Struma Lot 3.2 EIA Development, Working Document

Revision 1, 03 February 2016

1 Introduction

1.1 Background

Struma Motorway is one of the most challenging road projects in Bulgaria. The motorway is about 150 km long and the section that remains to be constructed – Lot 3 from Blagoevgrad to Sandanski – is about 62 km long.

Lot 3 has been sub-divided as four construction contracts as follows:

- Lot 3.1 between Blagoevgrad and Krupnik;
- Tunnel Zheleznitsa;
- Lot 3.2 between Krupnik and Kresna (including the Kresna Gorge); and
- Lot 3.3 between Kresna and Sandanski.

Lot 3.2 is the most problematic section both technically and environmentally. It passes through the Kresna Gorge area, which is extremely sensitive from environmental point of view.

1.2 Main Alternatives

Overview

Over the years there has been well over 10 different technical alternatives developed for Lot 3.2. The main are the so called Long Dual Tunnel alternative (that features a dual tube tunnel of 15.4 km length) and the Dual Carriageway alternatives (which feature an upgrade of the existing road through the gorge and the construction of a new carriageway in the vicinity of the existing road). The Long Dual Tunnel alternative has been declared the only environmentally acceptable alternative in the EIA decision for the project from 2008 and the newer Dual Carriageway alternatives (introduced in 2014 and further improved in 2015) have not yet been a subject of a formal EIA procedure.

All alternatives for the project have been described and compared in the Multi-Criteria Analysis for Struma Lot 3.2 developed in (2015-2016) by NCSIP (hereinafter MCA). In view of the EIA procedure, a summary of only the main alternatives is presented below.

Long Dual Tunnel

This alternative represents the preliminary design for Struma Lot 3.2, as developed in years 2013-2015. It is based on the earlier EIA Approved and NSI Violet – 13 km Tunnel alignments and is a development of the original idea for a long tunnel in the Kresna Gorge. The alternative features a 15.4 km tunnel which is a result of joining the 2 km and 13.3 km tunnels from the EIA Approved / NSI Violet – 13 km Tunnel alternative and refining the underground alignment of the tunnel.

As the original study from 2007 was of very limited detail it included only longitudinal profiles and general layouts. Geological conditions, number of tubes, tunnel cross-section, tunnel driving method, costs and other important issues were not commented upon at all. Later, in 2011 as part of the preparation of the project for funding under OP Transport 2007-2013, the tunnel was defined

as “dual two”, i.e. two tunnel tubes with unidirectional traffic. Consequently, in 2012 the ToR for preliminary design was prepared with the requirement to design the tunnel with two tubes.

In the EIA scoping document the alternative is referred to simply as Long Tunnel (still assuming two tubes).

There is a design available for the alternative, which provides all information necessary for a detailed EIA/AA.

Dual Carriageway (2014)

The alignment is designed as a dual carriageway road (2 x 10 m wide). The design speed is 80 km/h which would allow for operational speed of 100 km/h under most conditions. One carriageway closely follows the existing road through the gorge, straightening it in some sections, and the other carriageway develops independently with tunnels and viaducts (the total length of the tunnels is 6.5 km and the total length of bridges is about 2 km). The rationale behind this design is to minimise as much as possible the footprint of the road and thus reduce impacts on habitats.

In the EIA scoping document the alternative is referred to as G20 (meaning 20 m dual carriageway standard).

The alternative was developed as a preliminary design, which was supplemented with data and analysis regarding technology, temporary roads, and other factors which must be taken into account when performing an EIA/AA.

Dual Carriageway (2015)

The original Dual Carriageway alternative was developed in 2014. In 2015 the alternative was developed further and designed in detail. The improvements made were driven mainly by environmental considerations and had the purpose to reduce the environmental impact of the road on both the natural environment and the population. The Dual Carriageway alternative from 2015 follows the philosophy behind the Dual Carriageway alternative from 2014 but its layout differs significantly.

There is a design available for the alternative, which provides all information necessary for a detailed EIA/AA.

ECO A Eastern

The alignment is dual carriageway motorway to the east of Kresna Gorge. This alignment and ECO B Eastern were proposed by NGOs in 2002. They are among the least developed of the alignment options and only very limited design details are available.

Technical review of the alignment indicate that it was developed without due consideration of basic engineering requirements. The alignment results in unusually high continuous vertical gradient not suitable for an arterial road of this nature. The route attempts to avoid the Natura 2000 sites in the area but still crosses them for about half of its length. The total length of this alignment is about 28.7 km and is one of the longest. The total length of the tunnels is 12.865 km and the length of bridges is 7.230 km. The alignment has extreme longitudinal grades as it starts at about 300 m altitude, reaches 674 m and then goes down back to about 180.

