

CATEGORY A PROJECT  
Bosnia and Herzegovina Corridor Vc in FBiH – part 3  
(Tranche II)



## **VOLUME 5:**

Non-technical Summary for Sub-Section  
Mostar South Interchange to Tunnel Kvanj

July 2020

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## Abbreviations

BiH	Bosnia and Herzegovina
BHMAC	Mine Action Center of Bosnia and Herzegovina
EBRD	European Bank for Reconstruction and Development
EBRD ESP	EBRD's Environmental and Social Policy
EIA	Environmental Impact Assessment
E&S	Environmental and Social
ESAP	Environmental and Social Action Plan
ESMMP	Environmental and Social Management Plan
FBiH	Federation of Bosnia and Herzegovina
FMET	Federal Ministry of Environment and Tourism
JPAC	Motorways of the Federation of Bosnia and Herzegovina
LALRP	Land Acquisition and Livelihood Restoration Plan
LC	Local Community
NTS	Non-Technical Summary
PAP	Project Affected People
PR	Performance Requirement
SEP	Stakeholder Engagement Plan

## 1 INTRODUCTION

PC Motorways of the Federation of Bosnia and Herzegovina (the Company or “JPAC”) is a public company from the Federation of Bosnia and Herzegovina (FBiH) in charge of management of motorway construction and management, maintenance and protection of motorway operation in FBiH. One of the Company’s key projects is the development of the motorway which is part of the Trans-European Corridor Vc connecting Budapest (Hungary) and Port of Ploce (Croatia). The total length of Corridor Vc in FBiH is approximately 335 km.

This Non-technical Summary (NTS) provides a summary of the expected environmental and social impacts and measures needed to structure the project to meet national legislation requirements and the EBRD Environmental and Social (E&S) Policy (2014) Performance Requirements<sup>1</sup>. The purpose of the NTS is to provide Project information to interested stakeholders about the environmental and the social baseline, impacts and proposed mitigation measures in the pre-construction, construction and the operation phases..

## 2 PROJECT DESCRIPTION

According to the Preliminary Design<sup>2</sup>, the 9.2 km long subsection Mostar South-Tunnel Kvanj is the northern part of the Section Mostar South-Buna. A summary of key Project details is provided in Table 1.

*Table 1: Project details*

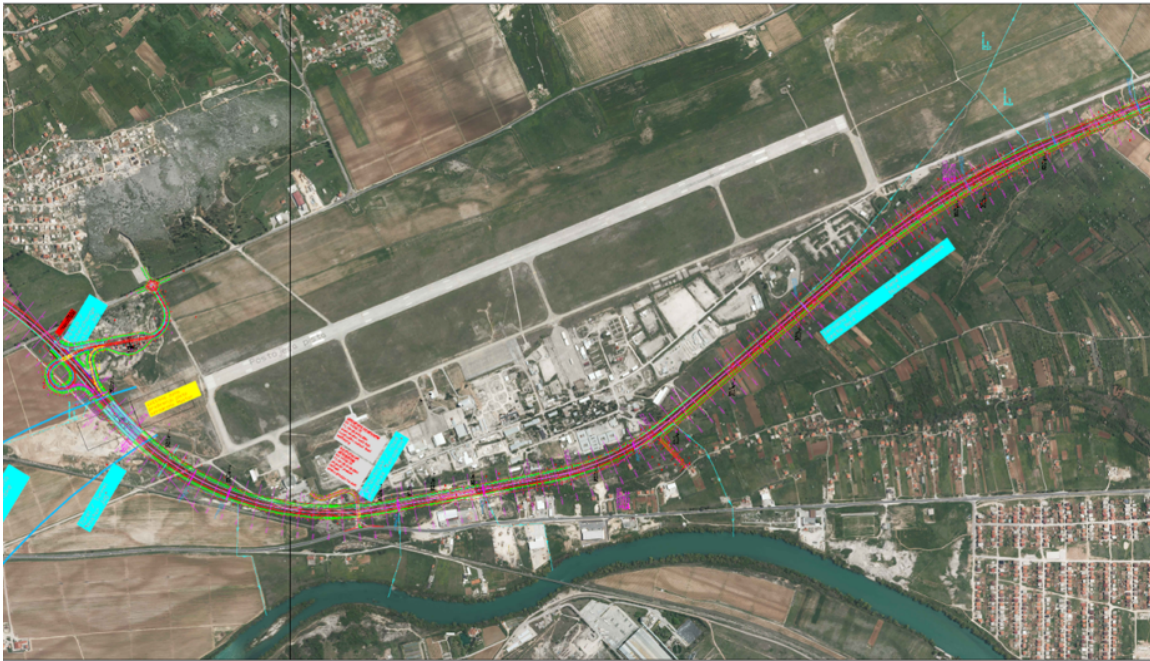
<i>Aspect</i>	<i>Details</i>
Location	City of Mostar (settlements of Gnojnice, Ortijes, Kosor, Laksevine, Buna, Blagaj, Malo polje and Hodbina)
Length of the Project	9.2 km
Project components	<ul style="list-style-type: none"> <li>• Tunnel „Mostar jug“, L=232m</li> <li>• Overpass „Aerodrom“</li> <li>• Underpass „Kosor“</li> <li>• Bridge „Buna“, L=326m</li> <li>• Bridge „Bunica“, L=211m</li> <li>• Viaduct „Brijeg“, L=258m</li> <li>• Toll station</li> </ul> <p><i>Note: construction of Tunnel Kvanj is not part of this Project</i></p>
Estimated duration of works	July 2021-July 2023

Subsection Mostar South-Tunnel Kvanj begins with the Mostar South interchange and ends with the entrance into Tunnel Kvanj. The interchange is near Mostar Airport, and represents the intersection of the motorway with the main road M6.1. After the interchange, the alignment is located in the immediate vicinity of the Mostar Airport where the “Mostar jug” tunnel beneath the airport is located. After exiting the tunnel, the alignment follows the railway Mostar-Capljina to the South. The route then passes parallel with the Mostar Airport runway towards Ortijes and Kosor settlements. The alignment then follows the auxiliary airport runway crossing agricultural fields in Ortijes (Figure 4).

<sup>1</sup> <http://www.ebrd.com/news/publications/policies/environmental-and-social-policy-esp.html>

<sup>2</sup> Preliminary Design and Study for Obtaining Urban Permit for the Motorway Section on Corridor Vc, Mostar South-Buna, developed in April 2018 by IPSA Institute Sarajevo





*Figure 1: Mostar South Interchange and the first part of the section passing near the airport in Gnojnice Donje and the auxiliary airport runway in Ortije*

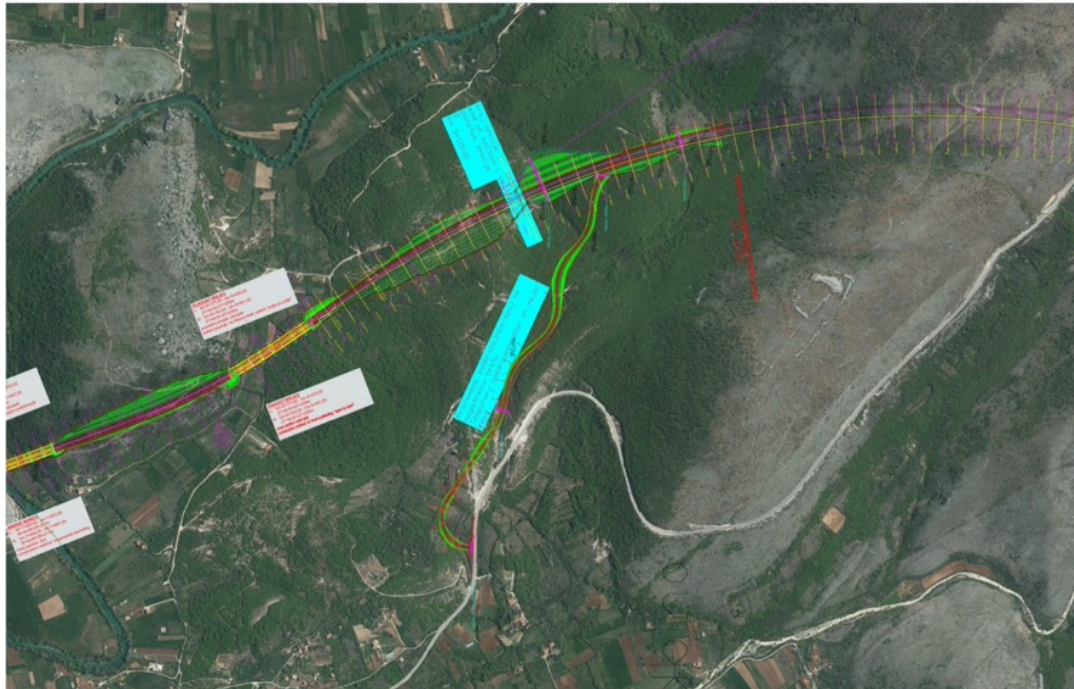
The road then crosses the Buna River by Buna Bridge, passes through agriculture areas of Malo Polje, crosses the Bunica River with a bridge, and the Viaduct “Brijeg” which leads to the Hodbina Hill and further to the entrance of Tunnel Kvanj<sup>3</sup>. The subsection ends at chainage 9+125+000 km.



