

## Feasibility study of the motorway section Belgrade-Pančevo-Vršac to Romania border

### General information

This project regards **feasibility study** for the construction of a **new motorway from the end of Belgrade bypass in Pančevo to Vršac and the Romanian border** (see also section **Napaka! Vira sklicevanja ni bilo mogoče najti.**). This section belongs to the E-network of major European roads directing from West to East (i.e., route E-70). The implementation of this road section would complete the missing motorway link between Serbia and Romania.

As regards the **relevance** of this feasibility study, the construction of the motorway section Belgrade-Pančevo-Vršac-Romanian border has been identified as been identified as a priority transport project in the Spatial Plan of the Republic of Serbia 2010-2014-2020<sup>1</sup>.

This section is the main road connecting Serbia with Romania, linking Pan-European multimodal transport Corridors X and VII in Belgrade with Corridor IV in Timisoara. This section has been included in the Spatial Plan of Serbia<sup>2</sup>. The localisation of the road section on the South-Eastern Europe is shown in Figure 6-1 and Figure 6-2.

Figure 6-1: Localisation of the section on the Pan-European multimodal Transport Corridors

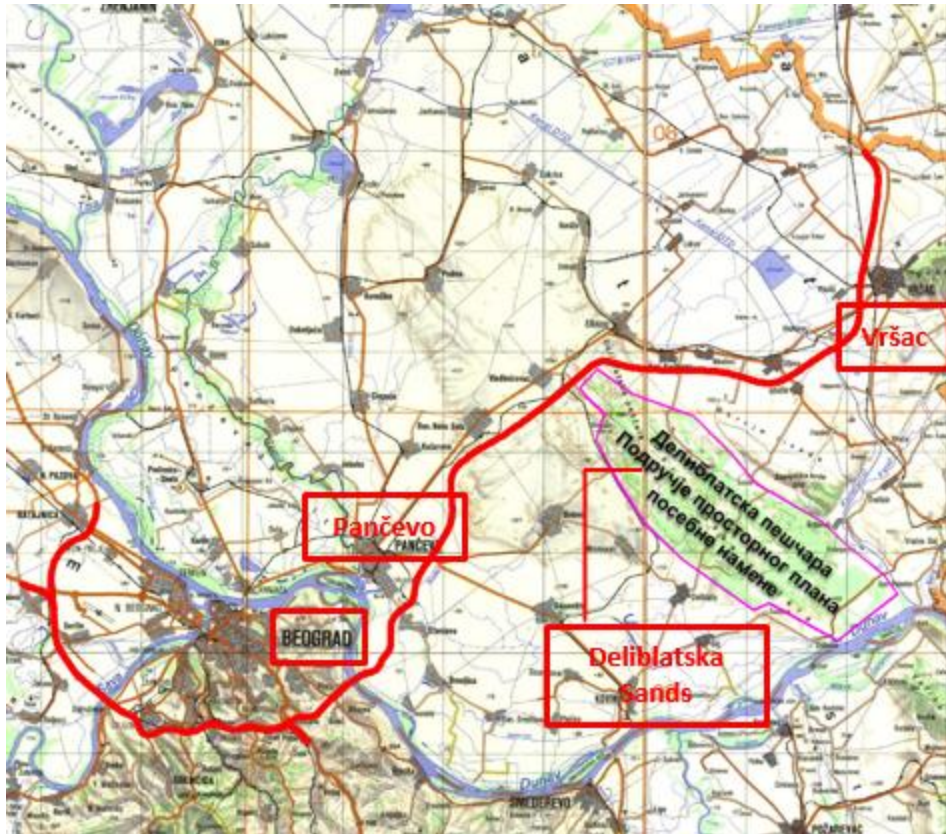


Source: TRT Elaboration

<sup>1</sup> Ministry of Environment and Spatial Planning of the Republic of Serbia (2010). According to consulted stakeholder, this is a strategic project within the Interreg IPA CBC Romania-Serbia (2014-2020).

<sup>2</sup> Ministry of Environment and Spatial planning of the Republic of Serbia (2010).

Figure 6-2: Detail of the alignment of the motorway section Pančevo-Vršac-Romanian border



Source: Highway Institute - Belgrade analysis

### Technical description

This motorway section has not been designed yet. According to preliminary estimations, it extends for approximately 90 km. Design characteristics would assume a 4-lane transversal section and design speed of 120 km/h.

