the BCP in terms of each determining factor; the final results of the scoring are tabulated below.

| Ref 🕂 | вср/сср 🗸                                | Political will on both<br>sides<br>[1 - weak, 2 - average, 3<br>strong] | Need for<br>Reconstruction<br>[1 - No need; recently<br>reconstructed, 2 -<br>Imminent<br>Reconstruction<br>needed, 3 - Urgent<br>Need] | Institutional Frameworks in place<br>[1-Not ready, 2 - Under preparation, 3<br>- Ready] | Maturity<br>[1 - No planning<br>in place, 2 -<br>Plans/Design<br>underway, 3 -<br>Tendering/imple<br>mentation-ready] | Aggregate Score | Carry Forward?<br>[Y/N] |
|-------|--|---|---|---|---|-----------------|-------------------------|
| 1     | 1 BCP Qafe Thane - Kjafasan              | 3   | 2   | 2   | 2   | 9               | Y                       |
| 2     | 2 BCP Kapshtice - Krystallopigi          | 1   | 2   | 1   | 1   | 5               | Ν                       |
| 3     | 3 BCP Hani I Hotit - Bozaj               | 3   | 2   | 2   | 3   | 10              | Y                       |
| 4     | 4 BCP Kakavije - Ktismata                | 1   | 2   | 1   | 1   | 5               | N                       |
| 5     | 5 BCP Morine - Vermice                   | 1   | 3   | 2   | 3   | 9               | Y                       |
| 6     | 6 BCP Doljani - Metkovic                 | 1   | 1   | 1   | 1   | 4               | N                       |
| 7     | 7 BCP Bijaca - Prud                      | 3   | 1   | 3   | 1   | 8               | Y                       |
| 8     | 8 BCP Bosanski Samac - Slavonski Samac   | 2   | 2   | 3   | 1   | 8               | Y                       |
| 9     | 9 BCP Neum (I) NorthWest - Klek          | 2   | 2   | 3   | 1   | 8               | Y                       |
| 10    | 10 BCP Neum (II) SouthEast - Zatoni Doli | 2   | 2   | 3   | 1   | 8               | Y                       |
| 11    | 11 BCP Gradiska - Nova Gradiska          | 3   | 3   | 3   | 3   | 12              | Y                       |
| 12    | 12 BCP Hum - Scepan Polje                | 3   | 1   | 2   | 2   | 8               | Y                       |
| 13    | 13 BCP Vardiste - Kotroman               | 1   | 2   | 2   | 2   | 7               | N                       |
| 14    | 14 BCP Karakaj - Mali Zvornik            | 2   | 1   | 3   | 1   | 7               | N                       |
| 15    | 15 BCP Medzitlija - Niki                 | 1   | 2   | 1   | 1   | 5               | N                       |
| 16    | 16 BCP Deve Bair - Gyuesevo              | 2   | 3   | 3   | 2   | 10              | Y                       |
| 17    | 17 BCP Tabanovci - Presevo               | 2   | 3   | 2   | 2   | 9               | Y                       |
| 18    | 18 BCP Bogorodica - Evzoni               | 1   | 2   | 1   | 1   | 5               | N                       |
| 19    | 19 BCP Blace - Hani i Elezit             | 2   | 2   | 2   | 2   | 8               | Y                       |
| 20    | 20 BCP Novo Selo - Zlatarevo             | 1   | 2   | 1   | 1   | 5               | N                       |
| 21    | 21 BCP Debeli Brijeg - Karasovici        | 3   | 2   | 2   | 1   | 8               | Y                       |
| 22    | 22 BCP Dobrakovo - Gostun                | 3   | 3   | 2   | 3   | 11              | Y                       |
| 23    | 23 BCP Dracenovac - Spiljani             | 2   | 1   | 1   | 1   | 5               | N                       |
| 24    | 24 BCP Kula - Kulina                     | 1   | 2   | 1   | 1   | 5               | N                       |
| 25    | 25 BCP Sukobin - Murriqan                | 3   | 1   | 2   | 1   | 7               | N                       |
| 26    | 26 BCP Batrovci - Bajakovo               | 3   | 1   | 2   | 2   | 8               | Y                       |
| 27    | 27 BCP Horgos - Roszke                   | 3   | 2   | 2   | 2   | 9               | Y                       |
| 28    | 28 BCP Gradina (Dimitrovgrad) - Kalotina | 3   | 2   | 2   | 2   | 9               | Y                       |
| 29    | 29 BCP Vatin - Stamora Moravita          | 1   | 2   | 1   | 1   | 5               | N                       |
| 30    | 30 BCP Vrska Cuka - Vrska Cuka           | 1   | 3   | 1   | 1   | 6               | N                       |
| 31    | 32 BCP Ribarice* (CCP) - Banje (CCP)     | 1   | 1   | 1   | 3   | 6               | N                       |
| 32    | 32 BCP Merdare (CCP) - Merdare (CCP)     | 1   | 3   | 1   | 3   | 8               | Y                       |

#### Table 5: Multi-Criteria Scoring of BCPs/CCPs

N.B. \* - The formal name for this CCP is Brnja čki Most

## 5.3 Traffic Analysis

The CONNECTA team carried out supplementary analysis including traffic analysis and demand forecasts to provide the necessary inputs into the Cost Benefit Analysis (CBA) model. This supplementary work is reliant upon the historical traffic flow data collected at the BCPs/CCPs and used to produce forecasts of future growth of passenger and freight traffic through extrapolation – the numbers of existing and future users of the crossing facilities are then used to help quantify the benefits within the CBA model.

As an addition to the historical traffic, escalation of traffic was also computed based on the applied elasticities to GDP growth rate in order to present different scenarios, as explained below. A secondary purpose for carrying out this traffic analysis has been to help estimate the required capacity of waiting areas needed to support the proper functioning of an eQMS system; the investment costs needed to construct these areas have consequently been estimated for inclusion in the CBA. Traffic forecasts were developed to represent three different scenarios as a part of the sensitivity testing carried out on the CBA models:

- Pessimistic Case;
- Central Case; and
- Optimistic Case

The traffic demand for each BCP, in pessimistic and central scenarios, is based on the GDPs of two respective countries, weighted by their respective GDP share in the Western Balkans. Concerning BCPs located on the outskirt of the Western Balkans, equal weight is applied, while the optimistic scenario is linked with the historical traffic growth.

Given that the duration of the CBA spans a 20-year time horizon, in view of the potential growth of all regional participants, we have made the assumption that there will be constant growth during this period, very slow constant growth in pessimistic scenario or rapid only in the first few years of optimistic scenario. It is expected that in this period all Western Balkans economies will continue their respective development and that economic activity in the region will continue to flourish. Given that historically, real GDP growth, international trade and traffic volumes are correlated, this situation is expected to produce constant growth in traffic flow through the BCPs/CCPs.