This alternative was considered as part of the 2007 EIA – more precisely, it was discussed in the Appropriate Assessment report.

The alternative was developed as a feasibility design in 2011 for the purposes of comparing the alternatives.

ECO B Eastern

This alignment is very similar to ECO A Eastern with the main difference that it attempts to minimise the impact on Natura 2000 sites and deviates further east from ECO A. Consequently this is the longest of all the alignments with a length of about 32.6 km. Among other big structures, it features a 8.500 km and a 3.140 km long tunnels. The total length of the tunnels is 18.245 km and the length of bridges is 3.630 km. The alignment has extreme longitudinal grades as it starts at about 300 m altitude, reaches 747 m and then goes down back to about 130 m.

This alternative was considered as part of the 2007 EIA – more precisely, it was discussed in the Appropriate Assessment report.

The alternative was developed as a feasibility design in 2011 for the purposes of comparing the alternatives.

Western Alternative

As part of the formal EIA procedure for Struma Lot 3.2 in 2015 MoEW instructed NCSIP to study alternatives outside Kresna Gorge. Considering the fact that the possibility to build a new road on the east side of the gorge had been previously investigated NCSIP commissioned studies for an alternative on the west side.

The initial version of the Western alternative (as was presented in draft 2 of the MCA report) crossed the “Kresna Gorge” national protected area from km 394+180 to km 394+650. Because this made the alternative legally not admissible in late July 2015 a new alignment in the problematic section was developed which avoided the need to pass through the protected areas. The alternative features an 8 km long tunnel, as well as high longitudinal grades (some of them in the long tunnel).

The alternative was developed as a feasibility design in 2015 for the purposes of assessing it as part of the EIA.

Do-Minimum/Do-Nothing

This option is considered, taking into account the highly environmental sensitive nature environment in the area and the difficulty in identifying an environmentally acceptable engineering solution through the gorge. This alternative involves minor improvements to the existing road. It has, however, been declared inadmissible as part of the 2008 EIA decision.

1.3 EIA Procedure

In late 2014 NCSIP initiated a formal EIA procedure for Lot 3.2 with a notice to the public and the relevant authorities (registered in MoEW under their ref. НСЗП-471 dated 13 December 2014). The notice specified two alternatives to be compared in the EIA – Long Dual Tunnel and Dual Carriageway (2014) alternatives.

With letter ref. ОВОС-85 dated 13 May 2015 MoEW instructed NCSIP how to carry on with the procedure. Based on the instructions from MoEW NCSIP drafted terms of reference for the scope and content of the EIA report and on 03 November 2015 published the document for public consultations.

1.4 Consultations with JASPERS

After feedback from the public and the relevant authorities had been received on the EIA scoping document NCSIP amended the document and on 28 December 2015 forwarded it to JASPERS for comments. JASPERS’ preliminary considerations regarding the EIA process were received on 14 January 2016 and were discussed at a consequent meeting on 20 January 2016.

This document is a result of the consultations between JASPERS and NCSIP and reflects the view of both parties on how the EIA process must be carried out.

1.5 Purpose of This Document

The purpose of this document is to detail JASPERS' comments and recommendations regarding Struma Lot 3.2 EIA process and further use it to present the matter to MoEW, DG ENV and other parties concerned. It is to be used by NCSIP as a 'roadmap' in the development of the EIA.

2 EIA Process

2.1 General Comments

JASPERS reviewed the "*Terms of reference for the scope and content of environmental impact assessment of the investment proposal for – Improving the route of Lot 3.2 of Struma motorway*" (further referred to as EIA ToR) drafted by NCSIP, and found that, in general, it covered all technical aspects required by the legislation in force and the specificity of the project.

The main weakness of the document was found to be the lack of description of the link between the assessment required by the EIA Directive and the one required by art. 6 (3) of the Habitats Directive (the so called Appropriate Assessment). The steps considered necessary to address this weakness are detailed in the next section.

2.2 EIA Methodology

In practical terms, the following steps and sequence in implementing both EIA and AA assessment processes are recommended by JASPERS:

1) The project was approved in 2008 by Decision No.1-1/2008 issued by Ministry of Environment and Water based on a holistic EIA assessment process completed by an EIA Report and a Compatibility Assessment (Bulgarian terminology used for AA) Report. The original report covered all Struma Motorway sections (Lots 1, 2, 3, 4) and was completed in 2007. The EIA decision approving the Long Dual Tunnel alternative was based on limited technical information available at the time and the impact of the tunnel during both the construction and operational stages was not considered at all. Since that time it was estimated that the impact of the tunnel on Natura 2000 sites and/or other environmental features is likely to be significant, mainly during construction stage. In 2014 NCSIP made a notification for "Improving the route of Lot 3.2 of Struma Motorway" considering two alternatives – the Long Dual Tunnel alternative and the Dual Carriageway alternative (2014; also referred to as G20).