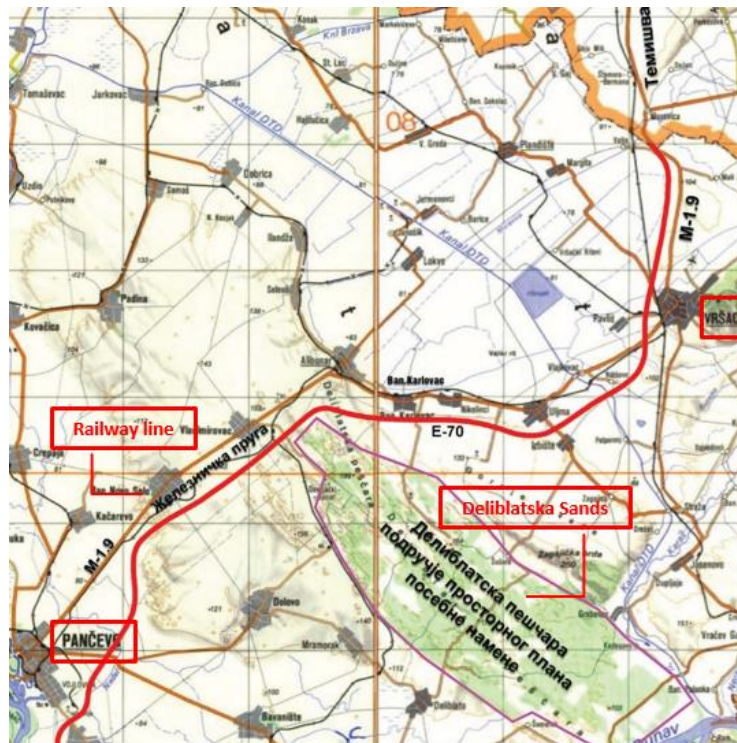
Significant spatial limitations in this section would influence the alignment, due to the following constraints:

- the Deliblatska Sands area, which is a special nature reserve;
- the existing railway line;
- topographic characteristics of the terrain;
- the area of Vršac municipality.

In this respect, after Pančevo (i.e., end of Belgrade bypass), the alignment would enter into the zone of Deliblatska Sands. The logical route after this point would be along the existing railway towards Alibunar. After that, the route would pass Deliblatska Sands in the area of Banatski Karlovac, Nikolinci and Uljma until it approaches the municipality of Vršac.

The Vršac hill imposes to bypass the Vršac area from the West. The intersection of existing road infrastructures (i.e., highways M-1.9 and M-7.1) and the existing railway pose relevant challenges to the alignment design. A possible option of alignment is displayed in Figure 6-3.

Figure 6-3: Possible alignment of the motorway section Pančevo-Vršac-Romanian border



Source: Highway Institute - Belgrade analysis

This project is expected to include the construction of the following structures:

- bridge over the Tisa-Danube channel;
- small size bridges and culvert structures;
- a number of interchanges (not defined). Since only two big urban areas would be intersected (i.e., Vršac and Banatski Karlovac), 2 to 4 interchanges are expected.

The main design characteristics are illustrated in Table 6-1, assuming a design speed of 120 Km/h. The project costs need to be estimated.

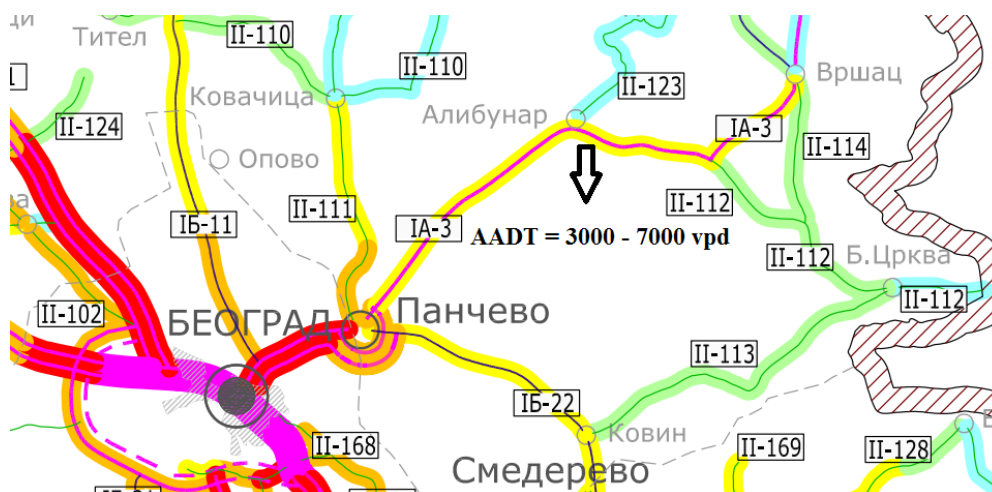
Table 6-1: Design characteristics of the project of the motorway section Pančevo-Vršac-Romanian border

Characteristic	Assumed value
<b>Cross section profile</b>	
Traffic lane 4 x 3,75 m	15,00 m
Emergency lane 2 x 2,50 m	5,00 m
Marginal strips 2 x (0,5 m + 0:20 m)	1,40 m
Shoulder 2 x 1,50 m	3,00 m
<b>Layout plan</b>	
Maximum length in direction	2.400 m
Minimum radius of horizontal curve	750 m
Minimum radius horizontal curve	3.000 m
Minimum length of the stop in sight at $i_n = 0\%$	260 m
Maximum width of the zone of visibility	11,3 m
<b>Longitudinal profile</b>	
Maximum longitudinal slope	4%
Maximum slope of warping ramp	0,75%
Minimum radius of curvature of the concave	12.000 m
Minimum radius of curvature of the convex	17.000 m

## Project implementation

## Transport demand

**Figure 6-4: Transport demand on the existing road direction Pančevo-Vršac**



## Financial analysis

## Economic analysis

The economic analysis has not been conducted.

## Environmental analysis

The EIA has not been carried out.

## Safety levels

Information on safety levels is not available.