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MINISTRY
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DEVELOPMENT CZ

TRANSPORT SECTOR STRATEGIES

PHASE 3

MEDIUM-TERM PLAN FOR MAINTENANCE, DEVELOPMENT AND FINANCING OF TRANSPORT INFRASTRUCTURE FOR THE PERIOD 2024 – 2033 WITH A 2050 PERSPECTIVE

Background

31.12.2022



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1 Evaluation of the implementation of the Transport Sector Strategies, phase 2

The Transport Sector Strategies, phase 1 and phase 2 (hereinafter "TSS1" and "TSS2") defined principles for effective and quality operation of the existing transport infrastructure, and contained principles for the prioritization of preparation of development projects, under a specific financial framework. The document represented the fundamental policy concept of the Ministry of Transport, formulating priorities and goals for the development of transport and transport infrastructure first until 2013 (phase 1), then until 2020 (phase 2) and, as a framework, in the long-term perspective until 2050.

The global objective of TSS2 was to develop a stable framework for planning the sustainable development of transport infrastructure. This means that, in addition to setting priorities, it was necessary to identify and secure the overall size of investments in transport infrastructure development that corresponds to real societal needs and possibilities. This task had, and still has, a number of limitations that the public sector has faced for many years, resulting in an extensive internal debt in the system and inefficient use of funds. Therefore, this task cannot be fulfilled without changing the basic approach to solving it.

The Transport Sector Strategies determined:

- specific priorities for the development of transport infrastructure in the Czech Republic in accordance with the priorities of the Transport Policy, other important related documents, EU membership and international agreements
- priorities of important projects of international, national and supra-regional importance according to their socio-economic effectiveness and urgency
- realistic financing strategy based on realistically available financial resources
- balanced financial allocation to specific priorities/measures/projects within the financing plan
- framework plan for the implementation of large projects in the plan period according to their level of priority and the obligation of their implementation
- framework for the implementation, monitoring and ongoing evaluation of the plan
- measures providing for the overall system of ongoing planning and financing of transport infrastructure at the national level.

TSS2 set priorities for ensuring the sustainability of the existing transport infrastructure, as well as defined the approach to prioritising the preparation and subsequent implementation of transport infrastructure with regard to the current state and main problems of transport in the Czech Republic, including international obligations and cross-border contexts. TSS2 also represented a key document for the ministry's investor organizations that carried out the preparation and implementation of constructions. The documents also served as the basis for the preparation of other conceptual materials of the Ministry of Transport (MoT) dealing with transport infrastructure.

Book 1 provides a framework for the proposal part of the project. It evaluates data on identified and expected trends in each of the transport modes (road, rail and water) in previous years.

The annexes contain tables relating to the modes of transport. The tables have the following structure. The constructions of railway and water infrastructure are divided to completed and under preparation. The table for railway infrastructure also includes constructions that were implemented beyond the named projects monitored in TSS2 for the period 2014-2020 (2023). Those implemented constructions were inspected by the Supreme Audit Office (SAO) in Audit No 21/36 "State and European Union funds intended for the reconstruction of selected non-corridor railway lines". The inspection aimed to check:



- whether the funds intended for the reconstruction of selected non-corridor railway lines are spent effectively, economically, efficiently and in accordance with legal regulations,
- whether the determination of plans and priorities for the reconstruction of non-corridor lines has an effect on the approval and evaluation of individual projects,
- whether the implementation schedules specified in the conceptual and strategic materials were followed (whether the projects are implemented in accordance with the expected dates and costs).

The identified facts were properly explained in the submitted statement of the Ministry of Transport. Where necessary, implemented and prepared measures were listed. Below we present the views on the conclusions of the SAO.

The inspection methodology was based on a formal interpolation of real facts into the strategic material TSS2 from 2013, or its partial update from 2017. However, the methodology did not take into account the emergence of many other methodological and strategic documents in the transport sector, which over time had to respond to the evolving policies and legislative environment in the field of transport, defined by the European Union. In the meantime, or before the Ministry of Transport ensured the amendment of the relevant legislation or the modification of the methodological environment, the Central Commission established at the MoT as a decision-making body approved the presented projects so that they complied with the developing legislation. This applies, for example, to the areas of ETCS or environmental and climate protection. However, the SAO inspection did not take into account the many related influences and only examined the rigid compliance/non-compliance with TSS2, regardless of the fact that this document is to be updated again and submitted only in 2023, as requested by the government. In other words, the government's request does not require more frequent updates. Moreover, the phase 3 update of the Transport Sector Strategy will reflect new EU and national legislation and will also respond to a whole range of other conceptual documents and process aspects that have been applied in the transport sector since 2013.

