

**Montenegro Main Roads  
Reconstruction Project,  
Upgrade of the Danilovgrad-  
Podgorica Road section**

**Non-Technical Summary (NTS)**

Prepared for: European Bank of  
Reconstruction and Development

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## 1 Introduction

The European Bank for Reconstruction and Development (EBRD) is considering providing a loan to the Transport Administration of Montenegro (TA) for the rehabilitation, upgrade and works supervision of the 51km 'Montenegro Main Roads Reconstruction Project'. The project is divided into three main sections of which this report deals with Section 3:

- Section 1: Rehabilitation of the Rozaje-Spiljani road section (approx. 20km);
- Section 2: Rehabilitation and upgrade of the Tivat-Jaz road section (approx. 16km); and
- **Section 3: Rehabilitation and upgrade of the Danilovgrad-Podgorica road section (approx. 15km).**

This document is the Non-Technical Summary (NTS) of the Supplementary Environmental and Social Impact Assessment (S-ESIA) undertaken for the Project section M-18 Danilovgrad-Podgorica. This road rehabilitation and upgrade, which is being undertaken by TA, is to be designed and delivered in accordance with both national laws and regulations, and the EBRD Performance Requirements<sup>1</sup>.

The NTS provides information about the need for the project, the project description, the supplementary ESIA (its purpose and process) and provides a summary of the expected environmental and social impacts and measures needed to structure the Project to meet the Lender's requirements. The purpose of this document is to provide information to everyone that may be interested in the Project.

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<sup>1</sup> 2014 Environmental and Social Policy and associated Performance Requirements (PRs)  
<https://www.ebrd.com/who-we-are/our-values/environmental-and-social-policy/performance-requirements.html>

## 2 Need for the Project

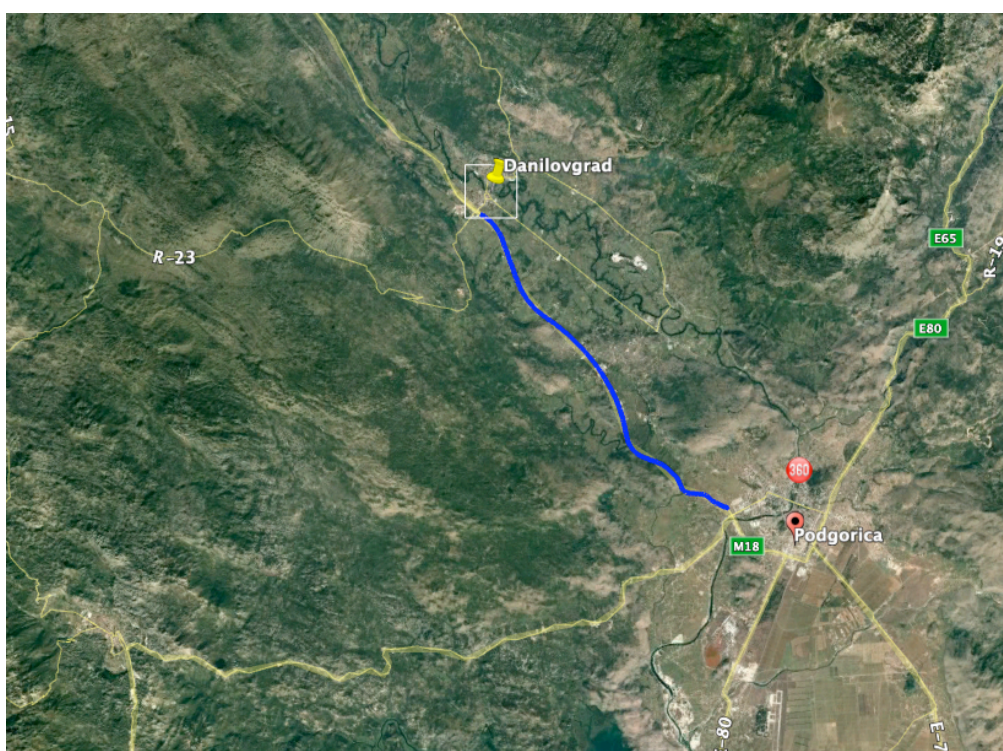
Rehabilitation of the country's main road network is one of the strategic goals of the Government of Montenegro. The expansion and upgrade of the Danilovgrad-Podgorica section of the existing M-18 road (the Project) is therefore part of a wider programme of rehabilitation of twelve main road sections. The Project is aligned with the Spatial Plan of Montenegro (SPM) (2020), which outlines the development of road infrastructure in Montenegro.

