December 2018

Bosnia and Herzegovina Corridor Vc Project

Doboj Bypass in FBiH

Non-technical Summary
December 2018

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1 Introduction

The public company JP Autoceste d.o.o. (JPAC) intends to implement the construction of the 8.5 km-long section of Corridor Vc motorway between Putnikovo Brdo (inter-entity border with Republika Srpska) and Medakovo. JPAC is established as a joint stock company wholly owned by the Federation of Bosnia and Herzegovina (FBiH) Government.

The European Bank for Reconstruction and Development (the "EBRD" or the "Bank") is considering providing finance of a sovereign-guaranteed loan of up to EUR 230.0 million to Bosnia and Herzegovina (BiH), to be on-lent to Motorways of the Federation of Bosnia and Herzegovina Public Company (JPAC) and Republika Srpska Motorways (RSM). The loan will be guaranteed by the Government of Bosnia and Herzegovina with back-to-back guarantees from FBiH and Republika Srpska (RS), the two entities comprising BiH.

This document is a Non-Technical Summary providing information on the design of the Project, the potential environmental and social impacts and management measures that will be undertaken by JPAC for the Project, and how members of the public can contact JPAC with any further questions they have about the Project.

The Project has been developed by JPAC based on the FBiH legislative requirements and those of the EBRD.

The Project is situated in the north-east part of BiH (see Figure 1), about 120 km north of the city of Sarajevo and just south of the town of Doboj. It is predominantly a rural area with linear villages, and warehouses, small wood and metal processing facilities, and commercial facilities along the regional road.

Figure 1 Project Location

2 Project Need & Benefits

The Trans-European Corridor Vc is BiH's main north-south transport route. It connects Budapest (Hungary) to the Adriatic port of Ploče (Croatia). Within BiH, Corridor Vc's total length is approximately 335 km. The Project is located in the northern part of the country and is part of the planned 288 km-long section through the Federation of Bosnia and Herzegovina. The Project is significant for connection of the Corridor Vc sections in Republika Srpska as well as southern areas of FBiH. It will increase traffic capacity and reduce the traffic volumes on the existing regional road network.

The Corridor Vc is considered in FBiH as an essential road transport link with significant economic benefits for the country. In 2017, the FBiH Parliament adopted the Spatial Plan of an Area of Special Interest for FBiH - Corridor Vc Motorway, for the period of twenty years.

The Project will deliver a number of key benefits, including: improved regional, national and international connectivity in the western Balkans; facilitating economic development in the region; removal of some through traffic from the local road network reducing congestion in built up areas and resulting in road and community safety improvements, especially given the high rate of traffic accidents compared to European Union (EU) countries under the current road system; and, short-term local employment opportunities during construction.

3 Project Description

The total length of the Project is 8.5 km. The Project starts at the inter-entity border within the tunnel Putnikovo Brdo 2 (the total length is 700 m, the tunnel length in FBiH is 120 m) and upon the exit from the tunnel descends southwards, forming an underpass for the local road, and continuing towards the Usora RIver. The Usora interchange is situated on the left bank of the Usora River and includes the first bridge – Usora 1. Upon crossing the River, the Project continues along the right bank of the Usora River and passes parallel with the regional road M-4, before crossing the Usora River the second time at the Tešanjka 1 bridge. The Project briefly continues along the left Usora bank before the third and final crossing of the River at the bridge Tešanjka 2. The Project continues southwards and in the area of Tešanjka village passes through the cut and cover tunnel Hrastik (220 m). Upon existing the tunnel, the Project provides one underpass for a local road, intersects two streams which will be culverted, and crosses the Tešanjka River by bridges at five sections. The Project includes the Medakovo interchange and building of a traffic maintenance and control centre (TMCC).

The road will have a design speed of 120 km/h and be about 27 m wide.

The layout of the Project is shown in Figure 2 and Figure 3 below.

