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NON-TECHNICAL SUMMARY

CORRIDOR VC: DOBOJ BYPASS IN REPUBLIKA SRPSKA



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Abbreviations & Acronyms:

BiH	Bosnia and Herzegovina
CESMP	Construction Environmental and Social Management Plan
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
E&S	Environmental & Social
ESAP	Environmental and Social Action Plan
ESP	Environmental & Social Policy
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
IFI	International Finance Institution
JPAC	JP Autoceste
km	kilometre
LARF	Land Acquisition and Resettlement Framework
LARP	Land Acquisition and Resettlement Plan
NTS	Non-Technical Summary
OESMP	Operational Environmental and Social Management Plan
PR	Performance Requirement
RSA	Road Safety Audit
RS	Republika Srpska
RSM	Republika Srpska Motorways
SEP	Stakeholder Engagement Plan

1. INTRODUCTION

The public company Republika Srpska Motorways (RSM) intends to implement the construction of the 5.3 km-long section of Corridor Vc motorway between Rudanka and Putnikovo Brdo (inter-entity border) (the "Project"). RSM is established as a joint stock company wholly owned by the RS Government.

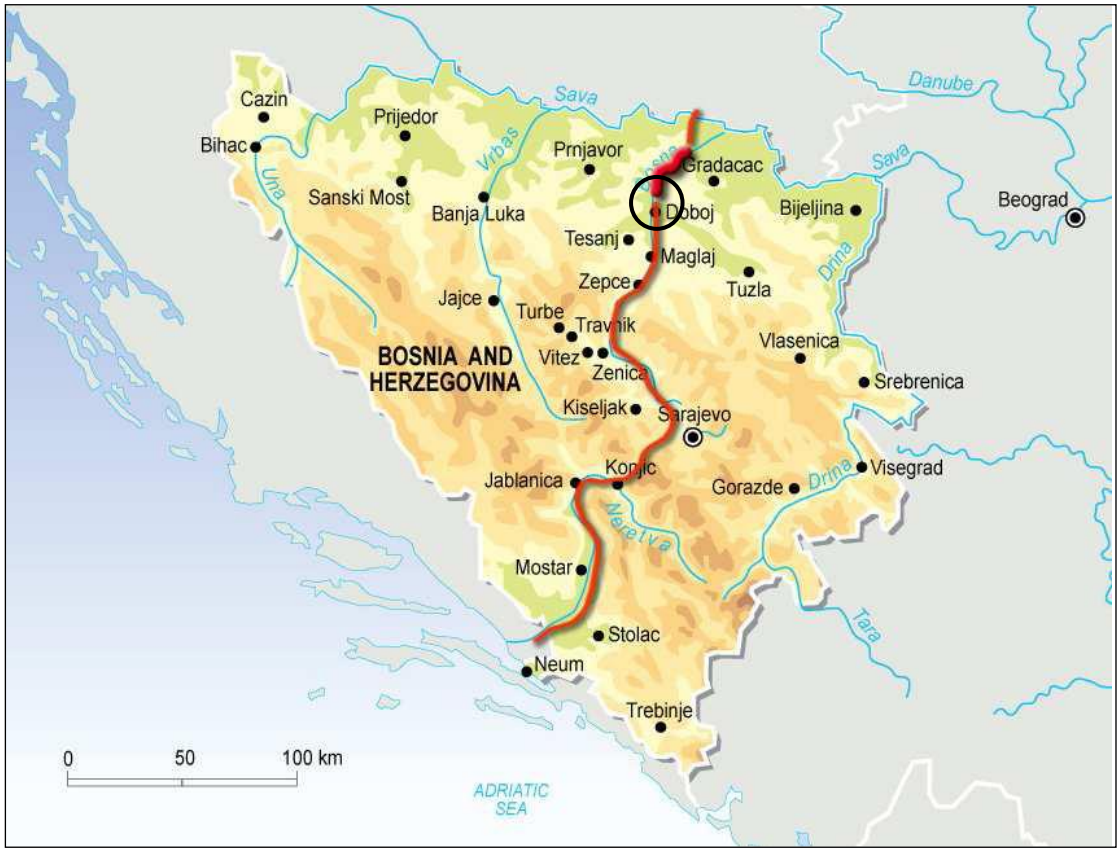
The European Bank for Reconstruction and Development (the "EBRD" or the "Bank") is considering providing finance of a sovereign-guaranteed loan of up to EUR 230.0 million to Bosnia and Herzegovina, to be on-lent to Republika Srpska Motorways (the "RSM") and Motorways of the Federation of Bosnia and Herzegovina Public Company (JPAC). The loan will be guaranteed by the Government of Bosnia and Herzegovina (BiH) with back-to-back guarantees from Republika Srpska (RS) and Federation of Bosnia and Herzegovina (FBiH), the two entities comprising BiH. The EBRD loan will be used to finance the construction of an overall 13.8 km motorway section between Rudanka interchange (located in RS municipality Doboj) and Medakovo interchange (located in FBiH municipality Doboj Jug). This report relates to the 5.3km sub-section from Rudanka – Putnikovo Brdo in RS.

