



Non Technical Summary
Northern & Southern Sections
A5 Motorway (Vc Corridor),
Croatia

Prepared for:
Hrvatske Autoceste d.o.o
Croatia

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Annex A: Photolog

1 Introduction

This document is a Non Technical Summary (NTS) that provides a summary of the environmental and social impacts associated with the proposed Northern (Sredanci – Bosnia and Herzegovina border) and Southern (Ploče Interchange – Bosnia and Herzegovina border) sections of the A5 Motorway (Vc Corridor), Croatia. It summarises the main findings of an environmental and social impact assessment which should be referenced where more detail is sought.

This NTS is one of several publicly disclosed documents that are collectively referred to as the 'disclosure package'. In addition to this document, the other disclosure documents include the original EIAs (Northern and Southern Sections), an Environmental and Social Action Plan (ESAP), a Stakeholder Engagement Plan (SEP) and a Compensation Action Plan (CAP) which will be disclosed shortly after the disclosure of this NTS.

The remainder of this NTS is structured as follows:

- Section 2. Project background;
- Section 3. The project description;
- Section 4. Assessment of alternatives;
- Section 5. The main environmental impacts, including cumulative and transboundary impacts;
- Section 6. The main social impacts;
- Section 7. The public consultation process; and
- Section 8. Summary

2 Project Background

Hrvatske Autoceste d.o.o. ('Croatian Motorways Limited' or 'HAC' or the 'Company'), a state-owned manager of the Croatian network of tolled motorways (858km) is seeking finance from the European Bank for Reconstruction and Development (EBRD) and European Investment Bank (EIB) to complete the Croatian part of the motorway network along the Corridor Vc, adjacent to the northern/southern borders with Bosnia and Herzegovina (BiH) (the Project).

The proposed route (indicated by the blue line in Figure 1a and 1b) comprises the following two sections:

1. Northern Section (3.5 km) – Sredanci to Svilaj (Bosnia and Herzegovina ('BiH') border);
and
2. Southern Section (9.0 km) – Ploče Interchange to BiH border.

The northern section is an extension of the completed A5 Motorway section Osijek - Sredanci (Osijek – Đakovo was opened in April 2009 and Đakovo – Sredanci was opened in November 2007). The proposed extension forms part of the Pan-European Corridor Vc which, upon completion, will connect Budapest to the Adriatic Sea at the port of Ploče in southern Croatia. The route has been designated E73 under the International E-road network and is also designated as Corridor Vc; branch C of the fifth Pan-European corridor.

The southern section is an extension of the A1 Motorway which, upon completion, will connect Zagreb, Split and Dubrovnik, and pass through the southern coastal section of Bosnia and Herzegovina. The route will form part of the E65 European Route that begins in Malmö, Sweden and ends in Chaniá, Greece.

Figure 1a. Location of the Proposed Northern Section

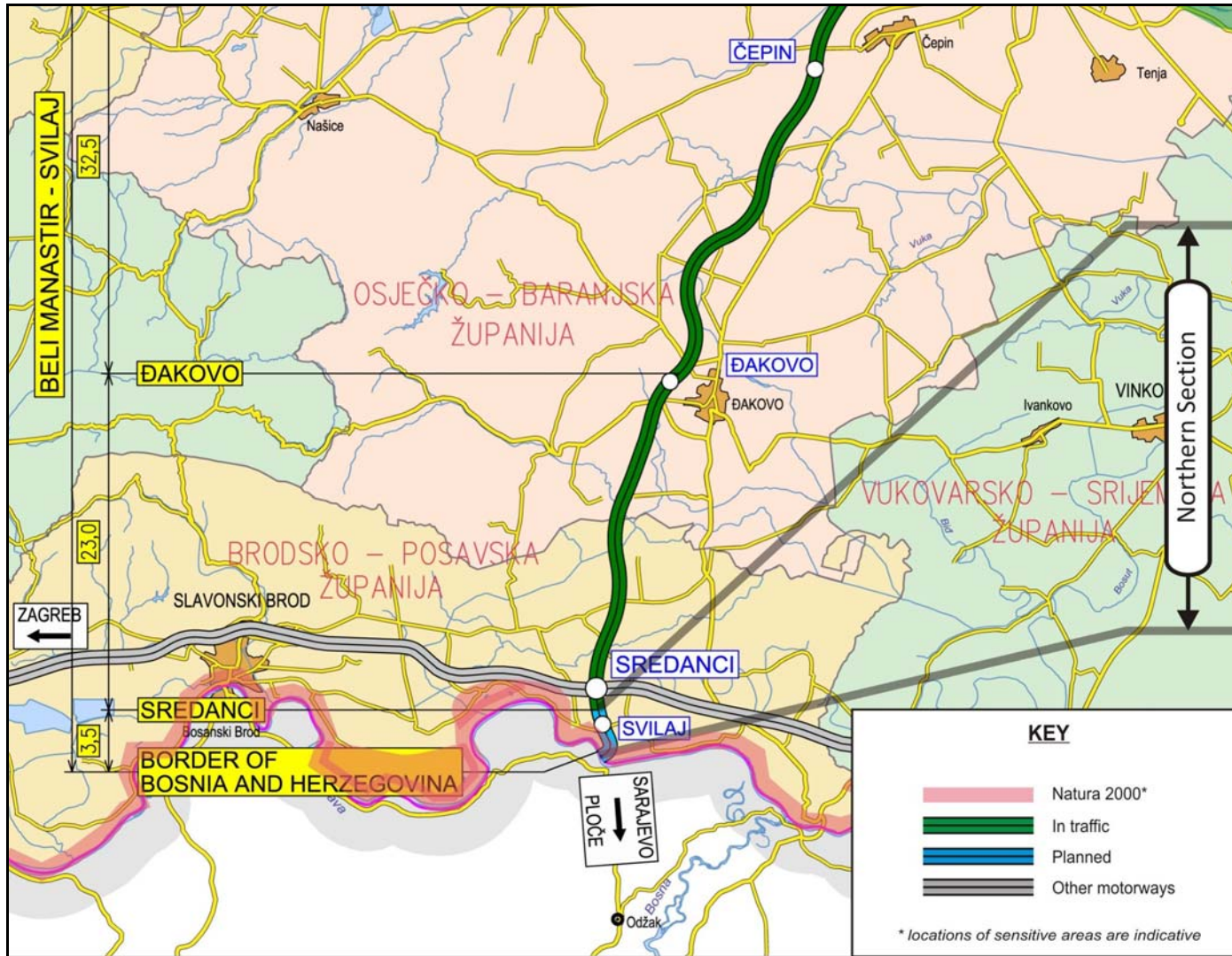
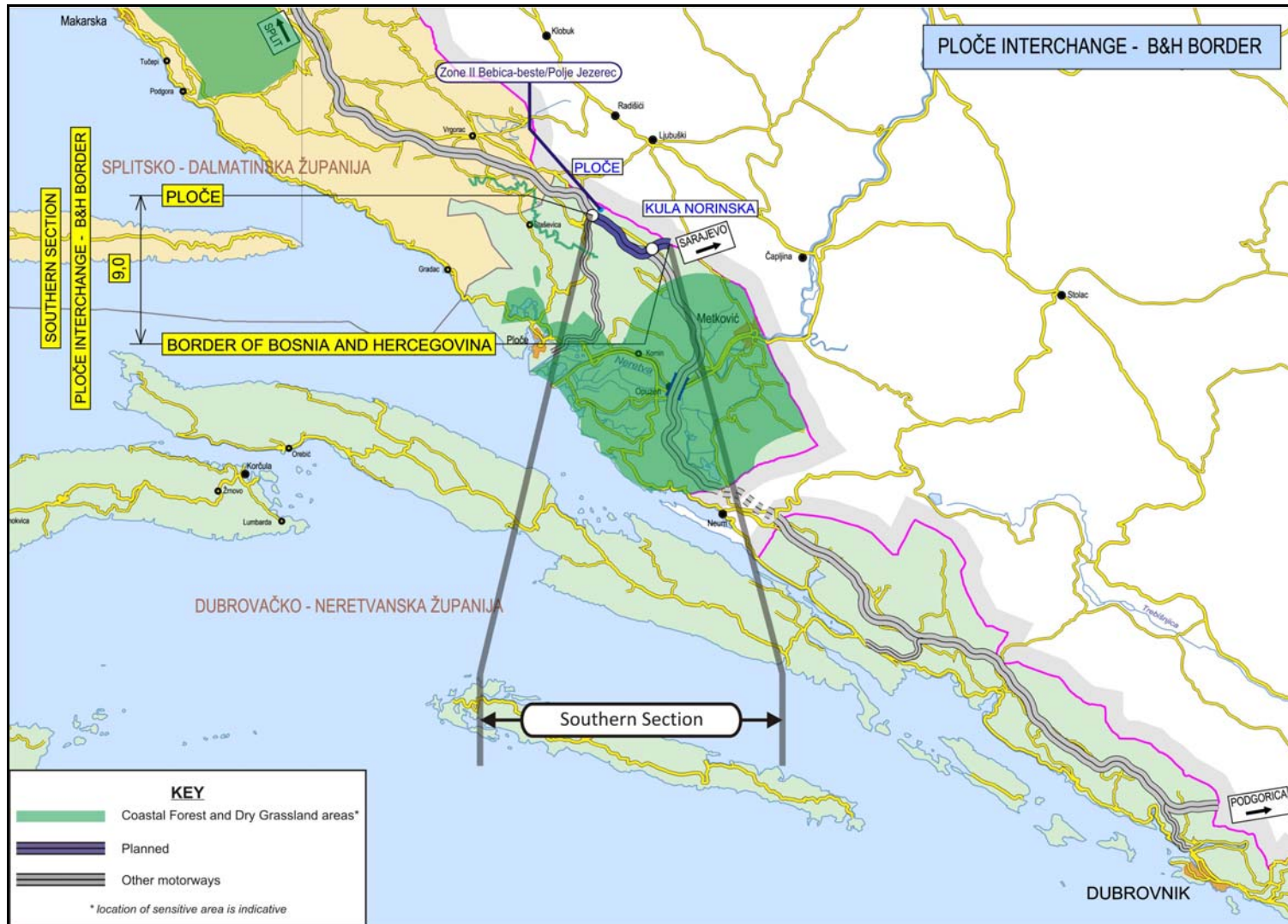