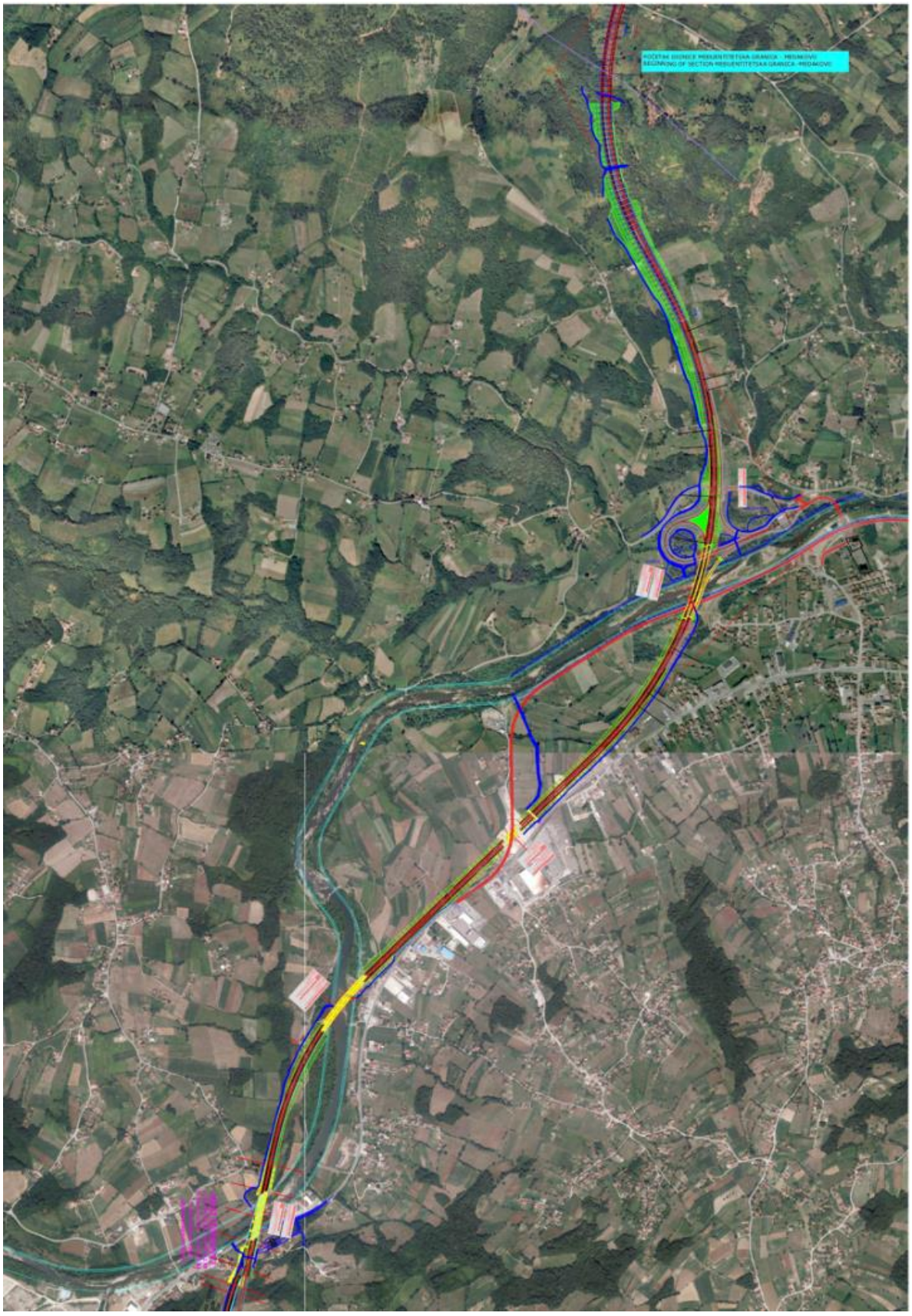

Figure 2 Layout of Project Northern Stretch (Inter-entity border – Karuse)