The traffic forecasting has been extrapolated to year 2041, as the time horizon foreseen for this analysis is 2022-2041 (i.e. 20-year period) with 2022 assumed to be the first year of operation in all cases. The following scenarios were evaluated:

|                        |                 | DS1  | DS2  | DS3<br>w/WA | DS3<br>wo/WA | DS4<br>w/WA | DS4<br>wo/WA | DS5<br>w/WA | DS5<br>wo/WA |
|------------------------|-----------------|------|------|-------------|--------------|-------------|--------------|-------------|--------------|
| BCP/CCP 1 Name         | BCP/CCP 2 Name  | 2022 | 2022 | 2022        | 2022         | 2022        | 2022         | 2022        | 2022         |
| Qafe Thane             | Kjafasan        | x    | х    |             |              |             |              |             |              |
| Hani I Hotit           | Bozaj           | x    | x    |             |              |             |              |             |              |
| Bijaca                 | Prud            | x    | x    |             |              |             |              |             |              |
| Deve Bair              | Gyuesevo        | X    | x    |             |              |             |              |             |              |
| Blace                  | Hani i Elezit   | x    | x    |             |              |             |              |             |              |
| Neum (I) NorthWest     | Klek            |      |      | x           |              |             |              | x           |              |
| Neum (II) SouthEast    | Zaton Doli      |      |      | x           |              |             |              | x           |              |
| Debeli Brijeg          | Karasovici      |      |      | x           |              |             |              | x           |              |
| Merdare                | Merdare         |      |      |             | x            |             |              |             | x            |
| Bosanski Samac         | Slavonski Samac |      |      |             |              |             | Х*           |             | Х*           |
| Gradiska               | Nova Gradiska   |      |      |             |              |             | x            |             | x            |
| Tabanovci              | Presevo         |      |      |             |              |             | x            |             | x            |
| Dobrakovo              | Gostun          |      |      |             |              | x           |              | x           |              |
| Batrovci               | Bajakovo        |      |      |             |              |             | Х*           |             | Х*           |
| Horgos                 | Roszke          |      |      |             |              |             | x            |             | x            |
| Gradina (Dimitrovgrad) | Kalotina        |      |      |             |              |             | x            |             | x            |

### Table 6 Proposed scenario for implementation per BCP

\*eQMS proposed to be implemented only for HGVs

## 5.4 Concluding Remarks

Based on financial and economic analyses carried out by the CONNECTA team, the following BCPs/CCPs were carried forward for further elaboration and implementation as they have clear and supportive business cases (irrespective of the assumed growth scenario) for the implementation of joint border facilities/separated border facilities both for OSS, eQMS or a combination of both, as listed below:

- Qafe Thane/Kjafasan (OSS)
- Hani I Hotit/Božaj (OSS) MED Corridor
- Bijača/Prud (OSS) MED Corridor
- Neum I/Klek (eQMS) MED Corridor
- Neum II/Zaton Doli (eQMS) MED Corridor (could be implemented also as consolidated separated border facility)
- Gradiška/Nova Gradiška (OSS+eQMS)
- Deve Bair/Gyushevo (OSS)
- Blace/Hani i Elezit (OSS) OEM Corridor
- Batrovci/Bajakovo (OSS + eQMS) MED Corridor
- Horgoš/Rozske (OSS + eQMS) OEM Corridor
- Gradina/Kalotina (OSS + eQMS) OEM Corridor
- Merdare/Merdare (eQMS) OEM Corridor

Investment cost estimates were prepared by the CONNECTA team based on the capital investment needed for the infrastructure improvements (e.g. ANPR system, weighbridge, electronic boom gates, consolidated booths, extra truck lanes, extra lane signs, HGV parking, pavement marking and wayfinding, etc.), as well as the eQMS system components (e.g. core e-QMS system, call centre, workstations at the BCP and waiting areas, including hardware, software and setup, Wi-Fi network, cable connections, ANPR system, SMS service, LED displays, etc. all for PCs and HGVs).

These investment costs are summarised in the following table; a detailed cost breakdown is presented in Annex 2 of the CBA Report.

| BCP/CCP<br>1           | BCP/CCP<br>2       | DS1     | DS2     | DS3<br>w/WA | DS3<br>wo/WA | DS4<br>w/WA | DS4<br>wo/WA | DS5<br>w/WA | DS5<br>wo/WA |
|------------------------|--------------------|---------|---------|-------------|--------------|-------------|--------------|-------------|--------------|
| Qafe Thane             | Kjafasan           | 305,210 | 377,605 |             |              |             |              |             |              |
| Hani I Hotit           | Bozaj              | 660,330 | 555,165 |             |              |             |              |             |              |
| Bijaca                 | Prud               | 99,360  | 274,000 |             |              |             |              |             |              |
| Bosanski<br>Samac      | Slavonski<br>Samac | 681,830 | 841,915 |             |              |             |              |             |              |
| Neum (I)<br>NorthWest  | Klek               |         |         | 1,339,000   |              |             |              | 1,339,000   |              |
| Neum (II)<br>SouthEast | Zaton Doli         |         |         | 1,339,000   |              |             |              | 1,339,000   |              |
| Gradiska               | Nova<br>Gradiska   |         |         |             |              |             | 341,640      |             | 287,820      |
| Deve Bair              | Gyuesevo           | 184,000 | 317,000 |             |              |             |              |             |              |
| Tabanovci              | Presevo            |         |         |             |              |             | 1,071,360    |             | 1,351,680    |
| Blace                  | Hani i Elezit      | 234,600 | 342,300 |             |              |             |              |             |              |
| Debeli Brijeg          | Karasovici         |         |         |             | 1,089,000    |             |              | 1,089,000   |              |
| Dobrakovo              | Gostun             |         |         |             |              |             | 1,207,010    |             | 1,417,005    |
| Batrovci               | Bajakovo           |         |         |             |              |             | 811,250      |             | 1,224,625    |

Table 7 Investment cost per BCP (EUR)

| BCP/CCP                   | BCP/CCP        | DS1 | DS2 | DS3  | DS3   | DS4  | DS4       | DS5  | DS5       |
|---------------------------|----------------|-----|-----|------|-------|------|-----------|------|-----------|
| 1                         | 2              |     |     | w/WA | wo/WA | w/WA | wo/WA     | w/WA | wo/WA     |
| Horgos                    | Roszke         |     |     |      |       |      | 622,360   | )    | 1,121,180 |
| Gradina<br>(Dimitrovgrad) | Kalotina       |     |     |      |       |      | 827,750   | )    | 1,223,875 |
| Merdare CCP               | Merdare<br>CCP |     |     |      |       |      | 1,069,000 | )    | 1,069,000 |

N.B. WA – Waiting Area

The results of the financial and economic analyses of the shortlisted BCPs/CCPs are summarised in Table 8 and Table 9 respectively. The final list of proposed BCPs/CCPs for implementation is illustrated in Figure 19.

Moreover, a corridor-based approach previously has been considered to further catalyse growth and enhance the overall benefits of the project. In this regard, a deeper analysis of the results of the economic and financial appraisal undertaken suggests that regardless of the growth scenarios which will unfold in the future, priority should be given to the BCPs/CCPs located along Corridor X and Corridor V.