The Project is part of one of the corridors identified in the SPM as a section of the existing road network that should be improved:

- **South longitudinal direction: Main Road for fast motor traffic: Bozaj – Podgorica – Danilovgrad – Niksic – Pluzine - Scepan Polje** with connections to Niksic - Trebinje, Niksic – Bileca and Niksic-Gacko.

The Danilovgrad-Podgorica section of the existing M-18 road is characterised by high volumes of traffic and accidents are commonplace. Flood risk is high at several locations along this section of the M-18, particularly within the Danilovgrad Municipality. The Project is intended to improve traffic flows (thereby reducing journey times) and road safety (for both drivers and pedestrians). Road drainage will be improved to reduce flood risk and run-off rates of contaminated water onto the surrounding land and into adjacent watercourses.

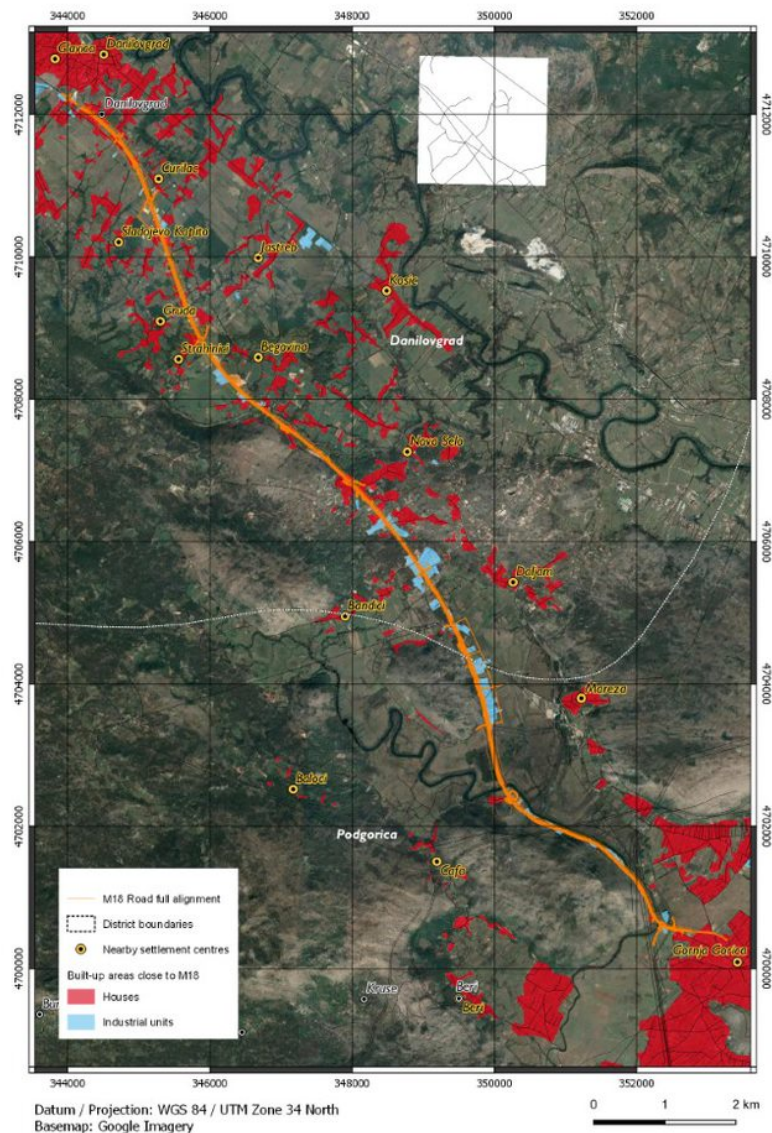
Figure 1. Project Location



### 3 Project Description

The purpose of the Project is to rehabilitate and upgrade the M-18 Danilovgrad-Podgorica road in southern Montenegro. This section of road is approx. 15km in length and runs in a south-northwest direction. The road passes through two municipalities, Danilovgrad and Podgorica, and connects 11 main settlements.<sup>2</sup> The location of the Project is shown in Figure 1.