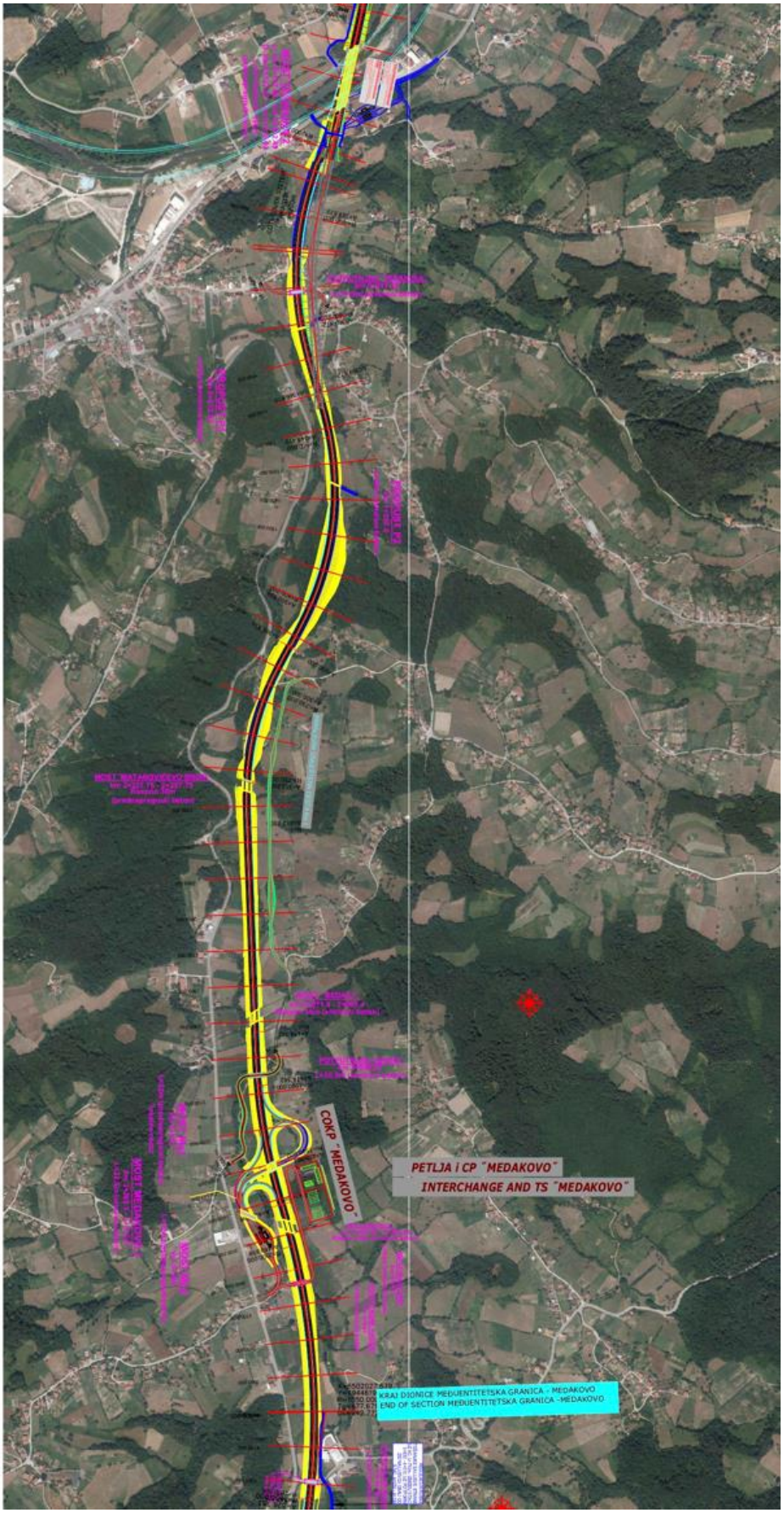

Figure 3 Layout of Project Southern Stretch (Karuse - Medakovo)

4 Route Selection and Consideration of Alternatives

Historically, the Corridor Vc alignment has been developed from 1981 when the Spatial Plan of BiH (1981 – 2000) listed the municipalities through which the motorway should pass. Prior to the conceptual design stage, eight alternative alignments were fed into a multi criteria analysis, and three were selected for further consideration at the conceptual design stage. At the preliminary design stage in 2006, one option was selected and considered as part of the Project EIAs. Public consultations on the Corridor alignment were conducted from 2008 via the municipalities affected, as part of development of the Spatial Plan of FBiH, the Spatial Plan for special-purpose area - Corridor Vc motorway, cantonal and municipal spatial plans. The Spatial Plan for special-purpose area - Corridor Vc motorway was finally adopted by FBiH government in 2017.

Variations in Design Going Forward: The northern part of the scheme (Inter- entity border - Karuse) was subject to extensive consultations held with affected local communities between 2009 and 2010. The Municipalities of Usora and Doboj South had asked for a variety of micro-alignments all of which were finally incorporated to the Main Design. The complaints were related to proposed access roads and their land conflicts with existing industrial buildings. As a result, the final 2010 option is technically more complex and less environmentally sound when compared to the Preliminary Design option. The final option crosses the Usora River at three sections (instead of one), requires realignment of the regional M-4 road adjacent to the Usora River, resulting in greater interaction with planned flood control works, and the scheme intersects two protected local groundwater sources (Karuše and Makljenovac). After the 2010 option was finalised no alignment changes have been made.

The southern part of the scheme (Karuse – Medakovo) was subject to public consultations with local communities of the Tešanj Municipality in 2014 as part of the Preliminary Design preparation. This stretch of the scheme has undergone a few micro-alignments, primarily due to interference with existing utilities (e.g. power transmission lines, municipal sewer network) and matching with the realignments of the northern section. After the Preliminary Design was finalised in 2014 no further alignment changes have been made and none are envisaged.

5 Summary of Environmental & Social Legal & Policy Framework

National Legal Framework for the Project

This Project is carried out within the jurisdiction of the Federation of Bosnia and Herzegovina, one of two administrative entities within Bosnia and Herzegovina. As a potential EU candidate country, BiH has been in the process of harmonisation with the EU legal framework, and the laws and regulations of FBiH are gradually being upgraded to meet EU norms. BiH has ratified the main International Labour Organisation Conventions, and has signed several international environmental and social treaties and conventions which are also applicable. The Project is governed by all these relevant laws and international obligations.

Legal Framework for Environmental and Social Protection

The Law on Environmental Protection (2009) is the framework environmental law for BiH. It governs the protection of air, water and land, public participation and access to environmental information, strategic environmental planning, strategic environmental impact assessment of plans and programmes, environmental impact assessment and environmental permits. It also regulates eco-labelling and environmental management, financing of environmental protection and economic instruments, environmental liabilities, and cooperation between the political entities in BiH. Under this framework, within FBiH, laws exist which cover the protection of nature, protected areas, flora and fauna, water resources, air quality, historical and cultural sites as well as forest resources and agricultural land.

Laws on social issues include those relating to land acquisition, public health, and a labour law which deals with workers' rights, including occupational health & safety, labour relations, working conditions, employment, wages, rights of women workers.

Summary of EIA & Permitting Process

The Law of Environmental Protection of FBiH (Official Gazette (O.G.) of FBiH, 3/2003, 38/2009) sets out the procedure for Environmental Impact Assessments and related environmental approvals. For a roads project such as this one, the Law requires a screening decision, and a scoping process. The EIA process includes requirements on public disclosure and consultation, and if successful, results in an Environmental Permit.