Transport sector strategies are always prepared as of a specific date and with the knowledge of projects at that time horizon. Naturally, the level of detail of the knowledge of individual projects is different and it is difficult to estimate the dates of implementation, because unpredictable complications may arise in the various stages of preparation. Some projects were expected to use financial resources at a certain time horizon, but if the preparation becomes complicated for objective reasons, it is necessary to replace the projects with other projects, because financial resources, especially European ones, have a time-limited framework for their use. Otherwise, the Czech Republic could not utilize the funds fully. For that reason, a situation may arise where the order of projects is adapted to the situation.

In addition, for some projects or project ideas, the results of the feasibility study and the variant of the technical solution and its economics were not yet known at the time of writing the TSS. These are also important factors, which are reflected in the time schedule, investment costs and the technical solution of the project. Another factor is the new requirements arising from European legislation, that were not known at the time of writing TSS2 but must be met, which also in some cases delays implementation. A non-negligible role in the process of preparing non-corridor lines is played by regional transport ordering authorities (regions) or freight carriers (Žesnad.cz), who continuously file their operational requirements to the state.

The project preparation process is discussed between the Ministry of Transport and individual investors in a regular cycle of 3 times a year. These discussions serve as an action plan for the TSS2 document.

In the field of design and construction, it is quite common that when a specific project begins to be developed, it is based on the current possible price levels of construction works and materials and the agreed scope of construction. In general, project preparation is a very time-consuming process, with a whole range of actors/affected entities. In recent years, the legislative practice from the EU level, focused on the protection



of nature and landscape and the population, has been tightening. Although this intention of the EU is virtuous and important, its by-product is often more complicated and longer procedures, as that they guarantee public participation at many stages, and this increases the construction costs. This trend reflects in the rising costs of the projects, firstly, by delaying the start of the implementation of an otherwise technically prepared project, thus deferring it into the future and the uncertainty of the future rate of inflation. Secondly, the public discussions with representatives of the public and associations often result in additional modifications to the project, which then have a negative effect on the price and scope of the entire project.

In any case, the investment costs are specified in each stage of preparation. Considering that projects enter the TSS2 evaluation at different stages of preparation, and thus of knowledge, the accuracy of the cost estimate also varies. For projects that did not have a selected variant (in the feasibility study or EIA process), the conceptual design uses the method of unit costs that are calculated on the basis of the costs of similar projects from previous years, but it must be noted that the actual tendered costs of these projects are largely influenced by the economy cycle, as prices fall during periods of economic stagnation, while they rise during boom times. In the next stages of project preparation, the investment costs are specified based on the higher accuracy of the technical solution of the project. The final price is determined in the tendering for the construction contractor. At the concept level, the results of these processes cannot be objectively predicted.

The view of the Ministry of Transport on the discrepancy between the planned amounts and the amounts for which the projects were finally implemented is already stated above. The SAO inspection focused on a rigid comparison of the planning document from 2013, which stated the estimated costs at the price level of the year in which it was approved. The reasons for the price increase compared to initial estimates include the postponed implementation and, consequently, the costs being incurred in a later year, with higher prices of materials and construction works and an increase in year-on-year inflation. Another reason is the existing applicable legal provisions, extensive legislation, especially in the area of environmental protection, that prolong the entire preparation process, which in itself leads to higher prices (see the effect described above).

In addition, the parameters newly required in the planning procedure, even if they were not anticipated, must be newly included in the project, otherwise the project will not receive a planning decision. New parameters resulting from European legislation or for other reasons must also be incorporated. From the point of view of the MoT, in some cases it is more appropriate to delay or extend the implementation date than to implement a project that will have deficiencies which will have to be corrected subsequently and at higher costs.

The constructions of road infrastructure are divided to completed, under preparation, and delayed.

They also include constructions that were implemented beyond the named projects monitored in TSS2 for the period 2014-2020 (2023). Those implemented constructions were inspected by the Supreme Audit Office in Audit No 18/21 "Construction and modernization of class I roads". The inspection aimed to check whether:

- the intentions and priorities of the construction of class I roads were fulfilled;
- the system of providing funds for the construction and modernization of class I roads ensured their economical and effective use (including the method of selecting buildings for implementation);
- the set goals and parameters were achieved during the implementation of the constructions with corresponding costs.

The identified facts were properly explained in the submitted statement of the Ministry of Transport. Where necessary, the implemented and prepared measures were also listed - this was particularly relevant for speeding up the preparation of constructions.