*Figure 2: Part of the section passing near the auxiliary airport runway in Kosor and passing the Buna River by Buna Bridge*

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<sup>3</sup> Tunnel Kvanj is not part of the subsection Mostar South-Tunnel Kvanj



*Figure 3: Part of the section passing through a tunnel and crossing the Bunica River before entering into Tunnel Kvanj in Hodbina*

As part of the Project, additional access roads are also yet to be designed, as they are necessary for improving the local road network and to ensure access to the land plots losing access due to motorway construction. These details will be known after the Main Design is prepared. Associated facilities include spoil disposal site Rotimlja, local roads construction<sup>4</sup>, borrow pits and reconstruction of local infrastructure. The impacts of these associated facilities have been assessed in the ESIA and appropriate mitigation measures have been included.

## 3 BACKGROUND

### 3.1 Rationale of the project

Corridor Vc is considered FBiH's key transport route, running north-south and connecting Budapest (Hungary) to Port of Ploce (Croatia). The main aim of the project is to improve transport connections between FBiH and the surrounding countries to promote economic development.

### 3.2 Project Benefits

The key benefits of the Project are:

- Improved access to tourist centres, religious, recreational, catering and health facilities;
- Enhanced ability of communities to attract new business investments and economic development as a result of improved access to regional transport infrastructure,
- Improved transport services (reduced travel time of people and transport time of goods), which will improve the living and working conditions of local communities;

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<sup>4</sup> The local communities of Malo Polje and Kosor requested from JPAC construction of the local infrastructure as a compensation for the motorway passage.



- Reduced traffic on local roads which can have positive impacts such as improved local air quality, noise reduction and therefore better living conditions.

### 3.3 Legal aspects and compliance with relevant environmental and social laws

Table 2: Overview of National Requirements Relevant to the Project

<i>Issue</i>	<i>National requirements</i>
EIA and environmental permitting	<ul style="list-style-type: none"> <li>• <i>Law on Environmental Protection</i> (Official Gazette of FBiH, No. 33/03 and 38/09)</li> <li>• <i>Regulation on Facilities Subject to Obligatory Environmental Impact Assessment and Facilities Which May be Constructed and Operated Only with a Valid Environmental Permit</i> (Official Gazette of FBiH, No. 19/04)</li> </ul>
Water permits	<ul style="list-style-type: none"> <li>• <i>Law on Waters</i> (Official Gazette of FBiH, No. 70/06)</li> <li>• <i>Regulation on Content, Scope, Conditions, Ways of Issuing and Archiving of Water Documents</i> (Official Gazette of FBiH, No. 31/15)</li> </ul>
Urban permit	<ul style="list-style-type: none"> <li>• <i>Law on Motorway on Corridor Vc</i> (Official Gazette of FBiH, No. 8/13)</li> <li>• <i>Law on Physical Planning and Land Use at the Level of FBiH</i> (Official Gazette of FBiH, No. 2/06, 72/07, 32/08, 4/10, 13/10 and 45/10)</li> </ul>
Air quality	<ul style="list-style-type: none"> <li>• <i>Regulation on the Monitoring of Air Quality and Defining Pollutants Types, Limit Values and Other Standards</i> (Official Gazette of FBiH, No. 1/12)</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• <i>Law on Protection Against Noise</i> (Official Gazette of FBiH, No. 110/12)</li> <li>• <i>Rules on the Dimensions, Total Weight and Axle Load of Vehicles, on Obligatory Vehicle Devices and Equipment Vehicle, on Basic Requirements to be Met and Traffic Equipment on Roads</i> (Official Gazette of BiH, No. 23/07)</li> </ul>
Waste management	<ul style="list-style-type: none"> <li>• <i>Law on Waste Management</i> (Official Gazette of FBiH, No. 33/03, 72/09 and 92/17)</li> <li>• <i>Regulation on Construction Waste</i> (Official Gazette of FBiH, No. 93/19)</li> </ul>
Water and wastewater management	<ul style="list-style-type: none"> <li>• <i>Law on Waters</i> (Official Gazette of FBiH No. 70/06)</li> <li>• <i>Decree on Conditions for Discharge of Wastewater into Environment and into the Public Sewerage System</i> (Official Gazette of FBiH No. 70/06)</li> </ul>
Nature protection	<ul style="list-style-type: none"> <li>• <i>Law on Nature Protection of FBiH</i> (Official Gazette of FBiH, No. 66/13)</li> </ul>
Labour and employment	<ul style="list-style-type: none"> <li>• <i>Labour Law of FBiH</i> (Official Gazette of FBiH, No. 26/16)</li> </ul>
OHS and Construction site organisation	<ul style="list-style-type: none"> <li>• <i>Law on Safety at Work</i> (Official Gazette of SR BiH, No. 22/90)</li> <li>• <i>Law on the Protection against Fires and Protection of Fire-fighters</i> (Official Gazette of FBiH, No. 64/09)</li> <li>• <i>Decree on Construction Site Organization, Mandatory Documentation on Construction Site and Construction Work Participants</i> (Official Gazette of FBiH, No. 48/09, 75/09 and 93/12)</li> </ul>
Land acquisition	<ul style="list-style-type: none"> <li>• <i>Law on Expropriation of FBiH</i> (Official Gazette of FBiH, No. 70/07, 36/10, 25/12 and 34/16)</li> </ul>
Cultural heritage	<ul style="list-style-type: none"> <li>• <i>Law on Protection and Use of Cultural, Historical and Natural Heritage</i> (Official Gazette of SR BiH, No. 20/85, 12/87 and 3/93)</li> </ul>
Road safety	<ul style="list-style-type: none"> <li>• <i>Law on Basis of Road Safety on Roads of BiH</i> (Official Gazette of BiH, No. 6/06, 75/06, 44/07, 84/09, 48/10, 18/13, 08/17, 89/17 and 09/18)</li> <li>• accompanying key Regulations (All published in the Official Gazette of BiH, No. 16/07)</li> <li>• <i>Law on Roads of FBiH</i> (Official Gazette of FBiH, No. 12/10, 16/10, 66/13)</li> <li>• accompanying key Regulations (All published in the Official Gazette of FBiH, No. 48/03)</li> <li>• <i>Regulation on Technical Inspection of Built Structures</i> (Official Gazette of FBiH, no. 23/08)</li> </ul>
Motorway design	<ul style="list-style-type: none"> <li>• <i>Law on Motorway on Corridor Vc</i> (Official Gazette of FBiH, No. 8/13)</li> </ul>
Public consultations	<ul style="list-style-type: none"> <li>• <i>Law on Free Access to Information</i> in FBiH (Official Gazette of FBiH, No. 32/01, 48/11)</li> <li>• <i>Law on Environmental Protection</i> (Official Gazette of FBiH, No. 33/03 and 38/09)</li> </ul>



The EBRD Environmental and Social Policy is a key EBRD document, which details the commitments of the Bank's Funding Agreement to promote environmentally sound and sustainable development in the range of its activities. The Policy encompasses 10 Project Requirements (PRs) designed to facilitate achievement of good international practices related to sustainable development that is expected from clients implementing projects financed by EBRD. The PRs relate to key areas of environmental and social issues and impacts as follows:

*Table 3: EBRD PRs applicable to the Project*

<i>Performance requirements</i>	<i>Applicability to the project</i>
PR1: Assessment and Management of Environmental and Social Impacts and Issues	Yes
PR2: Labour and Working Conditions	Yes
PR3: Resource Efficiency and Pollution Prevention and Control	Yes
PR4: Health and Safety	Yes
PR5: Land Acquisition, Involuntary Resettlement, Economic Displacement	Yes
PR6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Yes
PR7: Indigenous Peoples	No
PR8: Cultural Heritage	Yes
PR9: Financial Intermediaries	No
PR10: Information Disclosure and Stakeholder Engagement	Yes

If a proposed business activity to be financed relates to existing facilities that do not meet PRs at the time of Bank's Board approval, the client will be required to adopt and implement an Environmental and Social Action Plan (ESAP), which is satisfactory to EBRD and delivered within the agreed timescale. An ESAP for this Project has been prepared and agreed with JPAC and will be publicly disclosed as part of the disclosure package.

### 3.4 History of the Project development and planning, route selection and consideration of alternatives

The planning of a motorway through FBiH as a part of the Trans-European road corridors network started in the late 1970's. The corridor route was defined in 1981 and, after wide public consultations, formally approved as part of the Spatial Plan of BiH in 1982. However, the first major steps were taken in 2003 when BiH Council of Ministers decided to start the corridor development. The history of the Project development is given in [Table 4](#) while the overview of alternatives considered is shown on [Figure 4](#).