Legal Framework for Nature Protection

The Law is an overarching legislation and includes provision for implementing regulations on the establishment of NATURA 2000 sites and other regulations on Protected Areas. However, these implementing regulations are

still under development and level of harmonisation of FBiH with the Bird and Habitats Directive is still relatively low. The percentage of nationally protected areas in FBiH is understood to be in the region very low by percentage of area, and as yet, there are no Emerald Sites in Bosnia and Herzegovina. Bosnia and Herzegovina conducted a Pilot Project on establishment of the Emerald Network from 2005 to 2008 and officially nominated 29 candidate Emerald sites. The country took steps to identify an initial list of potential NATURA 2000 ecological areas that account for approximately 20% of its territory but further work is needed on establishment of Ecological Network and finalisation of potential NATURA 2000 candidate sites.

Planning, traffic planning and road planning

The Law on Public Roads (O.G. of RS, No. 06/02, 18/02) regulates the types of public roads in FBiH, their management, planning, financing, reconstruction, maintenance and protection. It also provides regulatory requirements for concessions and public-private partnerships for road projects.

Land Acquisition Legal Framework

The key legal instrument governing expropriation in FBiH is the Law on Expropriation which regulates the conditions and procedure for expropriation of property for construction of facilities in public interest, compensation eligibility and amounts, grievances and disputes handling and other issues pertaining to the expropriation process.

The FBiH Law on Proprietary Rights (O.G. of FBiH, No. 66/13, 100/13), states that all persons and legal entities can have property rights on movable and immovable property. The FBiH Expropriation Law (O.G. of FBiH, No. 70/07, 36/10, 25/12 and 34/16) regulates the expropriation of properties and assets, which may only be expropriated in the public interest and with fair compensation being paid. Under this Law, the Government firstly must establish a public interest case, and notify owners and affected third parties through a public announcement. Valuations of properties are performed by Court certified valuators and serve as a basis for negotiations. The affected owners and third parties can accept the compensation offer provided to them and thereby expropriation is deemed completed. They can also reach an agreement on compensation any time before the decision on expropriation is passed.

Ownership and other formal legal rights on land and structures are recorded in the Land registries, and all issues regarding property rights have to be resolved before the expropriation payment is made. In case of disputes, the courts will rule and decide on any compensation payable. The law foresees rights of affected citizens (those with formal legal rights) to appeal at many stages of the expropriation procedure, beginning with administrative and judicial appeals (i.e. against decision on expropriation, regarding compensation).

The FBiH Law on Expropriation falls short of the requirements of EBRD in several areas. EBRD require a socio-economic survey to be completed on the parties affected. Additionally, EBRD requires those users of the land who have no recognisable legal right or claim to the land they occupy to receive compensation. Similarly, those carrying out informal business activities should also be entitled to compensation. EBRD would require the provision of livelihood restoration measures, where business activities are affected, and also requires an independent grievance mechanism. EBRD requires that public consultations are held with all categories of project affected people prior to expropriation, and that the expropriation, resettlement and livelihoods restoration processes are monitored.

6 Project EIA, Stakeholder Engagement & Land Acquisition Process

Environmental Impact Assessment (EIA) Process

The Project successfully completed the national EIA procedure. Environmental aspects of the northern road stretch from the inter-entity border to Doboj South (Karuse) had been assessed as part of the EIA for Lot 1: Svilaj – Doboj South in 2007. The southern stretch from Doboj South (Karuse) to Medakovo had been analysed as part of the EIA for Lot 2: Doboj South (Karuse) to Sarajevo South (Tarcin) in 2007. The EIAs were approved in 2007, and JPAC was awarded an Environmental Permit for the northern stretch in September 2009, and for the southern stretch in February 2014. As the environmental permit is valid for 5 years, it expired in 2015 for the northern stretch and has not been renewed as JPAC has developed other Corridor sections. JPAC plans to submit the request for the new environmental permit that would be applicable only to the northern stretch. The Environmental Permit for the southern stretch is valid until 2019.

A Construction Environmental and Social Management Plan (CESMP) and an Operation Environmental and Social Management Plan (OESMP) will be prepared during construction and operation of the Project, to implement all mitigation measures required by the Main Design (EIA), the Environmental Permit and the EBRD Performance Requirements (PRs).

Stakeholder Engagement

In accordance with the legislative requirements of FBiH, stakeholder engagement activities were organised during the development of the Project. Stakeholder engagement in FBiH is mainly connected to the preparation of relevant planning documents, the expropriation process and the EIA / Environmental Permit process. Public consultations and engagement are led by the Competent Ministry and supported by local municipal authorities involved in a project.

The EIA procedures for the Project were completed in 2007 before JPAC was established as a company in 2010. As part of the FBiH statutory requirements for the EIA procedure, a variety of opinions and approvals had been sought and obtained from institutional stakeholders, that were incorporated to both EIAs for the Project.

During the preparation of the Main Design for the northern stretch (Inter-entity border – Karuse) in 2010, a series of consultations were held in the municipalities of Doboj South, Usora, and Tešanj. The consultations were mainly related to the Preliminary Design solution for the access roads which the municipalities of Usora and Doboj South initially required to be micro-aligned to avoid potential conflicts with existing facilities and industrial buildings. No written objections were recorded after the alignment was finalised. Also in 2017 some consultations were held with representatives of Doboj South municipality. At that time municipality required continuation of designing access road (relocation of the trunk road M4), so on the one part only preliminary design was finished.

During the preparation of the Preliminary Design for the southern part of the scheme (Karuse – Medakovo) in 2014, public consultations were held with local communities of the Tešanj Municipality. Concerns raised by the municipality were minor, related to adjustments of the scheme to avoid the interference with existing utilities.