2) According to the BG legislation, the AA (compatibility assessment) is integral part of the EIA procedure (the AA report is annex to the EIA Report). Nevertheless, for the coherence of the process and identification of the optimised alternative, the following steps are recommended:

    A. Starting the process with an in-depth environmental assessment of the Long Dual Tunnel alternative and the Dual Carriageway alternative with focus on Natura 2000 sites (such analysis is not mentioned in the EIA ToR version from December 2015). The relevant ecological concerns/aspects and impact of the project on the integrity of the relevant Natura 2000 sites should be considered with respect to the conservation objectives of the sites and to their structure and functions. JASPERS has recommended since 2012 in the Environmental Strategy to clarify the status of determination of the conservation objectives of all relevant Natura 2000 sites.

    B. Depending on the outcome of this assessment process one or all of the alternatives can be disregarded from further analysis and the EIA report.

    C. The impact of the alternative (or alternatives) which remain will be assessed against other environmental vulnerabilities, paying attention also to human health, security, and safety. If the impacts are found to be unacceptable, one or all of the alternatives will be excluded and the justification will be presented in the EIA Report.

D. If at B. or elsewhere in the assessment process one or more of the alternatives are found to have significant impact on Natura 2000, the next stage is assessment of alternative solutions (this stage corresponds to stage 3 from the EC Methodological guidance on the provisions of art. 6 (3) and (4) of the Habitats Directive).

2.3 Alternatives to be considered

JASPERS recommends that the following considerations are taken into account with regard to treating the different alternatives in the EIA process:

- the alternatives that were disregarded in the MCA taking into account the impact on Natura 2000 sites shall be briefly analysed and presented;
- the alternatives that have been found to be best under the MCA shall be analysed in detail and compared on equal basis;
- any other alternatives that would have an acceptable/lesser impact on Natura 2000 sites (e.g. those that satisfy the conditions imposed by Recommendation 98/2002 Bern Convention) must be reviewed, as this could contribute to avoiding major delays in the permitting process due to the potential comments from public, NGOs, etc.

3 Contents of the EIA ToR, EIA and AA Reports

3.1 Overview

During the discussions between JASPERS and NCSIP it was considered that it was essential to outline the contents of the main documents that are part of the EIA process. This section describes the changes that need to be made to the EIA ToR (the December 2015 version) in order to logically present the EIA process, as well as the contents of the various sections of the EIA and AA reports which are expected to address the sequence described at item 2.2 above.

3.2 EIA ToR

The ToR shall be amended to include a brief presentation of the sequence described at item 2.2 of this document and provide that this sequence is followed in the EIA report. The ToR shall describe in more detail the development of the various alternatives (and mostly the Long Dual Tunnel alternative and the Dual Carriageway alternatives) which lead to the specific scope of the EIA. Such descriptions shall be placed in the introductory sections of the document and ensure logical presentation of the work done since December 2014.

The descriptions of the alternatives shall be reviewed and proofread in order to ensure consistency of the presentation.

3.3 EIA Report

The minimum contents of the EIA report are specified by the Article 96 of the Environmental Protection Law. The EIA ToR follows these requirements and lists the contents of the EIA Report in section 6. The contents are shown below with additional considerations and clarifications are described below:

I. General Information

The section shall include information regarding the name and developer of the project, as well as for its purpose. The main physical parameters of the investment proposal shall be included.

The course of development of the Long Dual Tunnel alternative since the 2008 EIA decision and the development of the Dual Carriageway (2014 and 2015) alternatives shall be described.

A comprehensive comparison (with emphasis on the effects on Natura 2000) between the Long Dual Tunnel alternative and the Dual Carriageway (2014) alternative shall be included in the section. Depending on the conclusion from the comparison, one or all of the alternatives shall be excluded from further assessment in the report. The section shall clearly conclude what alternatives remain to be compared under the EIA.

Reference to the Non-Technical Summary of the information should be provided in accordance with the requirements of the EIA Directive and the Bulgarian legislation (Environmental Protection Law, Art.96, para. (1), item 9).