As the results show, even under the more modest traffic and lower GDP growth conditions assumed for the Pessimistic Scenario, the majority of the BCPs/CCPs along those two corridors yield positive results; the business case supporting the implementation of these evidently strengthen in the Central and Optimistic growth scenarios.

Additionally, the results also underline the benefits of having joint border facilities in lieu of continuing the current modus operandi involving separate facilities as there are clear operational advantages as well as significant reductions in the operating and maintenance expenditure as teams are co-located on one site as opposed to two.

Based on the findings presented herewith, we propose that this corridor approach be applied to Corridor X in its entirety through the Western Balkans, that is for the three BCPs (Horgos/Roszke, Batrovci/Bajakovo and Gradina/Kalotina) based on the CBA results, with an additional two to be added (Presevo/Tabanovce and Bogorodica/Evzoni) in order to support corridor approach idea and thereby removing any physical bottlenecks to complete the Corridor X system.

## Table 8 Financial performance indicators

|     |           |           |                        |                 |                |                  |          | Financial Analysis |              |              |              |  |  |  |
|-----|-----------|-----------|------------------------|-----------------|----------------|------------------|----------|--------------------|--------------|--------------|--------------|--|--|--|
|     |           |           |                        |                 |                |                  |          | Separated fac      | cilities     | Joint border | facilities   |  |  |  |
|     |           |           |                        |                 |                | A - OSS          |          |                    |              |              |              |  |  |  |
| No. | BCP/CCP 1 | BCP/CCP 2 | BCP/CCP 1 Name         | BCP/CCP 2 Name  | EU / NON<br>EU | B - EQINIS<br>C- | Scenario | NPV                | IRR          | NPV          | IRR          |  |  |  |
|     |           |           |                        |                 |                | OSS+eQMS         |          |                    |              |              |              |  |  |  |
| 1   | ALB       | MKD       | Qafe Thane             | Kjafasan        | Non-EU         | А                |          |                    |              |              |              |  |  |  |
| 2   | ALB       | MNE       | Hani I Hotit           | Bozaj           | Non-EU         | А                |          |                    |              |              |              |  |  |  |
| 3   | BIH       | CRO       | Bijaca                 | Prud            | EU             | А                |          |                    |              |              |              |  |  |  |
| 4   | BIH       | CRO       | Bosanski Samac         | Slavonski Samac | EU             | С                | Pes      | -13,592,323        | #NUM! (neg.) | 1,108,999    | 12.62%       |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | -10,298,571        | #NUM! (neg.) | 4,402,751    | 43.96%       |  |  |  |
|     |           |           |                        |                 |                |                  | Opt      | -7,092,820         | #NUM! (neg.) | 7,608,502    | >50.00%      |  |  |  |
| 5   | BIH       | CRO       | Neum (I) NorthWest     | Klek            | EU             | В                | Pes      | 916,473            | 9.12%        | 5,243,267    | 38.82%       |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | 8,579,352          | >50.00%      | 12,906,146   | >50.00%      |  |  |  |
|     |           |           |                        |                 |                |                  | Opt      | 16,430,002         | >50.00%      | 20,756,797   | >50.00%      |  |  |  |
| 6   | BIH       | CRO       | Neum (II) SouthEast    | Zaton Doli      | EU             | В                | Pes      | 523,450            | 6.92%        | 4,850,245    | 35.62%       |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | 7,859,999          | >50.00%      | 12,186,793   | >50.00%      |  |  |  |
|     |           |           |                        |                 |                |                  | Opt      | 15,371,237         | >50.00%      | 19,698,031   | >50.00%      |  |  |  |
| 7   | BIH       | CRO       | Gradiska               | Nova Gradiska   | EU             | C                | Pes      | -4,206,149         | #NUM! (neg.) | 8,102,285    | >50.00%      |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | 4,203,999          | >50.00%      | 16,512,433   | #NUM! (pos.) |  |  |  |
|     |           |           |                        |                 |                |                  | Opt      | 12,652,446         | #NUM! (pos.) | 24,960,880   | #NUM! (pos.) |  |  |  |
| 8   | MKD       | BUL       | Deve Bair              | Gyuesevo        | EU             | A                |          |                    |              |              |              |  |  |  |
| 9   | MKD       | SER       | Tabanovci              | Presevo         | Non-EU         | С                | Pes      | -11,863,116        | #NUM!(neg.)  | 3,613,866    | 25.32%       |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | -6,456,694         | #NUM!(neg.)  | 9,020,289    | 73.69%       |  |  |  |
|     |           |           |                        |                 |                |                  | Opt      | -770,614           | 0.18%        | 14,706,369   | >50.00%      |  |  |  |
| 10  | MKD       | KOS       | Blace                  | Hani i Elezit   | Non-EU         | A                |          |                    |              |              |              |  |  |  |
| 11  | MNE       | CRO       | Debeli Brijeg          | Karasovici      | EU             | В                | Pes      | -13,185,731        | #NUM! (neg.) | -300,838     | 2.07%        |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | -10,061,045        | #NUM! (neg.) | 2,823,848    | 22.52%       |  |  |  |
|     |           |           |                        |                 |                |                  | Opt      | -6,873,856         | #NUM! (neg.) | 6,011,036    | 49.86%       |  |  |  |
| 12  | MNE       | SER       | Dobrakovo              | Gostun          | Non-EU         | C                | Pes      | -5,039,850         | #NUM! (neg.) | 460,197      | 6.56%        |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | -1,784,438         | -6.64%       | 3,715,609    | 25.75%       |  |  |  |
|     |           |           |                        |                 |                |                  | Opt      | 14,779,034         | 247.87%      | 20,279,080   | >50.00%      |  |  |  |
| 13  | SER       | CRO       | Batrovci               | Bajakovo        | EU             | C                | Pes      | -8,917,672         | #NUM! (neg.) | 7,447,905    | >50.00%      |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | -627,492           | -0.94%       | 15,738,086   | >50.00%      |  |  |  |
|     |           |           |                        |                 |                | _                | Opt      | 8,067,043          | >50.00%      | 24,432,621   | #NUM!        |  |  |  |
| 14  | SER       | HUN       | Horgos                 | Roszke          | EU             | C                | Pes      | -16,071,343        | #NUM! (neg.) | 4,545,921    | 40.41%       |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | -9,896,399         | #NUM! (neg.) | 10,720,866   | >50.00%      |  |  |  |
|     |           |           |                        |                 |                |                  | Opt      | -3,422,633         | #NUM! (neg.) | 17,194,632   | >50.00%      |  |  |  |
| 15  | SER       | BUL       | Gradina (Dimitrovgrad) | Kalotina        | EU             | С                | Pes      | -13,648,180        | #NUM! (neg.) | 6,193,564    | 46.11%       |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | -6,525,703         | -36.64%      | 13,316,041   | >50.00%      |  |  |  |
|     |           |           |                        |                 |                | _                | Opt      | 959,096            | 8.37%        | 20,800,840   | >50.00%      |  |  |  |
| 16  | SER       | KOS       | Merdare                | Merdare         | Non EU         | В                | Pes      | -2,363,509         | -11.95%      | 748,860      | 8.90%        |  |  |  |
|     |           |           |                        |                 |                |                  | Cen      | 1,040,739          | 10.43%       | 4,153,109    | 33.89%       |  |  |  |
|     |           |           |                        |                 |                |                  | Opt      | 4,436,953          | 34.78%       | 7,549,323    | >50.00%      |  |  |  |