The engagement for the EIA followed a national process in line with EBRD standards. A Stakeholder Engagement Plan has been prepared to identify key stakeholders and define relevant procedures and future plans for engagement prior to and during construction. The SEP includes additional consultations with local communities with respect to land acquisition, construction management and road safety. Disclosure of the national 2007 EIAs, NTS, SEP, ESAP and LARF is required. These will be uploaded to the JPAC website (http://www.jpautoceste.ba) and the EBRD website (http://www.ebrd.com).

Land Acquisition & Resettlement Planning Process

The Project requires the acquisition of land and assets resulting in economic displacement and limited physical displacement. Public Interest had not been announced for the Project at the time of writing (December 2018) but is anticipated by JPAC. No land or asset surveys have been undertaken and no land or assets have been acquired / expropriated to date.

The State Attorney's office has overall responsibility for the land acquisition and resettlement planning, however JPAC are required to submit the details of the land needed for the Project and to provide the funding for compensation payments. The local municipality also supports the process, largely through facilitation of engagement with local communities.

The Land Acquisition and Resettlement Framework for the Project is the Land Acquisition and Resettlement Framework for Corridor Vc (2017), which has been developed by JPAC to meet the FBiH legal framework and EBRD requirements for all Project sections in Corridor Vc.

A grievance redress mechanism will be established for the land acquisition and resettlement process so that affected persons can raise issues and grievances. Details of this will be provided during the consultations in each of the local communities and the contact details contained in this NTS can be used to access the grievance redress mechanism.

7 Summary of Environmental and Social Baseline Conditions

7.1 Environmental Baseline

General Setting: The proposed Motorway corridor sits in hilly upland bounding the valleys of the Usora and Tešanjka rivers, and a wide flat alluvial terrain along the River Usora. Lower parts of the area are dominated by agricultural land while the upland is covered by deciduous forestlands and pasturelands. It is a predominantly rural area with a number of linear villages formed along the regional road M-4 passing along the right bank of the River Usora, and several local roads. There are two distinctive landscape character areas: (1) lowland comprising the Usora and the Tešanjka River valleys, with the river banks being covered with riparian vegetation and with cultivated land where strips of land vary in width and are under a variety of arable crops, and (2) gently undulating landform bounding both valleys, covered by broadleaved forests and pastures.

Climate and Environmental Conditions: The area has a moderate continental climate characterised by variable seasons and higher temperatures in the autumn than the spring. The average annual rainfall is about 900 mm, and is highest in late spring and early summer. There is limited industrial activity in the project area, namely some metal, PVC, and wood processing workshops, warehouses, commercial facilities, gravel and sand extraction and separation. There are no industrial facilities in the Project area that might significantly affect the ambient air quality. The roads and the use of wood and coal for heating, do give rise to some emissions. Most noise and vibration is likely to result from traffic along the regional roads.

Geology and Hydrogeology: Geological composition of the Project area includes volcano-sedimentary rocks of Jurassic age (uncovered in the upland area), Quaternary sediments (covering the belt along the Usora and Tešanjka rivers) and partly Triassic limestone formations. Groundwater is present in Quaternary deposits along the Usora and Tešanjka rivers, forming the shallow groundwater aquifer within alluvial sands and gravels. The Usora River alluvial aquifer is used for local water supply of the villages Kraševo, Makljenovac, and Ularice. Two Kraševo groundwater wells are located within a radius of between 150 m and 250 m of the proposed alignment.

Surface Water: The main surface water in the Project area is the River Usora which runs from west to east. In the Project area the River has a lowland character, carrying a significant volume of sediment load, with an unstable riverbed, forming meanders and river bars. The river width in the area is in the range 40-50m. The average flow rate in the Project stretch is in the range 5.5 m^3/s (in "extremely dry" 2011) to 19 m^3/s (in "extremely rainy" 2014). A small river that will also be intersected by the project is the Tešanjka (average flow rate 1.32 m^3/s), main tributary of the Usora, running along the southern stretch of the scheme, in direction from south to north. There are also several other intermittent streams which will be crossed by the Project and culverted. Both rivers are prone to flooding. Both rivers are recipients of untreated industrial wastewater from facilities upstream and their ecological status is bad.

Flora and Fauna and Biodiversity: The predominant habitats are cultivated monoculture agricultural fields with flora limited to crops. The secondary dry shrub vegetation has been developed on grasslands as a result of land use changes. Fragments of mixed thermophilous (hop hornbeam oak woods) and beech woodland are present along the hilly upland and intersected by the scheme at several points. Wetland habitats present along the meandering Usora River include reed and swamp vegetation. Habitats along the Tešanjka watercourse include riparian willow-poplar woodland, formed along almost the entire River stretch.

7.2 Social Baseline

The social context of the area is characterised by linear villages whose inhabitants work in farming, and warehouses, small wood and metal processing facilities, and commercial facilities along the regional road.

Local Communities: According to the 2013 Census, the total population in settlements through which the route will pass is 11,009. The project footprint runs through or near to the villages of Makljenovac, Ularice, Alibegovci, Kraševo (Municipality of Usora), Tešanjka (Municipality of Usora), Žabljak, Matuzići, Kraševo (Municipality of Tešanj), and Tešanjka (Municipality of Tešanj).