Figure 2: Settlements in the Project Area



In summary, the works to be undertaken are as follows:

- Widening of the existing 7m wide road to comprise two-lanes in each direction. The expanded road will be 21m wide, plus a 2m safety zone on each side (25m in total);

<sup>2</sup> There are additional smaller hamlets present, but these are considered to be part of the 11 main settlements, namely: Grlic, Glavica, Bandici, Donji Zagarac, Novo Selo, Jastrebo, Curilac (in Danilovgrad) and Beri, Gornja Gorica, and Tolosi (in Pogorica).

- Reconstruction of 4 bridges, totaling 215 m in length, and one new underpass, totaling 18m in length;
- Establishment of new pavements/sidewalks along the edge of the road in Danilovgrad (1.5m wide) and Podgorica (2m wide)
- Construction of seven (7) new roundabouts;
- 3 new road junctions;
- 23 new bus stops;
- New lighting along the length of the road; and
- New pedestrian crossings established at road junctions and near roundabouts.
- Stormwater drainage construction for the treatment of road runoff

Commencement of works is planned for the end of 2019. According to the schedule provided in the Main Design, the works should be finalized in 24 months.

The Project has been categorised as a 'Category A' investment according to the EBRD's 2014 Environmental and Social Policy<sup>3</sup> as it could result in potentially significant environmental and/or social impacts, including direct and cumulative impacts, which are new and additional, and require a formalised environmental and social impact assessment (ESIA) to ensure that they are appropriately identified and assessed. In particular, Danilovgrad – Podgorica road section upgrade involves the widening of the road from 2 to 4 lanes over a more than 10 km continuous length and will require land acquisition, resulting in economic displacement and very limited physical displacement. The Project may also potentially affect endemic species and the habitats that support them.

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<http://www.ebrd.com/cs/Satellite?c=Content&cid=1395238867768&pagename=EBRD%2FContent%2FDownloadDocument>

## 4 Supplementary ESIA Purpose and Process

The Supplementary Environmental and Social Impact Assessment (S-ESIA) addresses potential Environmental and Social (E&S) impacts associated with both the construction and operation of the Project. It is intended to supplement, rather than duplicate the regulatory EIA undertaken in April 2019 on behalf of the Transport Administration (TA) as part of the regulatory construction permitting process. The Report includes an assessment of, and mitigation measures to address, likely significant environmental and social impacts associated with the construction and operation of the Project and any temporary and permanent infrastructure needed to support it.

This document should be read in conjunction with the following Project documents:

- Scoping Report<sup>4</sup>
- Regulatory EIA<sup>5</sup>
- Stakeholder Engagement Plan<sup>6</sup>
- LARF

### Project Standards

The ESIA is intended to help the Project meet the requirements of the Montenegrin legislative framework, EU regulations and EBRD's Performance Requirements. Together these frameworks are referred to as the Project Standards and they define the terms of both the ESIA studies required and the applicable norms and requirements regarding environmental and social safeguards. These address a range of issues including Traffic and Transport, Air Quality, Noise and Vibration, Water Resources, Geology and Soil, Biodiversity, Project Affected People Demographics, Economy and Livelihoods, Infrastructure. They also set requirements regarding engagement with project stakeholders.

### The ESIA Process

The key steps in the ESIA process can be considered in terms of phases as described below:

- Pre-study activities such as screening, preliminary assessment and scoping to help establish key considerations in advance of detailed studies;
- The impact assessment study, which results in the identification and assessment of impacts and the development of measures to mitigate and reduce or eliminate adverse impacts; and
- The post-study stage, which includes steps undertaken for review and monitoring to ensure that mitigation measures are implemented, and are effective during construction and operations. Mitigation measures may be amended in light of monitoring information,, through adaptive management.

Through this process, the Project has been structured to meet Montenegrin and EBRD requirements. The Environmental and Social Management Plan and Project Commitment Register contain all measures required for this purpose. The project will hire a Social Manager and an Ecological Clerk of Works to guide TA and the contractor in meeting project commitments and requirements.