Figure 1b. Location of the Proposed Southern Section



The EU framework for Environmental Impact Assessment (EIA), i.e. the EU EIA Directive (85/337/EEC) and its amendment (97/11/EC), were transposed into Croatian legislation by the Environmental Protection Act (EPA) (Official Gazette No 110/2007) and the Regulation on environmental impact assessment (O. G. 64/2008, 67/2009).

The EPA and Regulation on EIA (OG No 64/2008, 67/2009) specifies a permitting process which requires the preparation of an EIA study for all operations or infrastructure investments (including motorway construction), which must receive a positive decision from the Ministry of Environmental Protection, Physical Planning and Construction (MEPPPC or the 'Ministry') to confirm the environmental acceptability of the Project. The positive decision follows the public consultation process and defines environmental protection measures and monitoring, as the key document for issuing a location permit (which includes also conditions issued by other bodies and public companies) for the project. The regulation also provides the mandatory contents of the EIA study and defines the public consultation process.

The Regulation prescribes in detail the projects for which environmental impact assessment is mandatory and those where the need for environmental impact assessment should be evaluated. It also details:

- the methods for implementing the environmental impact assessment;
- the procedure for appointment of the Commission and inclusion of Commission member opinions issued by the Commission members ;
- the procedure for issuing instructions on the content of the study at the request of the developer; and
- the disclosure and consultation with the public and other stakeholders.

The Regulation also determines which projects are under the competence of the Ministry and which are under the competence of the competent administrative body in the county or in the City of Zagreb. The projects for which EIA is mandatory are designated in the list of projects provided in Annex I of the Regulation; the list includes motorways.

For this motorway project the following EIAs were produced.

- **EIA 1 Northern sections** - STUDIJA O UTJECAJU NA OKOLIŠ AUTOCESTE: granica Mađarske-Beli Manastir-Osijek-granica Bosne i Hercegovine (Koridor Vc), (EIA Motorway: Hungary border-Beli Manastir-Osijek-Borderline with B&H (Corridor Vc)) made by: INSTITUT GRAĐEVINARSTVA HRVATSKE d.d., Zagreb, POSLOVNI CENTAR Osijek, in cooperation with ZAVOD ZA PROSTORNO PLANIRANJE d.d. Osijek, July 2003.
- **EIA 2 Southern section** - STUDIJA O UTJECAJU NA OKOLIŠ AUTOCESTE AC 10 Budimpešta-Osijek-Sarajevo-Ploče: Dionica čvor Ploče – granica BiH, (EIA Motorway AC 10 Budapest-Osijek-Sarajevo-Ploče: Section "Ploče" Interchange - Borderline with B&H) made by: Institut IGH d.d., Sektor IGH Projekt, Zavod za hidrotehničko projektiranje, Poslovni centar Split, Revision C, April 2010.

Note: From here on the EIA for the two northern sections is referred to as the 'Northern EIA' and the single southern section as the 'Southern EIA'. Details of the EIA locations are specified in the SEP.

3 Project Description

3.1 Northern Section – Sredanci to BiH Border

The 3.5 km northern section included under this project is located within Brod-Posavina County and will start at the southern end of the existing A5 Motorway, located approximately 1.5 km to the south-east of the settlement of Sredanci. From the Sredanci interchange, which forms a junction with the existing A3 Motorway, the proposed route heads south to the Sava River, close to the settlement of Svilaj.

The Sava River Bridge comprises an 660m long bridge which forms the Croatian border with Bosnia and Herzegovina (BiH). Sites for the border crossing have been agreed and fixed for the Croatian and BiH sides. An international agreement regarding the border crossing has been prepared and discussions on its agreement are well advanced. HAC will fund half of the bridge on the Croatian side; the other half will be funded by BiH.

A part of the Corridor Vc runs through the region of Slavonia. The planned motorway route passes through a prime quality agricultural area where intensive/large scale farming takes place. Orchards are rare and vineyards do not exist. Of the assessed Corridor Vc zone of influence (i.e. 1km either side of the centerline) agricultural land occupies approximately 80% of the area with populated areas, orchards and water surfaces occupying less than 20%.

The proposed section does not pass through a forested area. The motorway will also transect public (open) hunting areas supporting roe, deer, rabbit, wild boar, mallard, partridge and coot.

The Northern section of the Motorway does not transect any high water quality (i.e. Zone II) areas.

