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NON-TECHNICAL SUMMARY OF THE REPORT ON THE STRATEGIC DOCUMENT ASSESSMENT

"STRATEGIC DEVELOPMENT PLAN FOR TRANSPORT IN THE SLOVAK REPUBLIC UNTIL 2030"

INTRODUCTION

The report on the strategic document assessment has been drafted in accordance with Act no. 24/2006 Coll. on environmental impact assessment and on amendments and supplements to certain acts, as amended. The report presents the findings of the environmental and human-health impact assessment of the proposed strategic document entitled "Strategic Development Plan for Transport in the Slovak Republic until 2030" (hereinafter also abbreviated as "SDPT SR 2030").

This non-technical summary has been prepared for the needs of transboundary assessment of the Strategic Plan. It contains basic information on the Strategic Plan, the major impacts and risks identified, and the anticipated transboundary impacts.

1. *CONTENTS OF THE STRATEGIC DEVELOPMENT PLAN FOR TRANSPORT IN THE SR UNTIL 2030*

"Strategic Development Plan for Transport in the Slovak Republic until 2030" is a strategic document of a long-term nature that aims to set up an effective direction of the transport sector development, and determines the way of implementing its development vision. It is the output from Stage 2 of the preparation of a transport development strategy of Slovakia until 2030, and it constitutes the factual implementation of the specified ex ante conditionalities. Therefore, financing of the development activities from the EU funds in 2016–2020 directly depends on this document, respectively on its approval by the EC.

Key problems of the transport sector were identified after conducting extensive analytical activities. The analytical part focused on both the individual transport modes (divided into road, rail, public passenger, and water transport, and civil aviation), and the problems extending across transport modes, limiting the functioning of multimodality in passenger and freight transport.

The vision of the transport sector development until 2030 is a "sustainable integrated multimodal transport system that meets the economic, social and environmental needs of society, and contributes to the full integration of the Slovak Republic into the European Economic Area".

Global strategic objectives have been set in analogy to the above vision of the transport sector of the Slovak Republic. These objectives reflect the trends and needs that are anchored in European and national strategic and/or analytical documents.

- Global strategic objective 1 (GSO 1): Ensure equivalent accessibility of settlements and industrial zones supporting economic growth and social inclusion in all regions of the Slovak Republic (at both the national and European scale) through non-discriminatory access to transport infrastructure and services.
- Global strategic objective 2 (GSO 2): Sustainable development of the transport system of the Slovak Republic with an emphasis on the generation and efficient use of financial resources in connection with the real needs of users.

- Global strategic objective 3 (GSO 3): Improve the competitiveness of both passenger and freight transport (counterparts to road transport) by adjusting the corresponding operational, organisational and infrastructural parameters leading to an efficient integrated multimodal transport system to encourage the economic and social needs of the Slovak Republic.
- Global strategic objective 4 (GSO 4): Improve the safety and security of transport leading to sustainable and permanent ensuring of safe mobility through safe and secure infrastructure, implementation of new technologies/procedures, while utilising preventive and control mechanisms.
- Global strategic objective 5 (GSO 5): Reduce the environmental and socioeconomic impacts of transport (including climate change) as a result of environmental monitoring, effective planning/implementation of infrastructure, and reduction of the number of conventionally-fuelled transportation means, or through the use of alternative fuels.

Sector strategy implementation measures

The strategy implementation measures have been defined based on global trends, international agreements and commitments of the Slovak Republic, and based on the problems identified in the analytical part of the strategy preparation. Each measure constitutes a set of activities, initiatives, or even projects integrated based on the substance of the objective or problem that the measure is to address. In consistency with other parts of this strategic document, even the measures are divided in terms of infrastructure, organisation and operation, as well as according to individual transport modes.

The set of measures as a whole constitutes a tool to attain the global strategic objectives, specific objectives and the very vision of the transport sector development until 2030.

SDPT SR 2030 proposes the following set of measures:

Systemic measures (SYM)

- SYM 1 – Adjusting the principles of sustainable financing of the transport sector
- SYM 2 – Periodic preparation and implementation of maintenance plans of transport infrastructure
- SYM 3 – Process of preparation and implementation of development projects, including related activities
- SYM 4 – Updating and continuous maintaining of databases of the individual sub-sectors
- SYM 5 – Enhancements to the functionalities and management of the multimodal transport model of the Slovak Republic
- SYM 6 – Regular updates of strategic and development documents
- SYM 7 – Regular monitoring of noise and air quality, and the implementation of measures reducing the negative environmental impact of transport
- SYM 8 – Regular performance of safety and security audits, and the implementation of measures increasing transport safety

Measures in road transport (MRT)

- MRT 1 – Implementation of the new concept of road network
- MRT 2 – Change in principles, and provision of management and maintenance of road infrastructure
- MRT 3 – Modernisation of rest areas on the motorway (D) and express way (RC) network
- MRT 4 – Conceptually implemented development of road network infrastructure
- MRT 5 – Completion of the east–west priority axis (Corridor Rhine – Danube, Czechoslovak branch)
- MRT 6 – Completion of the north-south connection to Poland and the Czech Republic
- MRT 7 – Completion of the north-south connection in eastern Slovakia
- MRT 8 – Completion of the central-Slovakian west-east road axis
- MRT 9 – Completion of the central-Slovakian north-south road axis
- MRT 12 – Modernisation and development of other motorway (D) and express way (RC) networks, if justified

Measures in air transport (MAT)

- MAT 1 – Optimisation of the system of airports operated by airport companies in order to ensure functional and effective planning of the air transport sector development
- MAT 2 – Modernisation and construction of civil aviation infrastructure for purposes of economic development of the country and its regions, and improving the quality of services provided within the natural and purpose-based mobility

Measures in water transport (MWT)

- MWT 1 – Implement technical measures to improve the navigability of the fairway of the Danube waterway
- MWT 2 – Implement enhanced River Information Services
- MWT 3 – Modernise the public ports in Slovakia and ensure their subsequent periodic maintenance
- MWT 4 – Settle the proprietary and administrative relations in public ports
- MWT 5 – Cooperate with the watercourse administrator in ensuring maintenance of waterways and navigation objects on the monitored waterways in the Slovak Republic at year-round navigability level

Measures in public passenger transport (MPPT)

- MPPT 1 – Preference of public passenger transport in urbanised areas
- MPPT 2 – Establishment of a national transport authority, and public transport integration
- MPPT 3 – Ensuring the opportunity for vehicle park renewal in corresponding quality
- MPPT 4 – Modifications of urban public spaces and construction of new infrastructure for pedestrians and cyclists
- MPPT 5 – Construction of park-and-ride parking lots in vicinity of railway stations and terminals
- MPPT 6 – Revitalisation of railway stations and stops in order to improve the culture and quality of travelling
- MPPT 7 – Achieving high quality terminals, mode-changing nodes and integrated stops, with minimum barriers and maximum compactness and practicality
- MPPT 8 – Modernisation and construction of tram and trolleybus lines and the associated maintenance base and infrastructure for low-emission buses and electric buses

Measures in rail transport (MRaT)

