

**Form B – significant impact risk**

**INFORMATION OF THE OFFICE RESPONSIBLE FOR MONITORING  
OF PROTECTED NATURE AREAS<sup>1</sup>**

Responsible office: Nature State Protection Agency of the Slovak Republic

after scrutiny<sup>2</sup> of the appeal on the project Highway D4 Bratislava, Jarovce – Ivanka North,

which should be located in the areas of the Natura 2000 framework: Protected Bird Area Dunajské luhy (SKCHVU 007), Area of European Significance Biskupické luhy (SKUEV0295)

renders the following information and documentation, which should be sent out to the European Commission as (mark the respective field):

information (Art. 6 Cl. 4 point 1)

statement (Art. 6 Cl. 4 point 2)

Member state: Slovak Republic

Respective domestic office: Ministry of Environment of the Slovak Republic, Section for Nature Protection and Landscape Creation

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Date: 25. 8. 2015

Does this information contain sensitive information? If so, specify which and substantiate: Comment: MoE SR does not possess knowledge, that this information should contain any sensitive information.

<sup>1</sup> Includes areas protected as part of the Natura 2000 framework (including particular areas of protection and specially protected areas), potential localities of Natura 2000 framework, locality pursuant to the Ramsar Agreement, notable areas of birds' occurrence, localities of the Smaragd (Emerald) network or eventually other areas.

<sup>2</sup> Taking into account the demand of Art. 6 Cl. 3 of the Directive 92/43/EES on protection of natural biotopes and freely living animals and plants.

## 1. PLAN OR PROJECT<sup>3</sup>

**Name of the project:** Highway D4 Bratislava, Jarovce – Ivanka North

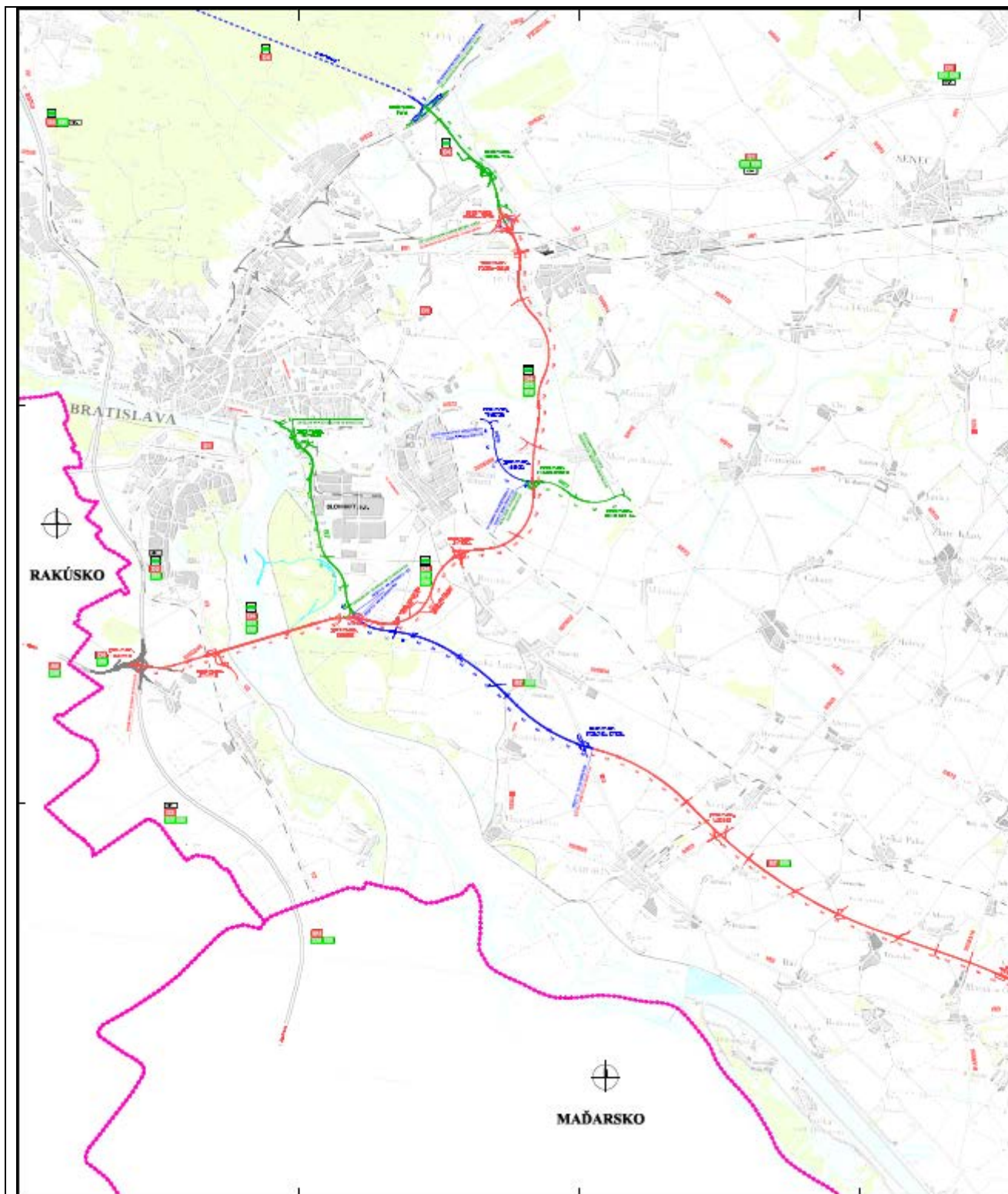
**Submitter:** Ministry of Transport, Construction and Regional Development of the Slovak Republic

**Summary of the plan or project influencing the locality:**

The construction „Highway D4 Bratislava, Jarovce – Ivanka North“ starts with a connection to the existing Highway D2 in interchange Jarovce in the territory of the Capital City of the Slovak Republic Bratislava, in town district Jarovce.

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<sup>3</sup> Carried out by MoT



Picture 1: Overall situation

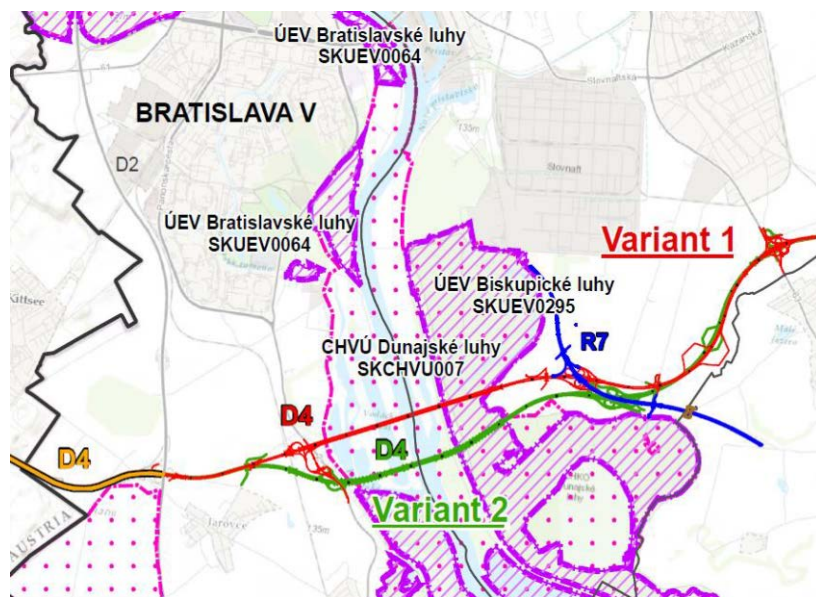
**Description and localisation of components and activities in the framework of the project, which have possible impact and notation of the touched areas (attach maps):**

In the section from km ca. 2,600 up until 5,300 the construction will cross the Natura 2000 areas<sup>4</sup>, namely the Protected Bird Area Dunajské luhy (km 2,674 – 4,584) and Area of European Significance Biskupické luhy (km 4,584 – 5,320).