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## Table 9 Economic performance indicators

|     |           |           |                        |                 |                                |                            |          | Economic Analysis |                      |        |            |                  |       |
|-----|-----------|-----------|------------------------|-----------------|--------------------------------|----------------------------|----------|-------------------|----------------------|--------|------------|------------------|-------|
|     |           |           |                        |                 |                                | A - OSS                    |          | S                 | Separated facilities |        | ,<br>Joint | border facilitie | S     |
| No. | BCP/CCP 1 | BCP/CCP 2 | BCP/CCP 1 Name         | BCP/CCP 2 Name  | EU BCP /<br>Non EU<br>BCP(CCP) | B - EQMS<br>C-<br>OSS+eOMS | Scenario | NPV               | IRR                  | B/C    | NPV        | IRR              | B/C   |
| 1   | ALB       | MKD       | Qafe Thane             | Kjafasan        | Non-EU                         | A                          | Pes      | -8,710,907        | #NUM!(neg.)          | 0.05   | 470,426    | 24.31%           | 3.56  |
|     |           |           |                        |                 |                                |                            | Cen      | -8,704,445        | #NUM!(neg.)          | 0.05   | 479,349    | 24.96%           | 3.61  |
|     |           |           |                        |                 |                                |                            | Opt      | -8,296,376        | #NUM!(neg.)          | 0.09   | 1,131,915  | 47.85%           | 7.16  |
| 2   | ALB       | MNE       | Hani I Hotit           | Bozaj           | Non-EU                         | А                          | Pes      | -2,940,677        | #NUM!(neg.)          | 0.17   | 594,762    | 21.84%           | 3.20  |
|     |           |           |                        |                 |                                |                            | Cen      | -2,903,257        | #NUM!(neg.)          | 0.18   | 644,149    | 23.22%           | 3.39  |
|     |           |           |                        |                 |                                |                            | Opt      | -2,045,103        | #NUM!(neg.)          | 0.43   | 2,098,801  | >50.00%          | 8.77  |
| 3   | BIH       | CRO       | Bijaca                 | Prud            | EU                             | А                          | Pes      | -11,045,331       | #NUM!(neg.)          | 0.02   | 305,877    | 24.29%           | 3.29  |
|     |           |           |                        |                 |                                |                            | Cen      | -10,975,840       | #NUM!(neg.)          | 0.03   | 417,705    | 29.55%           | 4.13  |
|     |           |           |                        |                 |                                |                            | Opt      | -10,019,167       | #NUM!(neg.)          | 0.11   | 2,246,915  | >50.00%          | 17.82 |
| 4   | BIH       | CRO       | Bosanski Samac         | Slavonski Samac | EU                             | С                          | Pes      | -12,002,769       | #NUM!(neg.)          | 0.07   | -1,380,386 | -12.04%          | 0.53  |
|     |           |           |                        |                 |                                |                            | Cen      | -15,520,692       | #NUM!(neg.)          | 0.07   | -980,472   | -5.64%           | 0.66  |
|     |           |           |                        |                 |                                |                            | Opt      | -11,337,587       | #NUM!(neg.)          | 0.12   | -144,561   | 3.61%            | 0.95  |
| 5   | BIH       | CRO       | Neum (I) NorthWest     | Klek            | EU                             | В                          | Pes      | -3,308,154        | #NUM!(neg.)          | 0.47   | -154,221   | 3.67%            | 0.95  |
|     |           |           |                        |                 |                                |                            | Cen      | -2,583,884        | -16.01%              | 0.59   | 616,402    | 9.72%            | 1.19  |
|     |           |           |                        |                 |                                |                            | Opt      | -2,145,240        | -12.24%              | 0.66   | 1,091,384  | 13.51%           | 1.33  |
| 6   | BIH       | CRO       | Neum (II) SouthEast    | Zaton Doli      | EU                             | В                          | Pes      | 604,437           | 10.01%               | 1.10   | 3,747,355  | 42.73%           | 2.13  |
|     |           |           |                        |                 |                                |                            | Cen      | 2,225,210         | 20.66%               | 1.36   | 5,411,906  | >50.00%          | 2.64  |
|     |           |           |                        |                 |                                |                            | Opt      | 1,978,515         | 20.70%               | 1.32   | 5,159,014  | >50.00%          | 2.56  |
| 7   | BIH       | CRO       | Gradiska               | Nova Gradiska   | EU                             | С                          | Pes      | -10,102,758       | #NUM!(neg.)          | 0.08   | -1,558,891 | #NUM!(neg.)      | 0.33  |
|     |           |           |                        |                 |                                |                            | Cen      | -9,867,564        | #NUM!(neg.)          | 0.11   | -1,292,638 | #NUM!(neg.)      | 0.42  |
|     |           |           |                        |                 |                                |                            | Opt      | -9,856,248        | #NUM!(neg.)          | 0.11   | -1,285,719 | #NUM!(neg.)      | 0.42  |
| 8   | MKD       | BUL       | Deve Bair              | Gyuesevo        | EU                             | А                          | Pes      | -12,488,786       | #NUM!(neg.)          | 0.04   | 389,068    | 23.36%           | 3.52  |
|     |           |           |                        |                 |                                |                            | Cen      | -12,483,717       | #NUM!(neg.)          | 0.04   | 394,769    | 24.02%           | 3.56  |
|     |           |           |                        |                 |                                |                            | Opt      | -12,462,342       | #NUM!(neg.)          | 0.04   | 412,278    | 25.88%           | 3.67  |
| 9   | MKD       | SER       | Tabanovci              | Presevo         | Non-EU                         | С                          | Pes      | -11,988,609       | #NUM!(neg.)          | 0.13   | -1,286,817 | -6.33%           | 0.60  |
|     |           |           |                        |                 |                                |                            | Cen      | -11,530,529       | #NUM!(neg.)          | 0.16   | -793,022   | -1.26%           | 0.75  |
|     |           |           |                        |                 |                                |                            | Opt      | -6,123,396        | #NUM!(neg.)          | 0.56   | 5,104,832  | 30.5%            | 2.59  |
| 10  | MKD       | KOS       | Blace                  | Hani i Elezit   | Non-EU                         | А                          | Pes      | -11,477,672       | #NUM!(neg.)          | 0.04   | 616,403    | 32.15%           | 4.70  |
|     |           |           |                        |                 |                                |                            | Cen      | -11,513,964       | #NUM!(neg.)          | 0.04   | 560,893    | 31.04%           | 4.37  |
|     |           |           |                        |                 |                                |                            | Opt      | -11,358,238       | #NUM!(neg.)          | 0.05   | 865,462    | 44.99%           | 6.20  |
| 11  | MNE       | CRO       | Debeli Brijeg          | Karasovici      | EU                             | В                          | Pes      | -10,293,345       | #NUM!(neg.)          | 0.14   | -1,393,523 | -9.13%           | 0.55  |
|     |           |           |                        |                 |                                |                            | Cen      | -10,167,431       | #NUM!(neg.)          | 0.15   | -1,260,151 | -7.47%           | 0.60  |
|     |           |           |                        |                 |                                |                            | Opt      | -10,095,941       | #NUM!(neg.)          | 0.15   | -1,184,005 | -6.92%           | 0.62  |
| 12  | MNE       | SER       | Dobrakovo              | Gostun          | Non-EU                         | С                          | Pes      | -6,654,744        | #NUM!(neg.)          | 0.06   | -2,777,509 | #NUM!(neg.)      | 0.17  |
|     |           |           |                        |                 |                                |                            | Cen      | -6,476,086        | #NUM!(neg.)          | 0.09   | -2,559,292 | #NUM!(neg.)      | 0.24  |
|     |           |           |                        |                 |                                |                            | Opt      | -6,529,352        | #NUM!(neg.)          | 0.08   | -2,610,983 | #NUM!(neg.)      | 0.22  |
| 13  | SER       | CRO       | Batrovci               | Bajakovo        | EU                             | С                          | Pes      | -35,442           | 4.59%                | 0.9975 | 11,468,747 | >50.00%          | 4.55  |
|     |           |           |                        |                 |                                |                            | Cen      | 5,452,505         | 47.49%               | 1.38   | 17,062,917 | >50.00%          | 6.28  |
|     |           |           |                        |                 |                                |                            | Opt      | 3,793,954         | 44.26%               | 1.26   | 15,392,310 | >50.00%          | 5.76  |
| 14  | SER       | HUN       | Horgos                 | Roszke          | EU                             | С                          | Pes      | -5,812,543        | #NUM!(neg.)          | 0.66   | 8,396,452  | >50.00%          | 3.73  |
|     |           |           |                        |                 |                                |                            | Cen      | -1,447,556        | -3.02%               | 0.92   | 12,808,452 | >50.00%          | 5.16  |
|     |           |           |                        |                 |                                |                            | Opt      | -1,520,535        | -6.29%               | 0.91   | 12,765,476 | >50.00%          | 5.14  |
| 15  | SER       | BUL       | Gradina (Dimitrovgrad) | Kalotina        | EU                             | С                          | Pes      | -3,640,904        | #NUM!(neg.)          | 0.78   | 10,091,160 | >50.00%          | 4.22  |
|     |           |           |                        |                 |                                |                            | Cen      | -1,480,733        | -3.18%               | 0.91   | 12,280,220 | >50.00%          | 4.92  |
|     | 655       | KOG       |                        |                 |                                |                            | Opt      | 15,968,696        | 93.28%               | 1.96   | 30,147,025 | #NUM!(pos.)      | 10.63 |
| 16  | SER       | KOS       | Merdare                | Merdare         | Non-EU                         | В                          | Pes      | -1,933,316        | -14.88%              | 0.62   | 234,599    | 7.30%            | 1.08  |
|     |           |           |                        |                 |                                |                            | Cen      | -967,685          | -2.73%               | 0.81   | 1,212,271  | 15.24%           | 1.41  |
|     |           |           |                        |                 |                                |                            | Opt      | 2,997,989         | 23.00%               | 1.59   | 5,234,771  | 44.17%           | 2.77  |