II. Annotation of the investment proposal for construction, activities and technologies

The section shall include an overview of the main parameters of the alternatives to be compared including the needed resources, materials, natural resources and energy sources planned to be used.

Where possible, reference shall be made to the properties of the Long Dual Tunnel regardless to whether it has been discarded at the preliminary environmental analysis (referenced at I.), or not.

III. Alternatives of location and/or alternative technologies as studied. Justification of the alternatives selected (including Do-nothing)

As introduction, a brief description of all alternatives identified prior 2008 shall be included (SPEA, KrasiBo, etc.) and the final version of the MCA report shall be included to complete this section. The results of the comparison in the MCA between the Long Dual Tunnel, Dual Carriageway, ECO A, ECO B, Western and Do-nothing/Do-minimum alternatives.

The text shall discuss the alternatives for different location and different technology for the project.

Each alternative's level of design (feasibility, preliminary, technical, etc. design) shall be presented. Description of the technology/organisation proposed for carrying out the construction works (e.g. the use of temporary roads or the additional access locations for works in the tunnel changes the environmental impact during construction) shall be included. This will provide indication about the scope of the information available to the consultant and could help assessing to what extent the comparison would be on an equal basis and how robust it is going to be.

IV. Description and analysis of the environmental media and factors and the cultural heritage that will be affected by the investment proposal

The section shall include a detailed analysis of the properties of the alternatives and namely in terms of ambient air & climate, surface water, groundwater, geology, lands and soils, flora & fauna, waste, hazardous substances, noise, landscape, cultural heritage, etc.

Where possible, reference shall be made to the properties of the Long Dual Tunnel regardless to whether it has been discarded at the preliminary environmental analysis (referenced at I.), or not.

V. Description, analysis and assessment of the potential effects on the population and the environment

The section shall include an assessment of the properties of the alternatives during construction and operation, and namely in terms of ambient air & climate, surface water,

groundwater, geology, lands and soils, flora & fauna, waste, hazardous substances, noise, landscape, cultural heritage, etc.

The assessment shall consider the cumulative impact of other investment proposals in the area and more specifically, in a holistic way the construction and operation of Lots 3.1 and 3.3.

Where possible, reference shall be made to the properties of the Long Dual Tunnel regardless to whether it has been discarded at the preliminary environmental analysis (referenced at I.), or not.

Human health, security and safety issues are key factor and must be presented. These are of particular importance mainly for the assessment of Long Dual Tunnel alternative.

VI. Information about the methods used to assess the effects on the environment

Methodological description, reference to design materials, legislation, and other sources. Indication of any technical deficiencies in compiling the required information (according to the EU EIA Directive, Annex IV, point 8 and the Bulgarian Environmental Protection Law, Art. 96, para. (1), item 10).

VII. Description of the measures envisaged to avoid, reduce and, if possible, remedy significant adverse effects on the environment. Plan for implementation of these measures

Description of mitigation measures and mitigation plan.

VIII. Statements by the public and competent authorities

Statements made as a result of the consultations held.

IX. Comparative table for selection of alternative

A comparative table summarising the conclusions from sections IV. And V.

X. Conclusion in conformity with the requirements of Art. 83, para 5 of the Environmental Protection Law

Conclusion from the assessment.

3.4 AA Report

Under the Bulgarian legislation the AA Report is an appendix to the EIA Report. Its minimum contents are specified in Article 23 (2) of the Regulation on the terms and conditions of compatibility assessment of plans, programs, projects and investment proposals with the scope and purpose of conservation of protected areaslegislation. It must, however, be considered that the AA Report will be reviewed by a separate unit in MoEW and independently from the EIA report. Hence, the AA Report shall be drafted as a standalone document.

It is proposed that the AA Report follows the same approach in presenting the various alternatives as the EIA Report.

I. General Information

The section shall include information regarding the name and developer of the project, as well as for its purpose.

The course of development of the Long Dual Tunnel alternative since the 2008 EIA decision and the development of the Dual Carriageway (2014 and 2015) alternatives shall be described.

A comprehensive comparison (with emphasis on the effects on Natura 2000) between the Long Dual Tunnel alternative and the Dual Carriageway (2014) alternative shall be included in the section. Depending on the conclusion from the comparison, one or all of the alternatives shall be excluded from further assessment in the report. The section shall clearly conclude what alternatives remain to be compared under the AA.

II. Annotation of the investment proposal

The section shall include an overview of the main parameters of the alternatives to be compared.

III. Description of other plans, projects and programmes

The section details all known plans, investment proposals (projects) and programmes which together with the investment proposal subject to the AA may cause negative cumulative and/or synergic effect on Natura 2000. The technical and other properties of such initiatives shall be described in detail.