3.2 Southern Section – Ploče Interchange to BiH Border

The 9.0km southern section included under this project is located within the Dubrovnik-Neretva County and runs roughly from north-west to south-east. The proposed route begins at the eastern end of the existing A1 Motorway, at the Ploče Interchange near the settlement of Mali Prolog, and then passes south-east towards Mioči settlement (3.5km from the Ploče Interchange). From the Ploče Interchange, the Motorway also heads south towards the port of Ploče (this section is not included under this project) and the route turns north-east towards the Bosnia and Herzegovina border crossing.

The Dubrovnik Neretva County is characterised with the following major parts:

- The town of Dubrovnik, shoreline and islands represent the area of natural and cultural values with a high touristic potential;
- The port of Ploče has a very high potential in trade and transport;

- The delta of the River Neretva is a very important (in the European context) ornithological reserve and also one of the most productive agricultural areas in Croatia; and
- The inland areas of the County affected by the motorway are characterised by high quality groundwater resources.

In the area of southern section, the present environmental situation is generally good. Water and air quality is generally good, soil pollution, noise and waste levels are generally low and the area is important for biodiversity. The area is characterised by very important reserves of prime quality groundwater. The most important groundwater aquifer is karstic and related to the source "Prud" and the Zone II designation of that aquifer covers a part of the proposed motorway construction.

Figure 2a and 2b illustrates the sections of the planned route of the motorway. Annex A provides photographs which characterise the route; photographs were taken at the locations referenced in Figure 2a and 2b.

4 Project Rationale and Analysis of Alternatives

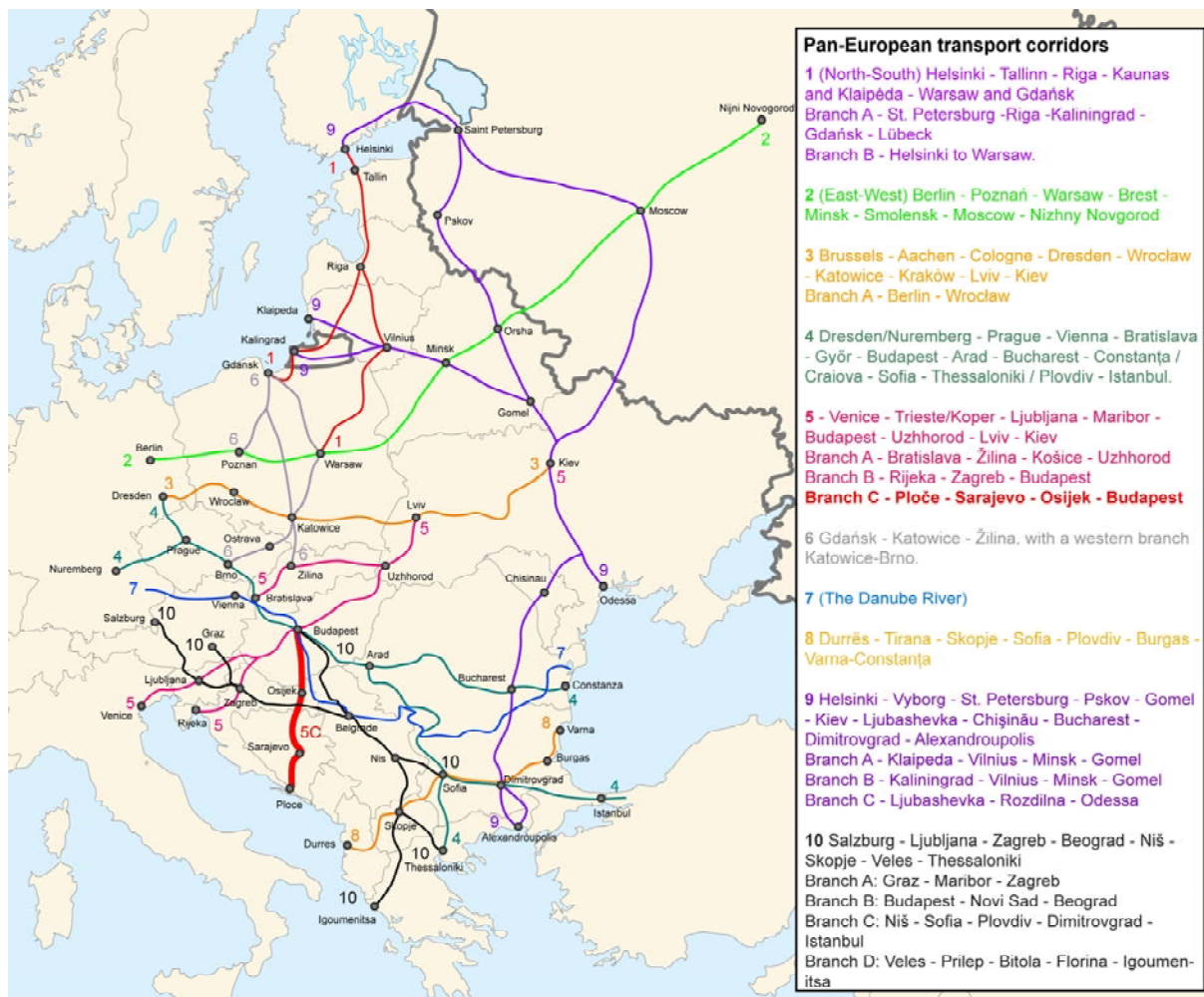
4.1 Rationale of the Project, need for the scheme and scheme objectives

International Context

At the Pan-European Conferences on transport held in Prague in 1991, Crete in 1994, and Helsinki in 1997, a new Pan-European corridor network was defined. The 1997 „Helsinki Declaration“ identified 10 corridors and their branches. Among these, the Vc Corridor starts in Hungary (Budapest), continues on through Croatia (Osijek) and Bosnia and Herzegovina (Sarajevo, Mostar), ending in Southern Croatia, at the port of Ploče on the Adriatic Coast. It runs perpendicular to Corridor X, which is actually a connection between Europe and the Near East and intersects it near Slavonski Brod in Croatia, creating a very important crossroad of two international traffic routes.

The role of the “Corridor Vc” is to ensure better road connection between central Europe (the Danubian area) with the Adriatic Sea and the Port of Ploče (as shown in Figure 3). The route is of vital importance in terms of economic links and transportation of goods and passengers. The Corridor Vc links Budapest – Osijek – Sarajevo – Ploče and includes the currently proposed motorway section developments; Hungary to Osijek, Sredanci to BiH and Ploče Interchange to BiH.

Figure 3. Pan European Transport Corridors



National Context

The Corridor Vc is identified in the Transport Development Strategy for Croatia¹ as the highest priority for the future development of the road infrastructure in Croatia. Construction of the Corridor Vc motorway northern and southern sections in Croatia, directly affects Brod-Posavina County, Dubrovnik-Neretva County, as well as the city of Ploče (Figure 4).