Regarding the fulfilment of conceptual plans and the realization of priority constructions of class I roads, the Road and Motorway Directorate (RMD) prepared and implemented these constructions in relation to the



priorities set in the transport strategies. Of the 35 priority constructions in the schedule for the years 2014–2023, 16 constructions were commissioned as of 1 January 2020. As of that date, another 4 constructions were underway, 2 constructions were expected to start in 2020 and 4 constructions in 2021, all with expected commissioning by the end of 2023. Most of the priority constructions were thus implemented in the monitored period 2014–2023 (OPT II period), although many of them were implemented later than planned but still within the period. Moreover, it is not possible to implement individual constructions strictly in the order of their prioritisation in the transport strategies, but the course and completion of investor preparation must also be taken into account.

According to the SAO, the parameters and objectives of the inspected class I road constructions were observed. But for constructions awarded in the audited period, the construction costs were 30% lower compared to the value expected by RMD in the procurement procedures for construction contractors. Regarding the opinion of the SAO that the created price databases of unit prices of structural members and works are overestimated and were not an effective tool for the economical implementation of constructions in the audited period, it must be emphasized that these expert prices determined on the basis of cost calculation are not and cannot, in principle, be influenced by current fluctuations in the construction market, for example by a drop in bid prices as a result of a temporary surplus of free capacities on the market.

The prices are set in a binding document (the price database OTSKP-Sectoral classification of structural members and works) for the pricing of construction projects, and in the audited period, these were not an effective tool for the economical implementation of constructions and the determination of the expected value in tendering procedures for the selection of contractors for works.

OTSKP items are valued at expert prices determined on the basis of an aggregated cost calculation. It is based on the market prices of materials, the typical labour costs, machine-hour rates, overheads (administrative and production overheads) and a reasonable profit in accordance with FIDIC contract terms. The prices are universally valid for both road and railway constructions, and their value takes into account the specifics of both environments.

In the audited period, the tender prices were influenced by the high number of bidders for construction contracts (as the SAO rightly states in the Audit Conclusion), which was reflected in the final tender prices, and in some cases the evaluation committees had to deal with the assessment of an exceptionally low tender price. An exceptionally low bid price would represent a high risk for the investor in terms of quality, safety and completion of the construction.

1.1 Annex to Chapter 1:

Annex K1T1: Projects implemented in the period 2014–2020 (2023) as envisaged in TSS2



2 Basic context

2.1 European background policies

2.1.1 EU Transport Policy

The main current EU strategy for transport is *the Sustainable and Smart Mobility Strategy – putting European transport on track for the future*¹. Although the document does not formally replace the original *White Paper on transport policy* from 2011, it does update some of its objectives, in line with the EU's top strategy, *the European Green Deal*². The document responds to the new challenges and goals of the EU, especially in the area of reducing emissions from transport and digitizing the transport sector.

The strategy states that the biggest challenge for the transport sector is the reduction of emissions so that it is possible to achieve climate neutrality by 2050. One of the main tools for reducing transport emissions is the development of an efficient, interconnected and multimodal transport system with an emphasis on building a network of high-speed railways, which should be doubled by 2030 and then tripled by 2050 compared to the current situation.

A substantial reduction in CO₂ emissions from transport should also occur thanks to the goal to be achieved by 2030 that regular mass transport covering distances of less than 500 km should be carbon neutral within the EU. The European Commission also envisions a significant shift in urban mobility, with at least 100 climate-neutral cities in Europe by 2030.

In road transport, emphasis will be placed on the development of recharging and filling stations for emission-free vehicles. By 2030, 3 million electric charging stations and 1,000 hydrogen filling stations should be deployed. An incentive framework will also be created to support the sale of such vehicles. In this context, the Commission envisages that by 2030 at least 30 million zero-emission cars (i.e. battery electric vehicles and hydrogen fuel-cell vehicles) should be put into operation.

The strategy envisages 80,000 emission-free lorries, but here again it primarily aims to shift the transport of goods to railways, where transport volume should increase by 50% by 2030 and double by 2050.

The inland waterways transport and short sea shipping is also expected to grow by 25% by 2030 and by 50% by 2050.

The strategy emphasizes digitization and in this context envisages, among other things, the creation of a multimodal information system for passenger transport, the development of intelligent transport systems or the creation of an electronic paperless environment in transport. By 2030, the Commission wants to make fundamental progress in the transition to autonomous mobility.

2.1.2 Transport-related legislative proposals in the Fit for 55 package

In July 2021, the European Commission presented a package of proposed legislative measures called *Fit for 55*, which covers all sectors, including transport. The name is derived from the 55% target of reducing greenhouse gas emissions by 2030, as approved by the European Council in 2020.

