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## EXECUTIVE SUMMARY

### Background

Scott Wilson and its sub-consultants, the Highway Institute and the Transportation Institute, have been appointed to undertake the Feasibility Study for Belgrade City Road Bypass ('the Bypass'). The study, which includes engineering, environmental and economic studies, is financed by the European Agency for Reconstruction.

Belgrade City Road Bypass comprises the following sections:

- ❖ Section A (9.7 km from Batajnica to Dobanovci),
- ❖ Section B (37.3 km from Dobanovci to Bubanj Potok, crossing the Sava river) and
- ❖ Section C (22 km from Bubanj Potok through Vinča to Starčevo, crossing the Danube)

This EIA Report presents an overview of the environmental issues associated with Sections A & B as well as a preliminary assessment of the potential environmental impacts of the two alternatives for Section C. At present, the design for Section C exists only at preliminary design/sketch level. Consequently the findings of the environmental study are indicative: further environmental studies will be required at the detailed design stage.

The EIA Report, together with other studies being undertaken for the *Feasibility Study for Belgrade City Road Bypass*, will contribute initially to the documentation submitted by Road Directorate to the relevant authorities in order to gain confirmation/approval for a Detailed Corridor Plan for Section C. Once the corridor has been approved, the reports will contribute to documentation required for obtaining a Construction Permit for Section C.

### General alignment

The general alignment of major sections of the Bypass has been included in the Belgrade City Plan since the mid 1980s. The road corridor for Sections A & B generally lies across agricultural land, well away from residential areas. The alignment between Železnik and Bubanj Potok has been selected to avoid settlements at Resnik and Beli Potok, and industrial/residential/railroad facilities at Kijevo. Tunnels have been included to avoid severance of Železnik and Resnik.

The overall alignment of Section A of the Bypass has generally been agreed following initial environmental investigations also undertaken in the 1990s and further studies reported in 2000. Construction of Section B to two lane standard between Dobanovci-Ostružnica has already been effectively completed and reconstruction of the Sava River bridge is scheduled for completion by the end of 2004. Other structures in Section B, including tunnels and bridge piers, have been partially constructed on the alignment between Ostružnica and Bubanj Potok.

The Belgrade City Master Plan for 2021 includes the concept of a corridor for future road and railway route developments and in particular an extended Bypass route eastwards from the Bubanj Potok/E75 Highway Interchange towards Vinča and the Danube River, and onwards in a north-easterly direction towards the Pančevo area. The feasibility of two alternative alignments<sup>1</sup>

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<sup>1</sup> One variant includes a tunnel through Bubanj Potok hill (Masterplan + BPT), the second variant does not include a tunnel through the hill (Masterplan – BPT).

for the Bypass between Bubanj Potok and Vinca (within Section C), has been assessed. Section C between Vinca and Starcevo includes a major road bridge crossing of the Danube River.

Between Bubanj Potok and the Danube, the route will inevitably cross the densely populated areas of Lestane/Krecevine/Kremenje, where many houses have been constructed in recent years. The area is zoned for residential and economic activities in the 2021 Master Plan. East of the Danube, the route crosses agricultural land before reaching the Pančevo industrial area.

### Development scenarios

The Bypass Section B (sectors 1-3) between Dobanovci and the Ostruznica interchange is nearing completion. A phased approach to construction of the remaining sections of the Bypass over a period of 6 years (2006-2011) has been proposed. Several Bypass development options have been modelled in the traffic study. The air quality and traffic noise studies are based on Scenarios 1B and 2c.

Scenario	Components	Years
Do minimum	Existing network kept intact without modification except for resurfacing of Kružni Put, re-opening of Sava bridge and several non-bypass improvements developed in discussion with the Road Directorate and Belgrade Town Planning Institute	2003, 2010, 2015, 2021
Scenario 1B	Section A – 2 lanes Section B – sectors 1, 2, 3 & 4 – 2 lanes Improved Kružni Put	2010, 2015, 2021
Scenario 2B	Section A – 4 lanes Section B – sectors 1, 2, 3, 4, 5 & 6 - 2 lanes Section C – 2 lanes	2010, 2015, 2021

### Environmental issues

Environmental issues reviewed in the report are: geology and soils; surface and groundwater; air quality; noise; flora and fauna; landscape and visual impact; cultural heritage; population and economy. Environmentally sensitive areas<sup>2</sup> along the route have been identified. No biodiversity areas protected under national or international legislation have been identified. The use of natural resources – water resources, agricultural land and forests – has been reviewed.

*Property:* assuming that all properties within 40m of the Bypass will be resumed as required by the proposed *Road Law*, construction of Section A and the remainder of Section B may require the resumption and demolition of approximately 140 residential and commercial properties, depending on the location of Batajnica interchange. Several of these properties are related temporary land uses, e.g. the refugee accommodation near Resnik and the transport parking/restaurant facilities near Bubanj Potok.