- MRaT 1 – Completion of modernisation of the TEN-T main lines that are in a high degree of preparation: Púchov – Žilina, Žilina – Čadca – state border, Devínska N. Ves – Marchegg
- MRaT 2 – Definition of an operational concept of passenger rail transport (as part of the nationwide operational concept of public mass transport) and its implementation plan by 2030, with prospects to 2050
- MRaT 3 – Completion of the implementation of the Destination Timetable 2020
- MRaT 4 – Modernisation of the backbone line Žilina – Košice – Čierna nad Tisou
- MRaT 5 – Modernisation of the corridor Kúty state border – Bratislava – Štúrovo/Komárno state border
- MRaT 6 – Definition and implementation of the Destination Timetable 2030 – adjustment of the frequency and number of trains on connecting lines to the corridors Žilina – Košice and Kúty state border – Štúrovo/Komárno state border, associated with infrastructural changes on these railway lines
- MRaT 7 – Modernisation and improvement of the wider Bratislava junction, including the relevant affected railway lines, according to the needs arising from the Bratislava Railway Junction Feasibility Study
- MRaT 8 – Modernisation of the TEN-T line: Púchov – Horní Lideč
- MRaT 9 – Improving the conditions for combined transport and operation of uniform train sets in freight transport, and supporting interoperability of freight transport vehicles (organisational, infrastructural, and vehicles)
- MRaT 10 – Centralised operation control (traffic management)
- MRaT 11 – Streamlined operation (traffic) on other lines with respect to the operational concept of passenger transport

Draft SDPT SR 2030 includes, in addition to purely conceptual and systemic measures and strategic principles for the management of the transport system development in Slovakia, also a series of generally formulated measures that, however, presuppose the construction of transport corridors with potentially significant environmental impacts. These measures are briefly presented in the table below and in the following figure. **However, the strategy does not contain geographical projection of the measures, and is independent of their territorial routing and technical solutions. The strategy envisages the choice of routes and solutions in successive steps.**

Tab. 0-1 Identified infrastructural measures with potentially significant environmental impacts

Infrastructural measures with potentially significant environmental impacts	Considered corridors analysed in this SEA – markings on the map
MRT 5 – Completion of the east–west priority axis (Corridor Rhine – Danube, Czechoslovak branch)	D1a, D1b, D1c,R6
MRT 6 – Completion of the north-south connection to Poland and the Czech Republic	D3a, D3b, R5
MRT 7 – Completion of the north-south connection in eastern Slovakia	R2a, R4
MRT 8 – Completion of the central-Slovakian west-east road axis	R2b, R2c, R2d, R2e, R2f, R2g
MRT 9 – Completion of the central-Slovakian north-south road axis	R3a, R3b, R3c, R3d, R1a
MRT 10 – Development of the road network in the Bratislava agglomeration	D1d, D4, I/65

MRT 12 – Modernisation and development of other motorway (D) and express way (RC) networks, if justified	D2, R1b, R7a, R7b, R7c, R7d,R8
MRaT 1 – Completion of modernisation of the TEN-T main lines that are in a high degree of preparation: Púchov – Žilina, Žilina – Čadca – state border, Devínska N. Ves – Marchegg	1, 2, 3
MRaT 4 – Modernisation of the backbone line Žilina – Košice – Čierna nad Tisou	4, 6
MRaT 5 – Modernisation of the corridor Kúty state border – Bratislava – Štúrovo/Komárno state border	7, 8, 9
MRaT 8 – Modernisation of the TEN-T line: Púchov – Horní Lideč	10

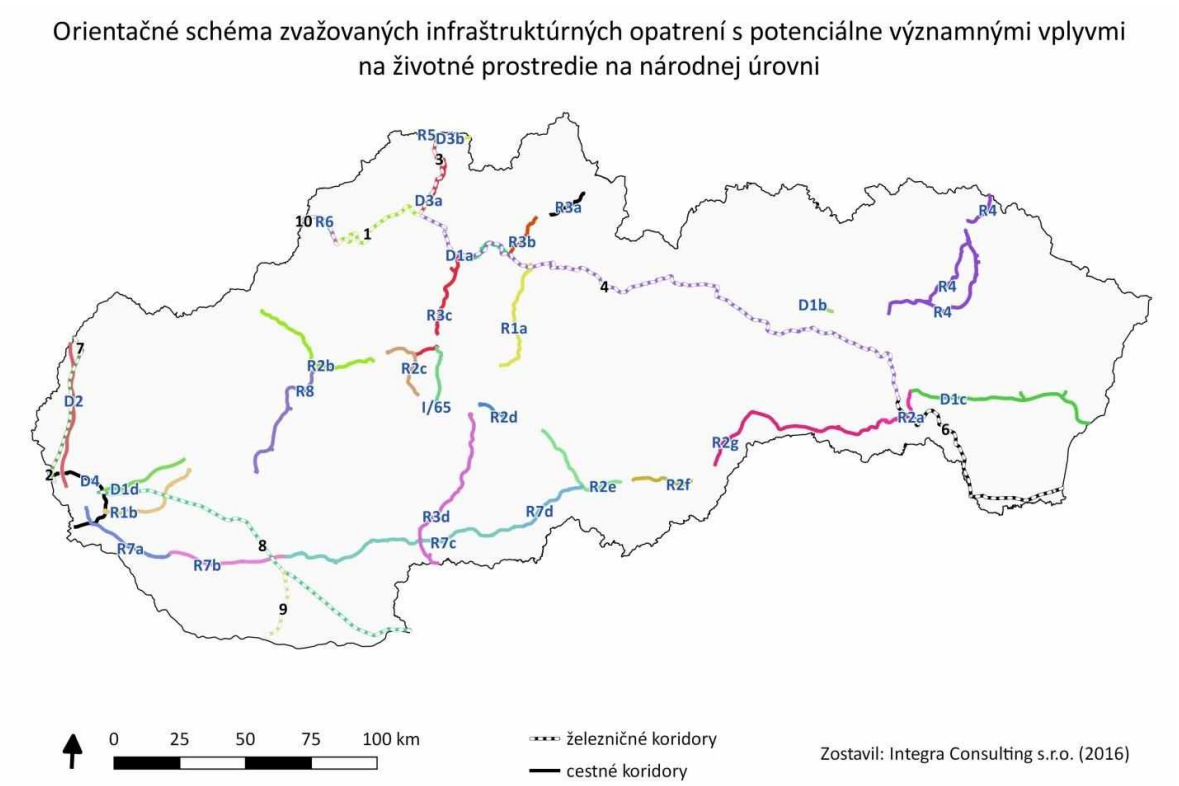


Figure: Indicative scheme of considered infrastructural measures with potentially significant environmental impacts at national level. - - - railway corridors, ---- road corridors

Fig. 0-1 Considered infrastructural measures with potentially significant environmental impacts

2. SUMMARY OF THE ENVIRONMENTAL AND HEALTH IMPACT ASSESSMENT PROCESS OF THE STRATEGIC PLAN

The SEA process began with the publication of Communication on Strategic Document in March 2016. Communication was published on 3 March 2016 on the website of the Ministry of Environment of the SR (MŽP SR) www.enviroportal.sk, on the website of the Ministry of Transport, Construction and Regional Development of the SR (MDVRR SR) www.mindop.sk, and MDVRR SR disclosed information on issuing Communication also through a mass information means, i.e. in the Pravda daily newspaper on 4 March 2016. Following the publication of Communication, the public and relevant authorities could comment on Communication until 19 March 2016. A total of 19 opinions regarding Communication were received from relevant authorities and the public. Slatinka Association expressed their opinion on behalf of non-governmental and non-profit civic

organisations. Subsequently, MDVRR SR together with MŽP SR prepared draft Scope of Assessment that was discussed with relevant authorities and the public at a working meeting held on 5 April 2016. The Scope of Assessment was issued by MDVRR SR in cooperation with MŽP SR on 12 April 2016. According to the law, a 10-day period was granted to comment on the published Scope of Assessment.