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<sup>4</sup> Montenegro Main Roads Reconstruction Project ESIA Scoping Report Tranche 3 – Danilovgrad-Podgorica

<sup>5</sup> Elaborate Procjene Uticaja Rekonstrukcije Magistralnog Puta M-18 Dionica Podgorica-Danilovgrad Na Životnu Sredinu, 2019

<sup>6</sup> Montenegro Main Roads Reconstruction Project Stakeholder Engagement Plan Trancge 3 – Danilovgrad – Podgorica

## 5 ESIA Findings

The following sections summarise the key findings from the ESIA work. Further details of each are provided in the main ESIA document and its associated management plans.

### 5.1 Traffic and Transport

#### 5.1.1 Existing Conditions

Traffic levels on the existing road during much of the day are relatively low, with an average of around 340 vehicles per hour, however these peak on Mondays in the early morning and on Fridays in the late afternoon. They peaked at 4850 vehicles on the Sunday. Most of the traffic is small cars/vans, with lesser numbers of HGV/lorries, travelling between the two towns. Less than 20% of the traffic on the road was found to be either joining the road from settlements in between the towns. 'Vulnerable' road users include cyclists and horse/carts, but numbers are low. The project design includes for 23 bus stops along the upgraded route. No data are currently available regarding: 'Pedestrian Flow', 'Public rights of way', 'cycle routes' and 'personal injury accidents'.

#### 5.1.2 Construction Impacts and Mitigation

During construction, traffic impacts will arise from activities associated with movement of construction vehicles and heavy plant, transportation of materials, goods and workers and temporary decommissioning of stretches of road during the works. These will increase traffic volumes and will create additional "pinch points" with associated increased risk of accidents, as well as have impact on Road User Delay; Road Safety Issues; Roadway Infrastructure Degradation; Vulnerable Road Users; Public Transport; and Increased Levels of Noise, Vibration and Air Pollution. The additional traffic is not, however, anticipated to have a significant impact upon junction capacity, although this needs to be confirmed at the detailed design stage. Overall unmitigated impacts to road users are considered to be of **low to medium significance**. A Construction Traffic Management Plan (CTMP) will be developed by the Construction Contractor for the safe use of vehicles on and off site, and ensuring community safety and easy access to their properties (homes, lands etc). This will reduce the impacts to **low**.

#### 5.1.3 Operational Impacts and Mitigation

Operation of the project is expected to lead to increased road traffic, although this is not expected to be a significant impact when compared to existing low densities present. Despite this, given the implications for junction use in particular, unmitigated operational impacts are assessed as having a **medium level of significance**. Such impacts are implicitly linked to the safety aspects factored into the final design, and these will include updated traffic modelling and predicted impact on 'pressure' points such as junction, layby's and access/egress roads as well as the needs of vulnerable users including those using slow moving vehicles, cyclists and pedestrians. Models will also take into account movements factor in any predicted traffic growth (e.g. associated with goods transfer). If this is done residual impacts are expected to be **low**.

### 5.2 Air Quality

#### 5.2.1 Existing Conditions

Ambient air quality along the existing road is typical of a single carriageway road in a mixed rural and urban setting. Greater levels of emissions are encountered near the ends of the road and the south eastern section of the road (near Podgorica) is considered more sensitive to traffic emissions (particularly PM<sub>10</sub>) as it is already part of a 'critical' air quality zone (the Danilovgrad end is included



in an air quality 'maintenance' zone). Currently the main source of air pollution in the Project area is considered to be the M-18 road itself and there are no local industrial facilities that are expected to significantly affect ambient air quality. Stationary sources of air pollution include individual heating units in surrounding settlements most likely combusting wood. While some past baseline air quality data is available, additional baseline data is required to fully quantify existing conditions, especially with regards to PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CO, and hydrocarbons (benzene). The Contractor will be required to carry out additional baseline monitoring of air quality at certain locations prior to construction.

### 5.2.2 Construction Impacts and Mitigation

Construction works are expected to have **short-term impacts** on air quality associated with the operation of outdoor machinery, equipment, and vehicles and the generation of wind-blown dust as well as emissions from refuelling activities. High levels of dust will be generated by certain activities (eg activities affecting the limestone massif) and these can both affect local vegetation and persons with existing respiratory conditions (such as asthma). Dust is also considered a nuisance (visual) and although it generally settles within 50m, impacts may be expected up to a distance of 100m from the source. As there are few settlements present across over half of the route, and dust can be managed by good construction practice, these impacts are expected to be of only **low significance**.