<sup>4</sup> Picture 2 depicts the layout, which was the subject matter of an appropriate assessment of the impact on Natura 2000 areas. In the chapter we describe the relation between the red variant and the Natura 2000 areas.

The compact part of forest vegetation of the floodplain forest on the left river bank of Danube in broader vicinity is relatively little influenced by human activities. With its acreage and species composition these forest units are convenient refuge (above all nesting biotope) to shy species of birds, which are the subject matter of protection in Protected Bird Area Dunajské luhy. The Highway D4 Bratislava, Jarovce – Ivanka North crosses the PBA Dunajské Luhy in its northern part, namely in upper part of Hrušovská basin, where the inundation part is not permanently flooded. In the alluvial area one can find growth of soft and hard floodplain forest, eventually also lowland mow meadows.

The process of environmental impact assessment proved, that the construction of Highway D4 Jarovce – Ivanka North will have significant negative impact on objects of protection in the PBA Dunajské luhy (SKCHVU007), namely on the bird species black kite (*Milvus migrans*), white-tailed eagle (*Haliaeetus albicilla*) and black stork (*Ciconia nigra*), during construction as well as operation. These objects of protection will be impacted mainly by purchase of their biotopes, noise and light disturbance, heightened frequency and volume of visits on the cyclist route to the left in the floodplain forests (disturbance), possible collisions with vehicles and pollution of the environment (change of emission characteristics, pollution of water environment).



Picture 2

The Highway D4 passes through the affected Natura 2000 areas (red variant on picture 2) on an elevated road with total length 3.125 m, adjacent sections of Highway D4 are on a mound or lower bridge objects.

## 2. NEGATIVE IMPACT ASSESSMENT<sup>5</sup>

### Name and code of the affected locality (localities) of Natura 2000 framework:

Protected Bird Area Dunajské luhy (SKCHVU 007)

Mark when applicable:

- Specially protected area** pursuant to the directive on birds
- Locality of European significance / specific protected area** pursuant to the directive on biotopes
- Area of occurrence of priority** biotope/species
- Impact on priority** biotopes/species
- Wetland of European significance pursuant to the **Ramsar Agreement** or fulfilling the conditions of such protection
- Locality included in the last list of **significant areas of birds' occurrence** (IBA) or (if at disposal) in equivalent more detailed scientific list approved by domestic bodies
- Area subject to **Bern Agreement** on protection of European free living organisms and natural habitats (Art. 4), particularly locality fulfilling the criteria of **Smaragd network** (Emerald)
- Areas protected in accordance with domestic law on nature protection

### Targets of locality protection and key elements contributing to locality's integrity:

Protected Bird Area Dunajské Luhy was announced (MoE SR Edict Nr. 440/2008) for the purpose of securing a favourable state of biotopes of bird species of European significance and biotopes of migrating bird species (black stork, bank swallow, little bittern, mediterranean gull, black kite, common goldeneye, red-crested pochard, common pochard, tufted duck, garganey, common teal, common redshank, western marsh harrier, tawny pipit, white-tailed eagle, smew, common tern, common kingfisher, little egret) and securing the conditions of their survival and reproduction. A protected bird area is announced also for the sake of securing a favourable state of biotopes and securing the conditions of survival and reproduction of migrating aquatic bird species forming groupings during migration and wintering, particularly of the species included in annex 1.

### Biotopes and species, which will be negatively impacted (e. g. include their representativeness, eventually their state of protection pursuant to Art. 17 on domestic and biogeographic level and level of isolation, their tasks and functions in the respective locality)

#### Black stork (*Ciconia nigra*)

Slovakia has in evidence 400-600 nesting pairs. In PBA Dunajské luhy nest 4 to 6 pairs. Pursuant to Art. 12 of the directive on birds the nesting population has a decreasing short-term trend and stable long-term trend. The territory's state is however stable, from a long-term perspective even expands. In the PBA the population is not isolated or marginal, but rather expanded. The preservation of the population is average.

#### Black kite (*Milvus migrans*)

Slovakia has in evidence 5 to 10 nesting pairs occurring only in the alluvial plains of Morava, Danube and Latorice. In PBA Dunajské Luhy nest 5 to 6 pairs. Pursuant to Art. 12 of the directive on birds the

<sup>5</sup> Comment: focus on assumed negative impacts on biotopes and species, for which the locality was proposed to be included into the Natura 2000 framework. Depending on the discovered impacts on affected species and biotopes include all information, which can be significant in respective cases.

population has a significant descending short- and long-term trend. The territory's state is decreasing from the short- and long-term perspective as well. In PBA Dunajské luhy in 2013 no nesting localities were mapped, whereby it is one of the most important areas for the protection of the species.

White-tailed eagle (*Haliaeetus albicilla*)

Slovakia as in evidence 10 – 14 nesting pairs and 70 – 90 wintering specimens. In PBA Dunajské luhy nest 1 to 4 pairs, whereby in all PBAs it is up to 5 pairs. In all PBAs nest 10 – 50 specimens. Pursuant to Art. 12 of the directive on birds the nesting population has a slight increasing short- and longterm trend. The territory's state is, both from short- and long-term perspective, slightly increasing. Also in 2013 they were mapped in the PBA. The whole of the Slovak population occurs in PBA Dunajské luhy. So it is the most important locality of the species' occurrence in Slovakia. It is a marginal occurrence in the area of the species' expansion.

**Significance of the locality for biotopes and species, that will be impacted (e. g. explain the locality's role within domestic and biogeographic region and within cohesion of the Natura 2000 framework)**

The area represents the main flow of river Danube and its left bank with floodplain forest. The abundance of natural aquatic biotopes (rivers, swamps), but also of artificial aquatic reservoirs renders good preconditions for nesting of the species tied to the wetlands. The presence of forest biotopes, in particular high-forest with high occurrence of nesting places for the white-tailed eagle and the black kite, creates a unique area of the Danube's floodplains. Within Slovakia, for these species the PBA Dunajské luhy is a top territory.

Once the original Danube floodplain forests were a part of a massive inland delta of Danube. Not so long ago they were one of the most diverse and rich on species ecosystems not only in Slovakia but also in Central Europe. The diversity of the organisms is also fuelled by the unique geographical location, where Panonian and Alpic elements meet, that are connected to Danube. The force of the river rolled its water through the riverbed into a complex system of numerous branches, where during floods it scrubbed the land and supplied nourishment. The river modelled the land into the shape of coves, gravel benches, aggradation levees, wetlands, where thick floodplain forests grew. Particularly in the 20<sup>th</sup> century the area was significantly impacted by man through development of agriculture, dewatering, construction of Gabčíkovo Waterwork, isolation of Danube's branches and planting of poplar plantations. In recent period the area is attacked by development of invasive species of plants and fishes.

Even though it came to a distinctive change in species' composition, diversity and numerousness of fauna and flora, the Danube's watershed has still very important functions, most of all as the most remarkable migration corridor of European birds.

**Description of expected unwelcomed impacts (loss, deterioration, disturbance, direct and indirect impacts etc.), amount of impacts (area of biotope and number of species of areas of occurrence affected by the project), significance and amount (e. g. in respect to the affected area or population in relation to the total acreage and population in the locality, eventually even in the country) and localisation (attach maps)**

The impacts on PBA Dunajské luhy are included in "Highway D4 Bratislava Jarovce – Ivanka North, appropriate assessment of the design's impact on areas of European significance and protected bird areas, HBH Projekt, spol. s r.o., 2014, pages 56-61". Further we list only remarkably negative impacts on significantly negatively impacted species.

"Purchase of biotopes

Black stork – according to the ornithological survey (Kúdela et al., 2011) in the vicinity of Variant 1 one pair was presumably nesting regularly up until 1995, currently the nesting population is on its minimum

(1 nesting pair in PBA), however in the last few years the state apparently increases. In that case it would probably come to a resettlement of this area. Nesting places of this species are relatively sparse and therefore demand strict protection. Liquidation of biotopes in the area of the design was therefore evaluated for this species (even considering the relative small percentage of purchase within PBA) as **significantly negative (-2)**, both during construction and operation.