The SEA processors maintained regular communication with MDVRR SR and with the SDPT SR 2030 processors, particularly with regard to the available documents and input information necessary for the SEA. On 18 July 2016, a working meeting was held at MDVRR SR where the proposed SEA methodology was discussed with representatives of JASPERS and relevant authorities. In cooperation with MDVRR SR, available documents were collected for the assessment of impacts on the environmental subtopics. Then, two consultations were held on the strategic document – on 18 March 2016, requested by Mr. Bc. Anton Andel on behalf of the Trade Union Association of Railwaymen in the SR, and on 26 April 2016, requested by Mrs. MP RNDr. Anna Zemanová.

The results of the analytical part of SDPT SR 2030 and a proposal of a vision, objectives and measures were given to the SEA processors in June 2016, and the final draft strategy for assessment was handed over on 5 August 2016. The SEA processors also obtained the transport model outputs for the current state (Base 2014), variant of development without the strategy implementation (BAU 2030), proposal variant of SDPT SR 2030, and variant for completed transport network IDEAL 2130. These data were used mainly for calculations of emissions of pollutants, greenhouse gases and noise.

Tab. 0-2 Schedule of the strategic plan assessment (SEA process)

Activity	Deadline
Activities implemented	
Publication of Communication on Strategic Document	3 March 2016
Comments and opinions on Communication by the public and relevant authorities	19 March 2016
Public hearing on the draft Scope of Assessment	5 April 2016
Publication of the Scope of Assessment	12 April 2016
Consultations on the strategic document	18 March 2016, 26 April 2016
Draft strategic document	5 August 2016
Publication of the strategic document and assessment report	19 September 2016
Public hearing on the assessment report and draft strategic document	29 September 2016
Activities planned	Expected date
Transboundary assessment	
Beginning of the transboundary assessment process	15 October 2016
Completion of the transboundary assessment process	14 November 2016
Expert opinion, position	
Determination of the expert opinion processor	15 October 2016
Elaboration of the expert opinion	25 November 2016
Issue of the opinion/position	1 December 2016
Other activities	
Discussed and approved by the Government of the SR	21 December 2016
Submitted to the European Commission	31 December 2016

3. *MAIN FINDINGS*

Impacts on air

The strategy's primary impact on air will be caused by changed emissions of pollutants from transport vehicles. With respect to the totally dominant emission and immission share of automobile transport in the transport emissions, the impact will be determined by changes in the automobile transport sector. Other modes of transport will be insignificant in this respect.

Air quality may be potentially affected primarily by several pollutants that are typically present in automobile transport emissions. These pollutants are, in particular, NO_X, suspended particles (particulate matter) PM_{10} and $PM_{2.5}$ (exhaust emissions, abrasions of brake lining, road surface and tires, resuspension from road surface), and polycyclic aromatic hydrocarbons (e.g. benzo(a)pyrene). The spectrum of emitted substances is wider, but the above list represents the pollutants that are emitted by transport in significant amounts, and/or their atmospheric concentrations currently exceed or approach the immission limits.

Primary potential effects of the strategy can be seen in the change of immission concentrations along transport routes in response to a change in traffic intensity. This change will be significantly heterogeneous within the Slovak Republic, i.e. it is possible to identify areas where we can expect an increase, and, *vice versa*, areas with reduced ambient concentrations. Potential changes due to the strategy will occur along the road sections that are not only subject to the proposed measures. A change in one part of the road network often induces a change in traffic intensity and thereto associated impacts on air in other areas that are not subject to the proposed measures.

Secondary effects of the strategy can be seen in the potential regional impact of cumulative action of the proposed measures on the share of secondary aerosol in the overall ambient concentrations. Automobile transport is a significant, and in the nationwide terms probably the most significant, source of precursors of secondary particles. The overall change in traffic intensity within larger territorial units therefore affects the overall "background" concentrations of suspended particles (particulate matter) $PM_{2.5}$ in the area.

Cumulative impacts of the strategy will consist of simultaneous action of individual conceptual measures. These impacts may be particularly significant when it comes to new infrastructural measures in frequented valley transport corridors with deteriorated dispersion conditions. In such cases, although it is possible to expect traffic relief on the existing routes partially passing through built-up municipality areas, yet a new source of pollution will be created, from a new road situated relatively close to the existing route as a result of space restrictions given by the topography (terrain relief). In most cases, these infrastructural measures are induced by requirements of a higher capacity of the respective transport corridor, so all in all, an increase may occur in the amount of transport emissions in these corridors relatively close to residential buildings.

Following the time horizon covered by the strategy under assessment, potential effects on air will be mid-term to long-term.

Generally, the proposed strategy will have a negative impact of little significance in terms of effects on the atmosphere compared to the zero variant. The almost insignificant impact will be primarily caused by a slight increase in the road freight transport volume. In terms of the entire Slovak Republic, this negative impact will be partially offset by a reduction in passenger individual automobile transport. The change in emission production in the proposed variant will be 2-9 % compared to the BAU 2030 scenario, depending on the particular substance assessed.

Impact of the strategy on air quality will be strongly heterogeneous. Possible deterioration of immission situation due to the strategy implementation can be expected in the Bratislava and Žilina Regions. The following figure shows a clear summary map, combining risk areas of all four assessed pollutants (PM_{10}, $PM_{2,5}$, B(a)P, and NO_x).

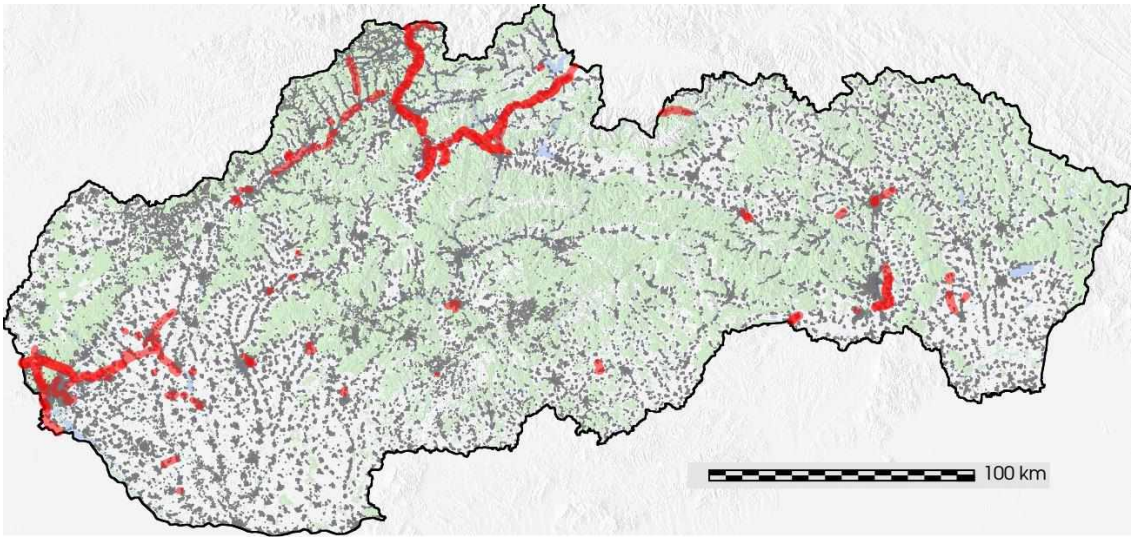


Fig. 0-2 Summary map of potentially risk sites in terms of the strategy implementation

Following the infrastructural measures under preparation, and according to the transport model, there will be an increase in the automobile traffic intensity, and the associated potential negative impacts on the following transport arteries:

- Bratislava – Trnava – Leopoldov, or Bratislava – Trnava – Sládkovičovo
- Žilina – Čadca – state border with the Czech Republic
- Žilina – Martin – Ružomberok
- Dolný Kubín – state border with Poland
- eastern motorway bypass of Košice

Other focal points of potentially most significant negative impacts of the strategy will be of local nature, or will be offset by reduced negative immission impact of traffic along other roads.