*Table 4: Project milestones and overview of considered alternatives*

<i>Date</i>	<i>Activity</i>	<i>Description</i>
2003	BiH Government Decision on public interest for the	BiH Ministry of Transport and Communications adopted <i>Decision on pr of public interest for construction of the motorway on Corridor Vc through Bosnia and</i>

<i>Date</i>	<i>Activity</i>	<i>Description</i>
	motorway on Corridor Vc	<i>Herzegovina, based on assigned concession on the part and alignment that will be defined by the agreement<sup>5</sup> and started the procedure of development of spatial, planning and technical documentation for the motorway</i>
2005-2006	First analysis of alternative routes and development of Preliminary design for the proposed alternative	A total of 12 potential options (Corridors 5c and 4) of the future motorway were considered, for which a multicriteria analysis was performed and based on which one potential option passing through Mostarsko polje was selected and the preliminary design was developed for the proposed route.
2008	Beginning of the process of development of the Spatial plan	Start of the development of <i>Spatial plan for an area of special interest for FBiH „Motorway on corridor Vc” for period 2008-2028</i> when the first request for realignment of section around Blagaj and Pocitelj was submitted.
2010	Main design for section Mostar North-Mostar South (LOT 5, 16 km) and Mostar South-Pocitelj (LOT 6, 20 km)	LOT 4 was divided to three LOTS: LOT 5 (Mostar North-Mostar South, 16 km), LOT 6 (Mostar South-Pocitelj, 20km) i LOT 7 (Pocitelj-South border, 31.33km). The main designs for LOT 5 and LOT 6 were prepared as a baseline document for expropriation and permitting.
2011	Second analysis of alternative routes	The route passing in the hinterland of Blagaj was selected as the optimal one. The alignment has been moved towards the south, up the hill, by approximately 3.5 km (maximum distance) comparing to the first route passing through Mostarsko polje. Distance of the proposed route from the sources of Buna and Bunica was 700 m and 500 m, respectively.
2011	Adoption of Proposal of Spatial Plan	Government of FBiH adopted the <i>Proposal of Spatial plan for an area of special interest for FBiH „Motorway on corridor Vc” 2008-2028</i> .
2014	Preliminary Water Consent obtained	The Agency for Watershed of the Adriatic Sea issues the preliminary water consent for the section Mostar North-South border. The validity of the permit is 3 years. The permit was extended several times and its validity was again confirmed by the Agency in 2019.
2015	Third analysis of alternative routes	JPAC starts the new procedure to find the possible new alignment on the route Stanojevici-Buna-Mostar South-Ostri rat. The proposed alignment was assessed as a route with obvious spatial restrictions, unsuitable technical elements and numerous road components with high investment and operational costs. From the new location of Mostar South Interchange (connection to the M17 in the area of the airport Mostar), the proposed route is passing along the Mostar airport in Ortijes, crosses over the Buna River to Stanojevici, where it is connected to LOT 6.
2016	Multicriteria analysis of three variants, those from 2006, 2011 and 2015.	The results of this multicriteria analysis showed that the most suitable alternative is the one from 2015 where the route is passing near the airport Mostar.
2016	FBiH Government adopted the amendments to the Proposal of Spatial plan	Government of Federation FBiH adopted the amendments to <i>Proposal of Spatial plan for areas of special interest for FBiH „Motorway on corridor Vc” 2008-2028</i> related to sections 1-11. These amendments changed the 60% of preliminary motorway alignment compared to the one adopted in 2011.
2017	Fourth analysis of alternative routes	The results of this multicriteria analysis showed that the most suitable alternative is the one that stays on the left bank of Neretva river.
2017	FBiH Parliament adopted the Spatial Plan	Parliament of Federation BiH has adopted the <i>Spatial plan for areas of special interest for FBiH „Motorway on corridor Vc” for period of 20 years<sup>6</sup></i>
2018	Preliminary design of section Mostar South - Buna that includes the section Mostar South Interchange – Tunnel Kvanj	Preliminary design of section Mostar South Buna that treats this section Mostar South Interchange-Tunnel Kvanj is developed by IPSA Institute Sarajevo. This latest alignment is the subject of this environmental and social impact assessment.

<sup>5</sup>Official Gazette BiH no. 23/03

<sup>6</sup> Official Gazette FBiH 100/17

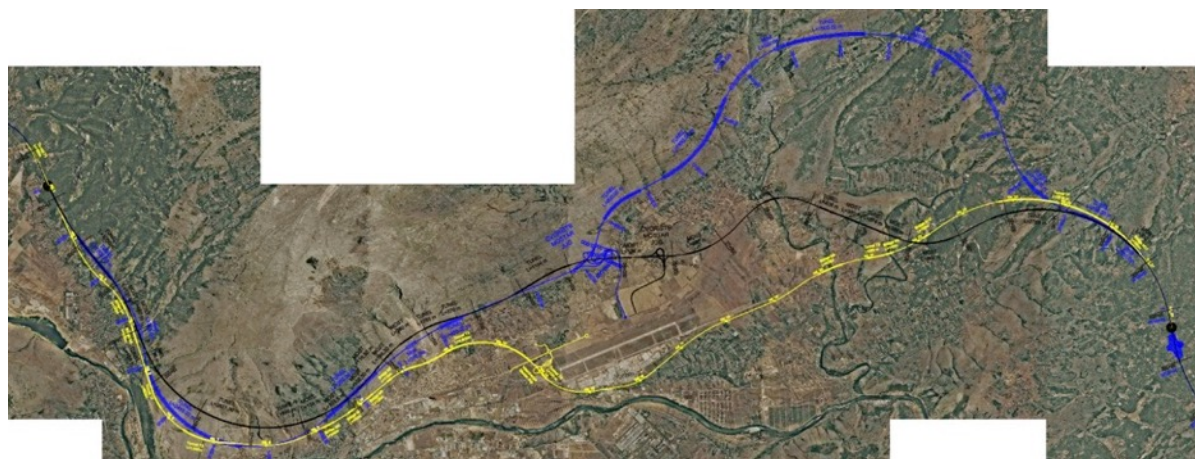


Figure 4 : Overview of alternatives (black route - 2006, blue route -2011, yellow route-2015)

#### Project ESIA process and stakeholder engagement to date

JPAC conducted the local EIA process for the entire Corridor Vc alignment (divided in four LOTs with respective EIAs). The project section that is considered for financing is part of LOT 4 Mostar North - South border section. The Scoping decisions for these four lots were issued in 2005 while the EIAs were approved in 2007. Public consultations were carried out in two stages: (i) after the Scoping Report and (ii) after the Final EIA Report. In both stages the documents were publicly disclosed for 30 days. Public consultations were organised in the municipalities along the corridor, including Mostar and Capljina (LOT 4). No significant public complaints had been recorded in respect to environmental and social issues on the project section. However, only Environmental Permit (EP) for the sections Pocitelj-Zvirovici, Zvirovici-Kravice and Kravice-Bijaca was issued based on the EIA Study for LOT 4. In addition, recently the EP for sections Tunel Kvanj-Buna and Buna-Pocitelj was issued. EP was not issued for the sections Mostar North-Mostar South and Mostar South-Tunnel Kvanj.

JPAC started work on preparing an EIA<sup>7</sup> to national standards for the purpose of obtaining an Environmental Permit for the section Mostar South-Buna in 2016. However, as EBRD is considering financing the construction of the subsection between Mostar South and Tunnel Kvanj<sup>8</sup> JPAC agreed to ensure the ESIA is structured to meet not only national requirements, but also those of the EU EIA Directive and EBRD ESP (2014). The ESIA for subsection Mostar South – Tunnel Kvanj will be submitted to FMET for the permitting process in the second half of July 2020, when the legally mandatory public hearing will be organised by FMET.

Regardless of this, several public consultations were performed in line with spatial planning requirements for the development and adoption of spatial planning documents in past period (Spatial Plan of FBiH 2008-2028 and Spatial Plan for the Motorway on Corridor Vc in FBiH). Furthermore, relevant government authorities, ministries and public institutions participated in this process as it was mandated by national legislation in the process of obtaining initial permits necessary for the issuance of the Urban Permit.

<sup>7</sup> According to national environmental legislation, an Environmental Impact Assessment, rather than an Environmental and Social Impact Assessment is carried out for the purpose of obtaining Environmental Permit.

<sup>8</sup> The second subsection, between Tunnel Kvanj and Buna is being considered for financing by the EIB and is subject to a separate ESIA process.