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 RSM for the Project, and how members of the public can contact RSM with any further questions they have about the Project.

The Project has been developed by RSM based on the Republika Srpska legislative requirements and those of the EBRD.

The Project is situated in the north-east part of BiH (see Figure 2.1), about 100 km east of the town of Banja Luka and just west of the town of Doboj. It is a rural area with several scattered small villages, interconnected by local paved roads.

Figure 1-1 Project Location[1]



[1] Original source of figure: Environmental Impact Assessment of the Corridor Vc: Lot 2 Vukosavlje Johovac – Projekt a.d., January 2011

The EBRD has determined that the Project is a "Category A" Project according to its Environmental & Social Policy (ESP 2014). The EBRD are working with Republika Srpska Motorways to ensure that the Project's environmental and social risks are appraised and managed in accordance with EBRD Policy.

The land acquisition process is currently at the very early stage, and a **Land Acquisition and Resettlement Framework (LARF)** has been developed for the Project, to be followed by more detailed Land Acquisition and **Resettlement Plan (LARP)** to guide and document the land acquisition process.

In addition to this **NTS**, A **Stakeholder Engagement Plan (SEP)** has been developed for the Project describing the planned stakeholder consultation activities and engagement process. An **Environmental and Social Action Plan (ESAP)** has been prepared in relation to the proposed Project, in order to structure the future Project preparation activities to be in line with EBRD's Environmental and Social Policy (ESP 2014). The key environmental & social (E&S) project preparation documents – the EIA, SEP, NTS, LARF and ESAP - will be uploaded to the RSM website (http://www.autoputevirs.com) and the EBRD website (http://www.ebrd.com).

2. PROJECT NEED & BACKGROUND

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 46.6 km-long section through the administrative entity of Republika Srpska. The Project is significant for connection of the Corridor Vc sections in Federation of Bosnia and Herzegovina (FBiH) as well as western and eastern areas of Republika Srpska and further to the Corridor X in Croatia. It will increase traffic capacity and reduce the traffic volumes on the existing regional road network.

The Spatial Plans of Republika Srpska (2008-2015 and 2015-2025) have considered the Corridor Vc through RS as an essential road transport link with significant economic benefits for the entity.

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

Description of Project

The total length of the section is 5.3 km. The Project starts at the beginning of Rudanka bridge (326 m long), crossing the River Bosna and forming an overpass of the existing M-17 road. The Project then continues through a cutting prior to entering the first of two dual tube tunnels - Putnikovo Brdo 1 (1,595 m long). Upon the exit from the first tunnel, the proposed road forms an overpass Prisade (94 m long) and a viaduct (288 m long), before entering the second tunnel Putnikovo Brdo 2 (700 m long). The Project ends at the inter-entity border with FBiH, within the Putnikovo Brdo 2 tunnel. The total tunnel length is 700 m, and the length in RS is 580 m.