Figure 19 Proposed BCPs/CCPs to Implement OSS/eQMS



## 6 Road Map for OSS

At the operational level, a number of physical and systems-based improvements have been highlighted in the preceding stages of the CONNECTA project. Given the varying nature of these improvements, the procurement route for each are inherently different and therefore require different implementation plans.

The integral list of BCPs/CCPs with the proposed ITS and physical/infrastructure measures to be introduced are listed in Table 3 and Table 4 respectively.

In addition, the BCPs at Vardište/Kotroman on the BIH/SER border, and Blace/Hani i Elezit on the KOS/MKD border have been further identified as candidate locations to implement "quick-win" solutions as the in-situ conditions are optimal to rapidly implement physical improvements to enhance trade facilitation and operations here.

For ready-to-implement OSS, we have selected BCP Bijača/Prud on the BIH/CRO border, and BCP Qafe Thane/Kjafasan on the ALB/MKD border as the two candidate locations on the basis of the availability of existing infrastructure that is already largely fit-for-purpose (i.e. not needing extensive construction costs) and with good operational working relationships between the staff on both sides.

| Quick-win Candidate Sites for Infrastructure improvements   |   |        |
|---|---|--------|
| Description of activities   | Duration  | Cost   |
|   |   | (MEUR) |
| <ul> <li>BCP Vardište/Kotroman (BIH/SER):</li> <li>preparation of design drawings and an implementation plan for<br/>"herringbone" truck parking spaces to eliminate the situation<br/>where the front (i.e. downstream) truck delays trucks following<br/>behind. The quick-win activities would include the procurement<br/>of design, goods, installation works and works supervision.</li> <li>Upgrades to the office facilities (i.e. containers) on the BIH side<br/>(including procurement of design services, installation works and<br/>construction supervision)</li> <li>Upgrades of all booths serving truck lanes to appropriate height<br/>(including procurement of design services, installation works and<br/>construction supervision)</li> <li>Preparation of Design and Installation of electronic boom gates<br/>(including procurement of design, goods, installation works and<br/>works supervision)</li> </ul> | Tendering<br>period as per<br>regional<br>participant's<br>procurement<br>rules for<br>Design-Build<br>+ 6-12<br>months | c. 0.2 |

A summary of these quick-win locations are attached below:

| <ul> <li>Preparation of Design and Construction of extra truck lanes<br/>(including reconstruction of existing BCP area on BiH side<br/>(including procurement of design, works and works supervision)</li> </ul>   |  |  |
|---|--|--|
| <ul> <li>BCP Blace/Hani i Elezit (MKD/KOS)</li> <li>Preparation of Design and Installation of weigh bridge in other<br/>lanes so trucks can use more than one lane (including procurement of<br/>design, goods, installation works and works supervision)</li> <li>Preparation of Design and installation of "herringbone" truck<br/>parking thereby eliminating the front truck delaying trucks behind<br/>(including procurement of design, goods, installation works and works<br/>supervision)</li> <li>Preparation of Design and Installation of automatic number<br/>plate recognition (ANPR) system (including procurement of design,<br/>goods, installation works and works supervision)</li> <li>Preparation of Design and Installation of electronic lane signs<br/>(including procurement of design, goods, installation works and works<br/>supervision)</li> <li>Upgrade of all booths serving truck lanes to appropriate height</li> </ul> | Tendering<br>period as per<br>regional<br>participant's<br>procurement<br>rules for<br>Design-Build<br>+ 6-12<br>months              | c. 0.35  |
|   |  |  |
| Quick-win Candidate Sites for OSS   |  |  |
| Quick-win Candidate Sites for OSS Description of activities   | Duration   | Cost<br>(mEUR)   |
| Quick-win Candidate Sites for OSS         Description of activities         BCP Bijača/Prud (BIH/CRO):         • Bilateral agreement signing         • Alignment of legal frameworks to mutually recognise certificates, especially veterinary and phytosanitary, given the volumes of livestock and produce passing through this BCP.         • Formation of Working Group to work towards implementation of OSS         • Physical implementation of OSS (including migration plan to selected site, procurement of goods and installation of necessary IT equipment)   | Duration<br>Tendering<br>period as per<br>regional<br>participant's<br>procurement<br>rules for<br>Design-Build<br>+ 12-18<br>months | Cost<br>(mEUR)<br>To be<br>confirmed<br>in<br>proposed<br>pilot<br>study |