Increase in emissions due to the increasing traffic volumes will likely be offset by supporting transport means (vehicles) using alternative fuels, which is the subject matter of the SYM 7 measure, and by technological progress. **Gradual modernisation of vehicle fleet will cause, by 2030, a probably larger relative reduction of emissions than the above-mentioned maximum of 9% increase in national emissions due to the strategy. In absolute terms, therefore, transport emissions in the proposed horizon of the strategy will actually rather decrease, or stagnate in the**

worst case scenario. Therefore, the identified potential negative impacts will, in fact, probably not occur. The potential negative impacts assessed in the submitted documentation can be stated only in relation to the zero variant of the strategy (the BAU 2030 scenario).

Impacts on greenhouse gas emissions

Emission analysis of greenhouse gases (GHG) in the transport network of the Slovak Republic was elaborated based on the transport model for the proposal part of SDPT SR 2030. Emissions were calculated for the model scenarios BASE 2014, BAU 2030 and proposal variant 2030.

Transport measures in draft SDPT SR 2030 in the road and railway networks will bring reduction of 220.13 Gg CO_2 in 2030 compared to the scenario without the measures implemented. This constitutes a rather significant 2.2% reduction in total emissions of greenhouse gases from road and rail transport in Slovakia. When comparing the emission production in the proposal scenario with emission values in individual reference years, which are used in the context of relevant EU targets for reducing greenhouse gas emissions from transport, it is, however, possible to notice a significant increase in greenhouse gases production. This results from the overall increase in traffic intensity, which is expected without the strategy implementation (BAU 2030 scenario), as well as with the strategy implementation (SDPT SR 2030 proposal scenario).

Draft SDPT SR 2030 is a positive contribution to achieving the target "Reduce total GHG emissions by 2020 by 13 % compared to 2005", defined at EU level in the 2020 Climate & Energy Package", and the target "Reduce total GHG emissions by 2050 by 80-95 %", defined in the Roadmap for moving to a competitive low carbon economy in 2050. These targets relate to the overall greenhouse gas emission production of all sectors of the national economy. Implementation of the SDPT SR 2030 proposed measures will slightly limit the expected increase in greenhouse gas emissions from the transport sector that has a negative effect on the overall effort to reduce greenhouse gas emissions in Slovakia.

The greatest effect on reducing the GHG production will be caused by vehicle fleet renewal and increased share of electric and hybrid vehicles. However, the size of the increased share of these vehicles depends on the intensity of support for their use. Increasing the share of CNG-fuelled vehicles could bring about further reduction in the GHG production. However, these factors are difficult to estimate based on draft SDPT SR 2030.

Impacts on the noise situation

Impact on the noise situation is caused by the operation of vehicles along the assessed roads. A dominant influence is expected from the operation of automobile and rail transport. Waterway transport, bicycles, etc. will have a minor impact on the noise situation. The impact is evaluated through the noise emissions in the vicinity of transport routes, or through assessment of the changes that will occur in noise emissions due to the proposed measures implementation (compared to the BAU 2030 scenario), i.e. the measures that will cause changes in traffic intensity in the transport network. The changes under evaluation can be characterised within the Slovak Republic as

significantly heterogeneous, i.e. it is possible to identify areas where we expect increase in noise load, and, conversely, areas where we expect reduction in noise exposure in the vicinity of the roads.

Tab. 0-3 Identified new risk sites (i.e. the sites where the situation may deteriorate, compared to the BAU 2030 scenario)

Corridor	Sites at risk
D1a	around Šútovo, Hubová – Švošov
D4	around Devínska Nová Ves, Záhorská Bystrica, Marianka, Rača, Vajnory
D1c	around Košický Klečenov
R5/D3a	around Čadca – Podzávoz, Svrčinovec
D2	around Dúbravka
R3a	around Dlhá nad Oravou, Krivá, Podbiel
R3b	around Dolný Kubín
R3c	around Turčianske Teplice
Vicinity of the existing roads (changes induced by redistribution of traffic)	D1 Bratislava, around Trnávka
	D2 around Dúbravka
	II/507 around Pruské (near Ilava)
	I/18 around Žilina – Mojšova Lúčka, Strečno

Implementation of the proposed measures in the sections specified in the above paragraphs may lead to the most significant increase in noise emissions. Assessment of a detailed extent of threats requires assessing the particular technical proposal of solving the respective road section, and at the same time designing a specific way of efficient noise-protection treatment for the given solution.

Noise emissions are always tied to the place of origin, or to a relatively (up to hundreds of meters) close vicinity to the source. The framework objective of the proposed measures is to enhance the throughput of the Slovak Republic, increase the capacity of transport routes, modal shift from individual to mass transport, measures to ensure better traffic flow, etc. Depending on the particular technical solution it can be understood, whether the proposed measures implementation, in an overall impact on the situation in the addressed territorial context, will result in eventual negative accumulation of impacts on the noise situation. Once the measures are fully completed, their aim is to reduce the noise endangerment, which concerns both the direct as well as the cumulative effects on the noise situation. Accumulation of noise can also be considered as decrease/increase in noise levels arising from the operation of one source against the other (e.g. transition of the means and route of transport from the current local road to a newly-built bypass). In the overall context, and upon completion of the proposed measures, including anti-noise measures, we expect improved transport as well as noise situation in the vicinity of transport arteries.

Impacts on population and health

Draft SDPT SR 2030 deals with the impact of transport on health mainly in the domains of safety, air and noise, and it deals less with other components of the environment and health protection.

With regard to the impacts on air and the health of residents we have to conclude that even if air quality was given a considerable margin in draft SDPT SR 2030, residents' exposure to pollutants from transport is one of the worst issues to be addressed in the development of transport. The strategy under assessment suggests, in many instances, proposals to construct or complete the construction,

or reconstruct the road network, which shows in the model an increased health risk for the residents living near the linear source. Although the very percentage increase in concentrations is not always high, this impact cannot be downplayed, and it is necessary to preventively adjust the vehicle transit so that there would be no increase in pollutant concentration, in particular $PM_{2.5}$ and N_2O. Another measure (in some territorially conflicting sites, e.g. narrow valleys) requires to locate bypasses far enough from human settlements, and utilise an environmentally more friendly means of transport in the vicinity of settlements.