The number of properties affected in Section C depends on the choice of alternative and the design of the interchange with the Starčevo/Pančevo road. Construction of the Masterplan route without the Bubanj Potok tunnel will affect around 75 residential and commercial properties; with the tunnel, the number is around 70. Depending on the interchange design east of the Danube, the number of properties subject to resumption could range between nil–35.

<sup>2</sup> Sensitive areas include: groundwater protection zone; surface drainage; residential areas; archaeological sites; agricultural land, shrub- and woodland

Many of the properties which are likely to be affected by construction of the Bypass have been constructed without planning permission. Such properties will not qualify for payment of compensation.

*Air quality:* During the operational phase, air quality along the Bypass will inevitably deteriorate in terms of the level of traffic-related nitrogen dioxide (NO<sub>2</sub>) and particulates (PM<sub>10</sub>). However, levels of these air pollutants are likely to remain within the Serbian and EU limit values.

Along the E70 and E75 Motorways (including sections within Belgrade), air quality is predicted to improve over some sections and to deteriorate over others, depending on the development scenario selected. Significant reductions in NO<sub>2</sub> and PM<sub>10</sub> levels are predicted to occur along the E70 and E75 motorways under Scenario 2B (full development of the Bypass) by 2012.

*Noise:* The operation of the proposed Bypass under scenario 1B (Batajnica to Kijevo) is predicted to result in daytime traffic noise levels at a distance of 40m from the Bypass in the range 64.5-70.7 dB(A) in 2010 and 69.2-71.4 dB(A) in 2015. Under Scenario 2B, the remainder of the proposed Bypass route from Kijevo to Pančevo becomes operational. Again daytime road traffic noise levels at a distance of 40 m from the Bypass exceed the Serbian Permitted Noise Level of 65 dB(A), with predicted levels ranging from 70.0-76.2 dB(A). However, around 60-65 properties within 50m of the Bypass are likely to be subject to these relatively high daytime noise levels, mostly along the southern edge of Lestane in Section C. The night time Permitted Noise Level of 55 dB(A) is exceeded at a distance of 40m from the Bypass for all three operational scenarios (including 'Do Minimum').

Noise mitigation measures are most needed where the Bypass passes through Surčin and Lestane, along the edge of Železnik and in Rakovica. At Batajnica, a moderate exceedance of the night time Permitted Noise Level is predicted only with the higher traffic flows on the Bypass under scenario 2B in 2015.

The operation of the Bypass will affect traffic flows on existing surrounding roads. Under the 'Do Minimum' scenarios in 2010 and 2015, traffic noise levels at a distance of 40 m from the E70 and E75 Motorways in Belgrade exceed both the day and night time Permitted Noise Levels along the entire length of the motorway. Under scenario 2B in 2015, the operation of the Bypass is predicted to result in a significant reduction in road traffic noise levels along these motorways.

*Use of Natural Resources:* Completion of the Bypass will potentially impact on water resources, agricultural land and forests.

- *Water resources:* road pavement drainage from Section B between Dobanovci and the Sava River, which crosses an important water protection zone supplying Belgrade City, is to be collected and treated prior to discharge into the Sava River; it is recommended that similar arrangements are made for the rest of the Bypass including the Sava and Danube bridges. Construction will inevitably require the use of considerable quantities of water for dust suppression, concrete batching and treatment. In order to minimise the wastage of water, non-treated water should be used for dust suppression and leakage from the mains should be avoided.
- *Agricultural land:* construction of the remaining sections of the Bypass will lead directly to the loss of an estimated 131.55 ha of agricultural land. Indirect loss of agricultural land due to severance (restrictions in access) may also take place. The *Belgrade City Master Plan* for 2021 has already taken the potential loss of land along Sections A-B into account.
- *Forest resources:* clearance of an estimated 27.9 ha of shrubland and woodland will be required during completion of the Bypass. The Section C alternative without the Bubanj Potok tunnel will have the greatest impact on vegetation. Measures to limit potential impacts on forest resources include: minimising clearance to the minimum practical extent; minimising the use of timber in construction activities; landscaping and tree-planting of suitable areas along the route of the Bypass, preferably using native species.

*Cultural heritage:* Construction of Section C may impact directly on eight known archaeological/cultural heritage sites dating back to pre-historic times. However, the route is unlikely to impact directly on the two most important sites in the area at Vinča and Starčevo; nevertheless, close liaison with the Cultural Protection Institutes of Belgrade and Pančevo will be required during the construction phase.

### **Mitigation and monitoring**

Practicable measures to avoid or reduce potential adverse impacts during the design and construction phases have been included in a Draft Environmental Impact, Mitigation and Monitoring Plan.

### **Public consultation**

A meeting to discuss planning and environmental issues relating to the Bypass was held in June 2004. Two further meetings, to which the public were invited, were held at the Roads Directorate during December 2004. It is recommended that further opportunities are provided for public consultation during the development of the Bypass project. One reason for the consultation is to raise awareness of the possible alignments of the proposed Section C so that householders located within the vicinity of the corridors may be stimulated to register their properties.