The road will have a design speed of 120 km/h and be about **25.40 m wide**.

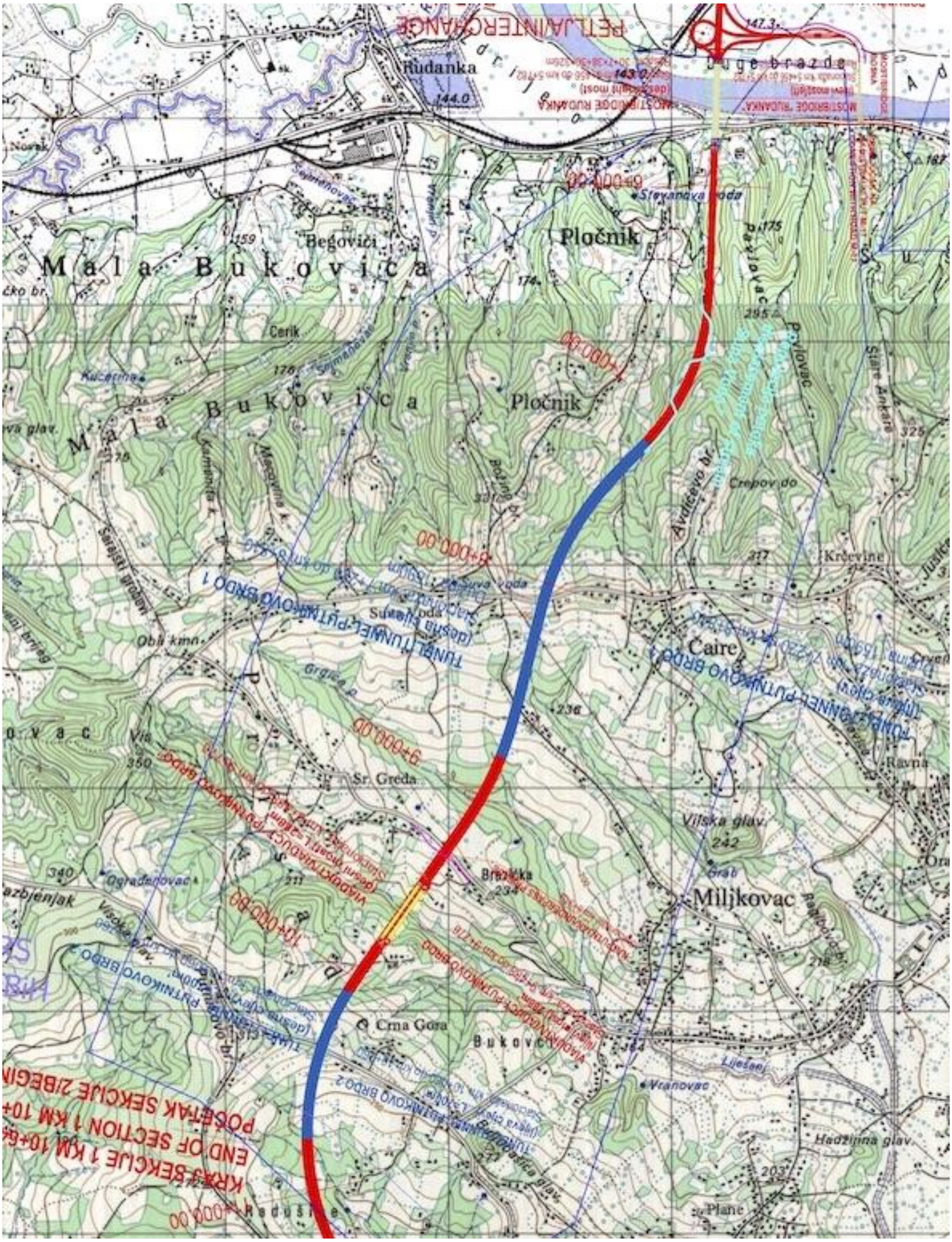
The layout of the Project is shown in ***Figure 2-1*** below (Red and yellow/orange indicate the area of the above ground permanent Project infrastructure and the blue line represents the tunnel sections.