Black kite – in the past this part of the PBA in the vicinity of the design was a regular nesting place of this species. Currently the nesting is irregular, however it occurs yearly. Because the decrease occurred on the whole territory of Slovakia (state of species unfavourable – U2), from a national point of view this area remains a significant locality of the species and one may presume, that should the Danube population begin to increase again, the former territories in the area affected by the construction will be occupied (Kúdela, Melišková, Littera, 2011). The nesting place of this species is very sparse and therefore demands strict protection. Liquidation of biotopes in the area of the design was therefore evaluated for this species (even considering the relative small percentage of purchase within PBA) as **significantly negative (-2)**, both during construction and operation.

White-tailed eagle – currently nesting populations of this species in the PBA consist of 4 pairs (2006 – 2011). It is the biggest nesting place of the species in Slovakia. In the territory directly affected by the construction of the design nests 1 pair, which is thus  $\frac{1}{4}$  of the overall population in PBA. From the aforementioned information results, that the nesting places of this species are very sparse and therefore demand strict protection. Liquidation of biotopes in the area of the design was therefore evaluated for this species (even considering the relative small percentage of purchase within PBA) as **significantly negative (-2)**, both during construction and operation. “

Other identified impacts

Noise and light disturbance

Increased frequency of visitors of the locality

Collisions with vehicles

Pollution of the environment

were evaluated as slightly negative

#### **Possible cumulative impacts and other impacts, which may arise due to the combined instrumentality of the assessed plan's or project's (or other plan's or project's) impact**

The documentation “Highway D4 Bratislava Jarovce – Ivanka North, appropriate assessment of the design's impact on areas of European significance and protected bird areas, HBH Projekt, spol. s r.o., 2014” states:

Chapter “IV.3. Cumulative impact assessment

To assess the cumulative impacts, particularly the current Zoning Plan of the Bratislava district, Zoning plan of the Capital City of Slovak Republic Bratislava were used, further also Information System SEA/EIA.

The assessed design is located in broader vicinity of the capital city Bratislava, which is exposed to relatively strong pressures to utilise the territory. From the existing constructions, that significantly partake on the cumulative impacts, one can list:

Highway D1 Bratislava – Trnava, 6 lanes – the current highway will cross Highway D4 in the interchange Ivanka North.

Highway D2 – route: state border CZ/SK (Lanžhot – Brodské) – Malacky – Bratislava – state border SK/HU (Čunovo – Rajka), 4 lanes. The current Highway D2 will cross with the here assessed section of Highway D4 in the interchange Jarovce.

Highway D4, state border AT/SK (Jarovce) – Bratislava, Jarovce (crossing with D2), 4 lanes – here assessed section forms the prolongation of D4 in interchange Jarovce.

The following are listed as public works in the binding part of the Zoning Plan of the Bratislava district: Highway D4, Ivanka North – Rača – construction following up to the assessed section of Highway D4. Together with further sections of Highway D4 they will form a bypass of Bratislava.

Expressway R1, Most pri Bratislave – Vlčkovce – the construction following up to the here assessed



section of Highway D4 in interchange Podunajské Biskupice. This section leads in parallel (ca. 10 km) south-easterly with the existing Highway D1 in the direction towards Trnava.

Expressway R7, BA Prievoz – BA Ketelec – the construction following up to the here assessed section of Highway D4 in interchange Podunajské Biskupice. The realisation is presumed together with Highway D4 in the here assessed section (2016 – 2019).

Expressway R7, BA Ketelec – Dunajská Lužná – it is the continuation of the expressway from interchange Ketelec eastwards. R7 continues along Danube towards Dunajská Streda – Nové Zámky – Veľký Krtíš. Near Lučenec it will be connected to the planned R2 to Košice.

The route of high-speed rail within the boundaries of the Bratislava city from central cargo station alongside D1 Highway to turn Čierna voda and further alongside Highway D1 towards Považie. Areas for construction of a parallel take-off and landing runway with the existing take-off and landing runway 13-31 and areas for construction of necessary infrastructure of checking process on the M.R.Štefánik Airport. Areas neighbour closely with the proposed design, they are to the west. Areas and equipment of the Wolfstahl Waterwork. This waterwork should be situated ca. 11,5 km against the Danube's flow from the here assessed areas of the Natura 2000 framework. It would mean an impact on the water-table in the area under the level, impact on biotopes in here assessed area cannot be excluded.

Pipelines Schwechat – Slovnaft. The connection of Slovnaft with Austria. The corridor established in the Zoning Plan of Bratislava will travel through the Natura 2000 areas (PBA Dunajská luhy and AES Biskupické luhy – northerly from Kopáč island).

High-pressure gas conduit Slovnaft – Petržalka – Einsteinova – Mlynská dolina. The route will travel through PBA Dunajská luhy and AES Biskupické luhy – northerly from Kopáč island.

Ports, port edges and related structures of traffic and technical infrastructure of water traffic ports on Danube.

Further a development functional area is envisaged in the area of the rowing canal nearby Jarovce branch and also relatively large development functional area to the north-east from interchange Jarovce.

Industrial area is in the proposal located northerly from the existing communication E58 between interchange Jarovce and state border SK/AT.

From the above stated abundant list of planned purposes it is apparent, that the vicinity of the assessed design is under significant pressure from development activities. Those are particularly constructions of already existing transport infrastructure and industrial activities, which represent relatively thick network in this complicated area. If we add to these existing purposes the planned construction of infrastructure as well (see above), development residential areas and industrial zones, it is apparent, that it can easily come to an overstep of bearable measure of the environment for sustaining the objects of individual localities of the Natura 2000 framework in a state favourable from the perspective of protection.

In the case of PBA Dunajské luhy this capacity of the environment was already overstepped, namely in here assessed design. In relation to the PBA Dunajské luhy and AES Biskupické luhy another set of purposes of lineal constructions are planned (pipelines Schwechat – Slovnaft, high-pressure gas conduit Slovnaft – Petržalka – Einsteinova – Mlynská dolina), that will cut through the floodplain forests on Danube's left bank in northern part and will constitute further loss of valuable biotopes. The planned R7 Expressway will then separate these localities east of Kopáč island (connection to interchange Ketelec). Apart from the increase of noise disturbance and purchase of biotopes, it will bring also a deterioration of migration throughput of the area. Generally the biggest problem will be the high special fragmentation of the area and purchase of valuable biotopes together with a remarkable increase of noise pollution in some types of constructions.

In all the constructions in preparation it is necessary to heed the increased protection of individual localities of the Natura 2000 areas and their objects of protection and exercise indispensable measures to minimise the impact of these purposes. Together with a judicious choice of the area for localising the above mentioned purposes, that may decrease the costs for realisation of necessary protective measures, it is the only way that may prevent further overstepping the bearable level of the environment's encumbrance.”



**Mitigating measures included in the project (state, how they shall be realised and how will they prevent or mitigate the negative impacts on the locality)**

The documentation "Highway D4 Bratislava Jarovce – Ivanka North, appropriate assessment of the design's impact on areas of European significance and protected bird areas, HBH Projekt, spol. s r.o., 2014" states:

Chapter "V. PROPOSAL OF MEASURES

Given the fact, that the impact of both variants was evaluated as significantly negative (-2), it is not expedient to propose any mitigating measures. Should however the compensatory measures be approved pursuant to § 28 par. 6 of Act Nr. 543/2002 and therefore one will be able to realise the design in one of the variants, we recommend to take the following measures into considerations in the next stages of project preparation:

Phase of project preparation:

- Propose the road canalisation in sufficient capacity, so that the dangerous substances resulting from traffic (oil, tire attrition, brakes attrition etc.) will always be contained. The road's maintainer will control and clean these safety elements for water protection regularly and keep them in fully functional state.
- Drainage of bridge constructions (Danube, Small Danube and other flows) to be solved with canalisation with vectoring to a dimensionally sufficient safety elements for water protection, in the same manner as they are solved in the current project documentation in both variants.
- By bridge constructions trough Natura 2000 areas silent divider strips to be used, which will lower the noise in the area under the bridge.
- Should variant 2 be realised, it will be necessary to include non-transparent and opaque two-sided noise barriers on the whole length of the crossing through PBA Dunajské luhy and AES Biskupické luhy into the project. Minimal height of these barriers should be 4 m.