| • | Alignment of legal frameworks to mutually recognise certificates, especially veterinary and phytosanitary, given the volumes of livestock and produce passing through this BCP | participant's<br>procurement<br>rules for<br>Design-Build | proposed<br>pilot<br>study |
|---|--|---|----------------------------|
| • | Formation of Working Group to work towards implementation of OSS   | + 12-18<br>months   |                            |
| • | Physical implementation of OSS (including migration plan to selected site, and procurement of goods and installation of necessary IT equipment)                                |   |                            |

Given the nature of the physical improvements listed above, it is suggested to use a traditional Designand-Build procurement route as all Regional Participants as well as stakeholders are familiar with this standardised procurement process. A typical timescale for Design and Build projects is illustrated in Figure 20.

| Months  | 1         | 2        | 3        | 4                  | 5 | 6 | 7 | 89 | 10       | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22            | 23 | 24            | 25 | 26            | 27 |
|---|-----------|----------|----------|--------------------|---|---|---|----|----------|----|----|----|----|----|----|----|----|----|----|----|---------------|----|---------------|----|---------------|----|
| Preparation of Tender for Design  |           | -        |          |                    |   |   |   |    |          |    |    |    |    |    |    |    |    |    |    |    |               |    |               |    |               |    |
| Pre-qualification (if two-stage)  |           |          |          |                    |   |   |   |    | }        |    |    |    |    |    |    |    |    |    |    |    |               |    |               |    |               |    |
| Invitation to Tender  |           |          |          |                    |   |   |   |    |          |    |    |    |    |    |    |    |    |    |    |    |               |    |               |    |               |    |
| Submission of bids  |           | 1        |          |                    |   |   |   |    | }        |    |    |    |    |    |    |    |    |    |    |    |               |    |               |    |               |    |
| Tender evaluation   |           |          |          |                    |   |   |   |    |          |    |    |    |    |    |    |    | 1  |    |    |    |               |    |               |    |               |    |
| Submission of bid evaluation report   |           |          |          |                    |   |   |   |    | }        |    |    |    |    |    |    |    |    |    |    |    |               |    |               |    |               |    |
| Review of bid evaluation report   |           | 1        |          |                    |   |   |   |    | }        |    |    |    |    |    |    |    | 1  |    |    |    | 1             |    |               |    |               |    |
| Bank's no objection to bid evaluation report (if needed based on financing          |           |          |          |                    |   |   |   |    |          |    |    |    |    |    |    |    |    |    |    |    |               |    |               |    |               |    |
| arrangements)   | +         | -        | +        | $\left\{ \right\}$ |   |   |   | +  | }        |    | _  | _  | _  | _  |    |    |    | -  |    |    |               |    | <u> </u>      | +  | +             |    |
| Announcement of blading results   | H         | <u> </u> | ╞        | H                  |   | - | + | +  |          |    | -  | _  | _  | _  |    |    |    | -  | _  | -  |               |    | $\rightarrow$ | +  | +             |    |
| Letter of award   | +         | <u> </u> | +        |                    |   |   |   | +  |          |    | _  | _  | _  | _  |    |    |    | -  |    | +  |               | -  |               | +  | +             |    |
|   | +         | -        | ╞        | H                  |   | - | - | -  | <u> </u> |    | _  | _  |    | _  | _  |    |    | -  | _  | +  |               |    | —             | +  | +             |    |
| Surveys & Ground Investigations (If needed)   | +         | <u> </u> | ╞        | H                  |   | + |   | +  | -        |    |    |    | _  | -  |    |    |    | -  | _  | -  |               | -  | —             | +  | +             |    |
| Preparation of necessary Design (depending on the scope of required services)       | H         | }        | +        | $\square$          |   | + | + | -  | }        |    |    |    | _  | _  |    |    |    | -  |    |    | -{            | _  | <u> </u>      | +  | +             |    |
| Design Review by the State Revision Committee/Appointed Independent Engineering     |           |          |          |                    |   |   |   |    |          |    |    |    |    |    |    |    |    |    |    |    |               |    |               |    |               |    |
| Company (depending on level of design and procedures in the country)                | H         | }        | ╞        | H                  |   | + | + | +  | }        |    |    | _  | _  | -  |    |    |    | -  | _  | -  |               |    | —             | +  | +             | _  |
| Preparation of Technical Specifications & Tender Documents (separate tenders for    |           |          |          |                    |   |   |   |    |          |    |    |    |    |    |    |    |    |    |    |    |               |    |               |    |               |    |
| construction works, supervision services and supply of equipment that could be done |           |          |          |                    |   |   |   |    |          |    |    |    |    |    |    |    |    |    |    |    | - {           |    |               |    |               |    |
| in parallel)  | H         | <u> </u> | +        | H                  |   | + | + | +  | <u> </u> |    |    |    |    | _  |    |    |    | -  | _  | -  |               | _  | —             | +  | +             |    |
| Contract Completion   | +         |          | -        | H                  |   | + | + | +  |          |    |    | _  |    |    | _  |    |    | -  | _  | +  |               |    | —             | +  | +             |    |
| Pre-qualification (if two-stage)  | +         | <u>{</u> | +        |                    |   | + | + | +  | <u> </u> |    |    | _  |    | _  |    |    |    |    |    |    | $\frac{1}{2}$ |    |               | +  | $\rightarrow$ |    |
| Invitation to Tender  |           | 1        | +        | H                  |   | + |   | +  | <u> </u> |    | _  | _  |    | _  | _  |    |    | -  |    | -  | -}            |    |               | +  | $\rightarrow$ |    |
| Submission of bids  | H         | <u>{</u> | +        | -                  |   | + | + | -  | <u>{</u> |    |    | _  |    |    |    |    |    | _  |    |    |               | _  |               | +  | $\rightarrow$ |    |
| Tender evaluation   |           | <u>{</u> | +        | ļ                  |   | + | + | -  | <u> </u> |    |    | _  |    | _  |    |    |    |    |    | _  | -}            |    |               | +  | $\rightarrow$ |    |
| Submission of bid evaluation report   |           | ţ        | -        | H                  |   | - | + | +  | <u> </u> |    | _  | _  |    | _  |    |    |    |    |    | _  |               | _  |               | +  | $\rightarrow$ |    |
| Review of bid evaluation report   |           | <u> </u> | _        | H                  |   | - | - | _  |          |    | _  | _  | _  | _  |    |    |    | _  |    |    |               | _  |               | +  | +             |    |
| Bank's no objection to bid evaluation report (if needed based on financing          |           |          |          |                    |   |   |   |    |          |    |    |    |    |    |    |    |    |    |    |    |               |    |               |    |               |    |
| arrangements)   |           | ļ        | <u> </u> | H                  |   | ļ | 1 | _  | <u> </u> |    | _  |    |    |    |    |    |    | _  |    |    | ļ             | _  |               | +  | $\downarrow$  |    |
| Announcement of bidding results   |           | <u> </u> | <u> </u> | ļļ                 |   | - | 1 | _  | <u> </u> |    |    |    |    |    |    |    | -{ |    | _  |    | Ę             | _  |               | +  | _{            |    |
| Letter of award   | $\square$ | 1        | -        | Ļ                  |   | ļ | 1 | _  | ļ        |    |    |    |    |    |    |    |    |    |    |    | ļ             |    |               | +  |               |    |
| Contracts signing for Works, Supervision and Supply of goods                        |           | }        | -        | ļļ                 |   | ļ | 1 | _  | }        |    |    |    |    |    |    |    |    |    |    |    |               |    |               | _  |               |    |
| Contract duration (depending on scope of required works)                            |           | 1        | <u> </u> | ļį                 |   | ļ |   | _  |          |    |    |    |    |    |    |    |    |    |    |    |               |    |               | 4  |               |    |
| Contract completion   |           | }        |          | { }                |   |   |   |    | }        |    |    |    |    |    |    |    | }  |    |    |    |               |    |               |    |               |    |