The following regulations and directives are particularly relevant for this national strategy:

¹ Sustainable and Smart Mobility Strategy – putting European transport on track for the future

² The European Green Deal



- Alternative Fuels Infrastructure Regulation (the so-called AFIR proposal³),
- regulation on the revision of CO₂ emission standards for cars and vans
- revision of the Emissions Trading System (EU-ETS), including a proposal to extend this system to road transport and buildings
- regulation on sustainable aviation fuels (ReFuel Aviation)
- Directive of the European Parliament and of the Council amending Directive 2003/87/EC⁴, as regards aviation's contribution to the Union's overall emissions reduction target and to the appropriate implementation of global market action
- decision of the European Parliament and of the Council amending Directive 2003/87/EC as regards the notification of offsetting in respect of a global market-based measure for aircraft operators based in the Union

While the AFIR regulation poses specific requirements for the deployment of recharging and hydrogen station infrastructure on the core and comprehensive TEN-T road network, including that for electric trucks (see table below), the other two proposals can be seen as a guarantee that in the longer term, the vision of a massive expansion of emission-free vehicles will be fulfilled, again both in passenger and freight road transport. In the case of passenger road transport, this should mean that, at least from 2035, the production of vehicles with combustion engines will be significantly reduced. The inclusion of road transport in the system of emission allowances, with the expected effect of higher fuel prices, can again be considered as a kind of motivational tool that should induce users of conventional vehicles to switch to emission-free vehicles.

The aim of the ReFuel Aviation agreement is to increase the use of sustainable aviation fuels at EU airports from 2025. Also known as green fuels, sustainable aviation fuels are produced from renewable or low-carbon sources and produce less greenhouse gas emissions than traditional fossil fuels. The term "sustainable aviation fuel" includes synthetic fuels, some biofuels made from agricultural or forestry residues, algae, biowaste, used cooking oil or some animal fats, and recycled aviation fuels made from waste gases and plastic waste. RefuelEU sets the minimum share of sustainable aviation fuels to be available at EU airports at 2% from 2025, increasing every five years up to 70% in 2050. In addition, a proportion of the fuel mix must be synthetic fuels such as e-kerosene or low-carbon synthetic fuels. Airlines will be able to market their flights with a label showing the expected carbon footprint per passenger and the expected CO₂ efficiency per kilometre.

Table 1: overview of the requirement for the deployment of recharging stations on the TEN-T network, arising from the proposal for the AFIR regulation.

Minimum requirements for the output of recharging locations for passenger cars on the TEN-T				
	12/2025	12/2027	12/2030	12/2035
TEN-T core network	400 kW (max. distance 60 km)	600 kW (max. distance 60 km)	-	-
Comprehensive TEN-T network		300 kW ⁵	300 kW ⁶ (max. distance 60 km)	600 kW ⁷ (max. distance 60 km)

³ Alternative Fuels Infrastructure Regulation

⁴ DIRECTIVE 2003/87/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC

⁵ Min. 1 recharging station with output of 150 kW

⁶ Min. 1 recharging station with output of 150 kW

⁷ Min. 2 recharging stations with output of 150 kW



		(50% network coverage/ max. distance 120 km)	
Minimum requirements for the output of recharging locations for heavy-duty vehicles on the TEN-T			
	12/2025	12/2027	12/2030
TEN-T core network	1 400 kW (15% network coverage/ max. distance 120 km)	2 800 kW (50% network coverage/ max. distance 120 km)	3 600 kW (max. distance 60 km)
Comprehensive TEN-T network		1 400 kW (50% network coverage/ max. distance 120 km)	1 500 kW (max. distance 100 km)
Minimum requirements for the output of recharging locations for heavy-duty vehicles at other recharging locations			
	12/2025	12/2030	
Urban nodes	900 kW (min. 6x 150 kW)	1,800 kW (min. 12x 150 kW)	
Secure parking areas	2 x 100 kW	4 x 400 kW	
Minimum requirements for hydrogen refuelling stations			
	12/2025	12/2030	
TEN-T core network	-	1 hydrogen station with a minimum cumulative capacity of 1 t/day (max. distance 200 km)	
Urban nodes	-	1 hydrogen station/ city hub	

To meet the requirements arising from the AFIR in the Czech Republic, OPT III will provide approximately CZK 6 billion. The development of the network of public recharging stations will be supported with approximately CZK 5 billion, and CZK 1 billion is intended to support the construction of hydrogen refuelling stations. Another source of support for the development of this infrastructure will be the Modernization Fund.

2.1.3 Efficient and green mobility package

The efficient and green mobility package includes proposals for the following documents:

- revision of the TEN-T regulation,
- revision of the ITS directive,
- Action plan to boost long-distance and cross-border passenger rail services
- European framework for urban mobility.