Construction phase:

- Observance of conditions set out in the building permit for the design shall be regularly controlled by environmental supervisor of the site.
- Cutting down of trees in the area of the purchase to be realised without the period of birds' nesting.
- In the vicinity of the Biskupice branch (ca. km 4,590 – 4,720 of the purchase) an uncovering of soil to be realised without the vole's reproduction period (at best in months XII – I).
- During construction phased the terrain depressions, where water could stand and could therefore become a biotope of amphibians' reproduction, to be levelled immediately. In case of necessity migration barriers for amphibians' protection to be installed during construction.
- If the design is located in a protected water management area, it is suitable to supplement the equipment of construction mechanisation with a fallback package including sorbent. Biodegradable maintenance liquids to be used, all the mechanisation working in these areas to be kept in compliant technical state (no drips), any contamination risk of the area by dangerous construction materials (including substances with alkaline reaction) to be excluded.
- Construction areas and dumping sites of materials to be located outside of the Natura 2000 localities.
- Fallback plan and all valid legal provisions to be observed.

Operation phase:

- Through representatives of the State Nature Protection Agency, relevant municipalities and Slovak Water Management Agency the placing of refreshment stands alongside the whole left-bank bicycle road in the area of PBA Dunajské luhy to be hindered with the aim to minimise the disturbance of the birds by tourists and sportsmen.
- The construction may not disturb the existing system of bars and barriers disabling the unauthorised entrance to the area of PBA Dunajské luhy on both sides of Danube. The reason is to minimise the disturbance due to increased visitor frequency in PBA Dunajské luhy.
- The area under the elevated road is to be left in as natural state as possible (ideally clay subsurface, eventually with stones near each other in an island shape with fraction up to 30 cm, which will increase

the variability of the environment) whilst respecting the needs and demands of maintaining the bridge body.

- The spread of invasive species of plants into areas, in which the vegetation cover during the construction will be disposed, to be hindered. Regular control is necessary, as well as disposal of invasive plants in a way, that the biotopes in the design's vicinity will not be degraded after the return to a natural state.”

### 3. ALTERNATIVE SOLUTIONS<sup>6</sup>

#### Determination and description of a possible alternative solution including zero possibility (state how it was determined, process, methods)

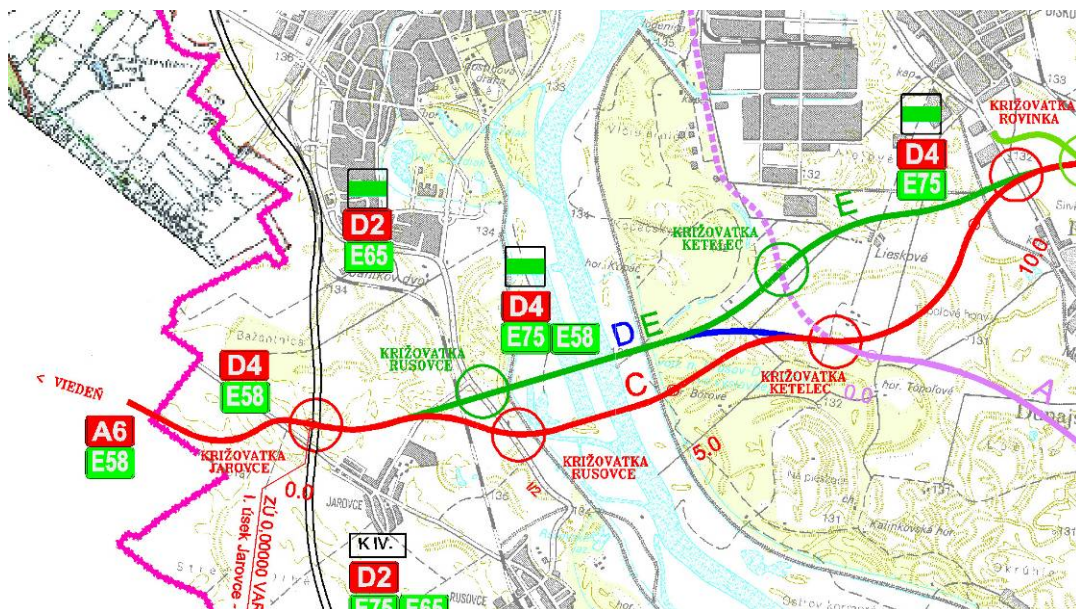
The non-existence of alternative solutions is the result of a long-term study of the route of the so-called “zero ring” of the capital city Bratislava, which proved, that the chosen route impacts the nature of the near and ecologically valuable localities the least and that it is feasible as a stand-alone functional part of the city's bypass.

The positioning of the described section of Highway D4 was the subject matter of various studies, that occupied themselves with its positioning to the south and southeast from capital city Bratislava:

- “Traffic-urban study of the zero ring around Bratislava” (DOPRAVOPROJEKT, a.s., 02/2002)
- “Highway D4, interchange Jarovce on D2 – interchange Senec on D1” (Alfa 04 a. s., 06/2005 )
- “Highway D4, section Jarovce – Ivanka North”, optimisation of the interchanges' positioning on D4 (Geoconsult,s. r. o., 12/2007 )
- “Feasibility and expediency study for section D4 Jarovce – Ivanka North – Stupava South – State Border SK/AT (DOPRAVOPROJEKT, a.s., 09/2009)

Based on the remarks put forward before and during the process of environmental impact assessment, three variants (see picture below) were then optimised, which differed mainly in the crossing over river Danube and through protected areas Natura 2000 (km 0,000 – 11,000):

- Variant “C” (bridges over river Danube) – red
- Variant “D” (tunnel under river Danube) – blue
- Variant “E” (bridges over river Danube) – green



The result of the assessment carried out pursuant to Act Nr. 24/2006 on environmental impact assessment is the final statement Nr. 318/2010-3.4/ml dated 28.09.2011 with recommended Highway D4 variant in the following combination of the route (variant “E” with connection to variant “C”):

- **km 0,0 – 5,5 – variant “E” – green**
- **km 5,5 – 7,5 – connection to variant “C” – red** (when solving D4 and interchange Ketelec the location of Expressway R7, D4 and the solution of interchange Ketelec in zoning permit

<sup>6</sup> Carried out by MoT

documentation "Expressway R7 Bratislava – Dunajská Lužná" to be respected and one should take into account the prolongation of Expressway R7 up to interchange Prievoz in the scope of the construction in preparation "Expressway R7 Bratislava Ketelec – Bratislava Prievoz")

- **km 7,5 – end of section in route of variant "C" – red** (with clarification of the Highway D4 route in contact with protection zones of M.R.Štefánik Airport, solve the height solution and shape of interchange Ivanka North following up to the solution of the following D4 section Ivanka North – interchange Rača)

#### Zero variant

Zero variant represents a state, when all car traffic has to be served by the road system in the affected area, i. e. the planned investment would not be realised and the growing traffic demands would have to be dealt with by the existing road network. The main traffic function is currently fulfilled by highway sections D1 and D2, which cross through built-up area of Bratislava and which are supplemented by affected first, second and third class roads.