Construction will happen in intermittent periods along the route, lasting on average 3 weeks (and up to 3 months). Emissions will therefore be short in duration and the effects on air quality along the route are expected to last only for a limited number of days / weeks at each given location, depending on the speed of road construction. Where no settlements exist along the road route, it is considered that there is **negligible impact**. The impact of exhaust gas emissions is also expected to be only **medium or low** as there are no "high sensitive receptors" (such as hospitals, clinics and schools) close by. Should construction activities last for more than 3 months at any one location, and where the route abuts immediately against residential properties, impacts associated with exhaust gas emissions are considered to be a **medium impact** and mitigation measures in excess of those defined as GIP will need to be defined for additional protection.

Most mitigation measures to address impacts on ambient air quality during construction are general mitigation measures that correspond to good practice during construction. These are required to reduce negative impacts on air quality to a minimum. In addition, an air quality monitoring program will be implemented, close to the residential areas along the route. A response plan shall be developed if air quality monitoring shows exceedances of appropriate limits. The contractor will be required to perform baseline monitoring of air quality as per Montenegrin Legislation and GIP prior to and during construction as outlined in the ESMP.

### 5.2.3 Operational Phase Impacts and Mitigation

Impacts associated with operation of the road are considered to be **minor**, with forecast concentrations of key pollutants (carbon monoxide, lead, sulphur dioxide and particulate matter) **lower than the average limit values** of emissions. This is expected to be true at distances > 1m from the road.

## Noise and Vibration

### 5.2.4 Existing Conditions

Noise caused by traffic flow is discontinuous, of variable intensity and intermittent. While there is no regular noise monitoring in the proposed footprint of the road, some noise monitoring was carried out to provide an element of baseline information over 3 day/night periods during the week of the 24<sup>th</sup> June 2019, at 10 locations along the route. There are no high sensitivity communal buildings (e.g. schools, clinics, old peoples homes) within the project affected area. However individual residential properties may contain vulnerable occupants (young children, old people, sick and infirm). The majority of the route passes through rural landscapes with a low population density. 169 properties have been identified as being potentially impacted to varying degrees from the construction and operation of the new road. This ranges from small amounts of land-take to demolition of structures.

### 5.2.5 Construction Impact and Mitigation

Where construction takes place in close proximity to residential areas, the magnitude of the impact is estimated to be **moderate** but impacts can be partially mitigated through use of a suitable design limit for the control of operational noise and vibration, reducing noise levels at the fence or by providing additional acoustic insulation at receptor sites. Examples of mitigating features for the construction phase include installation of appropriate extensive acoustic fencing or earth bunds installed around the perimeter of the site and installation of absorbing exterior panels in areas with sensitive receptors. During construction an appropriate monitoring protocol will be developed that can be used to ensure compliance of the construction works with appropriate noise and vibration limits.

### 5.2.1 Operational Impact and Mitigation

The magnitude of the impacts on the acoustic environment, due to the operation of the project, will be **Moderate**. Monitoring of traffic noise as per Montenegrin legislation and GIP will be implemented during the operation phase. Appropriate maintenance activities will be carried out to uphold the barriers' effectiveness of sound attenuation.

## 5.3 Water Resources

### 5.3.1 Existing Conditions

The karst landscape of the region with its limestone and dolomitic limestone aquifers means that there are numerous groundwater sources in the Podgorica and Danilovgrad municipalities, which are generally understood to flow towards the Susica, Matica and Sitnica Rivers. Local groundwater sources include these karst reservoirs; and the Mareza karst aquifer located near Danilovgrad is the main source of potable water for Podgorica. Other potable groundwater supplies to settlements in the Project area are sourced from the Oraska Jama (Danilovgrad), as well as from the intermittent rural water source, Vucji Studenac karst aquifer.

The existing road passes through the flood plains of the Susica and Sitnica Rivers and there is frequent flooding of the road and surrounding landscape and in the vicinity of the bridge on the Susica River during periods of heavy rain. Bridges will be constructed across the Susica, Matica, Sitnica and Mareza rivers and the road expansion will run immediately adjacent to stretches of both the River Susica and Sitnica.

### 5.3.2 Construction Impacts and Mitigation

Any surface water abstractions for construction purposes are expected to be intermittent and temporary (i.e. over a period of hours or at the most days, not weeks) and therefore of **low-medium significance**. Any dust suppression activities involving water spraying will also be temporary and intermittent and it is expected that a proportion of the run-off will dissipate into the ground before reaching any watercourses. These are also expected to be **medium** impacts at most. However the hydraulic connectivity of karst landscapes and reliance of the municipal water supplies on groundwater means that this is a particularly sensitive receptor.