Tender Procedure Implementation of contracts (Services, Supply of goods, Works)

Figure 20 Work Plan for Physical Improvements

The CONNECTA team also identified facilities for the rapid implementation of eQMS. In keeping with the principles for regional inter-connectivity as per CONNECTA's mandate, it has been agreed that the implementation of e-QMS system should be implemented along entire corridors to maximise the benefits; in the CBA Report, Corridor X has been identified as the preferred quick-win corridor:

| Quick-win Candidate Sites for eQMS   |   |  |
|--|---|--|
| <ul> <li>Five (5) BCPs along Corridor X: Horgoš/Roszke (SER/HUN);<br/>Batrovci/Bajakovo (SER/CRO); Gradina/Kalotina (SER/BUL);<br/>Preševo/Tabanovci (SRB/MKD); Bogorodica/Evzoni (MKD/GRE).</li> <li>Definition of Final Beneficiary/ies who will manage the<br/>administrative procedures for system implementation (e.g. the<br/>contracting entity to procure the services of the eQMS<br/>contractor)</li> <li>System design</li> <li>Implementation of system</li> </ul> | c. 12 months<br>for design<br>and<br>procurement<br>+ c. 12<br>months for<br>installation | To be<br>confirmed<br>in design<br>stage |

The system components comprising an eQMS system are typically procured as either "Design-and-Install" or "Design-Build-Maintain" projects, typically with a pre-qualification stage. Based on this assumption, the work plan for the planning and procurement of these systems is illustrated in Figure 21.

The development of the IT system can generally be divided into three stages:

1. development of the specifications of the IT system

- 2. procurement procedures
- 3. deployment/commissioning and testing of the IT system

The entire process of introducing new IT solution can be expected to last up to two years.

| Months   | 1 | 2 | 3 | . Z | 1 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|--|---|---|---|-----|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Surveys & Ground investigations (if needed)                |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Preparation of Technical Specifications & Tender Documents |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Invitation to Tender                                       |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Submission of bids   |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Tender evaluation  |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Submission of bid evaluation report                        |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Review of bid evaluation report                            |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Announcement of bidding results                            |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Letter of award  |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Contracts signing  |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Contract commencement                                      |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Contract duration  |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Contract completion  |   |   |   |     |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

Figure 21 Implementation Plan for ITS and Systems Components (eQMS)

# 7 Institutional/Legal Restructuring for eQMS

## 7.1 Multi-Lateral Aspects

As previously reported in the Road Map Report, many of Regional Participants are continuing to advance committed action plans pertaining to border/ common crossings and controls at these facilities (e.g. Montenegro signing protocols on joint border patrols with Croatia on 30 June 2017).

As a starting point for the implementation of eQMS in the region, it is recommended that a Memorandum of Understanding (MoU) first be drafted to make manifest the commitment by all parties and provide possibilities for the uniform implementation of border crossing improvements across the region.

In the first instance and in the order of priority defined in the CBA and Feasibility Reports, the MoU should first be signed between Regional Participants/ EU Member States along Corridor X (North Macedonia and Serbia from Western Balkans, as well as Greece, Bulgaria, Hungary and Croatia from EU Member States).

## 7.2 Bi-Lateral Aspects

One of the key results from the signing of the above MoU should be the establishment of Working Groups for the implementation eQMS and OSS; some representatives from the different authorities should be present for both to ensure cross-pollination and coordination between the two teams.

Each Working Group should comprise the three primary actors involved operationally at the border/common crossing points representatives: i) the Border Police, usually under the Ministry in charge of Internal Affairs; ii) the Customs office under the Finance Ministry; and iii) the veterinary and phytosanitary inspectors, usually under the Ministry of Agriculture.

As previously mentioned in the Road Map Report, the processes for the drafting of the respective bilateral agreements can begin concurrently. The Bi-Lateral Agreement report and template previously drafted by the CONNECTA team that outline the general procedure are summarised in following paragraphs:

### 1. Step One (Basis/Platform of the Government for Negotiation of Bilateral Agreement)

For all Regional Participants the first step is Government adoption/ approval of the document called *'Basis/Platform of the Government for Negotiation of Bilateral Agreement'* that should be consisted of following sections:

- Constitutional and legal base for conclusion of the Bilateral Agreement;
- Assessment of the relationship between the future parties to the agreement;
- Reasons for conclusion of the Bilateral Agreement;
- Main topics for negotiations;
- Assessment of the funds needed for the implementation of the Future Agreement;
- Needs for harmonisation/amendments to the laws and regulation;
- Government Team for negotiations and data related to the cost of negotiations;
- Draft of the Agreement that will be negotiated.

For the purposes of this study, a draft Bilateral Agreement along with ancillary supporting documents have been prepared by the CONNECTA team and attached in Annex 2 of the Bi-Lateral Agreement Report<sup>9</sup>.

## 2. Step Two (Signing/Conclusion of the Bilateral Agreement)

Following the successful conclusion of negotiations, the respective Regional Participant's Governments should adopt the final text of the Agreement and should authorise their representatives to sign the bilateral agreement.

## 3. Step Three (Ratification of Bilateral Agreement)

Upon the signing of the Bilateral Agreements, they should be submitted by the Government to the National Parliament for the Ratification as an International Agreement, along with the text of the Law on Ratification, after which it should be published in the respective Official Gazette in its part dedicated to International Agreements.