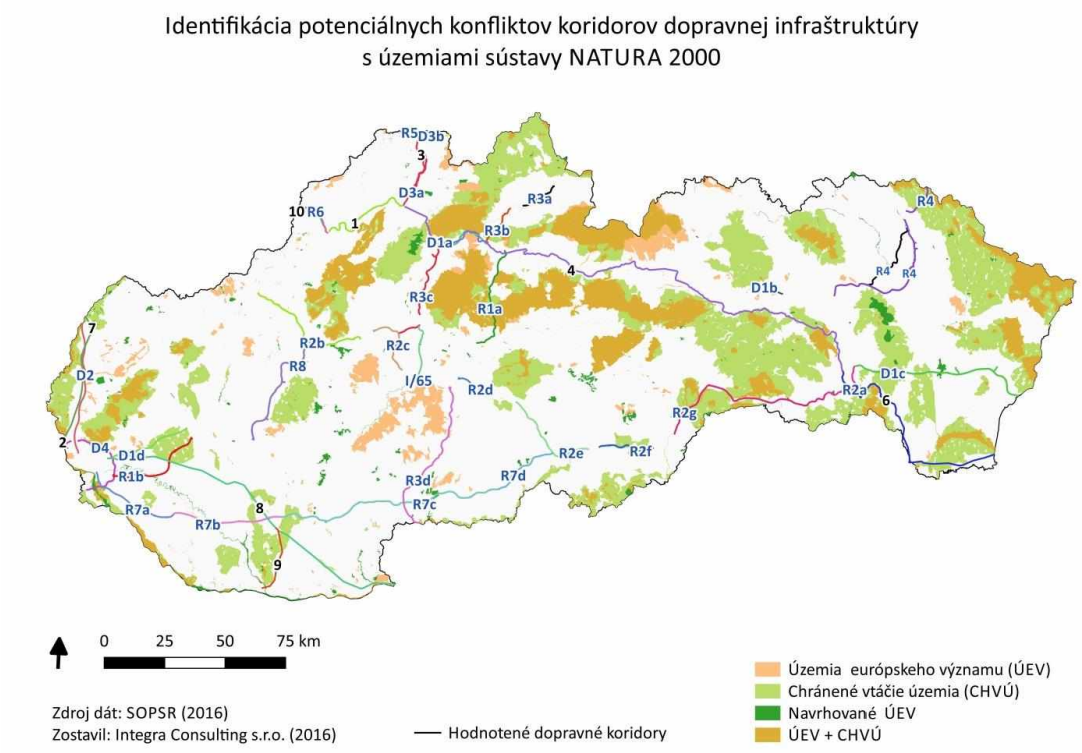
With regard to the effects of noise on human health, it is necessary to highlight the so-far unsatisfactory state of noise exposure in Slovakia, especially in some agglomerations and larger settlements where noise is the dominant pollutant for the health and well-being of the population. The Slovak Government Regulation no. 549/2007 Coll. defines the reference period for which permissible values of noise are determined, and specifies the categories of areas where these limit values apply. Application of the above Regulation will allow, during the SDPT SR 2030 implementation, to improve health protection by reducing transport noise exposure. Population noise exposure reduction is technically feasible, and health risks can thus be reduced in the domains of cardiovascular diseases, as well as neurotic disorders and learning disabilities, or even harassing leading to deteriorated quality of life.

Regarding the socio-economic impacts of draft SDPT SR 2030 on human health, the strategy has a potential to increase the number of jobs, which can partially eliminate the negative impacts of perceiving the health risks associated with new pollution or noise sources. Transport serviceability creates job opportunities. When implementing SDPT SR 2030, it is necessary to take into account the social context of building a structure or implementing long-term measures, as well as their impact on society – on human health, and enhance inter-ministerial cooperation with the labour and health ministries.

Impacts on nature and landscapes

Development of transport has inevitable impacts on nature and landscapes. For some infrastructural measures we have identified potentially significant risks or impacts on nature protection interests, especially on Natura 2000 sites and the national system of protected areas, on the wetland sites protected under the Ramsar Convention, territorial system of ecological stability, migration patency, fragmentation of the landscape, valuable landscape elements, protected species, and biodiversity. Since the strategy's subject matter is neither territorial routing of corridors nor the exact routes of infrastructure and technical implementation, and there will be changes to numerous routes, the resulting impacts of implementing these measures may differ from how they were identified in the SEA. Moreover, not all the corridors under assessment will be (at least by 2030) implemented in their entirety. It is therefore necessary to understand the impacts identified in the assessment as risks that must be eliminated in planning the routes and technical solutions. In numerous cases it might not be possible to avoid significant impacts. However, this can only be evaluated based on the determination and detailed evaluation of individual projects and their eventual variants.

The following map shows areas of potential conflicts of the planned transport infrastructure with Natura 2000 sites.



---- Assessed transport corridors, *ÚEV* = SCI = Sites of Community Importance, *CHVÚ* = SPA = Special Protection Areas, *Navrhované ÚEV* = Proposed SCI, *ÚEV + CHVÚ* = SCI + SPA

Fig. 0-3 Summary map of potential conflicts with Natura 2000 sites

For the following measures, with regard to their possible routes, there is a risk of significant negative impacts on the Natura 2000 system sites and the national system of protected areas:

Tab. 0-4 Measures with possible negative impact on protected areas

Measure	Corridor
MRT 5	D1a D1 – Turany – Hubová (D1a)
	D1 – Bidovce – state border SR/UR (D1c)
MRT 7	R2 – Šaca – Košické Oľšany (R2a)
	R4 – state border PR/SR – Prešov northern bypass (R4)
MRT 8	R2 – Kriváň – Ožďany (R2e)
	R2 – Ožďany – Figa (R2f)
	R2 – Tornaľa – Šaca (R2g)
MRT 9	R3 – Tvrdošín – Sedliacka Dubová (R3a)
	R3 – Oravský Podzámok – D1 Motorway interchange (R3b)
	R3 – Martin – Šahy (R3c)
	R3 – Šahy – Zvolen (R3d)
	R1 – Banská Bystrica – D1 (R1a)
MRT 10	**D4 (Jarovce) Ivanka – st. border SR/AT.**
MRT 12	D2 – Bratislava Lamač – st. border SR/CZ (D2)
	R1 – Most pri Bratislave – Vlčkovce (R1b)
	R7 – Dunajská Streda – Nové Zámky (R7b)

	R7 – Nové Zámky – Veľký Krtíš (R7c)
	R7 – Veľký Krtíš – Lučenec (R7d)
MAT 2	Measures at Bratislava Airport (M. R. Štefánika)
MRaT 1	Railway line st. border CZ/SR – Čadca – Krásno nad Kysucou
MRaT 4	Railway line Žilina – Košice
	Railway line Košice – Čierna nad Tisou
MRaT 5	Railway line st. border CZ/SR – Kúty – Devínska Nová Ves
	Railway line Bratislava – Štúrovo/Komárno st. border SR/HU
MWT 1	Ensuring navigability of the Danube along its entire length
MWT 5	Entire measure

Based on the available information, the risk of significant negative impacts is high on currently envisaged routes in the case of **highlighted** corridors. However, this risk must be further reviewed in detail. It is necessary to definitively assess the risk based on precisely defined routes and technical solutions of structures. Eventually, it is necessary to seek other variants of transport connection, or proceed pursuant to Article 6.4 of the Habitats Directive in the case of impacts on Natura 2000 sites, or in accordance with Act no. 543/2002 Coll. on nature and landscape protection (permission for activities in the first to fifth degree of protection, or exception from the conditions of protection) in the case of the national system of protected areas.

Impacts on surface water and groundwater

The most significant impacts on surface water can be expected in waterway transport. We can envisage negative impacts on hydro-morphological changes to water bodies, for example as a result of increasing the riverbed throughput by digging. Increase in vessel traffic is associated with the risk of direct contamination of surface water from fluid leaks and wastewater production. The waterway transport sector is perceived as the largest source of potentially negative impact on water management. Negative impacts with lower levels of significance (little significance) were identified especially in the road transport sector.

Risks to water quality in the implementation of the measures are mainly associated with new construction of structures and expansion of road construction. Construction and operation of linear constructions (roads, railways) may adversely affect the drainage conditions in the landscape, or even the groundwater quality and flow, especially when the structures (constructions) are designed to be situated in a notch, embankment or tunnel. Moreover, surface water in the vicinity of construction sites can be affected by soil flush at the time of actual construction. At construction time, the most significant risk is pollution by PAH (polycyclic aromatic hydrocarbons), or POP, VOC (volatile organic compounds), and also excessive penetration of chlorides into water from winter road maintenance by salt sprinkling. The risk of deteriorating water quality during the operation is thus associated mainly with rainwater drainage, less so with air pollution (through the so-called atmospheric deposition). Less frequent but more serious impacts on water quality can those of accidental oil spill (in the case of accidents in transporting chemicals, leakage when handling fuels, etc.).