Road Safety

One of the key aims of the Project is to deliver improvements in road safety. The creation of the new motorway will remove the heavy through traffic from passing through local villages and built up areas, which will help reduce

community and road safety risks and congestion in these areas. A Road Safety Audit will be undertaken on the current design to consider the need for additional safety measures.

Figure 3-1 Layout of Project



Project Schedule & Construction Workforce

The Project schedule and current workforce estimates are indicated below – these are estimates at this time (November 2018) and may be subject to change depending on procurement and other ongoing activities, such as land acquisition:

- RSM currently intend to commence construction in Q4 2019 with construction taking approximately 3 years (2022), depending on the construction approach proposed by the Contractor.
- RSM predict 500-1000 workers will be employed at the peak of construction.
- There is a possibility that temporary worker accommodation will be required, which will be determined by the Contractor. This may be used in combination with existing local accommodation.

4. ROUTE SELECTION & 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. RSM reported that alternatives at the early design stages were considered at BiH level, before RSM was established as a company in 2009. However, the Corridor Vc route (including location of major structures), appeared in the Spatial Plan for the Republika Srpska (1996 – 2015), including in the 2005 draft), and in the updated Plan (2015-2025). There is no indication that any of the selected alternatives have any more significant E&S risks than the others in the Project area.

Variations in the Main Design Going Forward: RSM has confirmed that no alignment changes or changes in locations of bridges and other structures are envisaged at this stage, and that the only alternatives in the Project which are currently 'open' relate to areas where the contractor will propose specific construction methodologies and some changes in materials or specifications, as well as the detailing of minor elements such as noise barriers and fencing. Any proposed changes will be reviewed firstly by the Engineer and any changes subject to the approval of RSM.

5. SUMMARY OF ENVIROMENTAL & SOCIAL LEGAL & POLICY FRAMEWORK

National Legal Framework for the Project

This Project is carried out within the jurisdiction of the Republika Srpska, 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 RS 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 (2015) 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 RS, 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 RS (Official Gazette (O.G.) RS No. 71/12, 79/15) sets out the procedure for Environmental Impact Assessments and related environmental approvals. For a roads project such as this one, the Law requires a preliminary assessment, a screening decision, and a scoping process. An EIA is then commissioned, and the required content of the EIA report is set out in the 'Instruction on Content of Environmental Impacts Assessment Study (O.G. RS 108/05)'. The EIA and Environmental Permit process, includes requirements on public disclosure and consultation, and if successful, results in an Environmental Permit.

Legal Framework for Nature Protection

The Law on Nature Protection (2014) includes provision for implementing regulations on the establishment of NATURA 2000 sites[2] and other regulations on Protected Areas. However, these implementing regulations are still under development and level of harmonisation of Republika Srpska with the Bird and Habitats Directive is still relatively low. The percentage of nationally protected areas in Republika Srpska is understood to be in the region very low by percentage of area. Bosnia and Herzegovina completed a Pilot Project on establishment of the Emerald Network[3] from 2005 to 2008 and officially nominated 29 candidate 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. 40/2013, 106/2015) regulates the types of public roads in Republika Srpska, 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 Constitution of Republika Srpska states that limitation or acquisition of ownership rights is possible only on the basis of the law and for fair compensation. The key legal instrument governing expropriation in RS is the Law on Expropriation of RS 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 RS Law on Proprietary Rights (O.G. RS 124/08, 58/09, 95/11), states that all persons and legal entities can have property rights on movable and immovable property. The RS Expropriation Law (O.G. of RS, 112/06, 37/07, 66/08, 110/08, 106/10, 121/10, 2/15, 79/15) 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.