Discharges following washing down of the finished road surface may contain concrete and bitumen compounds and unmitigated could result in '**significant impacts**' on water quality in receiving rivers and groundwaters. Detailed in-river construction methodologies are not yet available but will include appropriate mitigation to avoid significant impacts. This will include actions such as: restricting bridge construction activities to the summer months when rivers are dry to avoid silt pollution and /or use of appropriate isolation techniques if works need to be undertaken when water is flowing (eg use of coffer dams, and sediment traps such as silt fences, rock groynes, geo-fabric barriers and hay bales).

Water quality monitoring will take place prior to and during construction activities that will trigger appropriate mitigation measures should thresholds for specified water quality parameters be exceeded. Site-specific monitoring and mitigation measures will be outlined prepared and implemented by the Contractor.

### 5.3.1 Operational Impacts and Mitigation

Operational activities can also affect water quality. The use of salt as a de-icing agent will be temporary and infrequent and such use will be restricted to the winter months when river flows (and dilution) are high. As such, this is predicted to result in **low** impacts. Further details of the detailed design and proposed operation of the storm water drainage system are required to understand whether or not water will be discharged directly into rivers without adequate treatment and if so, where the points of discharge will be.

Given the sensitivity of local water supplies to changes in groundwater quality, specific measures will be built into the design of the road to prevent groundwater contamination. These will specifically address risks associated with spills and storage of fuel, lubricants, oils or hazardous materials required and the discharge of untreated wastewater. They will also ensure that the wastewater discharges are treated to comply with EU water quality standards and that all materials are appropriately stored (ie at distance, above flood level and no more than 100 liters at any one point in the right of way (RoW)).

During the operational phase, regular groundwater quality monitoring will be undertaken to ensure that run-off from the road is not leading to elevated levels of any contaminants in groundwater supplies and water quality in waste water recipient watercourses should be monitored at least monthly during periods of river flow. Turbidity should be monitored daily where sensitive biodiversity or human receptors are present, immediately upstream and downstream of the work site.

## Geology and Soils

### 5.3.2 Existing Conditions

The proposed route of the road crosses over 'drift' geological deposits comprising terraced sediments of gravelly-sand composition sitting over a periglacial karst field. Hydrogeologically, the right of way varies from being water permeable to watertight and falls within the zone of lowest seismic intensity. A 2017 national soil quality assessment showed increased content of Chromium, Nickel and Fluorine as well as polycyclic aromatic hydrocarbons (PAH) in soils. Five potential sources of soil contamination exist along the right of way, mainly in the form of re-fuelling stations. Additionally road run off and leachate is likely to be contaminated with organic hydrocarbons, particulate matter (potentially with adsorbed contaminants) and dissolved heavy metals (lead).

### 5.3.3 Construction Impact and Mitigation

With GIP, construction and erosion control practices in place, impacts should be localised and '**low**' overall. Mitigation will include implementation of a range of plans including pollution prevention, Soil Quality Management and Erosion Control Plans. Provided the mitigation measures included in plans outlined in the water resources section are adhered to, impacts to soils from contamination should be localised and '**low**'. Impacts on agricultural land are mostly present in the construction zones however these are temporary and the adverse impact considered to be **negligible**.

### 5.3.4 Operational Impacts and Mitigation

Operational impacts are expected to be generally '**low**' with the exception of the impact of the excavation works to remove the solid (Karst) geology which needs to be assessed.

## 5.4 Biodiversity

### 5.4.1 Existing Conditions

The majority of the Project affected area is highly modified urban environment, or modified landscapes of limited ecological value. The proposed road will mainly pass through the residential and agricultural lands of the River Susica flood plain, which are generally of limited ecological value and there is a near continuous ribbon development alongside the road. These areas are considered to be of low ecological sensitivity. Large arable fields dominate the landscape just behind the ribbon development adjacent to the road and these are considered of low sensitivity.