Linkage to the Water Framework Directive

In relation to the Water Framework Directive (WFD), waterway transport projects are generally in a controversial position. On one hand, waterborne transport is considered the "most environmentally friendly" means of transport; on the other hand it was, together with water projects and waterworks construction on rivers, and flood control measures, one of the main driving forces underlying the anthropogenic interventions in the river system, primarily the hydro-morphological changes. From this perspective, we assess as conflicting the linkage of the SDPT SR 2030 objectives and environmental targets for water protection set out in the Water Management Plan of the Slovak Republic in accordance with the Water Framework Directive.

Impacts on the future risks associated with climate change

Regarding the climatic conditions we do not envisage any significant changes in average global radiation, wind speed and direction. With respect to strengthened storms in the warm part of year we expect more frequent strong winds, whirlwinds and tornadoes associated with storms, which can result during floods in larger spillage and higher flow rates. A particular difficulty can be lateral riverbed erosion and displacement of riverbeds, as well as water logging in inundation floodplain areas, which will place increased demands on the method of creating embankments and bridges in overcoming (crossing) watercourses. In the case of measures MRT 7, MRT 8, MRT 9 and MRaT 4 we have identified a probable conflict (overlap) with floodplain areas.

Impacts on the geological environment and mineral resources, geological risks

Draft SDPT SR 2030 creates some locally significant risks of slope deformation, conflicts with raw material deposits and with old mining works, which need to be addressed within the follow-up project work – especially in the corridor studies, feasibility studies, land-use plans, and detailed draft designs. The detailed studies should necessarily take into account even the risk of cumulative impacts with extreme rainfall events and flooding. We have identified as risky especially the following measures: MRT 5, MRT 6, MRT 8, MRaT 1, MRaT 4, MRaT 8.

Impacts on soil

Implementation of most of the proposed transport constructions as part of the measures to ensure the accessibility of Slovak regions by road infrastructure and construction of new corridors will be naturally associated with permanent and temporary land take. In this regard, it will be necessary to ensure the protection of the highest-quality soils and avoid compromising the soil's ecological functions. More detailed proposals of individual transport intentions should be designed in order to minimise the effects on soil occupation (primarily black earth – "chernozem", and mollica), reduce the risk of soil quality deterioration during construction and potential risks of soil contamination during the construction and operation of the transport network, as well as to reduce interventions in protective forests and special-purpose forests. As risky we have identified in particular the measures MRT 8, MRT 10, MRT 12, MRaT 5.

Impacts on cultural heritage

Draft SDPT SR 2030 did not identify any potentially significant risks or impacts on cultural heritage. The newly proposed or considered transport corridors are not localised in the sites defined as

conservation zones (CZ), conservation reserves (CR), or objects on the UNESCO World Heritage Site list. In terms of impacts of traffic load on protected objects, the strategy will have slightly positive impacts mainly due to the measures reducing automobile traffic intensity in city centres.

Variants and uncertainties

The strategic plan was submitted and assessed in the zero variant (status that would have occurred if the strategic plan is not implemented) and the proposed variant.

Given the limited financial resources, range of the measures and degree of preparedness of individual projects, it will not be possible to implement all the measures in their full scope by 2030. The choice of projects for implementation, and their specific shape and form will be definitely determined only in the follow-up steps. The proposal scenario that was assessed mainly in terms of overall impacts on air and noise can therefore be partially changed. However, these changes should not be significant in terms of the overall assessment.

The main limitation of impact assessment is the very focus of the strategy. It is a plan of a general nature, aimed not at determining the territorial routing and technical solutions of transport constructions and structures. Thus, the impact of the plan on a number of environmental components could have only been assessed as envisaged risks and opportunities, not as uniquely identified impacts.

For that reason, measures were proposed to prevent or mitigate negative impacts. These measures are intended and aimed at the very strategy level, at the follow-up steps of preparing the transport plans, as well as at the particular transport corridors under consideration.

4. LIKELY SIGNIFICANT TRANSBOUNDARY ENVIRONMENTAL IMPACTS

Air

Significant negative or positive transboundary impacts on air were not identified in any measure or the strategy as a whole. Transboundary effects can manifest with little significance only in the vicinity of the state border, namely along the transport routes that already exist. There will be only a little significant change in the traffic intensity on these arterial roads, i.e. there will be no significant impact on the immission situation.

The above-mentioned arterial roads include:
MRT 5: D1 Bidovce — state border SR/UR, R6 st. border SR/CZ – Púchov,
MRT 6: D3 Skalité — st. border SR/PR, 2nd profile, R5 Svrčinovec — st. border SR/CZ,
MRT 7: R4 st. border PR/SR — Prešov northern bypass,
MRT 10: D4 Bratislava Jarovce – st. border SR/AT.

Noise

Transboundary impacts on the noise situation can be divided according to the mode of action into:

- Direct impacts – noise spread from the operation on the road itself
- Indirect impacts – increased spread of noise from the operation on a road abroad, where increased noise levels are caused by streamlined interstate transport connection.

The values of noise spread from vehicle operation are affected by a number of factors, such as:

- traffic intensity;
- technical parameters of roads, railroad;
- vertical alignment of road/railroad;
- way of use of the vicinity, including placing technical elements preventing noise spread;
- heavy vehicles participating in the traffic flow;
- average speeds of vehicles/trains;
- fluency of the ride.

Direct impacts

As mentioned above, direct impacts on noise situation are caused by traffic operation on the Slovak side, as well as by the subsequent noise spread across the border where effects occur to the subject of protection (residential development).

The assessment of the possible influences may utilise the elaborated map of noise spread from the activities performed at the addressed roads (or maps for the BAU 2030 scenario and proposal variant). The map shows the critical locations, for which we calculated high levels of sound pressure – 85 [dB], and at the same time the broader territorial context (within 100 meters from the road) features larger residential development (the red stands for critical locations in the proposal variant, the blue stands for BAU 2030). In terms of locations close to the state border, these include the following:

- newly built corridor D4, and the parallel railway line from Devínska Nová Ves to the state border of Austria

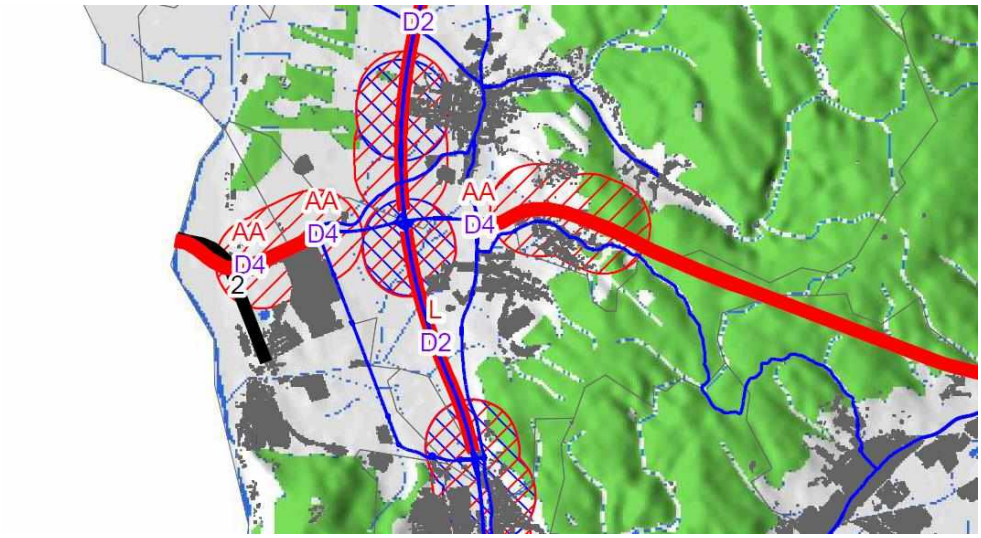


Fig. 0-4 Critical corridors for noise: newly built corridor D4, and parallel railway line from Devínska Nová Ves to the state border of Austria

- changes to existing D2 motorway, west of Petržalka

  The changes are caused by the implementation of the measures under assessment. The current D2 motorway section, in the planned and envisaged state, will be so attractive for drivers that we can expect increased traffic volumes in the given section according to traffic prognosis.