[2] NATURA 2000 sites: European protected network of sites throughout EU Member States under the Bird Directive (79/409/EEC) and the Habitats Directive (92/43/EEC).

[3] The Emerald network is a network of Areas of Special Conservation Interest (ASCIs), which is to be established in the territory of the contracting parties and observer States to the Bern Convention, including, among others, central and east European countries and the EU Member States. For EU Member States, Emerald network sites are those of the Natura 2000 network.

Ownership and other formal legal rights on land and structures are recorded in the Cadastre and 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 RS 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 in 2011. The subject of the EIA was the 10.6 km-long stretch Johovac – Doboj South, which also included the 5.3 km-long Project stretch. RSM was awarded an Environmental Permit for the Project in 2015 (applicable to the entire 46.5 km-long stretch of Corridor Vc in RS) and the permit is valid for 5 years.

The EIA was produced in parallel with the main design documents which included the noise modelling, listed the noise control measures for receptors within the Project, and specified the road runoff collection and treatment in the Project stretch. 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 PRs.

Stakeholder Engagement

In accordance with the legislative requirements of the Republika Srpska, stakeholder engagement activities were organised during the development of the Project. Stakeholder engagement in Republika Srpska 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.

After the EIA was submitted to the Competent Ministry, they had been publicly disclosed for 2.5 months in the municipal building in Doboj. Public hearings were held in Doboj in February 2011 with a limited number of members of the public. The Competent Ministry provided a number of comments on the EIA, primarily summarising the opinions obtained from the institutional stakeholders (relevant ministries). After the revised EIA was resubmitted, the Competent Ministry gave a positive decision, approving the Project EIA in October 2011.

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 2011 EIA, NTS, SEP, ESAP and LARF is required. These will be uploaded to the RSM website (http://www.autoputevirs.com) and the EBRD website (http://www.ebrd.com).

Engagement with local communities along the route specifically on the updated project schedule and infrastructure to retain access is also considered important. Consultations will clearly present where local service roads are proposed so as to confirm the understanding and support of local communities on the access to be provided in the Project. Local access arrangements, including maintenance of pedestrian routes, were subject to public review as part of the planning documentation where details about infrastructure, including local access arrangements, were presented.

Land Acquisition & Resettlement Planning Process

The Project requires the acquisition of land for an approximately 25 m wide road corridor plus land for the cut area, any rights associated with tunnels, the footprint of the overpasses and viaduct and some local access roads. The land is predominantly forested with areas of cultivation associated with settlements.

Whilst an Expropriation Elaborate has been prepared for the Project the land acquisition process is at a very early stage. Public Interest had not been announced for the Project at the time of writing (November 2018) but is anticipated by RSM.

The State Attorney's office has overall responsibility for the land acquisition and resettlement planning, however RSM 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.

A Land Acquisition and Resettlement Framework has been developed for the Project and this will be updated to form the more detailed Land Acquisition and Resettlement Plan which will indicate which households and businesses that will be affected by physical and economic displacement (e.g. for the loss of agricultural land) and what compensation and assistance they will be entitled to receive.

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 BASELINE ENVIRONMENTAL & SOCIAL CONDITIONS

Environmental Baseline

General Setting: The proposed Motorway corridor sits in a hilly upland area above a wide alluvial plain formed by meandering of the Bosna River. The upland is predominantly covered by deciduous forestlands, pasturelands, and to the minor extent agricultural lands. It is a rural area with several scattered small villages, interconnected by local paved roads. The main road in the area is the M-17, which passes along the left bank of the Bosna River. There are two distinctive landscape character areas: (1) lowland comprising the wide Bosna River valley with degraded vegetation and gravel extraction facilities operating in the area of the proposed bridge, and (2) gently undulating landform bounding the valley, covered by broadleaved forests and pastures.