Aquatic habitats are, however of greater value and the road is also located within a broader landscape of notable conservation value which includes the Zeta Stream Key Biodiversity Area (KBA) which is recognised in particular for endangered fish and invertebrates. Whilst the Susica River itself is under heavy anthropogenic pressure from agriculture, traffic, urbanization, pollution and habitat fragmentation, the "Mareza source with Sitnica and area of Velje Brdo" supports various endemic and otherwise notable species.

A number of habitats together form a mosaic near Podgorica which is considered ecologically important as is known to support notable species. These habitats include the limestone massif, wet grasslands and hay meadows that lie adjacent to each other and create areas of important diversity with a range of opportunities for faunal land use and are considered of high sensitivity. Fields in the northern half of the scheme are still undergoing a traditional hay cut and this results in a rich flora considered of moderate sensitivity. There is also a network of woodland habitat along the streams and drainage ditches here that link larger plots of woodland. These create essential corridors for amphibians, reptiles, small mammals, invertebrates and navigational aids for bats. This woodland habitat and its connectivity is considered of high sensitivity.

The diverse habitats of the project area support a range of fauna including small mammals, bats, birds (both resident breeding and migratory species); including several notable species. The Project area also includes habitats of value to reptiles and amphibians including the endangered and endemic Albanian water frog. Nine species of fish were recorded from the rivers (all common) but the endemic and endangered *Salmo zetensis* and eel are also listed as being present here. Limited information is currently available on the invertebrates of the area. Invertebrates are generally unlikely to be affected by the proposed scheme unless they are restricted to specific habitats. Two notable species of invertebrates have been recorded from the Zeta river: the endangered *Plagigeyeria zetaprotogona* and the critically endangered *Saxurinator orthodoxus* whilst other notable invertebrates include beetles, crickets and butterflies. A Critical Habitats Assessment has been carried out and appropriate mitigation measures included in the ESMP and a Biodiversity Action Plan for the Priority Biodiversity Features identified. This approach is structured to meet PR6. An Ecological Clerk of Works (EcoW) will be hired to direct these efforts.

#### 5.4.2 Construction Impact and Mitigation

The most sensitive habitats to construction impacts are areas of watercourses and karst scenery. In-river works could result in material entering the watercourses. This, as well as works in the riverbed, would be considered to represent a **high level of impact**.

Air emissions, noise and loss of soil structure are on a relatively small scale, are short-term and have a partially reversible nature. They can be readily mitigated through the application of Good Industry Practice (GIP) and thus are considered a **medium impact**. The road development will result in the fragmentation of habitats and such effects will be greater in sensitive habitats. The initial significance of this impact, without mitigation measures, is **moderate**. Other construction impacts could arise from contractors inadvertently bringing in and/or spreading invasive plants during works. Such impacts in sensitive habitats are considered **High**.

Construction impacts on birds will include loss and disturbance of habitats for nesting, feeding and resting. Such impacts are expected to be local and represent a **moderate impact**. No notable species are expected to be affected and the significance of these impacts is considered as low. With the exception of bats and potentially otters and wolves, no sensitive mammals are expected to be affected by the proposed works. The significance of construction impacts is considered to be **moderate**. Fragmentation of habitats already occurs on the existing road, and the current lack of underpasses has created a barrier and led to significant mortality of certain species. Many effects of roads on bats are species-specific. The Project includes under-passes and barriers that should reduce significantly traffic-related mortality. Construction impacts to reptiles and amphibians include death, injury or disturbance during land clearance and construction works and pollution of aquatic habitats. General impacts are expected to be **moderate**, although impacts on notable species are considered **high**.

Construction works will employ Good International Practice to further prevent or reduce impacts wherever practical. This includes avoidance measures during construction such as seasonal timings of works (for example to avoid impacts to nesting birds or roosting bats as determined by the EcoW) as well as other generic mitigation measures. Significant maintenance and monitoring is required to ensure that the construction impacts are adequately mitigated and that the maintenance for the road is carried out appropriately. For particularly sensitive areas near watercourses bespoke mitigation and monitoring will be undertaken by the EcoW. Monitoring by the EcoWs will also ensure that should valuable species be breeding in an area, works do not take place during these sensitive times i.e. for birds that the young have successfully fledged or that fish have successfully spawned. Further aquatic invertebrate surveying will be carried out to identify suitable indicator species for future monitoring, and monitoring post-construction will ensure that newly restored areas are not colonised by non-native species from adjacent areas