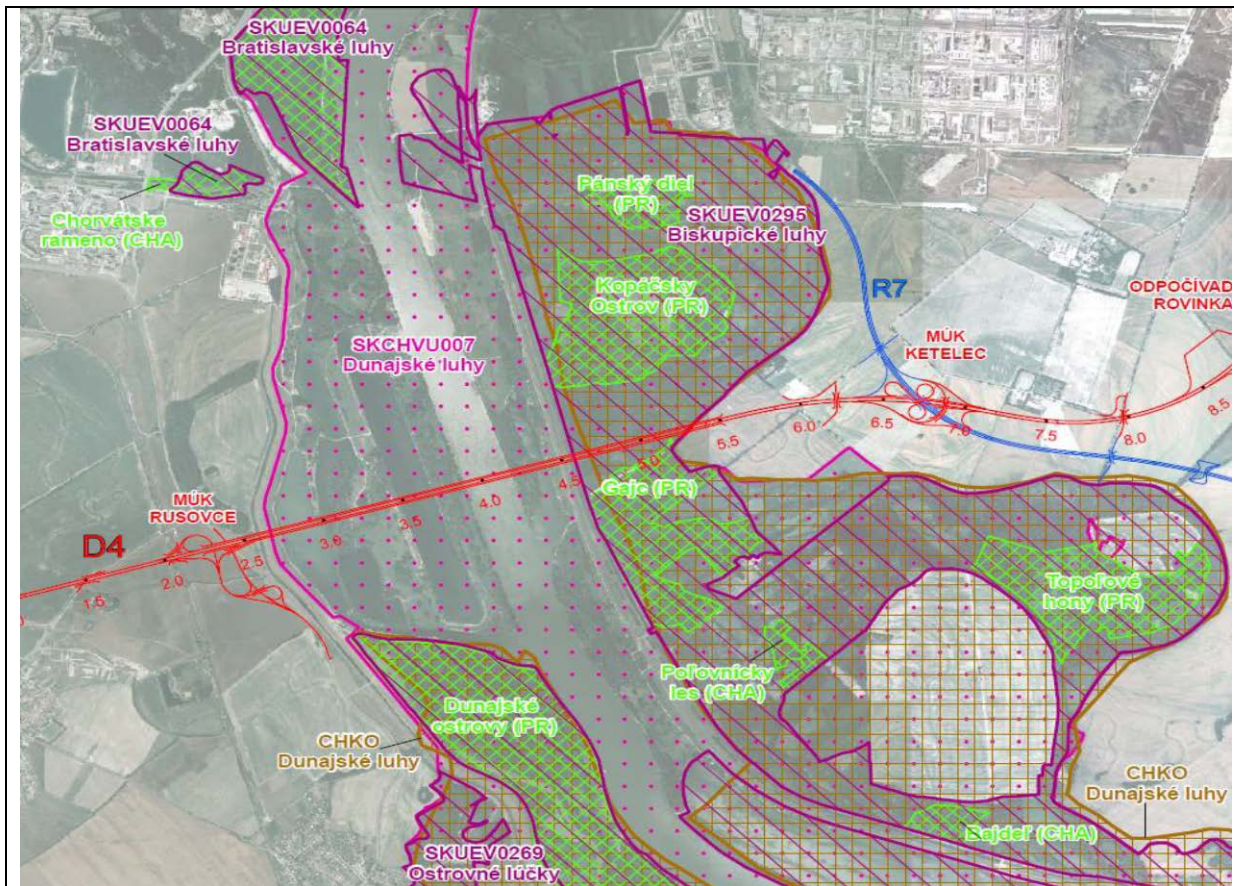
From the capacity assessment results, that in time horizon of 2015 the demands of traffic encumbrance will not be satisfied by some sections of Highway D1 leading through built-up area of Bratislava, that are encumbered mainly by city traffic. Further unsatisfactory are the first class road sections – I/61 and I/63, that already today exceed all admissible traffic intensities and directly influence the traffic on selected section in the scope of the zero variant.

#### **Evaluation of the contemplated alternatives and substantiation of the chosen alternative (reasons why the respective domestic bodies came to the conclusion, that no alternative solutions are available)**

1. Leading the route under Danube (blue variant "D") was evaluated as extraordinary and technically demanding from a construction point of view with high investment and operation costs; possible impact of subterranean waters flow with presumed secondary impact on flora and fauna in protected areas; high risk of construction's impact on mineral massif and hydrogeological affairs; without possibility of connection to routes for cyclists and pedestrians.
2. Leading of the route over Danube in red variant "C" on the right bank of Danube bypasses the natural reservation Dunajské ostrovy and AES Ostrovné lucky. On the left bank of Danube it crosses the NR Gajc (4<sup>th</sup> degree of area protection), Protected Landscape Region Dunajské luhy and AES Biskupické luhy.
3. Leading of the route over Danube in blue variant "E" via a bridge with length of 2,722 km over Jarovce branch and the main flow of Danube identified significant negative impact on three bird species: black stork, black kite and white-tailed eagle. A significant impact is in the case of these species the purchase of their biotopes in PBA Dunajské luhy.

The fact that any other route would not avoid ecologically valuable and protected areas is confirmed by the following picture. From the partial map it is apparent, that one cannot avoid PBA Dunajské luhy by any alternative of surface route of Highway D4 to the southeast from the capital city Bratislava, because this protected area winds itself towards southeast from capital city Bratislava around the water flow of Danube in length of ca. 150 km.





As environmentally most agreeable solution of the studied variant the variant “E” was evaluated with connection to variant “C”, because:

- No cutting down of forest on the right bank of Danube is necessary, NR Dunajské ostrovy is without impact, as well as the protected areas of European significance Natura 2000 on the right bank of Danube. The recommended variant does not impact the protected areas of NR Gajc (4<sup>th</sup> degree of area protection) and NR Kopáčsky ostrov (5<sup>th</sup> degree of area protection) on the left bank of Danube, i. e. the direct liquidation of biotopes and impact on protected areas is of a lesser degree.
- The crossing with the river Danube is perpendicular in direct route, which makes construction of the bridge over Danube and the elevated roads easier (enables the use of protruding bridges technology).
- The impact on Protected Landscape Region Dunajské luhy and on the protected areas of European significance Natura 2000 on the left bank of Danube is eliminated to maximal possible extent, whereby the negative impacts of the Highway D4 crossing through this area shall be minimised by positioning of Highway D4 on an elevated road up to km 5,500, which will enable the beasts' migration without collision under the Highway D4.
- The length of the D4 route is shorter compared to variant C, which brings efficiency of the investment, lower operational costs of the vehicles, time saving of the passengers.
- The route respects the prevailing part of raised remarks during the environmental impact assessment process; the recommended variant suits the majority of the public, affected bodies and organisations.

#### 4. FUNDAMENTAL REASONS OF HIGHER PUBLIC INTEREST<sup>7</sup>

##### **Reason of the design's or plan's realisation even despite of its negative impacts**

- fundamental reasons of higher public interest including the reasons of social and economic character (in the case the priority biotopes/species are not present)
- human health
- public safety
- favourable consequences of first grade significance for the environment
- other fundamental reasons of higher public interest

##### **Description and substantiation, why they are of higher public interest<sup>8</sup>:**

Social-economic effects of the construction and operation of Highway D4 Bratislava, Jarovce – Ivanka North will manifest on the traffic parameters by redistribution of traffic after the new construction work is rendered into usage. They will also manifest on the original part of the affected road network, namely by reaching a higher travel speed, users' safety and by decreasing negative impacts on affected citizens, as a result of a higher quality of the new construction work compared to the deteriorating state of the road network. Social effects will manifest in decrease of travel time of passengers of cars and buses.

Economic effects will manifest particularly by the users of the respective section of the road network through decrease of their costs – fuel consumption connected with the transport of goods and persons, eventually with operation of their vehicles. A positive impact of the investment's realisation is also the increase of the road network's performance in the given locality and partially in the whole Bratislava area. Furthermore one may presume an improvement of service as well as creating conditions for the interest region's development (positive impact for positioning potential investments in the region, positive impact on urban development of satellite towns and villages of Bratislava), and also creation of job opportunities during construction as well as during operation.

Bratislava is a strong source and destination for automobile traffic, high traffic encumbrance on entries into the city causes a strong link of the citizens of neighbourhood vehicles to the capital city, in which a significant portion of their job opportunities, education and other activities is being realised. This trend is strengthened even more through resettlement of town citizens to village residents for higher quality of living, particularly on the southeast and east of Bratislava, but also to other parts of the Bratislava region.