Climate and Environmental Conditions: The area has a moderate continental climate characterised by very cold winters and hot summers. The average annual rainfall is about 900 mm, and is highest in late spring and early summer. Air quality in the area is generally good as there are no industrial facilities in the Project area. The roads and the use of wood and coal for heating, do give rise to some emissions. Similarly, noise and vibration levels are low.

Geology and Hydrogeology: The upland Project stretch is characterised very old and hard rock complex of Mesozoic rocks from the Jurassic–Early Cretaceous transition period (about 200 to 100 million years ago). These are low permeable rocks considered to be hydrogeological barriers. The wide floodplain of the Bosnia River is predominantly covered by Quaternary deposits consisting of unconsolidated river material eroded and re-deposited as various alluvial and river terrace sediments. The aquifer is formed within a layer of sand and gravel,

and is covered by a subsurface layer of low permeability made of silty and sandy clay which functions as a protective barrier to the aquifer below.

River Bosna: 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 about 110m. The average flow rate in the Project stretch is 118m^3/s. The Bosna and its tributaries are prone to flooding, with a major flood experienced in 2014, which significantly exceeded the flood levels experienced in recent memory. The River is the main recipient of untreated industrial and municipal wastewater from the towns in its catchment, and its ecological status is categorised as the 3rd class (moderate status)[4].

Flora and Fauna and Biodiversity: The predominant habitat in the Project area is a deciduous woodland - mixed thermophilus woods (hop hornbeam oak) and beech, present along the hilly upland and intersected by the scheme at tunnels portals. Northern stretch of the scheme at the Bosna River has been under anthropogenic influence for many years. The secondary dry shrub vegetation has been developed on grasslands as a result of land use changes. The area of the bridge over the Bosna River is covered by cropland and gravel extraction facilities. Nowhere in the wider Project corridor is under consideration for designation as a nature conservation area. Some conservation significant birds (raptors) were indicated to be in the area, although none were found to be nesting or roosting along the proposed road corridor, and are unlikely to be significantly affected by the Project. Given the available data on the Bosna River ecological status, the fish fauna in the River is predominantly made up of species more tolerant of organic pollution. No formal fisheries are based in the area and any fishing is largely recreational.

Social Baseline

The social context of the area is characterised by the urbanised town and small villages and hamlets whose inhabitants work in farming.

Local Communities: According to the 2013 Census, the total population in settlements through which the route will pass is 4,168. The settlements are predominantly linear, concentrated along the local village roads. The project footprint runs through or near to the villages of Kostajnica, Pločnik, Prisade, Čajre, Miljkovac, and Makljenovac.

All settlements in the Project area belong to the City of Doboj. Based on the Census of 2013 the population of the city was 68,514. The previous Census from 1991 recorded the population of 96,814. The area was strongly affected by migration during the war in BiH (1992-1995) and the trend of negative population growth is ongoing (-4.0 per 1000 inhabitants in Republika Srpska). Doboj is a regional centre with important road and railway connections. About 70% of the city territory is rural area abundant in cultivated lands and forest lands. The city is split into 75 community level settlements with their own elected local community councils.

Demographics: The ethnic majorities in the city of Doboj are Serbian (74.4%) and Bosnian (21.04%). The largest minority is Croatian (2.26%). Roma population is about 0.21% and the remaining 2.09% are other minorities. The population in the affected communities is evenly split between men (49.9%) and women (50.1%). The middle-aged population (35-55) is the most numerous (28%) and the population older than 55 years is more numerous than young population (0 - 25) with 32% compared to 26%. Within the city of Doboj, the average life expectancy is 76.1 years for female and 70.5 for male. The key causes of mortality in 2016 were the following: cardiovascular diseases (49.5%), cancer (21%), gland diseases (5%), respiratory diseases (4%), and gastrointestinal diseases (3%).