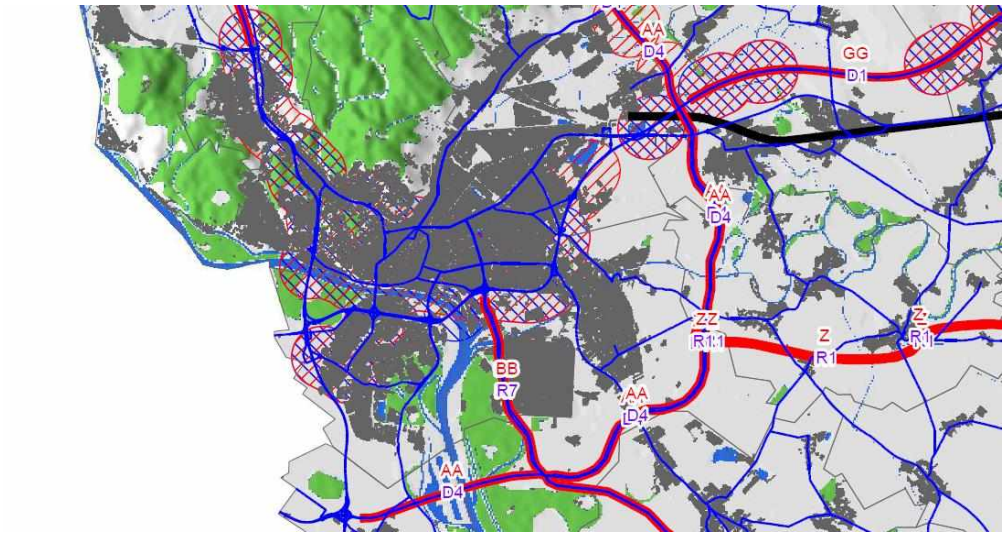


Fig. 0-5 Critical corridors for noise: changes to existing D2 motorway west of Petržalka

- R5 express way route around Skalité, near the Slovakia-Czechia-Poland three-boundary-point

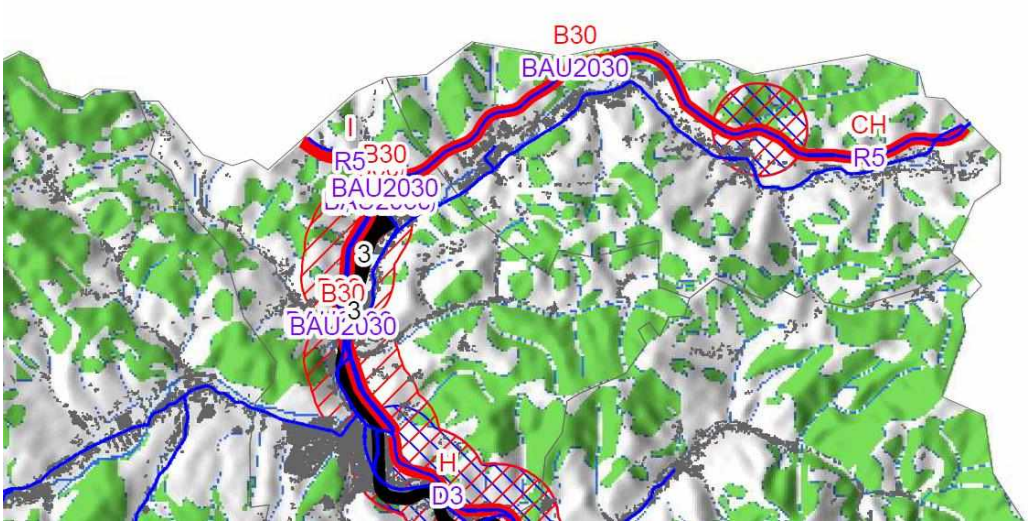


Fig. 0-6 Critical corridors for noise: R5 express way route around Skalité, near the Slovakia-Czechia-Poland three-boundary-point

Significant impacts are unlikely. Despite the connection with neighbouring countries, the road operation impacts on the noise situation in other places are not expected.

Indirect impacts

With respect to the optimal connection of the new transport network to the neighbouring countries, there will be increased attractiveness of these road sections for motorists, increased frequency of trains, or more frequent use of waterways and ports. This traffic intensification will also lead to increased volumes of traffic on roads and railroads in the neighbouring countries. The strategy assessment did not have available traffic censuses regarding the successive road sections leading to the neighbouring countries. Even the stage of construction project preparation differs, as well as does the preparedness of successive sections.

The assessment carried out clearly shows that the project preparation of new transport sections will require elaboration, for particular solutions of new structures, of noise studies that will, *inter alia*, assess the impact on noise situation in the affected vicinity at the Slovak side of the border. Depending on the results of noise assessment it will be possible to predict the potential impacts on noise situation even beyond the state border. Also, eventual negotiations with counterparts should lead to verification that the noise-reducing measures installed across the national border will adequately protect the required sites even after the increase in traffic volume caused by the new transport sections implementation.

According to the assessment carried out, there will be increased traffic frequency on the border in almost all sections. Increased noise emissions are based on the envisaged traffic increase, where the proposal variant differs from the BAU 2030 scenario in a decrease in passenger transport volume (probably due to better use of public transport and bicycles), but an increase in freight transport. Although, in the overall context, we expect a decrease in transport volumes, this decrease is induced by a lower number of passenger cars (emitting less noise compared to freight vehicles that emit more noise – and we expect increased traffic of freight vehicles, trucks, lorries, etc.).

The most important locations where there will probably be, as the result of the strategy implementation, an increase in noise emissions on the edge of roads by more than 5dB compared to the BAU 2030 scenario, are as follows:

- Bratislava D2 → Rajka (Hungary)
- Devínska Nová Ves D4 → Austria
- Tvrdošín R3 → Jablonka (Poland)

Noise emissions may increase in a number of sites by up to 5 dB. The resulting impact on the neighbouring countries depends also on other factors, such as configuration of the terrain, nature of buildings and structures, distance of settlements, and anti-noise measures.

Population and health

With the free movement of persons, as one of the basic attributes of the EU, the impact on health always has an international dimension. However, these impacts are not considered in the SEA process. Environmental determinants may change in a relatively small area of the projected new road corridors and at the site of existing network reconstruction.

Nature and landscape

Potential transboundary impacts are associated with increased traffic intensity in the downstream sections in the neighbouring countries, worsened migration patency (if the anticipated migration corridors lead through Slovak territory), or even with the construction of downstream routes (subject to international agreements). **Significant impacts on nature and landscapes, including protected areas and Natura 2000 sites in the neighbouring countries are not envisaged**.