In December 2021, a proposal for a regulation was submitted to replace the current Regulation 1315/2013 on Union guidelines for the development of the trans-European transport network (the so-called TEN-T Regulation). The new regulation is still under negotiation as of the date of this document. However, the current form of the proposal fully reflects the aforementioned long-term goals of the EU transport policy. It **emphasizes not only the development of physical infrastructure, but also so-called horizontal aspects** such as the already mentioned development of infrastructure for alternative fuels and the introduction of intelligent



transport systems. The TEN-T Regulation sets certain requirements for each type of the infrastructure (see table below).

The proposal for the new TEN-T regulation also includes a requirement for Member States to ensure compliance of their national infrastructure plans with the European transport policy and the priorities and deadlines contained in the regulation. For this purpose, the state must send any proposal or modification of its national infrastructure plan to the European Commission at least 12 months before its approval. The Commission then has 6 months to assess the document and send comments and recommendations, if any, for its modification. These must be settled by the states within two months of receiving them.

In the period 2022-2023, Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport (hereinafter the "ITS Directive") has been revised. It was transposed in CZ into Act No 13/1997 Coll., on roads, as amended. The proposal is a revision (amendment) of the existing ITS Directive that focused mainly on ITS systems in road transport, its revision comes up with a more comprehensive approach extending to more modes of transport and also including new technological trends. The revision of the ITS Directive focuses on data on transport infrastructure, data on traffic and data on passenger travel individually and by types of public transport. It also deals with making data available, which is a prerequisite for the development of follow-up digital transport information services and travel information services provided by the private sector. The main objective of the ITS Directive revision is to expand the deployment of ITS and cooperative ITS systems while ensuring the interoperability of these systems.

The aim of the Action plan to boost long-distance and cross-border passenger rail services is to make long-distance and cross-border passenger rail transport more attractive for passengers in the EU. It includes improving cross-border interconnection, increasing safety or ensuring interoperability to avoid technical problems when using train systems from different countries. The action plan supports high-speed trains, includes the support of alternative fuels, such as hydrogen-powered locomotives or battery-powered trains. It promotes digitisation that could make the use of railway infrastructure across European states significantly more efficient.

The European framework for urban mobility brings new solutions for a greener, digitised and multimodal future of urban transport. For European cities, this is a truly revolutionary opportunity to change the direction in the field of mobility and transport, to promote clean and sustainable active mobility such as cycling, walking or public transport.

Table 2: Overview of requirements for the types of transport infrastructure, resulting from the proposed revision of the TEN-T regulation

Railway infrastructure			
	Core network	Extended core network	Comprehensive network
Full electrification of railway lines	2030	2040	2050
Operation of trains with a weight of 22.5 t per axle	2030	2040	2050
Ensuring the clearance gauge P400	2040	2040	2050
Enabling the operation of trains 740 m long	2030	2040	2050
Speed of 100 km/h for freight trains	2030	2040	Not defined
Speed of 160 km/h for passenger trains	2040	2040	Not defined
Implementation of ERTMS	2030	2040	2040
Implementation of <i>radio-based</i> ERTMS (Level 2 or 3)	2050	2050	2050
Removal of national train control systems	2040	2040	2040



Road infrastructure			
	Core network	Extended core network	Comprehensive network
Secure parking area every 100 km	2040	2040	2050
Parking area every 60 km	2030	2030	2050
Motorway or expressway (with central reservation)	2040	2040	2050
Equipped with a weigh in motion system every 300 km	2030	2040	2050
Inland water infrastructure			
	Core network	Extended core network	Comprehensive network
Minimum clearance under bridges 5.25 m	2030		
RIS equipment	2040		
Minimum draught of vessel 2.5 m	2030		
Inland waterway ports			
	Core network	Extended core network	Comprehensive network
Equipment enabling environmentally sound operation of vessels	2040	-	2050
Multimodal terminal	2050		



2.1.4 Directive (EU) 2021/1187 of the European Parliament and of the Council of 7 July 2021 on streamlining measures for advancing the realisation of the trans-European transport network (Smart TEN-T Directive)

The mission of the directive

The scope of the Directive covers pre-determined cross-border connections and missing interconnections of the TEN-T core network corridors (listed in Special Annex I corresponding to Annex 2 of the CEF Regulation) as well as projects on the core network corridors exceeding EUR 300 million. Projects that exclusively relate to telematics applications, new technologies and innovations within the meaning of Articles 31 and 33 of the TEN-T Regulation are not included.

The directive takes effect on 9 August 2021 and Member States must transpose it into their national legal frameworks by 10 August 2023.

The directive has two main objectives:

- to streamline measures to speed up the implementation of the TEN-T
- to clarify the procedures for project proponents, especially as regards granting permits and awarding public contracts.

4 approaches to achieving the goals

- one designated authority for each project/permit granting process
- maximum period of 4 years for granting a permit
- clear and transparent procedure for granting permits
- coordination of cross-border granting of permits and public procurement

The directive does not apply to projects for which the permit granting procedure was initiated before 10 August 2023.