In January 2017, JPAC organised a presentation of the section route in Blagaj. The local community expressed their concerns about impacts on ecology in the southern zone of Mostar, to settlements and agricultural land particularly orchards and vineyards. In addition, representatives of local communities cited their concern that the proposed motorway section will negatively impact the natural resources in the valley of Malo Polje. JPAC representatives took on board these comments and explained that the alignment was selected based on a multi-criteria analysis which took into account several factors, one of which is cost-effectiveness.<sup>9</sup> Details on previous stakeholder engagement and planned stakeholder engagement activities are provided in the Stakeholder Engagement Plan (SEP) for the Section Mostar South-Tunnel Kvanj.

#### Status of land acquisition activities

As part of the overall land acquisition process, JPAC as the expropriation beneficiary, initiated the land acquisition activities in January 2019 through its Department of Legal and Property Affairs in Mostar for all of the affected land plots and this process is ongoing. The City of Mostar is the expropriation authority for all of the affected land plots and is responsible for making decisions on the individual entitlements and compensation values. Land acquisition is currently completed at 14.91% for all land plots located along the section Mostar South-Tunnel Kvanj. The completion of land acquisition is currently planned by the end of 2020. As EBRD is considering providing finance for this project, land acquisition will need to be carried out in line with EBRD's Performance Requirement 5 and the details of this process, including current and planned progress are provided in the Land Acquisition and Livelihood Restoration Plan (LALRP) developed for the section Mostar South Interchange-Tunnel Kvanj, to be publicly disclosed as part of the ESIA disclosure package.

## 4 SUMMARY OF ENVIRONMENTAL BASELINE

### 4.1 Habitats, flora and fauna

Regarding the habitats of the Project area, no sensitive, Annex I or priority habitats from Habitat Directive were found during the field survey. The habitats of the project area are mostly represented with intensively farmed crops interspersed with strips of semi-natural vegetation as well as shrubs and garrigue. The mixed thermophilous woodland and natural dry grasslands are found in south areas of the project section, where three endemic flora species have been identified. Invasive species have been observed at many locations, except at the southernmost area of the motorway section.

Fauna of the project area has been surveyed and additionally literature review has been undertaken, including invertebrates, fish, amphibians, reptiles, ornithofauna and mammals. Both terrestrial and aquatic fauna have been researched. The most important findings regarding terrestrial species refer to the presence of amphibians, reptiles and mammals that require protection, as well as and rich nearby ornithofauna located outside of the project area. With regard to aquatic fauna of Buna and Bunica rivers, one sensitive aquatic invertebrate species has been registered, as well as several endemic and/or sensitive fish species. Therefore, terrestrial and aquatic ecology will require specific and targeted mitigation measures, to be timely implemented, as stipulated by the Biodiversity Management Plan.

The road passes through the preliminary Natura 2000 area Buna-Bunica. Buna and Bunica rivers, as tributaries of River Neretva, are also classified as Key Biodiversity Area Neretva River with tributaries.

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<sup>9</sup> Even if the cost was the primary criteria chosen for the public presentation, the multicriteria analyses for the motorway section on Corridor Vc Mostar North-Buna took into consideration other criteria: eliminatory criteria (water supply sites - zone I, cultural and historical heritage (facilities and zones defined by decisions and planning documents), natural values and rarities (based on valid documents), urban structures, built industrial complexes, significant energy facilities, land of I category, amelioration), spatial-economic criteria, and spatial-ecological criteria.



## 4.2 Water

The largest river in the project area, is the Neretva River flowing close to the north section of the road. The motorway crosses two small to medium valley streams the Buna stream, the left tributary of Neretva, and its tributary Bunica stream at the southern edge of the Mostar field. Water from Buna and Bunica serves for irrigation and livestock watering. The project area is situated on a karst terrain mainly formed of permeable carbonate rocks, which means that all water that falls or overflows will infiltrate underground without delay. In parts of the route where the land cover is significant - or where the land cover is continuously spread, the possibility of wastewater infiltration into the karst limestones is significantly reduced.

The water quality in streams Buna and Bunica was analysed in May 2020 for the purpose of determining the baseline condition in the pre-construction phase<sup>10</sup>. The sampling was performed in the immediate vicinity of the planned bridges, upstream and downstream from the bridge on Buna and bridge on Bunica. The overall conclusion of the Report is that the both water streams have good ecological quality determined based on the main physical and chemical parameters, both upstream and downstream of the future location of the bridge, however the analysis of baseline quality (so called “zero state”) of surface waters will need to be repeated before the construction to ensure up-to date information is available and requirements of the Environmental and Water Permits are met.

## 4.3 Air quality

The current air quality in Mostar is considered to be satisfactory, the fluctuations in some parameters and particulate matters are present during winter. Strong winds coming from Adriatic Sea along the Neretva valley help in dispersing pollutants and preserving air quality. The pollution sources are mainly traffic and heating. Except for alumina production (currently halted) located south of city of Mostar, heavy industrial activity is not present. For the purpose of the baseline, one-time measurements of air quality were performed on two locations. The recorded values did not exceed the limits prescribed by the law.

## 4.4 Land

The project area belongs to Dinaric karst morphology. The route of the sub-section Mostar South-Tunnel Kvanj mainly runs through flat terrain of Mostar field towards the Mountain Kvanj. The first part of the route (km 0+000.00 m – km 6+937.80 m) runs through alluvium deposits which are mix of gravel, sand, clay and silt. The area is saturated with groundwater. Middle part of the route km (6+937.80 m – km 8+176.50 m) is mainly composed of rocky terrain. The last part of the route (km 8+176.50 m – km 9+125.00 m) is composed of fertile alluvium deposits which are mix of gravel, sand, loam and boulders.

Three agro-zones are present in the project areas of which 5% is high quality agricultural land, 50% lower quality agricultural land and the rest is the land not suitable for agricultural production. Most of the motorway passes through areas that are high quality land mainly used for cultivation and agriculture, and the northern section will pass close to the industrial area including the airport, while southern section will cross natural environment (predominantly coniferous forest and grasslands).

## 4.5 Climatic characteristics

The City of Mostar is situated in the Valley of Neretva River with the Mediterranean climate, slightly modified due to the position of the city where modified Mediterranean climate is predominantly present. Mostar is the

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<sup>10</sup> IG Banja Luka, Report On Quality of Surface and Ground Waters, May 2020

warmest city in Bosnia and Herzegovina with largest number of sunny hours per year (2,285 hr/y). Summers are hot and dry and the winter temperatures are stable with average temperature being around 4°C<sup>11</sup>. The most common winds in the Mostar are Northern wind (“sjeverac”) and Bora (“bura”) - very dry and cold wind blowing in the winter months from the Adriatic coast. In spring and autumn another dominant wind is the Southern wind (“jugo”) also penetrating from the Adriatic Sea. *Jugo* is a very humid wind and brings heavy rains.

According to climate models for Bosnia and Herzegovina, the mean seasonal temperature changes for the period 2001-2030 are expected to range from +0.8°C to +1.0°C above previous average temperatures. The project area is not prone to floods<sup>12</sup>. Winters are predicted to become warmer (from 0.5°C to 0.8°C), while the biggest changes will be during the months of June, July and August, with predicted changes +1.1°C in southern areas. Although Bosnia and Herzegovina has low emissions of carbon dioxide from transport, road transport is the dominant means of transport and GHG gas emissions from transport are expected to rise.

#### 4.6 Cultural-historical and archaeological heritage

In June 2020 the Federal Institute for Protection of Monuments issued the list of 15 recorded and protected goods of cultural and historical heritage located near the road section. Remains of a prehistoric fort and settlement from the Roman times are located on the Hadzajlica Kicin hill in Malo Polje, located at the 500 m clearance distance from the road section Mostar South-Tunnel Kvanj, being on the edge of the project area of influence. Three tombstones below the future Buna Bridge in Malo Polje were also identified during the site visit to the Project area.

#### 4.7 Landscape and visual impacts

There are two distinctive landscape character areas in the project area: the natural system (rivers, forest) and the system created by human activity (agricultural land, settlements and infrastructure). The settlement system is strongly connected with the transport system and, through that, with the natural morphology. The landscape of the observed area is additionally complemented by the rivers Buna and Bunica.

#### 4.8 Other specific elements relevant to the project

##### 4.8.1 Noise and vibrations

The current project area can be divided in three distinctive zones, industrial zone (airport and other commercial facilities), residential zone (settlements Kosor and Malo polje) and nature (forest). The terrain work indicated that motorway alignment is passing in close vicinity of residential houses, some of which are less than 50 m away from the route. Zero state monitoring of noise indicated that the limit values for the outdoor noise level defined for the acoustic zone IV are not exceeded as defined by the *Law on Noise Protection*<sup>13</sup>.