In the territory affected by the solved Highway D4 the trends of traffic development have a negative impact on the existing road network, which should meet the required demands. Its insufficiency for the current traffic demands manifests in capacity problems on the first class road I/63 entering Bratislava from Šamorín, on the second class road II/572 from Most pri Bratislave, on the first class road I/61 from Senec, on Highway D1 from Trnava. The mentioned first and second class roads are overburdened during rush hours on a daily basis, whereby the duration of the jams is prolonged during the day. The most remarkable problems manifest on the road I/61 and I/63, which is even lead through inner areas of villages Dunajská Lužná and Rovinka. To enter these roads from

<sup>7</sup> Carried out by MoT

<sup>8</sup> Various degree of detail may be required according to whether the notice is being put forward as an information or as a statement.

the neighbour roads is a big problem.

Many drivers, striving to avoid the problems on the entry to Bratislava, seek out substitute routes on lower class roads, with which they encumber the local, for years utilised road network of neighbouring towns and villages to the extent of their capacity, with transit traffic. Traffic problems arise also on some sections of the existing highway network. Transit traffic coming from Trnava on D1 crosses directly through the city area and after Haven Bridge (Prístavný most) and Vienna Road (Viedenská cesta) divides itself into individual streams. Due to the insufficient capacity of the communication network of Bratislava is the highway network used by source and target traffic moving from eastern outskirts of Bratislava westward and reversely. This causes severe traffic encumbrance in particular on the section before Haven Bridge, on the Haven Bridge itself and on follow-up roads through Petržalka. After the construction of Highway D1 Vienna Road – Haven Bridge through Petržalka and the follow-up section of D2 through Sitina tunnel the attractiveness of this road increased further.

The communication network of Bratislava and the whole Bratislava Region is intensively encumbered, whereby many sections of the basic communication system of Bratislava have already highly exceeded their capacity. One of the negative consequences of this state is a high number of traffic accidents. The newly opened section of Highway D1 (Haven Bridge – Senecká) has the highest accident frequency in the framework of average of the whole of Slovakia.

After putting the planned construction of Highway D4 section into operation the benefits of the assessed activity for the citizens of affected villages will manifest immediately by redistribution and following decrease of traffic intensity on the affected road network, which will occur as a consequence of the beginning of the usage of the new highway section. Through the decrease of traffic encumbrance the quality and comfort of living will increase especially for the citizens living in the vicinity of the roads crossing built-up areas, namely through decrease of noise, vibration and emissions; road safety will increase and accident risk will decrease.

Currently the traffic is secured through a network of local communications. These will be relieved through D4 taking the burden onto itself. One expects therefore the decrease of harmful substances production from automobile traffic mainly on town communications, through which the whole transit currently passes. Through decrease of traffic encumbrance of the affected town and village communications a decrease of noise encumbrance resulting from traffic on these sections shall automatically occur as well. Through presumed decrease of accidents the soil and water contamination risk as a result of eventual accidents shall decrease as well.



## 5. COMPENSATORY MEASURES<sup>9</sup>

### **Targets, target attributes (biotopes and species) and ecological procedures / functions, which need to be compensated (reason why these measures are suitable for negative impacts compensation)**

The overall target of the compensatory measures is the securement of conditions for maintaining the population of three bird species: black kite, white-tailed eagle and black stork in favourable state from the perspective of their protection. The state of the species in respect to protection is deemed to be favourable, when the data about the population dynamics of the species hint at long-term sustainability as a viable element of its biotope, the natural area of the species does not abate and ampleness of biotopes for long-term preservation of its population exists (§ 5 par. 1 of Act Nr. 543/2002).

Decisive for the preservation of bird species population is therefore to maintain, eventually to improve the ecological state of the biotopes, to which the species are bound. The compensatory measures should in this case directly substitute (several times over) the affected nesting and feeding biotopes of smaller bird species to such a degree, that the overall target of a favourable state of the stated objects of protection is maintained. The compensatory measures will directly substitute the taken or through construction and operation of Highway D4 otherwise impacted nesting and feeding biotopes. For the cut-down or otherwise impacted forest areas a new forest shall be planted, for the taken or otherwise impacted grass areas new grass areas with permanent growth shall be planted, for the limitation of water areas usage as a feeding biotope the Biskupice branch shall be revitalised, so that the feeding offer in the other area of the PBA will improve. Their positioning was proposed in localities of minimal anthropogenic activities, which accents their suitability even more.

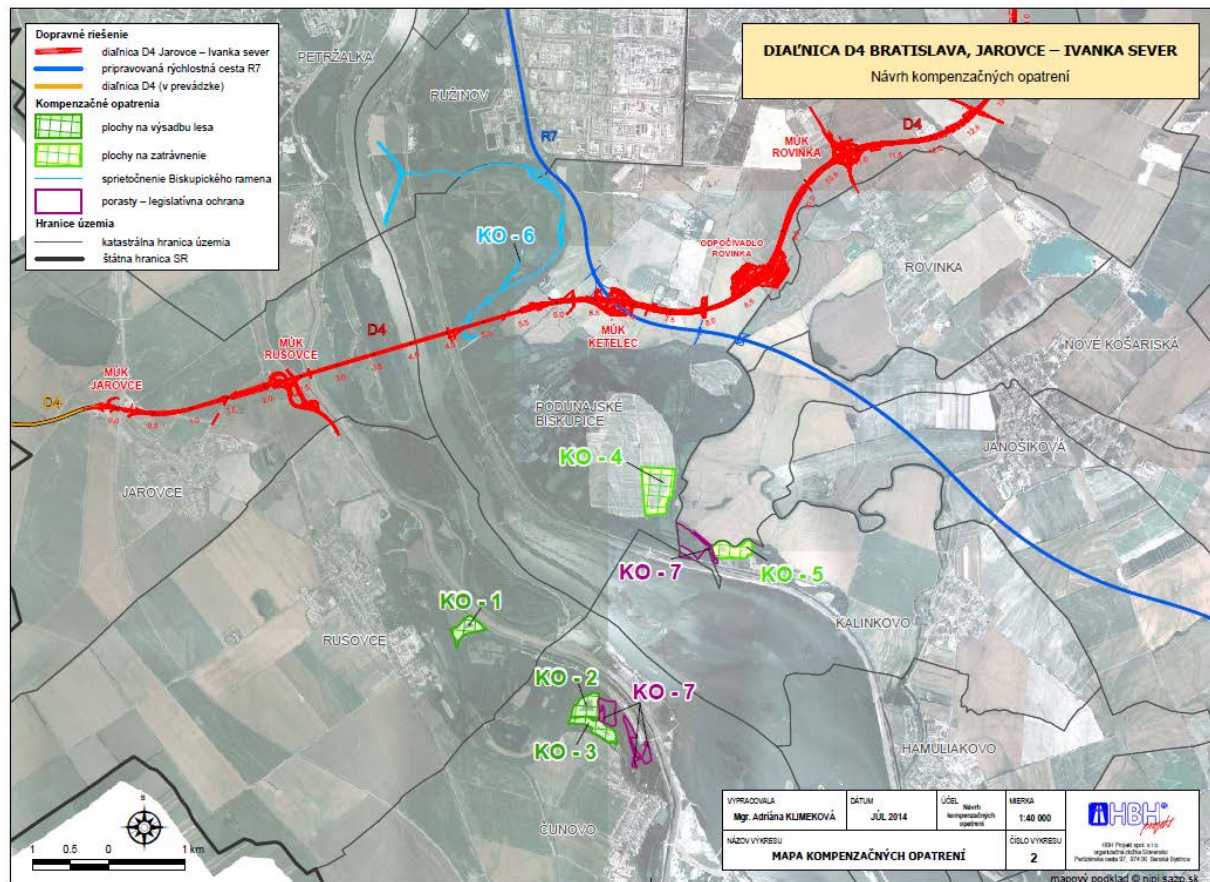
### **Extent of compensatory measures (areas, population amount)**

<i>Measure</i>	<i>Objects in zoning permit documentation Highway D4 Bratislava, Jarovce – Ivanka North</i>
New forest areas: 20 ha	Object 071 Compensatory Measure 1, change of land into forest in land register area Rusovce
	Object 072 Compensatory Measure 2, change of land into forest in land register area Čunovo
	Object 073 Compensatory Measure 3, change of land into forest in land register area Čunovo
New grass areas: 30 ha	Object 074 Compensatory Measure 4, grassing of land in land register Podunajské Biskupice
	Object 075 Compensatory Measure 5, grassing of land in land register Podunajské Biskupice
Revitalisation of Biskupice branch	Objekt 076 Compensatory Measure 6, revitalisation of Biskupice branch
	Object 077 Compensatory Measure 6, bridge on forest road over Biskupice branch
Securement of protection of the existing forest growth: 20 ha	Compensation measure 7, Legislative protection of forest biotopes

<sup>9</sup> Various degree of detail may be required according to whether the notice is being put forward for the sake of information or an evaluation.