Land Use: The land along the major part of the scheme is undeveloped, covered by dense deciduous woodland which will be passed by tunnels. Some of the Project area which will be crossed by a viaduct and an overpass is made up of smallholding plots. The Bosna River bank is used for sand and gravel extraction facilities.

Local Livelihoods: The Project area is characterised by small-scale farming, 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. Beekeeping is moderately developed and organised in cooperatives.

[4] Decree on classification of waters and categorization of surface waters (O.G. of RS, No. 42/2001)

The annual average monthly net salary in 2016 in the city of Doboj was 850 BAM (435 EUR) which is at the same level as the national (Republika Srpska) average of 852 BAM (436 EUR). However, it should be noted that the annual survey on average salaries performed by the Institute of Statistics of RS 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 city of Doboj.

Community Infrastructure: Government service, community facilities, such as schools and healthcare services are primarily available in Doboj. Water supply in villages is provided from local groundwater wells (drilled and dug). No sewer system is present in the area so the wastewater in villages is discharged either to private septic tanks or directly to local streams. The area is covered with electrical power infrastructure and telecommunications network. The primary form of transport is car.

Cultural Heritage: The Project EIA indicated there are no cultural heritage sites in the immediate Project area.

8. ENVIRONMENTAL & SOCIAL BENEFITS, IMPACTS & 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:

Table 2 Summary of E&S Impacts and Mitigation Measures

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, road cutting and tunnels 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.). Nearly half of the route passes through tunnels which will confine air emissions and discharge them at tunnel portals and through ventilation shafts. Emissions levels from traffic on the road will increase over time as traffic levels increase. Air quality along the Motorway should be monitored.	During construction - Negative impacts of **moderate 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 might affect the structural integrity of buildings close to the tunnel excavation area. (At this stage of development, the method for the cutting and tunnel excavations 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. Nearly half of the route passes through tunnels which will mitigate the noise effects during road operation. Noise barriers will be erected where residential areas are identified as at risk from high noise levels, either in the EIA, 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 **low significance** reduced farther 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 pumped 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 major part of the route (the cutting, two tunnels) passes through an area of low-permeability rocks which represent a hydrogeological barrier so groundwater in the area is scarce. The Project design does not anticipate any significant tunnel dewatering. Road runoff will be sealed and treated in oil separators before discharge. Spill Response Plan.	Negative impacts of **low significance** reduced to **not significant** with contractor management controls.

Topic	Summary of Impacts	Summary of Key Mitigation/Management Measures	Residual Impact Significance
Water Resources	***During Construction:*** There is a risk to the Bosna River during construction of the bridge which may result in sediment runoff and deterioration of river water quality. Accidental release of chemicals could affect the river water quality and ecological habitats. 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 Bosna River 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 the bridge. 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.	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. The Project is not close to any protected groundwater sources. Any temporary dewatering during construction is not likely to affect the groundwater sources downstream. The Project design does not anticipate any significant tunnel dewatering. Road runoff, including water from the tunnels, will be sealed and treated in oil separators before discharge. Spill Response Plan.	Negative impacts of **medium significance** reduced to **low significance** with contractor management controls. Negative impacts during operation are of **low significance**.
Biodiversity	***During Construction:*** Preparing of the road right-of-way in the cutting area and in the portal area of the tunnels Putnikovo Brdo 1 and Putnikovo Brdo 2 will require clearance of a long strip of woodland which might be important for the ecological value of the area. Local bird, bat, reptile and mammal fauna might be affected 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.	Biodiversity Screening to be conducted prior to construction followed (if needed) by the Biodiversity Management Plan (BMP) to address all biodiversity risks. BMP will include some biodiversity monitoring. Monitoring of air quality.	Negative impacts of potentially **medium – high significance** reduced to **low significance** with implementation of BMP and effective contractor management.
Landscape	***During Construction and Operation:*** The bridge across the Bosna River valley and the overpass and viaduct in a valley between the two tunnels will alter the landscape in this area. The cutting will create a new landscape and possibility for road users to enjoy views of a woodland area. The elevated sections of overpass and viaduct will create additional opportunities for views over the valley and surrounding land from a new perspective. The tunnels portals will disturb the tranquil natural landscape which will be mitigated by integrating of the portal design to the local landscape and landscaping of the cleared area.	Nearly half of the route passes through tunnels which will mitigate the effects on landscape. The architectural and landscape design represent a standalone report in the Main Design, taking into account the landscape context along the route. Land clearance will be limited to areas where strictly necessary. Landscaping and planting for tunnels portals and the road cutting, 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**.