##### 4.8.2 Waste and materials management

The main type of waste associated with a motorway construction is excavated material (rock and soil) from excess cut. The excess land from excavation generated will be disposed on the landfill Rotimlja that will be opened for this purpose. The Rotimlja Landfill will be managed by the contractor in accordance with the FBiH

<sup>11</sup> CETEOR Sarajevo, Environmental Impact Study for Motorway LOT 5, 6: Section Mostar North- Mostar South-Počitelj; Mostar South-Buna, Updated Study, April 2017

<sup>12</sup> Hydro-Engineering Institute Sarajevo, Study on Preliminary Flood Risk Assessment for FBiH, April/May 2013

<sup>13</sup> Official Gazette of FBiH, no. 110/12

legal requirements and the mandatory construction waste management plans. The landfill will be shared with the Contractor engaged on the construction of subsection Tunnel Kvanj-Buna. The design capacity is sufficient to receive spoil from both sub-sections.

Beside the construction waste, the road construction works also generate non-hazardous municipal waste and hazardous waste from the works and storage areas. Other types of waste during construction (including hazardous waste) will be appropriately segregated, labelled, temporarily stored, recycled or safely disposed by contractors, in accordance with the national requirements. The disposal will be managed in cooperation with the local communal utility that will transport the waste to the regional landfill Uborak in Mostar. The hazardous waste will be transferred for management to licensed operator for hazardous waste management and disposal.

During the operation phase, small amounts of waste will be generated from maintenance activities. JPAC will manage the waste in cooperation with licensed waste management companies.

During construction of the motorway, there might be a need to use additional construction materials such as soil, gravel, stone, etc. The Contractor will decide whether such material will be obtained from borrow pits or from the market. The Project ESMP requires that any such borrow pits have adequate permits in place.

## 5 SUMMARY OF SOCIAL BASELINE

### 5.1 Settlements

The subsection starts in the rural settlement of Gnojnice. On the left side of the interchange there are a few houses of this settlement located at a distance of approx. 150 m. The project area of Gnojnice is characterised by land plots belonging to one company for the production of wine and other alcoholic beverages, the airport restricted area and the existing railway Mostar-Capljina.

The route then passes towards Ortijes, Laksevine and Kosor rural settlements. In Ortijes and Laksevine where a few sporadic houses are located on the left side<sup>14</sup> of the road section, at a distance between 100 m and 300 m. The settlement of Kosor is also characterised by agricultural land. Two houses located in this settlement are affected by land acquisition and will be acquired. Some houses are in close proximity of the motorway route, some of which are less than 50 m away from the route.

Some land plots in the settlement of Blagaj are located near to the auxiliary airport runway. These land plots are not used for cultivation and no houses are in the project area of influence.

After crossing the Buna River, the road section passes through Malo Polje. It is characterised by agricultural land and villas and apartments for renting during summer season. In this settlement, two houses are affected by land acquisition as the motorway section passes over these two houses and other houses in Project affected area are in the close proximity of the motorway route, some of which are less than 50 m away from the route.

After passing the Bunica River, the road section passes through the territory of the settlement Hodbina which is mainly agricultural and with land plots covered with forests. Some sporadic houses are located on the left side of the motorway section (the nearest at a distance of approximately 400 m ), while a group of 5 houses are located on the right side of the viaduct, at a distance of 100 m approximately. None of the houses are affected by land acquisition.

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<sup>14</sup> Direction from North to South

## 5.2 Population and demography

Table 5 shows total population within the settlements on which territory the road section will be constructed and the population density per km<sup>2</sup>.

*Table 5: Population density in Project affected settlements according to Census 2013*

<i>Settlement</i>	<i>Total population</i>	<i>Area (km<sup>2</sup>)</i>	<i>Density (inhabitants per km<sup>2</sup>)</i>	<i>Ethnic majority</i>
Gnojnice	3,637	12.94	281.2	Bosniak ethnic group
Ortijos	487	0.95	511.3	Croat ethnic group
Laksevina	1,432	2.11	677.2	Croat ethnic group
Kosor	507	2.82	179.5	Bosniak ethnic group
Malo Polje	469	9.27	50.6	Bosniak ethnic group
Blagaj	2,531	8.58	295.2	Bosniak ethnic group
Hodbina	813	12.72	63.9	Serb ethnic group

The demography of the area is characterised by two phenomena: emigration from villages to cities in search of better employment opportunities and seasonal movements of the population (living in the villages only during the summer season).

## 5.3 Land use

The total number of affected land plots in the six settlements is 375<sup>15</sup>. However, an additional 197 land plots are planned to be acquired based on Article 11 of the Law on Expropriation FBiH<sup>16</sup>. Of these 572 plots in total (375 + additional 197):

- 506 (398,432 m<sup>2</sup>) are private land plots and
- 66 (237,297 m<sup>2</sup>) are state-owned land plots.

Total number of affected land plots in six settlements is shown in Table 6 below.

*Table 6: Total number of affected land plots per settlement*

<i>Settlement/Cadastral Municipality</i>	<i>Total number of land plots</i>	<i>Surface of land plots (m<sup>2</sup>)</i>	<i>Percentage of privately owned land plots</i>	<i>Percentage of state-owned land plots</i>
Blagaj	10	20,012	70.00%	30.00%
Gnojnice Donje	98	199,828	70.41%	29.59%
Hodbina	19	112,488	84.21%	15.79%
Malo Polje	57	73,622	92.98%	7.02%
Kosor	140	101,781	94.28%	5.72%
Ortijos	248	127,998	93.95%	6.05%
<b>Total</b>	<b>572</b>	<b>635,729</b>	<b>88.46%</b>	<b>11.54%</b>

Out of 506 (398,432 m<sup>2</sup>) private plots, 106 (91,348 m<sup>2</sup>) are used as agricultural land:

- 41 land plots (31,867 m<sup>2</sup>) used as cultivated land,
- 32 land plots (22,848 m<sup>2</sup>) used as orchards,

<sup>15</sup> Expropriation Study

<sup>16</sup> Article 11 of the Law on Expropriation stipulates that landowners affected by a partial loss of their property are entitled to request complete expropriation and the corresponding compensation, in case partial expropriation would deteriorate the economic situation of the actual property owner or make the remaining part of the property useless or difficult to use.



- 21 land plots (26,353 m<sup>2</sup>) used as vineyards,
- 7 land plots (5,983 m<sup>2</sup>) used for growing crops,
- 2 land plots (2,183 m<sup>2</sup>) used as orchards (cherry and hazel trees),
- 2 land plots (1,599 m<sup>2</sup>) used as vineyards and orchards combined,
- 1 land plot (515 m<sup>2</sup>) used as cultivated land and orchards combined.

On 4 land plots there are 4 inhabited houses which will be demolished:

- two in Malo Polje
- two in Kosor.

Twenty three land plots belong to four businesses:

- 20 land plots belong to 2 businesses whose main business activities are production of wine and other alcoholic beverages. Out of these 20 land plots, 4 are used as vineyards. The other plots are trees, shrubs and grass. These 2 businesses will not need to be relocated.
- 2 land plots belong to a business whose main business activity is production and sales of fruits. This business will be relocated.
- 1 land plot belongs to a company who deals with renting, sale and purchase of property (restaurants, taverns, etc.). This business will be relocated.

On 17 state-owned land plots in the Project area, there are access roads, local roads and uncategorised roads, while on 6 plots there are: airport parking, airport fence, small concrete building, temporary worker containers and local paths. A company for stone exploitation has a concession on 10 state-owned land plots, and it needs to be relocated.

A detailed census and socio-economic survey of the project affected population is provided in the LALRP.

## 5.4 Education

Information on education levels of the project affected population is taken from the results of a socio-economic survey performed for gaining data for the development of the LALRP. According to the results majority of project affected population have secondary education. University degree educated people are the minority and only few of them hold a PhD.

Unemployed local residents with secondary education could potentially be employed as low skilled workers during construction works.

## 5.5 Employment, income and livelihoods

According to the data of the Statistics Institute of the FBiH<sup>17</sup>, in 2018 the number of employed persons in the City of Mostar is 33,475, with the average net salary of 1,070 BAM. The number of unemployed persons in the City of Mostar is 14,926.

Information on employment status, income levels and livelihoods of project affected people was collected during the socio-economic survey during the development of the LALRP. The majority of interviewed land owners reported to be unemployed, while one third of them reported to be employed. The rest of them did not report their employment status.

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<sup>17</sup>Herzegovina-Neretva Canton in numbers 2019

The aforementioned unemployed persons, in particular the low-skilled ones, will have the opportunity to be temporarily employed during the construction works related to the motorway section Mostar South-Tunnel Kvanj.

As regards the household income level, majority of project affected people has low monthly incomes. Almost half of them reported to have monthly income less than BAM 500. 25% of interviewed local population reported monthly income in the range of BAM 500 to BAM 1,000, and around 20% of them reported monthly income more than BAM 1,500. Among the primary source of income are pensions and salaries, while a minor number of affected land owners reported agriculture as their primary source of income (sale of fruits - mainly cherry, walnut, pomegranate, pear, plum, watermelon, strawberry, fig, vineyard and almond trees).