Tab. 0-5 Measures and corridors with potential transboundary impacts on Natura 2000 sites and protected areas of the neighbouring countries´ national systems

ID and title of measure	Considered corridor	Natura 2000	Nature protection areas (national system)
MRT 5 – Completion of the east–west priority axis (Corridor Rhine – Danube, Czechoslovak branch)	R6 - st. border SR/CZ – Púchov (R6)	Czech Rep.: The route will slightly restrict migration from EVL Beskydy southwards, however, more significant in these terms is the downstream road section in the Czech Republic. On the Slovak side, migration is currently significantly restricted already, due to the existing road, railroad and build-up.	Czech Rep.: The route will slightly restrict migration patency of the landscape between PLA Beskydy and PLA Biele Karpaty, however, more significant is the downstream road section in the Czech Republic.
MRT 6 – Completion of the north-south connection to Poland and the Czech Republic	D3 – Skalité - st. border SR/PR, 2nd profile (D3b)	Poland: On the Polish side the road continues along SCI and SPA Beskid Zywiecki at a distance of 200 m and more. The possible impacts are increased traffic volumes on the route, and the consequent increased number of encounters with, and disturbance of, animals. These impacts are not significant.	Poland, Czech Rep.: On the Polish side the road continues along Zywiecki Park Krajobrazowy at a distance of 200 m and more. The possible impacts are increased traffic volumes on the route, and the consequent increased number of encounters with, and disturbance of, animals. These impacts are not significant. The road will contribute to gradual deterioration of migration patency in the Slovak-Polish-Czech borderland.
	R5 - Svrčinovec - st. border SR/CZ (R5)	Czech Rep., Poland: Restricted migration patency between the Czech EVL Beskydy and Polish SCI Beskid Zywiecki.	Czech Rep., Poland: Restricted migration patency between the Czech PLA Beskydy and Polish Zywiecki Park Krajobrazowy.
MRT 7 – Completion of the north-south connection in eastern Slovakia	R4 – st. border PR/SR – Prešov northern bypass (R4)	Poľsko: • SPA Beskid Niski • SCI Ostoja Jaśliska • SCI Ostoja Magurska Increased traffic intensity to on the downstream road in the Polish territory, worsened migration patency.	Poľsko: Jaśliski Park Krajobrazowy. The current road in Poland passes through the park. There may be a slight increase in traffic intensity and deterioration in migration patency.
MRT 9 – Completion of the central-Slovakian north-south road axis	R3 – Šahy - Zvolen (R3d)	Hungary: • SCI and SPA Ipoly Völgye • SPA Börzsöny és Visegrádi-hegység • SCI Börzsöny Downstream roads in Hungary pass between Natura 2000 sites. The impact will be increased traffic intensity in this road section, associated with disturbance and increased risk of collision of animals with vehicles.	Hungary: On the Hungarian side the current road passess through the Duna-Ipoly National Park. The impact will be increased traffic intensity in this road section, associated with disturbance and increased risk of collision of animals with vehicles.

ID and title of measure	Considered corridor	Natura 2000	Nature protection areas (national system)
MRT 10 – Development of the road network in the Bratislava agglomeration	D4 - Bratislava Jarovce – st. border SR/AT (D4)	Austria: On the Austrian side near Devínska Nová Ves the route enters SCI and SPA March-Thaya-Auen. The planned construction would impact this area. A more significant impact would then be the downstream section on the Austrian side that would, in the case of an on-surface road, most likely significant impacts. In the case of a tunnel, everything would depend on its technical solution. This structure, including the choice of a variant is subject to agreement between Slovakia and Austria.	
MWT 1 – Implement technical measures to improve the navigability of the fairway of the Danube waterway		Austria: A part of the Danube on the Austrian border is part of SCI AT1204000 Donau-Auen Östlich von Wien, in a smaller part also of homonymous SPA AT1204V00. Impacts on these areas depend on particular technical measures, and must be addressed in the context of feasibility studies and when assessing individual projects.	Austria: Nationalpark Donau-Auen. Impacts depend on particular measures that must respect the protection of this area. Since the national park begins at the confluence of the Danube and Morava, the measures will probably not affect the park directly.
		Hungary: On the Hungarian side of the Danube there is SCI and SPA HUFH30004 Szigetköz, and SCI HUDI20034 Duna és ártere. All measures for navigability must respect these areas as well.	Hungary: The Danube is a border watercourse, waterway maintenance must be addressed in cooperation with the Hungarian side, and must respect the local protected areas (Duna-Ipoly National Park).
MWT 3 – Modernise the public ports in Slovakia and ensure their subsequent periodic maintenance		Hungary: The flow of the Danube on the Hungarian side is part of SCI HUDI20034 Duna és ártere. Significant impacts are unlikely, the risk of water pollution should be eliminated at the project level.	
MWT 5 – Cooperate with the watercourse administrator in ensuring maintenance of waterways and navigation objects on the monitored waterways in the Slovak Republic at year-round navigability level		Hungary: On the Hungarian side of the Danube there are protected areas SCI and SPA HUFH30004 Szigetköz, and SCI HUDI20034 Duna és ártere. All measures for navigability must respect these areas as well.	Hungary: The Danube is a border watercourse, waterway maintenance must be addressed in cooperation with the Hungarian side, and must respect the local protected areas (Duna-Ipoly National Park).

ID and title of measure	Considered corridor	Natura 2000	Nature protection areas (national system)
MRaT 1 – Completion of the modernisation of the TEN-T main lines that are in a high degree of preparation: Púchov – Žilina, Žilina – Čadca – state border, Devínska N. Ves – Marchegg		Austria: On the Austrian side near Devínska Nová Ves the route in the existing railway line enters SCI and SPA March-Thaya-Auen. Impacts depend on the section implementation in Austria.	

Surface water and groundwater

Significant transboundary impacts occur in the case of water transport measures. Of course, all the measures to be implemented on the Danube in the sections where the river is a border watercourse will have transboundary impacts. Technical measures to ensure the required parameters of the fairway of the Danube waterway, and modernisation of the public ports associated with increased water transport volumes may cause changes in the qualitative and quantitative conditions of the watercourse, which may manifest also further downstream, including the watercourse part lying outside the Slovak Republic.

The implementation of technical measures to modify the navigation parameters of the waterway may affect water sources protection zones. Especially, it may cause changes in the hydrological regime in the watercourse vicinity (affected groundwater levels, adverse effect on the watercourses flow rates – changes in the water flow in the watercourse, changes in the sediment runoff regime, changes in the water layers agitation), and adverse effect on surface water quality. The specific impacts will depend on the exact form of the measures, which will result from feasibility studies. **The strategy does not contain a specific form of technical measures; therefore the impacts cannot be assessed in more detail at this stage.**

For road transport projects we have identified as a risk of little significance the potentially increased rainwater runoff, which may cause migrating pollution of surface waters and deterioration of the flood situation. This concerns in particular the Danube and the watercourses in PWMA Beskydy and Javorníky.

Transboundary impacts were not identified in relation to other environmental components.

5. CONCLUSION

The “Strategic Development Plan for Transport in the Slovak Republic until 2030” is a document at national level that defines strategic objective and measures for their implementation at the strategic level. **The strategy does not include specific projects or geographical projection of the measures, and is independent of their territorial routing and technical solutions. Choice of routes and solutions is envisaged in successive steps – in land-use planning, feasibility studies and project preparation.** At the stage of assessing draft strategic documents with nationwide implications **we do not anticipate significant negative transboundary environmental impacts, nor impacts on human**

health that could be specified in more detail at this stage of assessment. Assessing the transport infrastructure structures and buildings requires knowing the specific technical solution of the project or its alternatives, with precisely defined localisation, technical parameters, capacities and other characteristics, such as land take, demands on natural resources, emissions of noise and pollutants, time of construction, etc., which is not the subject matter of the strategy under assessment. Specific projects of transport infrastructure have been or will be assessed at project level in the EIA process. In the case of possible effects on the neighbouring countries, the EIA also includes transboundary assessment.