Parallel or simultaneous steps to the signing of the Bilateral Agreements should include negotiations, signing and ratification of the respective Protocols of the Bilateral Agreement. Usually, Bilateral Agreements on opening JBCP/JCCPs, are supplemented by the respective Implementing (detailed) Protocols – this same principle also applies to eQMS facilities. The latter are either negotiated from the offset as an annex to the Bilateral Agreement, or are negotiated separately after signing of the Basic Bilateral Agreement and are signed, adopted and ratified in the same procedure as described above.

## 4. Step Four (Implementation of Bilateral Agreement and Protocol)

After the legal process of signing, adoption and ratification of the Bilateral Agreements and accompanying protocols, the Regional Participants must initiate a series of steps, measures (physical, financial, administrative, organisational etc.) to initiate and complete the implementation of everything that was agreed between the Parties to the Agreements and Protocols.

Whilst each Regional Participant and EU Member State involved will have different timescales and legal due processes that are specific to their own legislation, an approximate work plan is illustrated in the following figure (presented timeline accounts average time scales needed for the reading and ratification of similar legal instruments).

During the preparation of the Feasibility report of the BCP facilitation study, the general legal framework for border/ common crossing control existing in the Western Balkans was assessed. One of the conclusions was confirmation of the presence of the necessary legal instruments as a basis for the organisation of joint controls (various forms of one-stop-shop controls). However, it should be noted that the elements for eQMS were not immediately recognised in the current legal acts.

Therefore, the legal provisions will need to be amended to enable the setup of the eQMS system. The Cost-benefit analysis undertaken by CONNECTA Team proved that eQMS could be feasible for a quite number of BCPs in the region (4 out of 6 Regional Participants in the Western Balkans). The CONNECTA Team have looked at a number of successful case studies drawn from the Baltic states, with appropriate definitions and quotations adjusted to the Regional Participants' legal system.

<sup>&</sup>lt;sup>9</sup> CONNECTA-TRA-CRM-REG-04\_CBP\_BLA

In keeping with the principle of introducing the necessary amendments rather than wholesale changes to the institutional/legal frameworks in place, it is recommended that laws pertaining to Border Control in the Regional Participants within the Western Balkans are only amended as needed to provide for the necessary legal basis for enacting by-laws which will then stipulate these issues in a more specific manner.

By allowing the primary Law to remain untouched while the technical and management issues are moved within the remit of the secondary legislation, the Regional Participants will avoid the cumbersome and lengthy procedures of changing the Law in future if a need occurs, hence keeping flexibility and having easier procedure for amending by-laws, especially in cases where these acts will be specifically tailored to specific BCPs and with no significance to the entire territory (other border areas).

Within the context of a road map to roll out these legal changes contained within the bi-lateral agreements, the following figure depicts the general duration for each of the stages in months, leading up to the completion of these changes. These may vary from one Western Balkans country to the next, depending on the national legal due processes.

# **Estimated time needed for Bilateral Agreement Activities**

Select a period to highlight at right. A legend describing the charting follows.

1 Plan Duration Actual Start % Complete Actual (beyond plan) % Complete (beyond plan)



Figure 22 Programme for Implementation of Bi-Lateral Agreements

## 8 Conclusions and Recommendations

The completion of this Final Report brings to a conclusion this CONNECTA sub-project which examines the feasibility of implementing OSS and eQMS systems in the Western Balkans, and culminates in the analysis and identification of a number of BCP/CCP sites which have produced positive economic and financial cases supporting the implementation of the project. We have included a number of BCPs and CCPs which are regarded as potential "Quick-Wins" locations which can be fast-tracked to produce immediate positive results.

In order to account for the uncertainties intrinsic to future economic and traffic growth, the CONNECTA team have considered three different traffic growth scenarios: a Pessimistic scenario in which future GDP, traffic and trade growth is more subdued, a Central Case in which prevailing GDP forecasts produced by the World Bank are applied and assumed to be sustained over the CBA period of 20 years, and finally, an Optimistic Scenario in which the exponential growth currently observed at the BCPs are extrapolated to continue into the future.

In order to ensure that the planning, implementation and commissioning of the OSS, the eQMS system and ancillary facilities (e.g. waiting areas, ITS systems, etc.) require planning and coordination at different levels, this Institutional Report and the work plan described in detail in the Road Map report are closely inter-related and structured to adhere to these different levels.

The initial project TOR suggested that the Road Map focuses on Component 1 (OSS) whilst the Institutional Restructuring Report emphasises Component 2 (eQMS). However, some elements of Component 1 have also been included in this present document as there is a clear need to elaborate the joint procurement and implementation aspects of those components that are common to both Component 1 and Component 2 to ensure that the technical interfaces are safeguarded, and also due to the economies of scale. These components could be wide-ranging and include items such as utilities and substations (since both components 1 and 2 would require electrical power supply), ducting (for burying fibre-optic cables, etc.) and civils works. These common elements would typically be included in the same tender documents.

In terms of the planning/design, implementation and testing/commissioning of the ITS at the BCPs/CCPs earmarked for eQMS systems (starting with Corridor X), our review of the current status quo in the Western Balkan countries suggests that the entire process could take up to two years (24 months) from a standing start to operational readiness. This duration will inevitably vary from one Regional Participant (or EU Member State) to the next due to the nuances in the national procurement processes.

In all likelihood, the legal changes that are required will require more time than the physical infrastructure and ITS components as the legal due processes and changes to national legislation will require several iterations. Moreover, any changes in government in any of the participating countries will inevitably result in further delays.

By our estimates, this legal process can take anywhere from 21 to 38 months to draft and eventually ratify therefore if this process goes to plan, it will dovetail nicely into the timeframe required for the physical infrastructure and ITS procurement. Nevertheless, it is our general view that this legal process should take precedence and begin immediately in order for the project to be a success.

As a follow-on to this project and with the aim of progressing the implementation of OSS and eQMS in the Western Balkans, we propose that the European Commission consider providing technical assistance to the Regional Participants in the form of the following activities, in sequential order:
- 1. Legal and Institutional technical assistance assignment to draft the multi-lateral Memorandum of Understanding (MoU) for the Western Balkans countries and immediate neighbouring EU Member States to initiative the implementation of OSS and eQMS. This assignment should include the undertaking of the necessary stakeholder engagement and lobbying activities needed to ensure that the MoU is not just drafted but also signed and ratified. Lastly, this assignment should also involve the tailoring of the bi-lateral agreement template prepared by the CONNECTA team to the specific needs of the pertinent country pairs for the 12 priority BCPs/CCPs identified herewith.
- 2. Technical assistance assignment to help prepare the functional and technical specifications for the procurement of civils works and/or ICT, as well as provide a procurement plan and procurement support until a preferred supplier is awarded the contract(s). The scope of works should cover as a minimum, the 12 priority BCPs/CCPs, including those facilities identified as "quick-win" locations.
- 3. Technical assistance assignment to help draft a BCP/CCP design guidelines document for the Western Balkans which will document and advocate best international practices, including preferential layouts, operational considerations and other design parameters to help balance security needs with operational efficiency and speediness of processing.