A part of the area negatively impacted by the purpose of construction and operation of Highway D4 can be located in the vicinity of the join between city district Jarovce and the south-eastern brink of the industrial area of the company Slovnaft, a.s. In relation to this affected area the compensatory measures are situated into the broader vicinity of the affected area, in order to bring necessary ecological effect without further unwanted impacts and in order for them to be accessible to the specimens as well, whose biotopes they will be destroyed or otherwise impacted. All compensatory measures are proposed in the distance of ca. 5,5 km from the design. The revitalisation of the Biskupice branch is situated northerly from Highway D4, other compensatory measures are in the south to southeast from Highway D4.

### Determination and localisation of the compensatory measures (attach maps)



Map of compensatory measures (HBH Projekt, s. r. o., 2014)

Criteria for the locality selection for compensatory measures:

- accordance with the valid zoning plan of Bratislava,
- accordance with the Regional Territory System of Ecological Stability of Bratislava,
- preference of state-owned land,
- land with the lowest number of owners.

From the viewpoint of the nature protection interest the most important document was the RTSES, which states the selected areas as potential biological centres (substitute for forests liquidated due to construction of Gabčíkovo Waterwork). RTSEC became a part of the zoning plan in this respect. The selected areas follow up to the existing floodplain forest or xerothermic meadows areas and are places used by the criteria species (protection objects of PBA Dunajské luhy) for relaxing and hunting.

**Former state and conditions in the compensated area (existing biotopes and their state, type of soil, existing soil usage etc.)**

Compensatory measure 1 (Object 071)

The area is currently an intensively farmed agricultural area used mainly to grow grain. In its vicinity the remains of floodplain forest (west and south) of various age and species composition, i. e. ecological quality can be found. In the north another intensively agriculturally used area is located; the eastern side is bordered by a cyclist road and a right-sided infiltration canal of the Gabčíkovo Waterwork.

Compensatory measure 2 (Object 072)

The area is currently an intensively farmed agricultural area used mainly to grow grain as the area above. In its vicinity the remains of floodplain forests, mostly older (several tens of years old) can be found on all sides.

Compensatory measure 3 (Object 073)

The area is currently an intensively farmed agricultural area used mainly to grow grain, as are all areas destined for forestation. In its vicinity the remains of floodplain forests, mostly older (several tens of years old) can be found on all sides, to the south the forest is relatively narrow.

Compensatory measure 4 (Object 074)

The area is currently a farmed agricultural area used by turns as grass growth and arable land. In its vicinity (south and east) the remains of floodplain forests, mostly older (several tens of years old) can be found, the remaining part is bordered by agricultural land.

Compensatory measure 5 (Object 075 )

The area is currently a farmed agricultural area used for intensive cultivation of various crops. In its vicinity (west and east) the remains of floodplain forests can be found, which in the east interfere also into the part of the determined area for grassing. In the north it neighbours with agricultural land, in the south mainly with grassland near left-sided infiltration canal of Gabčíkovo Waterwork.

Compensatory measure 6 (Object 076)

The Biskupice branch itself, eventually its remains including proposed revitalisation is located in forest units on the left bank of Danube. The water area itself is used for fishing; the forest growths in the vicinity are mainly subordinated to forestry, to which corresponds their ecological quality. The exception is several preserved sections of bank growth with relatively original species composition and natural evolution.

Small part of the area is composed from grasslands, which are being mowed in the vicinity of artificial dams, elsewhere they are left to natural succession.

The efforts to revitalise the Biskupice branch in the past were either never realised or their effect was minimal and the branch degrades further, because the basic principle of branch system – change, variance, dynamics of the water during the year – does not work.

Compensatory measure 7

All selected forest growths are long-termly used for forestry activities. We accentuate, that these are currently the last remains of the more or less original floodplain growths of high ecological value without significant portion of invasive plant species; one can therefore say, that they are favourable as a biotope.

Two types of forest biotopes can be found here: Ls 1.1 Willow-poplar lowland floodplain forests (forest slice Nr. 470) and Ls 1.2. Oak-elm-ash lowland floodplain forests (forest slices Nr. 6, 467 I.PS, 467 III.PS, 469 and 470A).

**Expected results and explanation how will the proposed measure compensate unfavourable impacts on the locality's integrity and enable the preservation of cohesion of the Natura 2000 framework**

The planting of new forest growth (compensatory measures 1 to 3) creates sufficient prerequisites for the currently fragmented forest area near city district Čunovo to grant suitable conditions for nesting of the white-tailed eagle after the forestation of selected areas and after consolidation of the fragmented areas. The white-tailed eagle never nested in this locality historically, but his nesting place dissolved due to anthropogenic influences, so after the consolidation of this forest growth there is a high probability of his return to the PBA for the purpose of nesting.

The revitalisation of the Biskupice branch (compensatory measure 6) will mitigate the negative impacts of the construction and operation of Highway D4 on biotopes of the black stork in PBA Dunajské luhy by improving and extending the feeding biotopes in the area, what should likewise positively influence its population in the affected part of the PBA.

The creation of grasslands (compensatory measures 4 and 5) will substitute the negative impacts for the black kite by extending the suitable feeding biotopes for this species. This should likewise positively influence the sustaining and expanding of this species' population in the whole PBA.

The purpose of the increase of legislative protection of the existing forest growth (compensatory measure 7) is to fulfil the function of a suitable nesting biotope for all affected species until the newly planted forest areas will be ecologically capable of fulfilling the function of a nesting biotope. It can therefore be said, that the aim of this measure is the preservation of suitable nesting biotopes as much as possible in the affected area.

**Timetable of the compensatory measures' realisation (including long-term realisation) whilst stating when the expected results will be reached**

The timetable of the compensatory measures' realisation should be, pursuant to government's decision Nr. 543/2014, which determined the construction of the Highway D4 section Jarovce – Ivanka North to represent an urgent higher public interest, submitted to the government “before signature of the contract with the contractor for construction of the Highway D4 section Bratislava, Jarovce – Ivanka North”. This task is to be carried out by the minister of transport, construction and regional development in cooperation with the minister of environment, minister of finance and minister of agriculture and rural development.

Because the compensatory measures will be realised by the future concessionaire of the PPP project D4 Jarovce – Rača and R7 Bratislava, Prievoz – Holic as a transfer element, this timetable shall be carried out by the concessionaire himself. Currently the public procurement for the concessionaire is taking place, whereby the technical aspects of the project (including compensatory measures) are negotiated during the competitive dialogue. The final timetable is not known at the moment, whereby it should be included of the bidders' offer, which should be, pursuant to the current timetable of the tender, submitted to the public authority in November 2015. This timetable will subsequently form a part of the material, which will be submitted to the government together with the concession agreement, which must be approved by the government pursuant to § 19 par. 15 of the Act Nr. 523/2004 on public budget regulations (anticipated December 2015).

The compensatory measures' authors expect, that the results of the compensatory measures' realisation will manifest in the case of grass planting and Biskupice branch revitalisation practically within one year. The effect from increasing the protection of selected already existing forest growths will come practically immediately after the realisation of this measure. In the case of newly planted forest growths one can expect the required results (fulfilment of ecological functions) earliest in 40 years after the realisation. A specific timetable is a part of the document as Annex 1: Timetable of the compensatory measures' realisation.