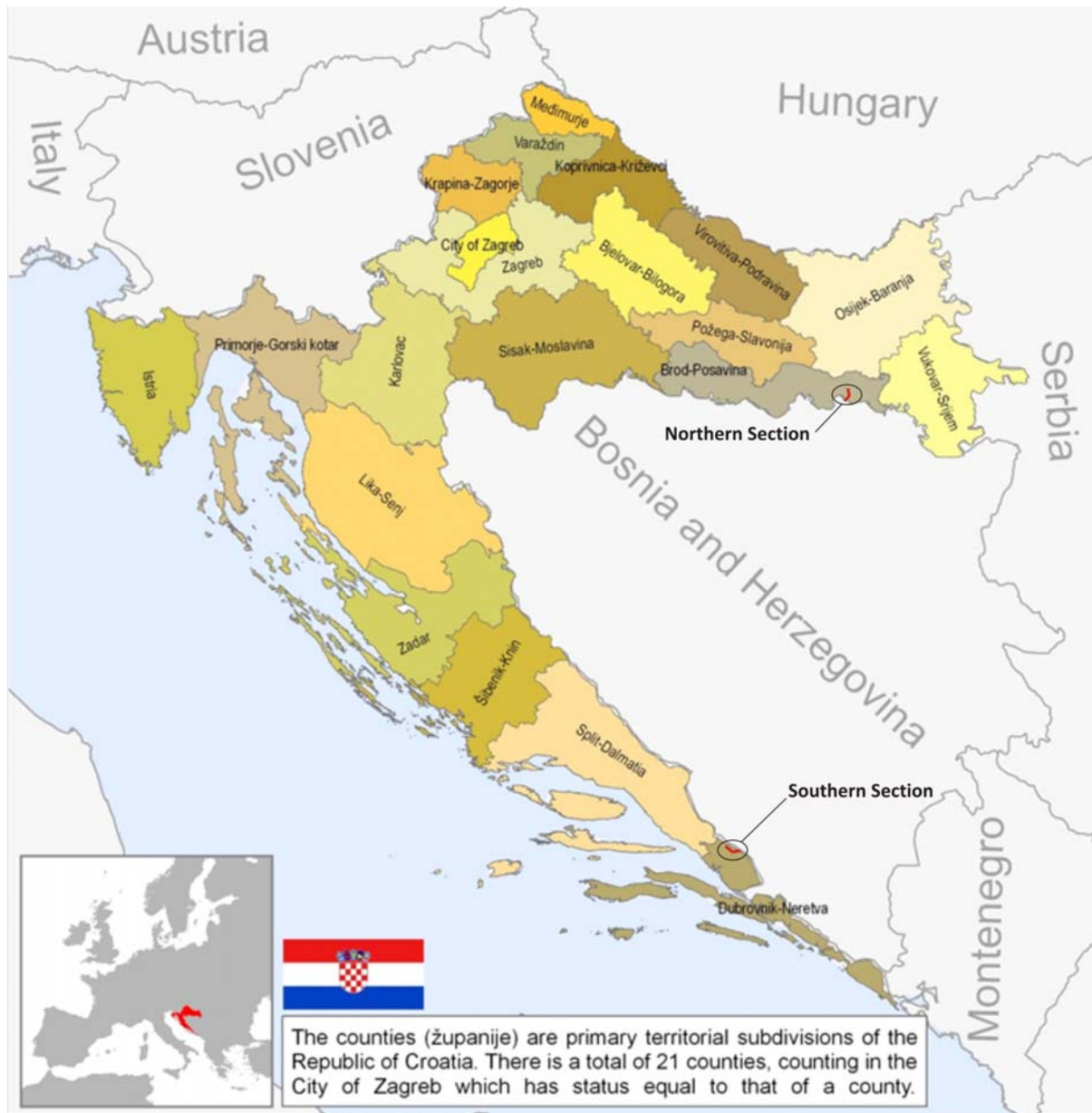
Brod-Posavina County is predominantly rural with approximately 50% occupied by rural land and approximately 25% occupied by forestry. Agriculture, in the form of maize, wheat, and corn as well as cattle, pig and poultry farming, is the primary activity. Winegrowing and food production are significant industries in the county whilst the production of cellulose, paper and paper products is also significant.

¹ Republic of Croatia, Ministry of Maritime Affairs, Transport and Communications (November 1999) *Transport Development Strategy*

Tourism and catering are the predominant industries in Dubrovnik-Neretva County; however the trade and transport activities through the Port of Ploče in southern part of Croatia are increasingly important for the economy. Prior to the Croatian War of Independence (1991 – 1995), the total cargo transit through the Port of Ploče was approximately 4.6 million tonnes per year, primarily consisting of coal and iron ore. During the War cargo traffic declined significantly, increasing over the last decade with approximately 3.8 million tonnes recorded in 2009. A continued increase in cargo transportation, up to 10 million tonnes expected by 2020 and 13 million tonnes expected by 2030, is currently forecast.

It is expected that Corridor Vc (A5 Motorway) will improve both touristic and trade activities in the Dubrovnik-Neretva county and the whole South-eastern part of Croatia. In addition, it will be the fastest connection between the North Eastern and Southern Croatia and greatly enhance the connectivity of Croatia with neighbouring countries, particularly BiH.

Figure 4. Croatian NUTS: Level 3



4.2 Selection of the Motorway Corridor

A proposed corridor for the planned motorway was provided within initial spatial plans developed for eastern Croatia in 1985² and a feasibility study for a Trans-European north-south trunk road was undertaken. At the time, eastern Croatia was divided into 17 municipalities and Spatial Plans for all these municipalities contained sections of the motorway route (Beli Manastir, Valpovo, Osijek, Đakovo, Slavonski Brod). However, due to the war, plans for the development of the TEM route were postponed.

² Osijek Municipality, Community Spatial Plan, 1985, ZPO Osijek

Following the war, the feasibility of previously planned transport corridors was reassessed and a new assessment of the transportation system in Croatia was undertaken. This assessment confirmed the significance of the 'Danube basin transport corridor' and the construction of the planned motorway has been determined through Spatial Planning Strategy of the Republic of Croatia, Spatial Planning Programme of the Republic of Croatia (Official Gazette 50/1999), and Transport Development Strategy of the Republic of Croatia (OG, 139/1999).

In 2000, a 'Spatial-transportation' study of the Beli Manastir to Svilaj section of the Corridor Vc was carried out in order to allow the identification and subsequent avoidance of technically inappropriate and sensitive areas along the planned motorway. In addition, points of contact (border crossings) with neighbouring countries were defined, as a basis for international discussions.

In agreement with the Croatian Ministry of Environmental Protection, Physical Planning and Construction (MEPPPC), the EIA for the Northern Section of the Vc motorway (Sredanci – BiH border) was completed in July 2003. Following the Croatian EIA procedure the MEPPPC approved the EIA and issued its Decision for Environmental Acceptability with Conditions.

The route chosen for the relevant northern section of the motorway is flat and consists predominantly of agricultural land. The route crosses a major river - the River Sava in addition to numerous canals and other surface water courses. In general, the majority of the Northern Section does not fall into an environmentally sensitive area with the exception of the Sava River area which forms part of a National Ecological Network will be proposed as Natura 2000 sites once Croatia becomes EU member state.

The **Southern Section** does not transect areas protected under the Law for Nature Protection (O.G. 70/2005 and 139/2008) e.g. national parks, nature parks nor does it transect areas of National Ecological Network (based on Natura 2000 or Council Directives 79/409/EEC and 92/43/EEC). However the motorway route does cross through two nationally designated endangered and rare habitats (according to O.G. 7/2006).³ These are the:

- "Submediteranski i epimediteranski suhi travnjaci" (Submediteranean and epimediteranean dry grasslands); and
- "Primorske, termofilne šume i šikare medunca" (Coastal, thermophilic forests and scrubs of Pubescent Oak - Bern Convention, Res. 4, I41.7).