Topic	Summary of Impacts	Summary of Key Mitigation/Management Measures	Residual Impact Significance
Social			
Land Expropriation and Economic DIsplaement	***During Construction*** The Project will require land acquisition, predominantly of forested or privately-owned cultivated land. This will give rise to some economic displacement, and the loss of houses. Potential informal use of forested areas will need to be investigated as part of the socio-economic surveys for land expropriation.	Application of the provisions of the Expropriation Law and EBRD's PR5, ensuring physical and economic displacement are compensated for. A LARF has been developed, with a LARP to follow.	Negative risk of **medium significance** would reduce to **not significant** assuming 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 adjacent land / roads. ***During Operation:*** No large-scale effects are expected as the design has provided for several overpasses of existing roads and the majority of the section is tunnelled. The introduction of the cutting has the potential to create localised severance effects and these will be identified during the socio-economic component of the land acquisition surveys.	A Traffic Management Plan, supported with effective consultations and engagement, to ensure that sufficient access is retained at all times during construction. Overpasses and local service roads arrangements have been provided for within the detailed design, based on current information.	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 potential for road traffic accidents will still exist on the Project road, despite the overall benefits the Project is likely to generate in this regard.	Road Safety Audit.	Negative impacts of **medium significance** of a short-term nature 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. 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 to hitherto unknown cultural heritage sites from excavations along the road corridor.	Chance Finds Procedure. Coordination with local authorities and Institute for Cultural and Natural Heritage.	Risk is of **low 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, potential use of explosives, working at height and working over water for the bridge sections.	Contractor's CESMP, including Health and Safety provisions, in accordance with the Employer's Requirements and the Law on Occupational 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

Environmental and Social Management

Measures to manage the environmental and social effects of the Project are included in the Environmental Permit issued by the Ministry of Physical and Spatial Planning and in the Employer's Requirements, issued by RSM. These requirements will be included in the Tender Documents. Measures relating to public engagement are detailed in the Stakeholder Engagement Plan, and those remaining actions and commitments relating to the land acquisition will be detailed in a Land Acquisition and Resettlement Plan, which is being developed by RSM. The key elements of the required mitigation measures have been summarised in the table above, and the any steps which RSM must take are described in the Environmental and Social Action Plan.

The Contractor will then develop a Construction Environmental and Social Management Plan, to identify how the commitments will be addressed during Construction. This will draw together all the management requirements to minimise disturbance to environmental and social receptors during construction. An Operational Environmental and Social Management Plan (OESMP) will be produced, containing the mitigation and monitoring actions which need to be implemented during road operation. RSM will engage a Contractor to implement these on its behalf.

Environmental and Social 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, 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 tunnels' portals and ventilation shafts, water quality in the Bosna River, the quality of effluent discharged from the oil separators, and soil contamination.

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 RSM and (during construction) the Contractor to monitor stakeholder, individuals and community grievances and take appropriate management action should trends be identified or key issues occur.

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

10. FURTHER INFORMATION & CONTACT DETAILS

Project preparation documents are available on the RSM website (http://www.autoputevirs.com) and the EBRD website (http://www.ebrd.com).

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