### 5.4.3 Operational Impacts and Mitigation

During road operation impacts will arise as a result of habitat fragmentation, direct mortality from collisions, and impacts associated with road run-off. Impacts during operation are expected to be of **moderate significance**. In general impacts to local watercourses are expected to be site-specific and temporary in nature, with natural regeneration expected once works cease. As a result, impacts are generally considered **moderate**, except for when they affect endangered species, when they are considered **high**. Impacts to the Zeta Stream Key Biodiversity Areas (KBA), during operation will be limited to disturbance impacts and impacts associated with road run off. The operation of the Scheme is expected to only result in **medium level impacts** to the KBA. During operation, fish may suffer from decreases in water quality, as well as loss of connectivity between the upstream and downstream habitats. This could affect fish stock. The significance of such impacts is considered as **low** on common species and moderate on notable species. No significant impacts are expected on notable invertebrates from either construction or operation if impacts on their habitats are successfully managed and water resources are protected.

## 5.5 Social

### 5.5.1 Existing Conditions

The Project passes through two municipalities; Podgorica and Danilovgrad. No vulnerable groups were identified in the Project area by the socio-economic survey team. Whilst the Project runs through some areas of agricultural land, including vineyards, the majority of houses closest to the road (within 150m) have garden plots which are only utilised for subsistence agriculture. There are no health facilities close to the M-18 road and there are no community facilities directly adjacent to the M-18 road. All households surveyed were connected to the mains water supply and the national electricity grid. There are no known cultural heritage resources within the RoW that may be impacted by the Project. A Chance Finds Procedure will be developed and complied with by the Contractor.

### 5.5.2 Construction Impact and Mitigation

A Land Acquisition and Resettlement Framework (LARF) has been developed to structure the project to comply with PR5. Further studies arising from this will yield a Land Acquisition and Resettlement Plan (LARP) in accordance with PR5.

Given that no additional land will be acquired for temporary use, the significance of temporary land loss impacts, without mitigation measures, is considered to be **low**. For private owners who will not experience livelihood impacts and the loss of land under the Montenegrin expropriation process, it is expected to have a **low** impact. For those private landowners and land users who will experience livelihood impacts, the loss of land under the Montenegrin expropriation process, without additional mitigation is expected to be a **medium to high** impact. For businesses set back from the road, which will be minimally disrupted, the loss of land under the Montenegrin expropriation process is expected to be a **low** impact. For those businesses that may be left in an unviable situation, the loss of land under the Montenegrin expropriation process, without additional mitigation is expected to be a **medium to high** impact.

Jobs (direct or indirect) generated by the Project will provide additional opportunities to local communities for employment, income, skills enhancement and work experience. The presence of a construction workforce and demand for local goods and services will also boost the local economy. This is a **positive** impact of the Project.

Influx of construction workers and opportunists seeking economic opportunities may lead to demographic change and reduce social cohesion in the Project area. There may also be tension if

there is not deemed to be an appropriate level of local recruitment. No impacts on local communities from an influx of workers are predicted to occur during the operation of the Project.

The Project is structured to meet PR2 and 4 through the development and implementation of the following plans:

A Labour Management Plan and an Occupational Health and Safety (OHS) Plan will be developed for the project. A Security Plan will also be developed for the Project as well as a robust Traffic Management Plan (TMP). An Emergency Preparedness and Response Plan (EPRP) will be in place for the Project, prior to construction and a Road Condition Survey on any made up road is recommended along with a Code of Conduct, training and a disciplinary procedure for workers, governing their behaviour and interactions with local communities and a local content policy and hiring process to maximise local employment. The key mitigation for land use impacts is development and implementation of the LARP.

The LARP ensures an effective grievance management process and appropriate monitoring and reporting. A qualified TA social manager is recommended to guide PR monitoring and grievance management.

Should other developments commence, the extent of socio-economic impacts to local residents will need to be assessed, monitored and managed appropriately.

### **5.5.3 Operational Impact and Mitigation**

The effect of increased traffic is adverse in nature. Considering the potential severity and irreversibility of traffic-related accidents, the magnitude of this impact is considered **large**. The sensitivity of local receptors is assessed as **medium**, due to the relatively high number of retired residents along the route. School children would also be assessed as sensitive receptors, but no details are currently available on whether school children use the bus services on the road to reach school. This results in a significance level of **high**, prior to the application of any mitigation or management measures.