The Project's impact on biodiversity, protected habitats and species is acceptable as the area to be impacted by the route is a small portion of a wider area with similar ecological characteristics (motorway footprint estimated at <1% of the total area will be affected). In these areas there will be protective fencing to prevent road kill and animal passages to facilitate animal movements and prevent habitat fragmentation.

³ Species are protected in Regulation on protected and strictly protected wild species (O.G. 7/2006).

The Southern section of motorway transects high quality (Zone II) groundwater resources and passes close to sensitive surface water bodies.

4.3 Summary of Route Selection

The Project forms a part of a much broader European road network strategy that has been under development over many years and which is aimed at providing an improved infrastructure to the region and in doing so stimulate socio-economic development.

During the route selection process consideration was given to the avoidance the following of environmental and social sensitivities:

- populated areas (to the extent possible);
- nature protection areas;
- maintenance of protected forest and forests of special purpose to the extent possible; and
- known archaeological sites.

This proposed project must link to existing sections of the overall motorway and consequently there was little scope for alternatives, but nevertheless localised feasibility studies did consider environmental and social sensitivities, avoiding such sensitivities where possible.

Where sensitive areas could not be avoided, for example when crossing major rivers or vulnerable water resources, robust protection measures have been identified that must be implemented by the construction contractor. Further detail of these measures is provided in Section 5.

5 Environmental Benefits, Adverse Impacts and Mitigation Measures

5.1 Introduction

The Environmental Impact Assessments are based on established assessment methodologies and conservative assumptions to identify the Project's impacts and develop measures to reduce adverse impacts/enhance positive impacts. These included a number of environmental aspects listed below:

- Noise;
- Emissions to air;
- Water Resources;
- Soil management;
- Biodiversity;
- Cultural heritage;
- Unusual events and emergency response;
- Management of hazardous materials; and
- Waste management.

This Section summarises the key environmental impacts identified by the EIAs. Social impacts are discussed separately in Section 6.

5.2 Noise

Noise protection measures will be required at several locations where the route passes close to residential settlements.

Northern Section

The construction of noise barriers will be based on noise levels recorded during monitoring studies once the motorway is operational. If deemed to be necessary measures will be put in place:

- for any structures used as residences or activities which are sensitive to noise in zones 200 metres from the centreline.

Southern Section

Noise protection measures shall be incorporated into the basic design of the project for the following locations:

- from km 99+400 to km 99+500, on the south side of A1 route, protection of the Anđelići settlement;
- from km 100+100 to km 100+500, on the north side of A1 route, protection of the Pozla gora settlement;

- from km 101+050 to km 101+150, on the north side of A1 route, protection of the Mioči settlement;
- from km 103+300 to km 103+500, on the north side of A1 route, protection of the Iskislj settlement; and
- from km 103+900 to km 104+200, on the north side of A1 route, protection of the Čarapine settlement.

For some settlements located within 200 metres of the motorway centerline noise protection will also be required during the construction phase of the proposed motorway and monitoring of noise levels along the planned motorway will be established during construction. During the construction phase of the project, noise protection in the form of acoustic walls/barriers will be erected.

5.3 Traffic and Air Quality

A network of monitoring points will be established along the route to record concentrations of air pollutants and greenhouse gases (GHG).

5.4 Water Resources

5.4.1 Motorway Construction and Operation

The Corridor Vc motorway project has the potential to affect surface watercourses and groundwater resources during both construction and operation.

Basic environmental protection measures to be implemented in the **construction phase** for both the Northern and Southern Sections are as follows:

1. during construction, workers will be provided with toilets and personal hygiene facilities comprising chemical toilets to prevent the discharge of sanitary wastewater to surface water courses;
2. all construction materials, fuel, lubricants, paint, solvents, asphalt, concrete and other chemicals, will be stored and used in compliance with appropriate instructions to prevent leaks and spillages. A specially fenced and bunded area will be provided for fuel distribution in order to contain spills and leaks; and
3. salt stockpiles will be stored within specially designed impermeable storage areas with dedicated closed drainage systems.

In addition to the above, emergency response procedures and equipment shall be in place during construction in the event of an accidental spill.

Potential sources of pollution originating on the motorway during **normal operations** include heavy metals, oil products, paint, tyre fragments, and industrial salt used for winter road maintenance, which may become mobilised by rain water run-off and melting snow. In addition, restaurants, petrol filling stations and other service facilities along the motorway have the potential to generate pollutants which could impact surface watercourses and groundwater resources. During abnormal conditions, for example road traffic accidents, there is also potential for accident related spillage of fuels or other hazardous materials.

In order to prevent contamination of soils, surface or groundwater resources surface run-off from the motorways/service areas will be carefully managed. In all areas surface waters will be collected and diverted to silt trap and grease trap treatment facilities before their discharge. Storm water drainage from the Sava River bridge as well as Sava foreshore zone, will be designed as “closed loop” drainage systems (no direct discharges to surface waters), collecting rainfall and possible liquid pollutant run-off along the route. The drainage system will comprise ‘grease traps’ (oil/water interceptors) and filtering prior to discharge. In the most sensitive groundwater areas, designated zone II areas in the Southern section, closed loop drainage systems will divert surface waters to less sensitive areas (zone III areas) prior to treatment and discharge.

Effluents generated by roadside service facilities, such as restaurants and petrol filling stations, also have the potential to adversely impact the environment during motorway construction and operation. Measures to manage waste water effluents from these facilities are incorporated into the project design as outlined below:

1. *Sanitary Wastewater* – for this type of waste water it is necessary to develop a separate sewage collector system and wastewater treatment plant which would bring the quality of the water to a required level, in compliance with the category of watercourse used as the wastewater discharge zone;
2. *Storm Water Drainage* – treatment of this type of wastewater will comprise a closed sewage system with oil/water interception; and
3. *General waste* – this will be collected in watertight containers to prevent contamination of water resources.

5.4.2 Sourcing of Construction Materials

In accordance with the environmental protection measures detailed in the decision document for the Northern section of the project, construction materials must be sourced locally from alluvial material in the beds of rivers Danube, Drava and Sava. It is common practice in the region to extract aggregates from the rivers, and although no decision has been made on the source of aggregates, it is likely that the materials will be extracted by an existing operator. Nevertheless, the abstraction of raw materials from rivers has the potential to adversely impact the environment and more specifically river hydrology/morphology and the ecological balance of the river habitat. Thus, the extraction of sand and gravel from rivers will only be undertaken under strict controls and by licensed operators. Measures to control the level of disturbance will be incorporated in to the project design as follows:

1. Extraction must be carried out under applicable licenses and within designated areas
2. Extraction should be undertaken during the least sensitive times of the year (e.g. to avoid spawning periods) and under appropriate flow conditions
3. In defined volumes and by use of specialized equipment to prevent significant environmental damage.

5.5 Biodiversity

The majority of the route is heavily modified agricultural land with little ecological value. However there are ecologically sensitive areas in both the northern and southern sections of the motorway.

In the Brod-Posavina County, the northern route passes directly through the Sava foreshore area which is a recognised ecologically valuable floodplain and is expected to be defined as a part of the National Ecological Network by the Ministry of Culture (State Bureau of Nature Conservation) in the near future.

The EIA concludes that the construction of the entire Corridor Vc motorway shall not cause the removal of a plant or animal species in Croatia or Europe. Some rare, endangered or protected species, for example the white stork and black stork (near the Sava River) are present in the vicinity of the motorway; however their habitat is not exclusively limited to the zone affected by construction and operation of the motorway.