Reporting

The Commission will report to the European Parliament and the Council on the implementation of the directive (for the first time by 10 February 2027 and at regular intervals thereafter). The report will be based on information provided to the Commission by Member States every two years, for the first time by 10 August 2026.

The information submitted should include:

- details of the number of permit granting proceedings that fall within the scope of the directive;
- information on the average duration of permit granting proceedings, the number of permit granting proceedings exceeding the time limit and the establishment of any joint authority during the reporting period.

2.1.5 The Strategic Framework Czech Republic 2030 and its impact on the transport sector

The Strategic Framework Czech Republic 2030 is the key strategic document of the Czech Republic, which responds to international developments in the field of sustainable development and takes into account all 17 sustainable development goals approved at the UN summit in New York in September 2015. Perceiving the world in context and projecting the 17 goals into their national policies is the responsibility of each state. In recent years, the perspective of sustainable development has become the main opinion stream in the political debate in Europe and in the world in connection with the need to address the challenges of the contemporary world, such as climate change, demographic changes, loss of fertile land or deepening social inequalities.



The emergence of a new sustainable development paradigm in 2015 was influenced by the 2030 Agenda as well as the following events:

- the adoption of *the UN Addis Ababa Action Agenda* on financing of the development, in which countries committed to cooperation in technology and innovation and reaffirmed their commitments to provide official development assistance.
- the adoption of *the Paris Agreement*, adopted by the parties to the UN Framework Convention on Climate Change in December 2015
- adoption of *the Sendai Framework for Disaster Risk Reduction 2015-2030*.

The 2030 Agenda specifies 5 areas of critical importance as part of this transformation: People, planet, prosperity, peace, partnership.

The main implementation platform for the 17 goals of sustainable development in the Czech Republic is the *Strategic Framework Czech Republic 2030*, approved by the government on 19 April 2017. *The Strategic Framework Czech Republic 2030* is a document that responds to international developments in the field of sustainable development and sets long-term priorities for sustainable development in six key areas (People and Society, Economic Model, Resilient Ecosystems, Municipalities and Regions, Global Development, Good Governance) and serves as an overarching framework for national, regional and local strategies and policy concepts. All Sustainable Development Goals have been directly integrated into this document, with the level of integration based on national sustainable development priorities. *The Strategic Framework Czech Republic 2030* sets out 27 strategic objectives, further divided into 97 specific objectives.

The consistency of the objectives of the *Strategic Framework Czech Republic 2030* with other strategic and conceptual materials is ensured by its Implementation Plan that presents a set of short-, medium- and long-term measures and recommendations through which its vision will be put into practice.

The objectives of *the SF Czech Republic 2030* are reflected in the related sector strategies, policy concepts and activities based on those materials, which implement the measures and recommendations set out in the Implementation Plan.

Goals for the transport sector and measures to achieve them including recommendations are set in the following areas:

People and Society

Strategic objective: The health of all population groups is improving.

Specific objective: Healthy lifestyles are supported through higher public spending with an emphasis on primary disease prevention and health promotion throughout life.

Specific objective: The consumption of addictive substances and the burden of health-risk substances and noise are reduced through better environmental quality. The relevant limits for harmful substances and noise are not exceeded.

In 2017, 11.6% of the population in agglomerations was exposed to excessive noise burden from road traffic. 64.8% of the population in agglomerations was exposed daily to noise level L_{den} above 55 dB.

In 2017, the most serious noise pollution was in the agglomerations of Prague and Liberec. In strategic noise mapping, critical places are defined by populated areas in which the relevant limit value of noise indicators is exceeded. The solution is more consistent urban acoustic planning (bypasses, restrictions on the passage of trucks, etc.). The level of noise in towns is also influenced by the speed of passing vehicles, which, however,



can be restricted by the municipal authority.⁸ Likewise, by the quality of the road surface, which is the responsibility of the owners, or road managers.

- Carry out building and technical, administrative and traffic organization measures with the aim of reducing the noise level from the existing highly busy roads near the built-up areas below the maximum permissible value. (MoT, co-supervisor: MoH)

Strategic noise maps and the related action plans are drawn up based on the requirements of Directive No 2002/49/EC on the assessment and management of environmental noise (Environmental Noise Directive, END), which is transposed to Czech legislation through Sections 78, 80 paragraph 1 letter (q) to (r), 81, 81a, 81b and 81c of Act No 258/2000 Coll., on the protection of public health and amending some related acts, as amended, and Article XII of Act No 222/2006 Coll., amending Act No 76/2002 Coll., on integrated prevention. Furthermore, through implementing regulations - Decree No 523/2006 Coll., which establishes limit values of noise indicators, their calculation, basic requirements for the content of strategic noise maps and action plans, and the conditions for public participation in their preparation (hereinafter referred to as the "Noise Mapping Decree") and Decree No 561/2006 Coll., on establishing a list of agglomerations for the purposes of noise assessment and reduction.