## 5.6 Vulnerable groups

The results of the socio-economic survey performed during the development of LALRP show that there are several vulnerable households identified in the settlements affected by the project. The categories of vulnerability include, by order of frequency:

- Elderly persons,
- Persons with a disability or chronic illness and
- Unemployed persons.

In addition to the aforementioned vulnerable groups, two potential vulnerable groups may be present in the Project area: populations living in settlements in the vicinity of the motorway construction with a high female population who could potentially be subject to gender based violence and harassment and Serb returnees reestablishing their homes and livelihoods. ).

## 5.7 Local economy

Local economy of the Project area of influence is based mainly on agriculture (including vine production), stone exploitation, and tourism related activities. Mostar Airport is also located Gnojnice, and has significant importance for the tourism sector, considering its vicinity with the cultural and historical sites located in Mostar and Herzegovina region. Ortijes, Laksevine and Kosor are characterised by small agriculture activities and land used as vineyards. Agricultural activities are one of main economy sector of Malo Polje and Hodbina. In addition, the economy of Kosor, Malo Polje and Blagaj is based on tourism sector, represented by villas and apartments for renting during spring, summer and autumn, as well as several camping sites.

## 5.8 Local Infrastructure

The main road M17 is part of the south European route E73. The road is regularly maintained and it has adequate horizontal and vertical signalization, however, M17 is not appropriate for the traffic frequency and is not suitable for driving characteristics of modern vehicles. Main road M17 is a so called "slow" road, because it passes through many settlements. The main road M6.1 starts in Siroki Brijeg, passes through Mostar and the finishes in Nevesinje. The existing road is asphalted, with canals, side ditches and tubular/plate culverts, and also M6.1 is passing through many settlements, with no possibilities to drive on higher average speed than 50km/h. According to the Traffic Study for the Section Mostar South-Buna<sup>18</sup> a total of 2,325 traffic accidents occurred on the roads of the Herzegovina-Neretva Canton in 2016, of which 681 traffic accidents with fatalities and injuries, and 1,644 traffic accidents with material damage. An increase in the total number of traffic accidents in the period 2014-2016 was recorded.

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<sup>18</sup> Developed by IPSA Institute in April 2018

The section Mostar South-Tunnel Kvanj passes near to the existing railway Mostar-Capljina in the area of Mostar Airport (Gnojnice). The aforementioned railway is a section of the Sarajevo-Capljina railway line which is part of the Pan-European Corridor V, branch C, e.g. Line (Ploce) – Capljina – Mostar – Sarajevo – Doboj – Bosanski Samac – (Budapest).

The Mostar South-Tunnel Kvanj section alignment is located in the immediate vicinity of the Mostar Airport. The route passes parallel with the Mostar Airport runway towards Ortijes and Kosor settlements and follows the auxiliary airport runway at a distance of 35-45m. The airport has regional significance, and it is particularly interesting considering important tourist destinations such as: Medjugorje (“religious tourism”), which is about 30 km away from the airport, with approximately 1 million tourists a year, Old Town Mostar with the Old Bridge, Buna spring and Tekija in Blagaj, Hutovo Blato.

## 6 IDENTIFIED SIGNIFICANT IMPACTS

### Environmental impacts

<i>Aspect</i>	<i>Identified significant environmental impact</i>
Habitats, flora and fauna	<p><b>Habitats:</b> <i>Pre-construction</i> related impacts include possible wrong evaluation of impacts in the construction and operation phase if up-to-date baseline information for diagnostic species <i>Scorzonera villosa</i> on dry grasslands and chasmophytic vegetation are not available and poor planning of works. <i>Construction</i> impacts are related to habitat loss due to preparation of construction site and during the performance of construction works, fragmentation of habitats</p> <p><b>Flora:</b> <i>Pre-construction</i> related impacts include possible wrong evaluation of impacts in the construction and operation phase if up-to-date baseline information are not available and poor planning of works. <i>Construction</i> impacts are related to vegetation removal and clearance of flora species in the phase of works on preparation of construction site and during the performance of construction works</p> <p><b>Fauna:</b> <i>Pre-construction</i> related impacts include possible wrong evaluation of impacts in the construction and operation phase if up-to-date baseline information are not available and poor planning of works. <i>Construction</i> impacts include (a) disturbance of fauna species due to the loss of habitat, increased level of noise, vibration and light in the zone of construction activities, (b) potential disturbance of nests/roosts of species that have a seasonally variable vulnerability due to breeding, feeding times or seasonal migrations, such as Short – toed Lark (<i>Calandrella brachydactyla</i>) and Sand Martin (<i>Riparia riparia</i>) or sensitive bat species in the project area and (c) potential fatalities or injuries of fauna species due to vegetation removal and movement of heavy machinery. <i>Operational</i> impacts include potential collision of fauna species due to high speed of vehicles (bird species e.g. Sand Martin and Bee-eater, bat species, other small mammals, amphibians and reptiles).</p> <p><b>Aquatic ecology:</b> <i>Pre-construction</i> related impacts include poor planning of works, especially those around water streams of Buna and Bunica and Main design requirements for bridges. <i>Construction</i> impacts are related to aquatic habitat loss, aquatic environment alternation and degradation of the riverbed as a result of construction works in the streams, as well as negative impacts on critically endangered and intolerant ichthyofauna species, endangered aquatic invertebrates and their habitat due to degradation of the aquatic habitats.</p>
Protected areas	There are no officially designated protected areas (PAs) in the project area and in the project area of influence.
Water	<p>The design will need to be modified to limit construction activities in the river bed and increase number of oil and grease separators for motorway drainage to ensure protection of the water quality in Buna and Bunica streams</p> <p><b>Construction</b> related impacts include reduction in water quality in river systems due to (a) temporary localised diversion of drainage paths around construction camps and site workings, (b) maintenance of construction vehicles at the site, (c) sediment release during bridge construction in river bed and on the banks (d) depositing of construction waste, municipal waste and other special waste categories into the rivers and (e) localised discharges from construction facilities including the</p>

	<p>concrete batching plant and workers camp and (f) accidental spills.</p> <p><b>Operation</b> related impacts include reduction in water quality in river system resulting from direct release of intercepted surface run-off and sanitary water from toll station, and accidental spill of hazardous material resulting from traffic accidents.</p>
Air quality	<p><b>Construction</b> related impacts include reduction in air quality due to emissions of construction dust, emission of exhaust gases from combustion processes in generators and other construction equipment /vehicles.</p> <p><b>Operation</b> related impacts include increased emissions from vehicles in close vicinity of the motorway. But the calculated concentration indicate that no significant deterioration of the air quality will occur .</p>
Land	<p><b>Construction</b> related significant impacts include reduction of soil quality due to deforestation, soil dewatering, direct wastewater discharge or inappropriate waste disposal.</p> <p><b>Operation</b> related impacts include reduction in soil quality along the route as a result of direct discharge of surface run-off and accidental fuel and oil spills</p>
Climatic factors	<p><b>Pre-construction/Construction</b> related impacts are relevant to the low resilience of motorway structures to climate variability and climate change.</p> <p><b>Operation</b> related impacts include increased emission of GHG emissions from motorway transport.</p>
Existing material assets including cultural-historical and archaeological heritage	<p><b>Construction</b> related significant impacts include potential damage to visible and buried cultural, archaeological and architectural heritage during execution of construction works and movement of machines/vehicles around the construction site</p>
Landscape	Significant impacts are not identified.
Noise	<p><b>Construction</b> related significant impacts include impact on workers and residents from increased levels of noise during construction works</p> <p><b>Operation</b> related impacts include impact on residents from increased levels of noise from motorway traffic</p>
Waste and materials	<p><b>Construction</b> related significant impacts include contamination of environment due to leakage and spillage of wastes associated with poor spoil and waste handling and storage/disposal arrangements and environmental damage caused by sourcing the material from illegal borrow pits or buying it from illegal material providers.</p> <p>Significant impacts are not identified in operation phase.</p>

## Social impacts

<i>Aspect</i>	<i>Identified significant social impact</i>
Community impacts	<p>Workers influx (exposure of local population to diseases including communicable diseases and Sexually Transmitted Diseases (STD) - or Sexually Transmitted Infections (STI) and possible gender-based violence and harassment (GVBH) issues)</p> <p>Community health and safety and road safety (risks caused by air pollution (dust and exhaust gases), noise emissions, soil and water contamination, increase in construction related journeys and increased volume of traffic due to construction works and later in operation phase)</p> <p>Loss of employment of temporary engaged workers a result of the temporary employment during the construction period is the loss of employment upon the end of construction works. This impact will affect inhabitants of local communities engaged by the Contractor for construction works during the construction phase.</p>
Land acquisition and physical displacement	The Project will require acquisition of land (572 parcels) and structures (residential, commercial and auxiliary), with physical relocation of 4 households and 3 businesses.
Economic displacement	<b>Construction</b> related impacts include temporary and permanent loss of place of business, loss of business income, loss of livelihoods of the land owners and users.