Protected species, including rare birds and amphibians, whilst present in the regions of the planned sections, do not live exclusively within the planned motorway route. Therefore all of these species, are expected to migrate to habitats of the same type, which are sufficiently abundant in immediate surroundings. In order to protect affected species the following protection measures will be taken:

- Translocation of immobile species;
- Fencing to protect road kill;
- Animal passages to minimise fragmentation;
- Culverts and bridges to maintain hydraulic connectivity; and
- The measures outlined in Section 5.4.1 to prevent discharge of contaminated surface run off waters.

During construction and operation the motorway will be bordered by a fence that is impassable for the animals. A fence along the road significantly increases environmental barrier effects, but at the same time it reduces risks to vehicles and their passengers arising from collision with animals, and animal fatalities due to traffic. Animal passages and bridges will help minimise habitat fragmentation, especially in the sensitive wetland area around the river Sava where the motorway will be elevated.

Further detail of the ecological protection measures are provided in the ESAP. This includes the need to develop a Biodiversity Management Plan.

5.6 Cultural Heritage

Historically, the favourable geographical position facilitated the passage of diverse cultural, economic and political influences. Various cultures appeared in the area and numerous archaeological sites have recorded virtually continuous inhabitation of this area for 8000 years.

The proposed motorway sections, both northern and southern run through an area particularly abundant in cultural, archaeological and historical heritage. In terms of archaeological and heritage sites affected by the northern section, a total of 7 cultural sites have been identified. A total of 12 sites with heritage value will be affected by the southern section motorway (Ploče – BiH border).

For all affected cultural, archaeological and historical heritage sites on Northern and Southern sections, appropriate protection measures/need for further investigations have been devised. During construction archaeological supervision is compulsory along these sections of the motorway, and associated access roads and interchanges, since there is a realistic possibility of endangering still undiscovered archaeological sites, especially along those parts of the route where field exploration was not feasible due to presence of mines and coverage of areas by crops and forests. Also if the archaeological exploration identifies potentially significant finds which require in-situ preservation, the motorway route and associated structures could be realigned.

5.7 Emergency Response

An environmental accident associated with both motorway construction and operation might include accidents resulting in the loss of fuel or other hazardous materials and subsequent pollution of the surrounding area.

Plans must therefore be in place to manage abnormal situations, particular where the motorway is in close proximity to the sensitive areas, for example high quality arable land, ecological protected areas and groundwater aquifers, or rivers leading to sensitive areas.

In addition to design controls, for example, closed-loop drainage systems that are designed to contain spilled fuels/chemicals, emergency plans will be integrated with the region response plans which trigger a response from the emergency services. The project will also have emergency response plans in place to deal with small scale localised incidents during construction, especially in close proximity of rivers/wetlands.

5.8 Cumulative Impact

The EIA process requires consideration of cumulative impacts i.e. the consideration of the environmental and social impacts from both the Corridor Vc project and other known projects, or projects that can be reasonably anticipated in close proximity.

There are no significant projects currently in development or planned for the Project area (North or South), and although it is anticipated that the construction of the motorway will encourage investment and economic activity in the region, the nature and timescales for such projects cannot be predicted at this time. Nevertheless, future projects would be subject to environmental legislation and controlled through separate permitting processes, and are therefore not relevant to the assessment of cumulative impacts.

5.9 Transboundary Impacts

The project gives rise to a number of potential transboundary impacts including impacts to shared groundwater water resources and rivers that cross several borders. These are discussed further below.

In the Northern Section, the Project includes the construction of a bridge over the River Sava. The River Sava defines the border between Croatia and BiH and any activity within the River Sava e.g. in-river construction activities and/or raw material extraction is likely to have a transboundary impact with BiH. The construction of the bridge will therefore require considered cooperation between the Croatian Ministry, the Company and its appointed Contractor with relevant parties in BiH to prevent adverse environmental impacts during the crossing construction and its operation.

In the Southern Section the motorway transects the Sanitary Water Protection Zone (Zone II) of an aquifer, which is a significant water resource shared by Croatia and BiH. Any degradation of this water resource, on either side of the border, could result in reduced water quality for the neighbour.

The need to discuss potential transboundary impacts with other affected countries is described further in Section 7, Public Consultation.

5.10 Other Environmental Issues

Other environmental issues that merit further discussion in this NTS include:

- Decommissioning;
- The exploration, use and transport of raw materials (quantities/sourcing), energy consumption including energy efficiency;
- Use of hazardous materials during the operational phase;
- Waste management;
- Impacts associated with asphalt production; and
- Soil erosion control.

These issues are generic to many road construction contracts and can therefore be managed by following good management practices. Specific management measures are captured in the ESAP (a part of this disclosure package) based on the guidance provided by the International Finance Corporation (IFC) and summarised in the table below.

Table 1. Summary of other impacts and mitigation measures

Aspect	Potential impact	Mitigation/monitoring measures	Guidance material
Decommissioning	There is no projected end of life for the motorway. Thus decommissioning is limited to the closure and reinstatement of temporary areas e.g. construction camps and workshop/laydown areas.	The Contractor shall be required via the ESAP to reinstate land to its original condition once supporting construction works have been completed. All facilities and debris will be removed, and where applicable, disposed of in an environmentally responsible manner.	EHS General Guidelines, Section 4, Construction and Decommissioning.
Hazardous materials	Small amounts of hazardous materials will be used in the manufacture of asphalt, and other miscellaneous activities, including fuelling depots, paint shops etc.	The Contractor (during construction) and Company (operational phase) will be required to ensure that a Hazardous Materials Manager is appointed with the responsibility for the safe transport, storage and handling of hazardous materials. To achieve this goal, the Contractor/Company will also ensure the development and implementation a Hazardous Materials Management Plan.	Croatian Legislation EHS General Guidelines, Section 1.5 EHS Guidelines for Toll Roads, 2007.
Waste management	The project will generate significant quantities of waste including excess soil, general wastes (packaging, food and office wastes), small volumes of hazardous wastes (oils, paints and solvents, batteries and asphalt residues).	The Contractor/Company will appoint a Waste Manager with responsibility for the safe transport, temporary storage and disposal of wastes. To achieve this goal, the Company will also develop and implement a Waste Management Plan in line with good industry practice.	Croatian Legislation EHS General Guidelines, Section 1.6 EHS Guidelines for Toll Roads, 2007.
Asphalt production	Asphalt production can result in a number of environmental impacts, including:	Asphalt is likely to be procured from an existing supplier. Environmental controls and	Environmental Guidelines on Best

Aspect	Potential impact	Mitigation/monitoring measures	Guidance material
	<ul style="list-style-type: none"> • Dust; • Gaseous emissions • Noise (mainly from bitumen production); • Odour; and • Waste. 	<p>performance shall be considered when selecting an asphalt supplier. These will include:</p> <ul style="list-style-type: none"> • appropriate siting of the plant (away from residential areas and other sensitive sites), • - use of low sulphur fuel and efficient burner technology (to minimise SO₂ and other gaseous emissions), • dust collectors and moistening/covering of raw material stockpiles and enclosed equipment (enclosed conveyor belts) 	<p>Available Techniques for the Production of Asphalt Paving Mixes' European Asphalt Pavement Association, June 2007</p>
Concrete batching	<p>Concrete batching can result in a number of adverse environmental impacts if poorly managed, including:</p> <ul style="list-style-type: none"> • Dust emissions • Waste water effluents • Noise emissions • Waste generation (waste concrete) 	<p>Concrete will be purchased from an existing supplier. Site location, environmental controls and performance shall be considered when selecting a concrete supplier.</p>	<p>International good practice</p>
Soil erosion control, and reinstatement	<p>During construction areas will be cleared of vegetation rendering exposed surfaces vulnerable to erosion. Soil erosion can lead to the loss of valuable top soil and the sedimentation of watercourses.</p>	<p>To minimise soil erosion:</p> <ul style="list-style-type: none"> • Surface will be left exposed for the minimal periods • Top soil will be segregated for reuse during reinstatement 	<p>General good practice</p>

Aspect	Potential impact	Mitigation/monitoring measures	Guidance material
		<ul style="list-style-type: none">• Surfaces will be seeded with native vegetation/grasses• Sediment fences will be installed e.g. to protect sensitive watercourses.	