IV. Description of the elements of the investment proposal and their impact

A detailed description of the technical properties of the alternatives (left after the preliminary assessment at I.) being assessed shall be presented. This shall also include data regarding utilities, permanent and temporary areas affected by construction, bridges, viaducts and tunnels, affected rivers and water basins, etc. The focus of the description shall be on the potential direct and indirect impacts of the construction and operation of the alternatives proposed on the protected areas and their elements.

Where possible, reference shall be made to the properties of the Long Dual Tunnel regardless to whether it has been discarded at the preliminary environmental analysis (referenced at I.), or not.

V. Description of the protected areas

The chapter shall include a description of the protected areas, their conservation goals and subjects.

VI. Assessment of the impact of the investment proposal on the protected areas

The chapter shall include a detailed description and analysis of the alternatives being compared on equal basis in terms of their impact on habitats and protected species both during construction and operation of the alternatives. Also included shall be assessment and comparison regarding the whole of the protected areas – their structure, functions and goals, in terms of loss of habitats, fragmentation, nuisance, hydrogeological and geological impact, etc.

Where possible, reference shall be made to the properties of the Long Dual Tunnel regardless to whether it has been discarded at the preliminary environmental analysis (referenced at I.), or not.

VII. Mitigation measures

Based on the assessment at VI., specific measures for mitigating the impact of the alternatives shall be proposed. An assessment of the level of impact of these mitigation measures shall also be included in this chapter.

VIII. Alternatives studied and their impact on the protected areas (including Do-nothing)

As introduction, a brief description of all alternatives identified prior 2008 shall be included (SPEA, KrasiBo, etc.) and the final version of the MCA report shall be included to complete this section. The results of the comparison in the MCA between the Long Dual Tunnel, Dual

Carriageway, ECO A, ECO B, Western and Do-nothing/Do-minimum alternatives shall be presented in detail.

Each alternative's level of design (feasibility, preliminary, technical, etc. design) shall be indicated. Description of the technology/organisation proposed for carrying out the construction works (e.g. the use of temporary roads or the additional access locations for works in the tunnel changes the environmental impact during construction). This will provide indication about the scope of the information available to the consultant and could help assessing to what extent the comparison would be on an equal basis and how robust it is going to be.

Detailed comparison, as per the requirements of the Regulation on the terms and conditions of compatibility assessment of plans, programs, projects and investment proposals with the scope and purpose of conservation of protected areas, shall be made only between the alternatives left after the preliminary environmental assessment at I. and the Do-nothing alternative.

IX. Maps

The chapter shall include detailed maps of the investment proposal (the alternatives being assessed), as well as other visual materials (as appropriate) and maps of all alternatives reviewed at VIII.

X. Conclusion

The chapter shall include a summary of the assessment of the alternatives (without and with application of mitigation measures) and a conclusion in accordance with Article 22 of the Regulation on the terms and conditions of compatibility assessment of plans, programs, projects and investment proposals with the scope and purpose of conservation of protected areas.

XI. Information regarding the data collection, modelling and assessment methods

Methodological description, reference to design materials, legislation, and other sources. Description of the timing and sequence of field research and studies, methods for forecasting and assessment of the impact of the elements of the investment proposal, bibliography, etc. Indication of any technical deficiencies in compiling the required information shall also be included.

4 Other Aspects

4.1 General Recommendations to the EIA ToR

The following general recommendations have been made by JASPERS:

- Ensure the consistency of all documents: MCA, ToR, reports to the Bern Convention, etc;
- The EIA ToR shall mention how cumulative impact must be treated and explain that the *cumulative impact* refers also to the cumulative impact due to Lots 3.1 and 3.3 and current conditions and status of these lots;
- Ensure consistency of the text, tables and numerical data of the ToR.

4.2 Consultations with the Public

The following steps shall be taken to ensure awareness of the public regarding the course of the project, as well as to allow feedback from parties concerned:

- The ToR for the MCA has been made subject to consultations with NGOs in 2015. Once finalized the MCA report itself shall be presented to the public (NGO's, authorities, EC, JASPERS, etc.).

- Once finalized, the EIA ToR, together with up to date information regarding he project, shall be forwarded to the Bureau of the Standing Committee of the Bern Convention.

- The non-technical summary of the EIA report shall be forwarded to the Bureau of the Standing Committee of the Bern Convention, once the EIA report has been prepared.

- Make as much as possible information regarding the project and the EIA procedure available at developer's web-site at http://www.ncsip.bg