Health and safety risks for workers	<b>Construction</b> related impacts include health and safety risks for workers that will be exposed to many risks that are directly related to activities performed on construction site.
Danger from UXO	Kajgin Kicin in Hodbina is one of UXOs suspicious area that need to be inspected and demined. This problem is considered as a temporary restriction and can be solved through demining activities.

### Cumulative impacts

<i>Aspect</i>	<i>Identified significant cumulative impact</i>
Increase in noise level	<p><b>Construction</b> related impact: Considering the noise generated by Airport Mostar, and existing noise caused by movement of vehicles on the main road M17 and main road M6.1 to Nevesinje, and occasional noise from the railway, it can be expected that ambient noise levels will be increased compared to the present state.</p> <p><b>Operational</b> impacts: Noise level will be increased compared to the present state due to the general increase of the number of vehicles and together with existing noise from the main road M17 and main road M6.1 to Nevesinje. From Interchange Mostar South, the northern section is passing close to the industrial area including the Mostar Airport which produces significant noise level. Existing noise from the main roads and Mostar Airport together with increased number of vehicles on planned motorway will pose adverse effects to local population of closest settlements. Partially this impact may be mitigated with noise barriers.</p>
Impact on water quality of Buna and Bunica and other ground sources in the area	Construction related impacts: Cumulative effects on water quality from motorway construction are observed in conjunction with municipal wastewater discharge from surrounding settlements/ individual houses, as well as run-off discharge from M17 and M6.1. Discharges or leakages from the construction site are not expected to be large in quantities, they are reversible and unlikely to occur.
Exhaust gasses from vehicles will adversely impact the air quality	<b>Operational</b> impacts: Cumulative effects on air quality from motorway operation are observed in conjunction with the air emissions from existing roads and air traffic. The operation phase (vehicle movement) contributes about 80% of the emitted GHG gases in the project scenario. Here is to be noted that traffic intensity on M17 will be reduced and transit vehicles will be using the motorway. Nevertheless, according to the Traffic study, the traffic on M17 and M6.1 will be increased every year by 2%.

## 7 MITIGATION AND MONITORING MEASURES

Before construction commences, key environmental baseline measurements (e.g. air, noise, soil, water quality, soil quality and biodiversity) will be undertaken to reconfirm the baseline conditions and that the proposed mitigation remains appropriate. JPAC will also undertake preventive archaeological surveys as required by the Federal Institute for Protection of Monuments and notify the Institute of survey results.

In the construction and operation phase the following mitigation and monitoring measures shall be implemented:

<i>Aspect</i>	<i>Mitigation measures</i>	<i>Monitoring measures</i>
Biodiversity	<p>In order to be able to mitigate key identified significant impacts on the aquatic ecology, the changes in main design of the two bridges over Buna and Bunica need to be made in order to avoid any construction activities in the riverbed and on the river banks.</p> <p>In order to be able to mitigate significant key impacts on ornitofauna and mammals (bats) and increase road safety from collision with bird and bat species, it is important to install bird protective panels from chainage 3+400+000 km</p>	<p>The monitoring of BMP implementation is to be regularly performed during the construction phase.</p> <p>Environmental supervision of the contractor's work: weekly visual inspections throughout the construction phase to monitor the implementation and effectiveness of prescribed</p>

<i>Aspect</i>	<i>Mitigation measures</i>	<i>Monitoring measures</i>
	up to 5+000+000 km. In general, all measures identified in the Biodiversity Management Plan (BMP) need to be implemented in order to minimise damage to biodiversity in the project area. The Contractor shall employ a biologist in the team. During the development of Main design, the noise modelling will be done based on which the position of noise barriers will be decided. The installation of noise barriers is the key measure to mitigate noise impacts on biodiversity and the local population.	mitigation measures.  Records should be kept of these visual inspections and submitted in the monthly reports prepared by the external supervising engineer
Water	<p>In the construction phase, development and implementation of:</p> <ul style="list-style-type: none"> <li>▪ <b>Construction Site Organisation Plan (CSOP)</b> to include proper collection and treatment of drainage water and sanitary water inside the camp</li> <li>▪ <b>Construction Environmental and Social Management Plan (CESMP)<sup>19</sup></b> to include set of good construction practices as prescribed in ESIA and the following plans: (a) <b>River Crossing Management Plan (RCMP)</b> with actions and measures necessary for the effective management of water crossings (b) <b>Concrete Batching Management Plan</b> to include installation of the settling tanks at the concrete batching plant and treatment of wastewater prior to discharge.</li> <li>▪ <b>Detailed Construction Waste Management Plan</b> to put in operation construction waste management procedures</li> <li>▪ <b>Waste Management Plan</b> to put in operation appropriate waste management procedures.</li> </ul> <p>In the operation phase, development and implementation of <b>Operational Environmental and Social Management Plan (OESMP)</b> and <b>Emergency Preparedness and Response Plan (EPRP)</b> to include procedures to prevent contamination of waters from accidental spills.</p>	<p>In the construction phase: Engineer supervision of the contractor's work based on CSOP, RCMP, CESMP, CWMP, DCWMP. Monitoring of water quality of Buna and Bunica in line with the Environmental Permit.</p> <p>In the operation phase: 1. setting up (i) procedures for operation of the sanitary and drainage facilities and (ii) preparedness and response procedures. 2. monitoring of effluent discharge in line with the OESMP and the Water Permit.</p>
Air quality	In the construction phase, development and implementation of: <b>Air Quality Management Plan (AQMP)</b> , <b>Traffic Management Plan (TMP)</b> and <b>Materials Management Plan (MMP)</b> as specified in the ESIA - all three plans to be included in in the CESMP.	Engineer supervision of the contractor's work based on AQMP, TMP, MMP
Land	In the construction phase development and implementation of <b>Topsoil Management Plan (TMP)</b> , <b>Recultivation/Land Restoration Plan (RLRP)</b> and <b>Spill Management Plan (SMP)</b> as specified in the ESIA - all three plans to be included in in the CESMP. In addition, implementation of the same measures as under <i>Water and Waste</i> will be required. In the operation phase, include in the <b>Operational Environmental and Social Management Plan (OESMP)</b> measures on maintenance and clean-up of drainage system, monitoring of slopes, and occasional monitoring of soil quality. In addition, implementation of the same measures as under <i>Water</i> will be required.	JPAC to monitor the adherence to measures

<sup>19</sup> CESMP is the upgraded version of the legally required Environmental Protection Plan inclusive of social aspects as per EBRD requirements.

<i>Aspect</i>	<i>Mitigation measures</i>	<i>Monitoring measures</i>
Climatic factors	In the preconstruction/construction phase, the detailed will include design measures and materials specification in light of the anticipated climate change forecasts and projections over the lifetime of the project. Additional mitigation measures to address climate resilience risks will be specified in the contract specification and if appropriate the Contractor will be required to prepare a <b>Climate Resilience Construction Management Plan</b> . Reduce GHG emissions from transport by land reforestation in line with the <b>Recultivation/Land Restoration Plan (RLRP)</b> and encourage drivers with motivational messages on electronic displays to maintain a consistent speed of 110 km/hr for the benefit of reducing GHG emissions.	In the preconstruction/construction phase : Main design to include measured to increase climate resilience  Engineer supervision to review Construction Management Plan for resilience increasing measures.  In the operation phase: JPAC to monitor %reforested surfaces and speed monitoring
Existing material assets including cultural-historical and archaeological heritage	Develop and implement <b>Chance Find Procedure</b> prior to any site preparation and construction works.	Record of use of chance finds procedure
Noise	Include in the CESMP the set of measures related to restriction of works to day-time only, vehicles speed in the construction site, simultaneous use of equipment and vehicles and machine maintenance to reduce noise from construction works. Installation of noise barriers based on the results of noise modelling will reduce noise for the neighbouring residents in the operational phase.	Monitoring of ambient noise in accordance with the provisions of the issued Environmental Permits, both in the construction and operation phases.
Waste and materials management	Develop and implement <b>Detailed Construction Waste Management Plan and Waste Management Plan (WMP)</b> . These plans should be implemented in conjunction with Recultivation/Land Restoration Plan, <b>Topsoil Management Plan and Spill Management Plan</b> . Borrow pits may not be opened in protected areas and appropriate environmental assessments to be carried out for them and all the necessary Permits obtained. If Contractor decides to purchase materials from the market, it is allowed to subcontract only licenced material providers that have valid environmental, water and working permits.	Engineering supervision of construction works Keeping record on waste types and quantities Keeping waste shipment documentation Contractor to ask copies of the permits from the material provider. Keeping record on material purchase
Community impacts	For mitigating <u>worker influx</u> impacts it will be necessary to include in CESMP provisions on workers' accommodation (camps) in accordance with PR provisions and the EBRD/IFC Guidance Note "Workers' accommodation: processes and standards" 2009 referred to in PR 2, including the requirements for developing disease prevention measures by the Contractor, including communicable diseases and STD or STI, as well as with EBRD Briefing Note on Workplace Risk Assessment including provisions for Covid-19 (2020). It will be necessary to provide education/awareness raising activities to workers on <b>workers' code of conduct</b> vis-a-vis the local community, STDs, STI and HIV/AIDS, COVID-19 and gender-based violence and harassment.	<u>For worker influx impacts:</u> Supervising engineer to random check at least once per week during construction activities  <u>For community health and safety and road safety impacts:</u> JPAC to review Contractor's TMP to ensure continuity with commitment in the ESMMP Supervising engineer to random check at least once per week during construction activities Development of quarterly monitoring reports on SEP implementation