6 Social Benefits, Adverse Impacts and Mitigation Measures

The EIAs also outline a number of socio-economic impacts. These impacts are discussed in greater detail in terms of the Project's intended economic benefits to the region, construction impacts, economic displacement and resettlement issues.

6.1 Socio-Economic Baseline

The motorway will transect 2 counties; Brod-Posavina County in the North and Dubrovnik Neretva County in the South.

Brod-Posavina County is the southern Slavonian County in Croatia (North of BiH) and occupies an area of 2,043km². Brod-Posavina is one of the poorest counties in Croatia with a GDP of €6,250 per capita according to Croatian National Bank (2008). At its centre is the city of Slavonski Brod and it spreads along the left bank of the Sava river. According to a 2001 census the population of the County was 173,993. Similar to the Osijek-Baranja County, the Brod Posavina County is generally flat with extensive surface water networks, is rich in arable land and its economic development relies mainly on agriculture.

Dubrovnik-Neretva County is the southernmost Croatian county located in south Dalmatia (south of BiH). The County has a GDP of €10,475 per capita according to the Croatian National Bank (2008). Significant towns include Korčula, Metković, Opuzen and Ploče. The Municipality of Neum, which belongs to neighbouring BiH, divides the County in two parts. The southern part consists of Dubrovnik and the surrounding area, including the Pelješac peninsula, the islands of Korčula, Lastovo, Mljet, Šipan, Lopud and Koločep, while the northern part includes the Neretva river delta. The northern part of the Mljet Island is a national park, while the Baćina lakes north of Ploče are a Nature Park. The County occupies an area of 1782km² and according to a 2001 census has a population of 122,870. The Dubrovnik-Neretva County is rich in arable land and its economic development relies mainly on agriculture and tourism. The County is mountainous in parts, diverse in flora and fauna and is also home to an important ornithological reserve. In addition, the County provides a valuable resource of high quality groundwater for the County and surrounding region.

6.2 Socio-economic impacts and benefits

The motorway extensions are expected to stimulate regional economic growth for the following reasons:

- The current lack of highway infrastructure in the region restricts access, limits foreign investment and is preventing the tourism sector from expanding. The motorway is intended to promote regional/local economic growth and development by linking the coastal port of Ploče in southern Croatia with the Trans European Motorway (TEM) network.
- There is a clear linkage between the development of economic infrastructure such as industrial parks and logistics centres, and the availability of motorways.

- The motorway will include new service stations and require road maintenance, all of which represent sources of long term employment.
- The construction phase of the motorway will provide opportunities to local communities, either through direct construction employment or in the provision of services to any influx of construction workers.

The longer term benefits are difficult to quantify and will depend on other factors such as regional development strategies and subsequent investment, but nevertheless the Project lays the foundations for significant economic development and socio-economic opportunities in the area.

As stated in Section 2, this motorway section will form part of a tolled network. Thus users of the motorway will be required to pay a toll, although for those not wishing to pay, alternative routes will be available.

6.3 Potential negative socio-economic impacts

Major infrastructure projects can result in some adverse socio-economic impacts, and this project is no exception. Adverse impacts can occur in the short term, during construction, and in the longer term during the operation of the motorway. Potential adverse impacts may occur in relation to the following:

- the influx of construction workers;
- nuisance issues, including disruption to existing services and traffic flows causing congestion;
- the acquisition of land and the resettlement of peoples;
- disruption to traditional lifestyles; and
- the safety of road users.

6.3.1 Impacts associated with the influx of construction workers

Large construction projects often result in the short term influx of a construction workforce that can result in additional strain being placed on existing infrastructure (e.g. medical providers, demand for goods and services (causing inflationary pressure), community health problems including increase in sexually transmitted diseases, and conflicts between residents and local workforce.

For this Project the workforce for the Northern and Southern sections combined is estimated to be up to 500 people for less than a one year period. Low skilled workers are likely to be sourced locally in cooperation with local municipalities and local sub-contractors, presenting employment opportunities. Skilled workers will be brought in to the area from elsewhere in Croatia (depending on the Contractor's preferences). For similar projects in Croatia accommodation has typically been provided via private houses, rather than dedicated construction camps, or workers have been bussed in on a daily basis. The Project's anticipated workforce and therefore its social impacts are relatively small compared to other projects, but nevertheless, the following mitigation measures are required to reduce the negative impacts of the construction workforce.

- The Company shall develop a Code of Conduct for all employees. This will include minimal expectations for behaviour and workforce interaction with local communities. All employees will be given Code of Conduct awareness training.
- An assessment of available accommodation will be undertaken. If accommodation is not available, dedicated and self contained workforce accommodation will be established by the Company. The assessment should consider the benefits (in terms of revenue to local communities) and disadvantages (inflationary pressure, availability of accommodation and community conflicts) of integrating the workforce into the community.
- If dedicated camps are established, these will be governed by camp management plans.
- The Company will provide basic medical facilities for the workforce to ensure no additional strain on the local health infrastructure.

These mitigation measures are further described in the ESAP.

Large projects can also result in an economic 'boom' (associated with construction activity) and 'bust' effect (as construction workforce leaves the Project site and short term unskilled employment opportunities come to an end). The magnitude of this fluctuating effect is generally proportional to the size of the workforce and duration of the construction period. For this project, some local employment and service opportunities will be generated although they are unlikely to transform the region. Some loss of employment is likely at the end of construction, however, it is expected that these losses will be offset over time as investment in the region accelerates. There should also be some long term employment opportunities associated with motorway maintenance and operation of the service areas.

In conclusion the impacts of construction are expected to be minor provided the construction workforce is managed as outlined above and any negative short term impacts should be offset by the longer term benefits.

6.3.2 Nuisance Issues

Road construction projects can often result in a variety of nuisance issues. These include road congestion due the presence of slow moving construction vehicles, access restrictions/diversions, dust and visual impact. However such impacts are expected to be minor for this project, primarily because it is located in a sparsely populated region of eastern Croatia. More specifically, the roads are quiet and therefore serious congestion is not foreseeable, and much of the construction will take place a significant distance from residential areas. Tourists are also unlikely to be affected. However, if members of the public are inconvenienced they can alert the Company/Contractor via the public grievance mechanism described within the Stakeholder Engagement Plan. The Company/Contractor is required to take any reasonable actions to address all complaints and remove or alleviate the cause of any nuisances.

Heavy machinery will for the most part remain within the motorway's corridor. Any damage caused by heavy vehicles using the existing road network will be repaired or compensated.