In the area of noise assessment and reduction in terms of long-term average noise pollution of the environment according to data from strategic noise maps (SNM - www.nrl.cz) prepared by the Ministry of Health, MoT draws up, and if there are developments that significantly affect the existing noise situation, updates, starting in 2004, but no later than once every 5 years, the action plans for:

- major roads, i.e. roads carrying more than 3,000,000 vehicles per year, and owned by the state, (sections of motorways, expressways and class I roads, the traffic volume of which exceeded approx. 8,200 vehicles/day)
- major railway lines which have more than 30,000 train passages per year,
- major airports, i.e. civil airports that have more than 50,000 takeoffs and landings per year, excluding takeoffs and landings of light aircraft for training purposes (Prague/Ruzyně airport).

The measures adopted or proposed within the plans are at the discretion of the competent authorities, but should notably address priorities which may be identified by the exceeding of any relevant limit value of the set noise parameters or by other criteria chosen by the Member States and apply in particular to the most important areas as established by strategic noise mapping ("hot spots", critical places) (Article 8(1) END). Noise-control measures must be designed so that public-health limits established according to Section 34 of the Act are not exceeded in critical places.

In strategic noise mapping, critical places are defined by populated areas in which the relevant limit value of noise indicators is exceeded.

The critical places are addressed in the Noise Control Programme (NCP), providing a set of measures, the task of which is to protect against the harmful and annoying effects of noise, including noise reduction within the meaning of Government Regulation No 272 /2011 Coll., on the protection of public health against the harmful effects of noise and vibrations, as amended.

The specific noise-control measures in the NCP are designed for specific critical places (areas) and for individual noise sources, primarily based on the results of a more detailed analysis of the given area (e.g. detailed acoustic studies).

⁸ 2020 Report of the MoT on the evaluation of the SF Czech Republic 2030



Overall traffic calming in urban areas consists in the establishment of zones with a maximum speed limit of 30 km/h combined with the introduction of right-of-way and the implementation of physical calming measures on the basis of MoT Technical Regulations No 218 for designing zones 30.

The establishment of the zones is within the competence of municipal authorities. Available information shows that these zones were introduced, for example, by the Prague city district Karlín, the municipalities of Miškovice and Třeboradice, and in cooperation with the local commissions (i.e. the commission for Miškovice and the commission for Třeboradice) an area was identified where speed reduction is advisable due to obstructed view of the road or an increased number of pedestrians (and the movement of children).

As part of the preparation of railway projects, MoT focuses on increasing the capacity of railway routes from major hubs, especially from Prague, Brno and Ostrava. For this reason, the first projects are being prepared for the Rapid Links system in the form of high-speed lines for passenger transport only, which will free up capacity on existing lines.

Economic model

Strategic objective: Natural resources are used as efficiently and sparingly as possible in order to minimize the external costs caused by their consumption.

- Greenhouse gas emissions and the emission intensity of products are reduced. In the sectoral breakdown in the period 2015-2018, emissions from transport are increasing.
- The energy and material efficiency of the economy increases

In recent years, the growing manufacturing industry, especially the automotive industry, and the consumption of energy in transport, especially oil, have ranked among the biggest influences of increased imports and consumption of materials.

Strategic objective: Economic activities are supported by a stable and functional infrastructure

The construction and modernization of transport infrastructure of international importance is not advancing fast enough, and currently, the government cannot be satisfied with the gradual provision of quality transport connections and with the role of railway transport in key directions.

- High-quality transport links with the economic, population and transport centres of Germany, Austria and Poland are ensured.

Long-term development is based on *the Transport Policy of the Czech Republic*. In the case of road infrastructure, the aim is to ensure sufficient capacity, in the case of railway infrastructure, an electrified railway line is suitable, on which a travel time at least comparable to a parallel road infrastructure can be achieved. The share of modernized lines within the TEN-T network in the Czech Republic increased by only 1 percentage point between 2018-2020⁹. Only 45% of the railway infrastructure has been modernized as of 2020, and 62% of the road infrastructure.

The pilot use of the public-private partnership format (PPP) was prepared for the completion of the D4 motorway, other projects are also being considered

From the point of view of travel time between selected foreign cities (from Prague and from Brno), the shortest times are achieved by private car transport, which dominates¹⁰. Especially on the Prague-Wroclaw (Brno-Krakow) route, this difference compared to the second fastest variant is up to two hours, and the car is thus

⁹ Indicator 10.2.1 (data available only for 2018 and 2020).