The settlements in the Project area belong to the Municipalities of Usora, Tešanj, and the Doboj South and are part of the Zenica-Doboj canton. Based on the Census of 2013 the population of the three municipalities was 53,803. Over the recent years, the population growth has been in the range between -0.2 and +0.2 per 1000 inhabitants. Tešanj is a local centre with important road connections.

Demographics: The ethnic majorities in the affected municipalities are Bosnian (70%) and Croatian (28%). The largest minority is Serbian (0.6%). The population in the affected communities is evenly split between men (49.6%) and women (50.3%). The middle-aged population (35-55) is the most numerous (33%) while the young population (0-25) is more numerous than the population older than 55 years, 32.1% compared to 21.6%. Within the FBiH, the average life expectancy is 76.7 years for female and 74.6 for male. The key causes of mortality in the Zenicko-Dobojski canton in 2016 and 2017 were the following: cardiovascular diseases (12%), stroke (7.3%), bronchial cancer (5%), diabetes (2.5%), and other (70%).

Land Use: The land use is mixed - agricultural with open cultivated fields in the northern and southern stretch of the scheme and residential and commercial in the central part of the scheme. Cultivated crops include corn, oat, barley, rye. Narrow dirt roads cross the cultivated fields, allowing access for farming.

Local Livelihoods: The proposed route runs predominantly through agricultural cultivated land, which is a key livelihood of the local rural communities of the Usora and Doboj South municipalities, with more industrial and services sector livelihood being present within the area of Tešanj. Small scale farming is present, with majority of cultivated plots in the range 0.5 to 1 ha and vegetable gardens up to 0.5 ha. Farming techniques are undeveloped resulting in low to moderate crop yields, with crops often used only for own purposes and cattle feeding. Livestock is limited with small average number of cattle per farm.

The official annual average monthly net salary is about 370 EUR in Usora Municipality, and around 290 EUR in Tešanj and Doboj South Municipalities. This is lower than the national average of 430 EUR. The annual survey on average salaries performed by the Institute of Statistics of FBiH does not cover individual farmers. Given the small-scale farming and modest crop yields in the Project area it is reasonable to assume that average monthly income in the affected communities is lower than the average income for the municipalities.

Community Infrastructure: Government service, community facilities, such as schools and healthcare services are primarily available in Tešanj. Water supply in villages is provided from local groundwater wells (drilled and dug). No central wastewater treatment is present in the area. The area is covered with electrical power infrastructure and telecommunications network. The primary form of transport is car.

Cultural Heritage: The wider area of Alibegovci village is formally registered as a potential archaeological site with ancient and medieval material. The proposed scheme is adjacent to the archaeological area.

8 Environmental & Social Benefits, Impacts and Mitigation Measures

The benefits of the Project are summarised below:

- **Improved Connectivity:** The Project is part of the pan European Corridor Vc, which will improve regional, national and international connectivity in the Western Balkans, and improve transport links with neighbouring countries to the north and south.

- **Economic Development:** Improved connectivity provided by the Motorway network will facilitate the exchange of goods and services along the Corridor, and increase access to tourism centres and industrial areas in Bosnia & Herzegovina. This will encourage the creation of jobs in the areas of tourism, manufacturing, supply and services, which will have a knock-on positive benefit to the regional economy.

- **Improved Level of Service and Reduced Congestion:** The removal of some through traffic from the local road network will reduce congestion in the towns and built up areas, which will alleviate air pollution and noise generated from through traffic. It should also reduce the numbers of accidents on local roads, caused by through traffic. This all goes to reduce the cost of transportation in the area.

- **Short-term Local Employment During Construction:** The Project will provide short-term opportunities for local employment during the construction period.

The potential adverse effects are summarised in the table below along with the proposed key mitigation measures and an assessment of the residual level of effects, assuming the mitigation measures are implemented:

Topic	Summary of Impacts	Summary of Key Mitigation/Management Measures	Residual Impact Significance
Environment			
Air Quality	**During Construction***:* Emissions of dust from working areas, access roads, cut and cover tunnel excavation, stockpiles and during loading/unloading activities, truck transport of spoil off-site; emissions from concrete and asphalt plants; exhaust emissions from construction machinery; emissions due to peaks in traffic movements, will result. **During Operation***:* Emissions of particulates, exhaust gases and volatile organic compounds, including Greenhouse Gas (GHG) emissions, will result from road traffic on the Motorway.	Good maintenance of plant to reduce unnecessary emissions, and to remove and replace any heavily polluting plant. Standard construction measures to reduce dust (wetting down dusty areas, covering vehicles, etc.). Emissions levels from traffic on the road will increase over time as traffic levels increase. Air quality along the Motorway will be monitored.	During construction - Negative impacts of **medium significance** reduced to low **significance** with effective contractor management. During operation - Negative impacts will be of **low significance**.
Noise & Vibration	**During Construction:** Noise will be generated by construction plant and activities, especially if blasting and rock breaking is required for the tunnel construction. Tunnel blasting has the potential to affect the structural integrity of buildings close to the tunnel excavation area. (At this stage of development, the method for the cutting and Putnikovo Brdo 2 tunnel excavation is unknown). **During Operation:** Traffic noise levels will increase gradually over time with increased traffic flows, which will particularly affect communities close to the road.	Management controls typical for construction work include: restriction to daytime working hours and informing local communities on the construction schedule. Noise barriers will be erected where residential areas are identified as at risk from high noise levels, either in the EIAs, or by the design or the contractor. Noise levels will be monitored during construction and road operation, at specific nearby settlements. If blasting is to be used for tunnel excavation, the structural integrity of buildings close to the tunnel excavation area will be inspected and recorded before and after blasting, and vibration levels measured at representative receptor locations during blasting.	During construction - Negative impacts of **medium significance** reduced further with effective contractor management. During operation – negative impacts of **medium significance** at specific locations will be reduced to **low significance** by noise barriers.
Soil & Agricultural Land	**During Construction and Operation:** Any spillages – e.g. of oil or fuel - during construction or operation of the road could cause contamination of the soil in the area, and affect the adjacent agricultural lands. There may also be a small effect from vehicle exhaust particulates which settle in the surrounding fields. Contaminated road runoff and water from the tunnels could also pollute the soil, if discharged untreated. As these risks will be mitigated, the risk of significant effects is low, and would likely be confined to the local area.	Various construction management control measures to reduce spillage will be addressed in CESMP. The tunnel Putnikovo Brdo 2 is situated in an area of low-permeability rocks which represent a hydrogeological barrier so groundwater in the area is scarce. No significant tunnel-dewatering is anticipated. Road run off will be sealed and treated in oil separators and sediment tanks before discharge. Spill Response Plan.	Negative impacts of **low significance** reduced to **not significant** with contractor management controls.
Water Resources	**During Construction:** There is a risk to the rivers Usora and Tešanjka during construction of bridges which may result in sediment run-off and deterioration of river water quality. Accidental release of chemicals could affect the river water quality and ecological habitats.	Various construction management control measures which place restrictions on the Contractor working in watercourses to reduce spillage. Including development of and adherence to a method statement for working on and close to the river, as outlined in the CESMP.	Negative impacts of **medium significance** reduced to **low significance** with contractor management controls. Negative impacts during operation are of **low significance**.

Topic	Summary of Impacts	Summary of Key Mitigation/Management Measures	Residual Impact Significance
	Groundwater resources might be affected during construction works in the alluvial aquifer, in case of temporary dewatering and changing the groundwater regime or accidental release of fuels, oils, chemicals or hazardous materials to the ground with subsequent leaching to subsurface. **During Operation:** There is a risk of pollution to the River Usora and the groundwater if contaminated road runoff were to enter the River, or in the result of a major oil or chemical spill close to one of the river crossings. The risk of significant effects is low, and any effects would likely be confined to the local area, except in the event of a major spill which carried downstream.	Statutory requirements for the Water Consent application include a technical report on protected groundwater sources and measures to prevent impacts on groundwater quality and regime during construction. This also has to include requirements from the municipal Decisions on sanitary protection zones of groundwater sources. Road run off – including water pumped from the tunnel - will be sealed and treated in oil separators and sediment tanks before discharge. Spill Response Plan.	
Biodiversity	**During Construction:** Bridge construction and any associated in-river works could damage the river bank habitats at the River Usora and the River Tešanjka and general construction works could also damage the areas of woodland vegetation in the northern stretch of the Project. Some of the resources affected may be priority biodiversity features, and the significance of these impacts could be medium to high if such resources are present, and the effects not addressed. **During Operation:** Flora near the road will see increased dust levels during operation, and nearby fauna will experience higher levels of noise, air pollution and light, which might reduce numbers in the area. Animal movements (still to be determined if these are significant) across the corridor could be restricted. The significance of effects on flora and fauna during operation could be medium-high if not addressed.	Contractor to include a method statement for working in watercourses as part of the CESMP. Strict limits to amounts of natural vegetation to be cleared. Biodiversity Screening to be conducted prior to construction followed (if needed) by the Biodiversity Management Plan (BMP) to address all biodiversity risks. BMP (if needed) would include some biodiversity monitoring. Monitoring of air quality and river water quality. Spill Response Plan.	Negative impacts of potentially **medium – high significance** reduced to **low significance** with implementation of BMP and effective contractor management.
Landscape	**During Operation:** The formation of the Project and bridges along the river valley will alter the landscape in this area, and the road embankments will be landscaped to minimise this. The elevated sections will create additional opportunities for road users to enjoy views over the valley and surrounding land from a new perspective. The visual contact between the Usora and Tešanjka rivers and the nearby settlements will be disrupted by the road.	The architectural and landscape design represent a standalone report in the Main Design, taking into account the landscape context along the route. Limit land clearance to areas where strictly necessary. Landscaping and planting for embankments, and rehabilitation of all construction areas, with input from horticultural experts.	Negative impacts of **medium significance** further reduced to **low significance** after landscaping.
Utilities	**During Construction:** The scheme construction may interfere with existing utilities in the area, including electricity transmission and distribution lines and telecoms cables, as well as water supply pipelines and wastewater pipelines.	Consultations with utility stakeholders already held during the design process. Contractor to verify the presence and position of any suspected cables or pipes, with the local utility provider before construction.	Risks reduced to **low significance**.
Social			
Land Expropriation	**During Construction:** The Project will require land acquisition, predominantly of forested or privately-owned cultivated land. This will give rise to some economic displacement. The alignment has largely avoided residential structures, though	Application of the provisions of the Expropriation Law and EBRD's PR5, ensuring physical and economic displacement are compensated for. A Land Acquisition and Resettlement Framework has been	Negative risk of **medium significance** would reduce to **not significant** assuming