6.3.3 Road Safety

The motorway is designed in accordance with EU Regulations and Croatian legislative requirements for road design and therefore incorporates necessary road safety measures. The motorway will also divert traffic away from the less suitable/less safe local road network, resulting in a short term improvement in road safety. Longer term vehicle numbers on the local network are expected to increase as the region develops, and further traffic management/safety upgrades may be required on the local road network.

6.3.4 Land Acquisition, Involuntary Resettlement and Economic Displacement

The motorway traverses sparsely populated and predominantly rural areas of eastern and southern Croatia. As highlighted earlier in Section 4.2 routing options for both the Northern and Southern Sections were considered prior to development design. The main route(s) generally avoids towns and villages resulting in very little need to re-house individuals.

The Project will result in the acquisition of rural land primarily comprised of agricultural areas (ploughed lands, orchards, pastures). At this stage of the project census data is incomplete.

Expropriation Process

The extent of involuntary resettlement is unclear until a census, assets inventory and socio-economic study are complete. However, the site visit indicates there will be little or no involuntary resettlement. Compensation for economic displacement will be conducted in accordance with Croatian legislative requirements for expropriation laws. However, the Project may also receive funding from International Finance Institutions, including the European Bank for Reconstruction and Development (EBRD) which have specific requirements for land acquisition, resettlement and economic displacement.

Under the current law owners with legal titles receive monetary compensation for their land and structures. The compensation packages, as defined within the Croatian Expropriation System, provide for compensation at 'market value'. Under EBRD's 2008 Environmental and Social Policy, affected parties are entitled to compensation at 'full replacement cost', thereby including compensation for costs associated with resettlement e.g. loss of income.

The EBRD's Policy also requires that compensation is made to landowners / landusers with a recognisable claim upon land even if they do not hold a formalised title. In recognition of these requirements and current uncertainties, EBRD's policy requires that a Compensation Action Plan (CAP) is developed for the Project.

The CAP⁴ will be a publicly available document that will be released shortly after this NTS as part of the disclosure package. It is designed to provide details regarding the land or property valuation methodology and compensation entitlement criteria for affected parties, including compensation for those who cannot prove legal title, and means of receiving administrative support. The CAP also includes a grievance mechanism.

⁴ A5 Motorway, Northern and Southern Sections – Croatia Compensation Action Plan, May 2010.

Full implementation of the CAP will ensure all displaced parties receive fair compensation, regardless of their status.

7 Public Consultation

This project has been subject to two separate EIAs (northern and southern sections) each with their own consultation processes. The Southern EIA was submitted for Regulatory Consultation on Monday the 19th of April 2010 and the Croatian Public Consultation process is expected to commence 28th May 2010 for a 30 day period. Public hearings for the Southern EIA took place on Wednesday 9th June 2010 in Dubrovnik and on Thursday 10th June 2010 in Metković.

For the Northern section the complete EIA and EIA Summary were disclosed for public consultation for a period of 21 days in the local/regional towns and cities of Beli Manastir, Đakovo, Osijek and Slavonski Brod from October 20th to November 10th in 2003. As part of the EIA process in Croatia, the following public consultations have taken place:

- Two public hearings were held in 2003 in the county centres of Osijek (October 24th, 2003) and Slavonski Brod (October 27th 2003).
- Summaries of the EIA were also disclosed to the public in the municipalities of Vrpolje, Donji Andrijevcı, and Oprisavci.

The minutes of the public meetings were documented and provided to the Company. Attendees of the hearings included:

- HAC;
- IGH (authors of the EIA); and
- Interested parties including representatives from municipal authorities, utility companies and members of the public.

Each meeting involved an opening introductory session, route description, location of key facilities, operational activities and an outline of key environmental issues and protection measures. HAC also requested that members of the public and affected companies provide feedback on the EIA. Further information concerning previous and future consultations is provided in the SEP.

In the near future, there will be further disclosure and consultation regarding the Southern Section of motorway as indicated above. To meet the IFIs' policy requirements, the EIAs and Non Technical Summary will be subject to a minimum of 120 days public consultation which shall include public meetings in both the Northern and Southern sections and targeted consultation with economically displaced land owners/tenants. Transboundary consultation regarding the issues highlighted in Section 5.9 will also be necessary.

Further detail of previous and future consultation activities are provided in the SEP.

8 Summary

The Northern and Southern Croatian sections of the A5 motorway, as part of Vc corridor is a nationally important project that is expected to promote regional economic growth and development in the Brod-Posavina and Dubrovnik-Neretva Counties. It is however recognised that there is the potential for adverse environmental and social impacts. The EIAs for the Northern and Southern Sections have been undertaken in line with national legislative requirements. The EIA process identified a number of adverse affects and associated mitigation measures required to minimise the impacts, these are summarised in Sections 5 and 6 of this Non Technical Summary, and described in more detail within the two EIAs.

The Project is approved by the appropriate State Authorities. At the present time, Location Permits have been granted for the Northern Section confirming that all environmental and social impacts are considered acceptable subject to conditions (i.e. the implementation of specified protection measures and monitoring).

The Southern section EIA (Ploce to BiH border) is due for public disclosure and therefore a construction commencement date is not confirmed at this stage. The earliest construction activities are anticipated to occur no earlier than the end of 2010 although this is dependent on many factors including the permitting process and is therefore not possible to provide a firm construction timetable at this stage.

The project has some specific sensitivities including the transect of sensitive ecological areas and water resources which require special protection measures, These protection measures are outlined in detail within the EIAs and associated Decision Documents and permits. Additional requirements that have resulted from the involvement of international financial institutions and are also captured within supplementary documents including this NTS, a Stakeholder Engagement Plan which outlines further consultation activities, an Environmental and Social Action Plan and a Compensation Action Plan that is currently being prepared.

9 Contact Details

Any queries in relation to this Non Technical Summary and/or the Project in general can be made to the following:

Hrvatske Autoceste d.o.o / Croatian Motorways Ltd.

Sirolina 4

10000 Zagreb

Croatia

telephone: +385 1 46 94 444

fax: +385 1 46 94 692

e-mail: info@hac.hr

www.hac.hr

Annex A: Photolog

Annex A – Photolog – April 14th & 16th 2010



Photo 1: Northern Section: Sredanci – BiH border. View looking east from Croatian Jaruge village on the Sama River dyke towards the proposed border crossing and bridge to BiH (approx. 2km from view point).



Photo 2: Northern Section: Sredanci – BiH border. Looking North along proposed A5 alignment from existing road between Prnjavor and Svilaj villages and location of proposed interchange.



Photo 3: Northern Section: Sredanci – BiH border. Looking West towards Svilaj village, location of proposed toll before existing A3/A5 interchange.



Photo 4: Northern Section: Sredanci – BiH border. Edge of Struzani village directly adjacent to A3 & A5 existing interchange.



Photo 5: Southern Section: Ploče Interchange – BiH border. Site of Ploče Interchange and the start of the proposed Project section to HiB border and non-Project section to Dubrovnik.



Photo 6: Southern Section: Ploče Interchange – BiH border. View of “Bebica-baste” looking down from site of Ploče Interchange. Proposed receiving water for treated discharge from motorway.



Photo 7: Southern Section: Ploče Interchange – BiH border. Looking southwest, toward Ploče Interchange from existing highway along section of A1 under construction.



Photo 8: Southern Section: Ploče Interchange – BiH border. Village of Carapine adjacent to the site of the proposed toll before BiH border crossing.