SNPA anticipates, that the revitalised Biskupice branch may fulfil the expected function after ca. two years, grassland after five years and forest after 40 years.

## **Proposed measures and techniques of compensatory measures' realisation, evaluation of their feasibility and possible effectiveness**

Detailed realisation project of the compensatory measures forms a part of the zoning permit documentation Highway D4 Bratislava, Jarovce – Ivanka North, annex M. Compensatory Measures Project.

### Compensatory measure 1 (Object 071)

It will secure the change of the land character on land plot C-KN Nr. 1313/1 in land register area Rusovce, which will be purchased by the National Highway Company, into forest land with subsequent forestation with the aim to create a new forest growth.

It determines the procedure by changing the land to a forest land and a plan of forestation of this land, which is carried out for stationing conditions of the given land.

The project's realisation will secure an expert management in the created forest growth, which will fulfil the aim of the establishment of a sustainable forest growth with required ecological function of a nesting biotope mainly for the white-tailed eagle, which used to nest in this locality in recent past.

### Compensatory measure 2 (Object 072)

It will secure the change of the land character on land plots C-KN Nr. 1446, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464/1, 1464/2, 1464/3, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506 a 1507 in land register area Čunovo, which will be purchased by the National Highway Company, into forest land with subsequent forestation with the aim to create a new forest growth.

The procedure of forestation and the aim is identical with the above stated object.

### Compensatory measure 3 (Object 073)

It will secure the change of the land character on land plots C-KN Nr. 1540 and 1541/1 in land register area Čunovo, which will be purchased by the National Highway Company, into forest land with subsequent forestation with the aim to create a new forest growth.

The procedure of forestation and the aim is identical with the above stated object.

### Compensatory measure 4 (Object 074)

It will secure the grassing of the land on land plot C-KN Nr. 5888 in land register area Podunajské Biskupice, which will be purchased by the National Highway Company, with the aim to create a permanent grass growth, in the second step also the change of the land to permanent grass growth.

Procedure of grassing the land:

1. Preparation of soil before planting (shallow ploughing, sliding and hindering, rolling)
2. Establishment of growth (ploughing, rolling)
3. Tending the growth after planting (mowing of covering crops, growth management in subsequent production cycles via mowing or pasture).

Through the grassing realisation the aim to create permanent grass growth of good quality and required ecological function as a feeding biotope for affected bird species shall be fulfilled.

### Compensatory measure 5 (Object 075 )

It will secure the grassing of land on land plots C-KN Nr. 1099/3, 1099/6, 1099/9 and 1099/10 in land register area Kalinkovo, which will be purchased by the National Highway Company, with the aim to create a permanent grass growth.

The procedure of land grassing and the aim is identical with the above stated object.

### Compensatory measure 6 (Object 076)

The project of the Biskupice branch revitalisation will return in maximal possible way the water regime

and branch-bed into the state before the construction of Gabčíkovo Waterwork, so that water from Danube can be donated to further network of old Danube branches, that ran dry after the construction of Gabčíkovo Waterwork.

Primarily an intake object from Danube's main flow with the capacity  $7 \text{ m}^{3.s^{-1}}$  will be constructed, further the whole bed of Biskupice branch will be revitalised (it will be cleansed from a part of old alluviums), the overall water area shall be increased (also one inner old branch will be connected), all barriers from the flow shall be discharged (old water management objects, bridges), that are currently a migrating hindrance for fishes and other water animals such as the otter. Also a change of an old bridge on the forest path over Biskupice branch will be realised, which serves as a water management object (object 077).

The branch, after revitalisation, will be a fully flowing water course connected to Danube's main flow, in which way their mutual migrating connection will be secured, which will improve also the diversity and multitude of fishes in the Biskupice branch. The branch will therefore be a better feeding biotope for affected bird species compared to the current state.

For the realisation of this compensatory measure the land not owned or managed by Slovak Water Management Agency (the manager of the existing part of Biskupice branch) will have to be settled.

In the scope of this object the revitalisation details are outlined in individual sub-objects:

- Extraction branch
- Extraction object
- Revitalisation of death branches
- Culvert
- Broadening of the narrowed Biskupice branch section
- Connection of the inner branch
- Extraction object for the second phase
- Disposal of the clay transfuser
- Drainage object

#### Compensatory measure 7

Legislative protection of selected forest growths (in Rusovce forest slices Nr. 6, 467 I. PS, 467 III. PS, 469, 470A a 470C) is not elaborated in the zoning permit documentation Highway D4 Bratislava, Jarovce – Ivanka North as a separate object, because it will not be realised on purchased land, but on land primarily in ownership and management of Forests of the Slovak Republic.

The legislative procedure of securing the protection of forest biotopes is in detail and great amount stated in the zoning permit documentation Highway D4 Bratislava, Jarovce – Ivanka North, Annex M. Compensatory Measures Project.

#### **Costs and financing of the proposed compensatory measures**

The estimated financial impact of the compensatory measures project's realisation is estimated to be 9.692.060 EUR and includes the realisation and subsequent management. The management itself of the newly created areas and objects is enumerated to almost 30.000 EUR for the period of 10 years. The stated financial amounts are only informative. The factual financial amount divided into individual years will be enumerated and applied in the conceptual materials to follow.

The compensatory measures project's realisation and subsequent maintenance are included in the costs for the realisation of Highway D4 Bratislava, Jarovce – Ivanka North just like the costs for acquisition of land necessary for the realisation or costs for ownership restriction.

After the building permit is issued, the compensatory measures have to be realised, so that even after the beginning of construction of Highway D4 Bratislava, Jarovce – Ivanka North the protection of the overall cohesion of the European framework of protected areas will be secured.

### **Responsibility for the compensatory measures realisation**

Pursuant to § 28 par. 10 first sentence of the Act Nr. 543/2002 on nature and landscape protection the realisation of compensatory measures is the obligation of the investor (currently the National Highway Company) on his own account, by default before the realisation. In this case one assumes that the National Highway Company will leave the realisation to the future concessionaire. Moreover, should the investor fail to secure the realisation of the compensatory measures, the realisation can be undertaken, pursuant to § 28 par. 10 second sentence of the Act Nr. 543/2002 on nature and landscape protection, by the Ministry of Environment or a nature protection organisation commissioned by the ministry at the expense of the investor.

### **Monitoring of compensatory measures, if foreseen (e. g. if the effectiveness of the measures is not certain), assessment of the results and subsequent control**

The monitoring of successfulness (functionality) of the compensatory measures shall be secured by the National Highway Company.

The documentation Highway D4 Bratislava, Jarovce – Ivanka North, Compensation Measures Proposal furthermore states:

The State Nature Protection Agency as a state institution responsible for nature protection shall, if needed, decide on corrective measures (their content and scope as well as whether they will be needed cannot be specified at the moment). The responsibility for the eventual corrective measures realisation will lie with the investor of the construction of Highway D4 Jarovce – Ivanka North, namely (*currently*) the NHC. The scope of actual monitoring of the compensatory measures successfulness can be summed up into the following points:

- The monitoring of the impact of the design during operation of the highway on the population of birds, that are the objects of protection in PBA Dunajské luhy (monitoring of the density of the occurrence of individual bird species up to distance of min. 500 m on both sides of the highway). The monitoring should start one year before construction and continue yearly at least up until the 5<sup>th</sup> year of operation.
- Monitoring of the compensation measures' state and evolvement in time should capture the evolvement of biotopes and their gradual taking over of the functions, for which they were realised. The monitoring has to be realised alongside the compensatory measures realisation. Presumed duration of the monitoring is 3 years for grassland, 5 years for Biskupice branch revitalisation, 10 years for newly planted forest areas and 20 years for existing forest growths.

The monitoring of compensatory measures usage by individual bird species (observance of their occurrence, population density, purpose of usage) is to be exercised yearly during 5 years after their realisation and subsequently every 5 years for the next 20 years.

The stated documentation does not concern itself with the evaluation of results and control.