Topic	Summary of Impacts	Summary of Key Mitigation/Management Measures	Residual Impact Significance
and Economic DIsplaement	some houses will need to be expropriated. The alignment also intersects with several commercial properties along the M-4 road corridor. Potential informal use of forested areas will need to be investigated as part of the socio-economic surveys for land expropriation.	developed for the Project, with a Land Acquisition and Resettlement Plan to follow.	implementation of all requirements of the Expropriation Law and EBRD PR5.
Access & Severence	**During Construction:** The construction of the Motorway could result in localised, temporary restrictions of access by communities to the fields, forest land and local businesses and services. **During Operation:** The Motorway will cut across farmland, and access from houses to fields, and between different fields could be disrupted, as could access from communities to the existing regional road and access between local communities. The design has provided for several crossings under the Motorway and for local access roads to be maintained or re-aligned to ensure that sufficient local access is retained. Any more localised severance effects will also be identified during the land acquisition surveys.	A Traffic Management Plan, supported with effective consultations and engagement, to ensure that sufficient access to adjacent land is retained during construction. Underpasses and local service roads arrangements have been provided for within the detailed design.	Negative risk of **medium significance** of a short-term nature would reduce to **low significance** with adequate management controls. Negative risk of **low significance** with the adopted design proposals.
Road Traffic Accident Risk	**During Operation:** The Project is expected to result in a reduction in traffic accidents but can potentially result in more speed related accidents. The design is largely isolated from local land use and fencing is understood to be planned for the length of the section.	Road Safety Audit. Road safety awareness raising initiatives to be undertaken in the local communities.	Negative impacts of **medium significance** reduced to **low significance.**
Community Health, Safety and Security (CHSS)	**During Construction:** The construction process may increase the risk of accidents to the public, largely through the movement of plant and machinery and the delivery of materials. There is also a risk of influx from workers from outside the area which may give rise to certain risks to the communities (although this is likely minor in this case). The public will be excluded from entering the works sites and the Contractor will need to implement measures for this.	Contractor CESMP Plan. Good site management, security, health & safety measures, warning signs etc. applied by the Contractor to minimise risks to an acceptable level. Fencing and signage to discourage public from entering the works area. Appropriate siting of any Workforce Accommodation (if any) and good community engagement mechanisms along with a grievance process.	Negative impacts of **medium significance** of a short-term nature reduced to **low significance** with contractor management controls.
Cultural Heritage	**During Construction:** Risks of disturbance or destruction of ancient and medieval archaeological material suspected to be present within the Alibegovci designated archaeological site. Risk to hitherto unknown cultural heritage sites from excavations along the road corridor.	Monitoring of dust levels. Chance Finds Procedure. Coordination with the local Institute for Protection of Cultural Monuments whether a surface archaeological prospecting is required, potentially followed by archaeological excavations to protect the found material, and archaeological supervising during the earth works.	Risk of a **medium significance** would reduce to **low significance** with adequate management and technical controls.

Topic	Summary of Impacts	Summary of Key Mitigation/Management Measures	Residual Impact Significance
Labour & Workforce Issues	**During Construction:** The works will give rise to occupational, health and safety risks to workers, including those related to working with plant and machinery, formation of asphalt, use of cement, working at height, working in an underground environment, working near utilities, and working over water for the bridge sections. For this section there is also a risk from the presence of unexploded ordinance.	Contractor's CESMP, including Health and Safety provisions, in accordance with the Employer's Requirements and the Law on Occupational Health and Safety. Good workforce management, implementation & enforcement of code of conduct, provision of health surveillance & healthcare access for workers.	Negative impacts of **medium significance** of a short-term nature reduced to **low significance** with contractor management controls.

9 Environmental & Social Management & Monitoring

During both construction and operation, certain activities, indicators and environmental and social resources will be monitored, in accordance with the Environmental Permit and the EBRD PRs. Monitoring during construction will include ambient air quality, noise, vibration, groundwater quality and regime, surface water quality, soil quality, observations on the adjacent lands. Monitoring will also include temporary land take, and indicators of problems from influx of workforce into the area, and labour and working conditions including occupational health and safety. Operations phase monitoring will include levels of noise, ambient air quality at representative receptors, groundwater quality in the area of protected sources, the quality of effluent discharged from the oil separators, soil contamination, and surface water quality following an accident.

Monitoring and management actions for the stakeholder engagement and the land & resettlement planning are proposed in the SEP and LARF (and subsequent LARP). There will also be an ongoing requirement for JPAC and (during construction) the Contractor to monitor stakeholder, individuals and community grievances and take appropriate management action, including should trends be identified.

Monitoring reports will be produced by the Contractor during the construction work, which will be submitted to the Register of Polluters, and JPAC. Operational monitoring reports will be submitted to the Register of Polluters and available for the State Inspector.

10 Further Information and Contact Details

Project preparation documents are available on the JPAC website (http://www.jpautoceste.ba) and the EBRD website (http://www.ebrd.com).

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