<i>Aspect</i>	<i>Mitigation measures</i>	<i>Monitoring measures</i>
	<p>For mitigating <u>community health and safety and road safety impacts</u> develop and implement an Emergency Preparedness and Response Plan for both construction and operation phases (as part of the CSOP and OESMP) and a Traffic Management Plan (TMP) for both construction and operation phases (as part of the CESMP and OESMP) containing traffic measures. In addition, timely information to local communities on the extent of works and duration prior to the commencement of construction works as prescribed in SEP.</p> <p>For mitigating impacts from <u>job creation</u> develop hiring guidelines for recruitment to promote transparency of the recruitment process and guarantee equal opportunities and non-discrimination in the recruiting process.</p> <p>For mitigating impacts due to <u>loss of employment of temporary engaged workers</u> help these workers by providing them information on job opportunities through local institutions and by facilitating employment where feasible on other sections or other construction activities.</p> <p>For mitigating impacts from <u>disruptions to water and sanitation, electricity and telecommunication</u> implement mitigation measures for identified collision points contained in approvals from competent authorities and public utility companies, develop a Utility Conflict/Collision Matrix and ensure emergency and prompt reaction in case of disruption.</p>	<p>Monthly review of external grievances</p> <p>For impacts from <u>job creation and loss of employment of temporary engaged workers</u>: JPAC to check the implementation of measures during pre-construction, construction and operation phases</p> <p><u>For impacts from disruptions to water and sanitation, electricity and telecommunication</u>: Supervising engineer to random check at least once per week during construction activities</p>
Land acquisition Economic displacement	These impacts will be mitigated through appropriate implementation of the <b>Land Acquisition and Livelihood Restoration Plan</b> for the Project and implementation of the project-specific grievance mechanism as elaborated in LALRP and <b>Stakeholder Engagement Plan</b> .	<p>Biannual reports on the progress achieved with the implementation of the LALRP</p> <p>Development of quarterly monitoring reports on SEP implementation</p> <p>Monthly review of external grievances</p>
Restrictions on land use and damage to private property	In addition to implementation of <b>Land Acquisition and Livelihood Restoration Plan</b> for the Project and implementation of the <b>project-specific grievance mechanism</b> , put in operation Detailed Construction Waste Management Plan and relevant waste management procedures to avoid inappropriate deposition of construction waste in and around the construction site as specified in.	<p>Biannual reports on the progress achieved with the implementation of the LALRP.</p> <p>Monthly review of external grievances Supervising engineer to supervise the implementation of DCWMP and re-use of excavated material at least once at week.</p>
Access restrictions  Road damage and impacts on local traffic	<p>Timely information to local communities on the extent of works and duration prior to the commencement of construction works as prescribed in <b>Stakeholder Engagement Plan</b>, as well as implementation of <b>Traffic Management Plan</b> and construction of new local roads will mitigate impacts due to access restrictions</p> <p>In addition, all local roads used for purpose of construction</p>	<p>JPAC to review Contractor's TMP to ensure continuity with commitment in the ESMMP for this project.</p> <p>Supervising engineer to random check at least once per week during construction activities</p> <p>Complaints relating to access restriction</p>

<i>Aspect</i>	<i>Mitigation measures</i>	<i>Monitoring measures</i>
	machines and vehicles movement should be fully restored to at least pre-project state, if traffic during the construction phase caused any damage.	
Health and safety risks for workers	In the construction phase, these impacts will be mitigated through development and implementation of <b>Fire and Explosion Management Plan</b> and <b>Health &amp; Safety Plan</b> (as part of CSOP) to include specific HS measures (both occupational and community H&S) as given in the ESIA. In addition, develop and implement a <b>Hazardous Materials Safety Plan</b> as part of the H&S Plan. In the operation phase, include in OESMP and implement specific health and safety requirements for both the Company and the sub-contractor's personnel during the road operation and maintenance.	In the construction phase, JPAC to review Contractor's CSOP to ensure continuity with commitment in the ESMMP for this project; Supervising engineer to random check at least once per week during construction activities  In the operation phase, JPAC to review contractual conditions of all sub-contractors to ensure continuity with commitment in the ESMMP for this project.
Danger from UXOs	These impacts will be mitigated by <b>implementation of demining activities</b> on land plots along the motorway section. In case of any doubts during construction, the works shall be stopped and notification to BHMAL for consultations and further instruction sent.	JPAC to obtain the approval/verification that the field does not have suspected areas and mine risks

All measures implemented to mitigate project related impacts will have effect on the cumulative impacts as well.

JPAC will monitor the E&S performance of its construction Contractors and their implementation of the mitigation measures as defined within the ESIA and EMSP (e.g. dust emission, noise levels, water quality, habitat clearance, erosion, labour, grievances, etc.). During operation, JPAC will regularly monitor, air emissions, noise levels, effluent quality, soil contamination and biodiversity.

The ESAP sets out additional monitoring requirements, particularly in relation to the engagement with stakeholders and management of issues raised by the local community.

Key monitoring results of the project will be made publicly available by JPAC on an ongoing basis, through JPAC's website.

## 8 RESIDUAL IMPACTS

Residual impacts of the Project that remain after implementation of mitigation measures are mainly related to permanent increase of air emissions from motorway traffic, especially GHG emissions, permanent land take and landscape changes. Concerning the biodiversity loss, it is considered that after applying specific mitigation measures as given in BMP (i.e. avoiding of planning of access roads over the area of identified colonies and roost sites (if found) and installation of protective panels as well as proposed changes to the design of the bridges, avoiding the planned regulation of both watercourses to avoid any disturbance to watercourses during construction) and avoiding any bat roost sites (if found) no residual impacts are expected, except the terrestrial habitat loss. Residual impacts are not expected to be significant taking into consideration climate characteristics in the area, climate change prognosis for the country, willingness of residents to receive compensation for the land taken and significance of the project for the country and its citizens.

## 9 COMMUNICATIONS

JPAC intends to provide all relevant Project information to the public in local language and English (where appropriate). A detailed Stakeholder Engagement Plan has been developed for this Project, outlining the stakeholder engagement and communication programme, including access to the Project's Grievance Mechanism.

All grievances and enquiries will be channelled to JPAC through the following designated staff member:

Attention: Marin Šimunović  
 Motorways of the Federation of Bosnia and Herzegovina  
 Department of Property and Legal Affairs and Expropriation  
 Address: Adema Buća 20, 88000 Mostar  
 Tel: +387 36 512 308  
 E-mail: s.marin@jpautoceste.ba

For general enquiries and information about the Project please contact the below:

<b>Motorways of FBiH d.o.o. Mostar</b> Adema Buća 20, 88 000 Mostar + 387 36 512 300 info@jpautoceste.ba www.jpautoceste.ba	<b>Motorways of FBiH d.o.o. Sarajevo Office</b> Hamdije Kresevljakovica 19, 71000 Sarajevo	<b>EBRD, BiH</b> 15 <sup>th</sup> Floor, Tower B, Unitic Towers Fra Andela Zvizdovica 1 71000 Sarajevo
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The following documents will be published on the JPAC's website (<http://www.jpautoceste.ba>) and the EBRD website ([www.ebrd.com](http://www.ebrd.com)) both in local and in English language:

1. Environmental and Social Impact Assessment (ESIA), including Environmental and Social Management Plan (ESMP)
2. ESIA Technical Annexes
3. Environmental & Social Action Plan (ESAP)
4. Stakeholder Engagement Plan (SEP)
5. Non-Technical Summary (NTS)
6. Land Acquisition and Livelihood Restoration Plan (LALRP)
7. Biodiversity Management Plan (BMP)

The company will make available hard copies of these documents at the following locations:

- Motorways of FBiH d.o.o. Mostar (Address: Adema Buća 20, 88 000 Mostar)
- Motorways of FBiH d.o.o. Mostar - Sarajevo Office (Address: Hamdije Kresevljakovica 19, 71000 Sarajevo)
- Municipal/City Building in Mostar
- in the offices of the three Local communities (LCs) (LC Gnojnice, LC Blagaj and LC Buna) on whose territory the road section is planned to be constructed
- EBRD office in Sarajevo