



# Technical Assistance to Connectivity in the Western Balkans EuropeAid/13785/IH/SER/MULTI

## Road Safety Audit (RSA) on preliminary design documentation for new highway section E80 Pločnik- Merdare (SEETO Route 7) in the Republic of Serbia

### SERBIA

#### Partners:

- Ministry of Construction, Transport and Infrastructure (MCTI)
- Corridors of Serbia
- EIB, EBRD

#### Budget of Technical Assistance:

- Euro 21,000

#### EU contribution<sup>1</sup>:

- As above (100%)

#### Technical Assistance provided by:

- CONNECTA (Technical Assistance to Connectivity in the Western Balkans)

The new highway Niš – Merdare (part of E-80) is considered a priority infrastructure project, both by the European Union (EU) and the Republic of Serbia and is part of the indicative extension of the TEN-T core network in the Western Balkans.

The Western Balkans Investment Framework (WBIF) supports the project with EU grants and IFI loans.

It is a requirement of all the International Financing Institutions (IFIs), EIB and EBRD that an RSA is performed at both design stages (preliminary and final) of this project.

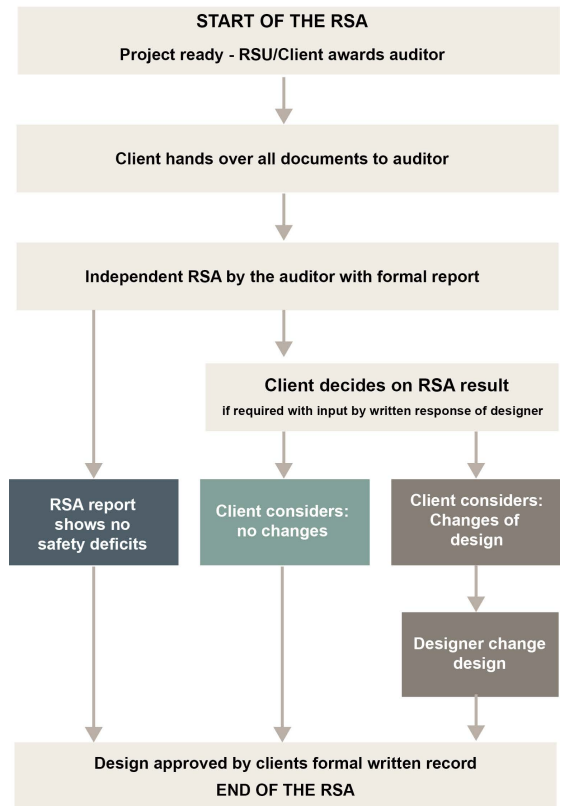
The **purpose** of the technical assistance (TA) assignment was to prepare an RSA of the preliminary design documentation (hence RSA stage 1) for the highway section Pločnik - Merdare in line with Directive 2008/96/EC and with the SEETO RSA Manual.

The main **objective** was ensuring high level traffic and safety conditions along the highway by properly designing the sections and the connections to the existing transport networks.

The section, located in mountainous terrain, is 37 km long and has a design speed of 100 km/h. It comprises 3 grade-separated intersections, some 40 tunnels and some 45 bridges as well as various supporting facilities.

#### The assignment activities included:

- initial mission (including meetings with promoter/beneficiary, gathering of design documentation, field visit, discussion of initial findings)
- preparation of draft RSA report (homework)
- second mission/workshop for presentation and discussion on findings and recommendations
- preparation of final RSA report (homework)



The road safety audit work flow

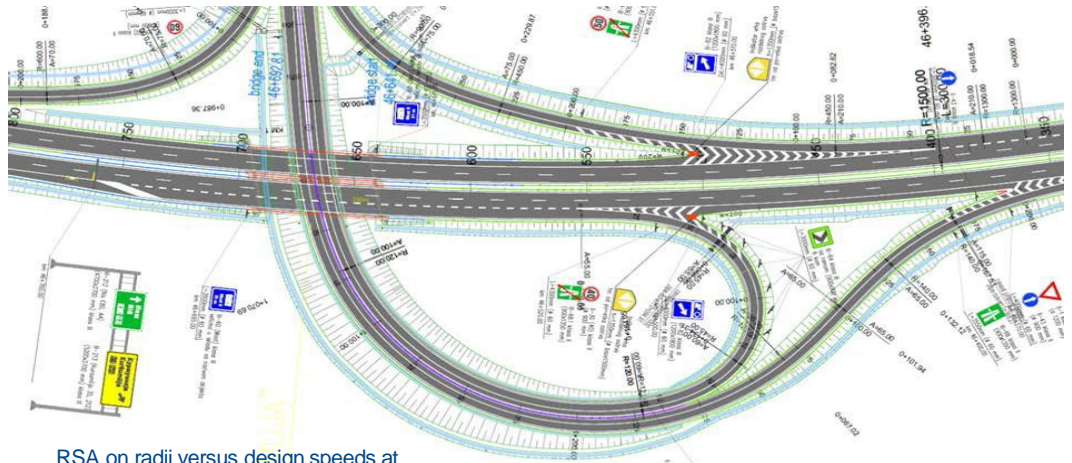
#### Results achieved by the TA:

- Site visit and inspection along the project corridor;
- Workshop on RSA contents and process;
- Preparation of draft RSA report for response by designer and beneficiary;
- Preparation of final RSA report including recommendations for safety related design adjustments.



Site visit-inspection along the existing road corridor

<sup>1</sup> EU contribution concerns only Technical Assistance services for project development



RSA on radii versus design speeds at proposed Kursumljia intersection



Sharp curves in connection of proposed highway with local roads

## Key recommendations - further actions:

- Improve sharp curves in specific locations or alternatively introduce lower speed limits;
- Improve guardrails terminals, especially in tunnels and other structures;
- Assure minimum safety zone along highway corridor (avoiding obstacles) as per EC Directive;
- Rationalise guardrails
- Design in some sections;
- Improve some ramps radii at intersections or else introduce warning signs and lower speed limits;
- Add or amend/improve signage;
- Improve ramps geometry in some intersections;
- Improve some entry/exit lanes at intersections.

## Key conclusions:

The Road Safety Audit examined and assessed a number of design aspects related to road safety. Safety areas for improvements were identified for the following design components:

- Pavement markings for emergency lanes and on roundabout traffic islands
- Slippery roads at bridges
- Lay bys in tunnels
- IT Equipment
- Typical cross sections (slopes and walls within the safety zone, guardrail terminals on open track and in tunnels)
- Number of lanes (inside and outside tunnels)
- Speed limits versus design radii and related signage
- Interchanges (gradients on entrance ramps, lengths of exit lanes, sharpness of curves, slopes within safety zone, roundabout features, connection with local roads, signage)

All design improvement recommendations have been appended to the RSA report in a standard table template with designer response and beneficiary agreement-decision for further actions, per needed measure.

The Beneficiary responded with agreement on RSA recommendations and instructed the designer either to improve the final documentation of the preliminary design or take the recommendations into account in the final design.

## Benefits expected due to Technical Assistance:

- Improved design documentation with respect to road safety aspects;
- Increased road safety level along the new highway components;
- Awareness for the need of RSA for all infrastructure projects under preparation;
- Facilitation of IFIs decision in financing a project that was subject to RSA.

## Impacts anticipated:

- Lower accident rates along the highway;
- Improved prevention of accidents;
- Improvement of respective safety performance indices.