¹⁰Indicator 10.2.2



36% (52%) faster than the railway. In contrast, rail and coach transport rank second, with approximately the same share. Rail transport is more time efficient (from Prague and Brno), especially to Bratislava, Budapest and Warsaw. In contrast, coach transport (from Prague and Brno) is more time efficient to Dresden, Berlin and Nuremberg. According to feasibility studies of current and modernized railway lines, the travel time is expected to improve on railways compared to coach transport on the routes Prague-Munich, Prague-Vienna and Brno-Poprad, Brno-Krakow, Brno-Berlin. The rail connection should be faster than the car on the Brno-Warsaw and Brno-Vienna lines.

Only prospectively in the horizon of decades and with the realization of high-speed lines, the time advantage of railways compared to cars is expected on most cross-border relations.

Achieving the 2030 goal is rather unrealistic given the current trend. The slow progress of modernization and the prognosis of improving the position of railways in relation to road transport in the horizon of several decades do not allow the goal to be achieved.

Quality of life

In the period 2015-2019, the accident rate in road transport continues to grow (107,572 accidents in 2019). The number of injured persons does not show an increasing trend (26,045 persons in 2019), which is less negative. The number of road deaths was rather lower than in 2015 (547 deaths in 2019).

2.1.6 Directive (EU) 2019/1936 of the European Parliament and of the Council of 23 October 2019 amending Directive 2008/96/EC on road infrastructure safety management

The subject and scope is the introduction and implementation of procedures in the area of road safety impact assessment, road safety audits, road safety inspections and assessment of the safety of the road network as a whole. The Road Safety Strategy (BESIP) is committed to the transposition of the directive, the purpose being to provide a quantified expression of road network safety independent of user behaviour or vehicle technologies.

Prior to the safety assessment of the entire backbone road network, required by Directive (EU) 2019/1936, and in the absence of a common assessment methodology, it has been difficult so far to define an indicator. There will be efforts to further develop a defined indicator for the assessment of infrastructure safety. The requirements arising from the directive should be met by every new project, and the costs associated with the assessment will be part of the project implementation costs.

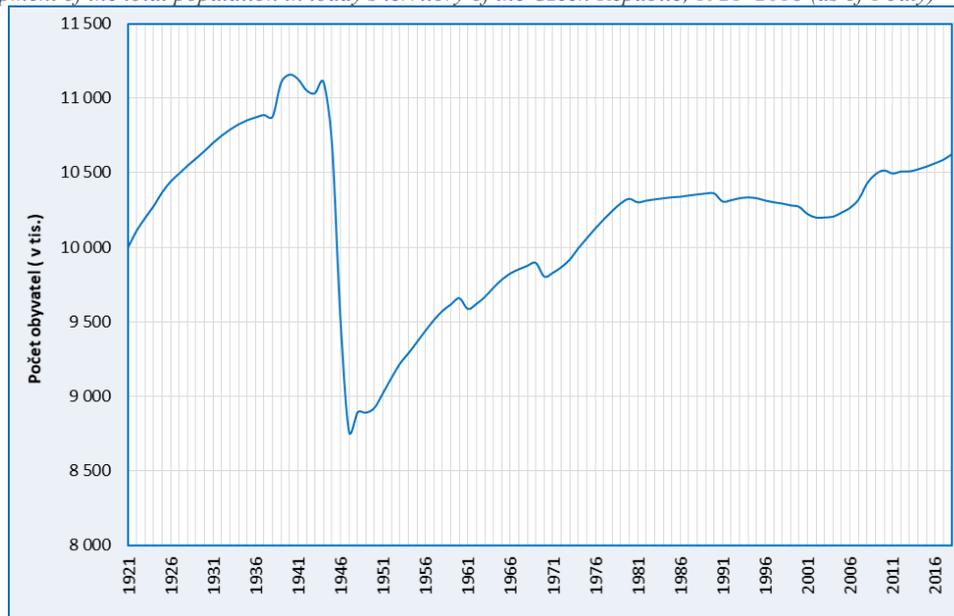
2.2 National background policies

2.2.1 Demographic development of the Czech Republic and its perspectives

The last hundred years have been a very turbulent period in terms of the development of the population of the Czech lands. In the interwar period, the population grew by roughly one million in twenty years, from less than 10 million to almost 11 million people. During World War II, it is estimated that our territory within its historical borders was home to the largest number of people ever, over 11 million. The maximum was to be reached in 1940, when their number reached almost 11.2 million people. After the departure and displacement of the German population, the number of inhabitants fell to the lowest level ever in the 20th century, about 8.8 million people. The 10 million mark was reached again in 1975, and the mark half a million higher in the next quarter of a century (Fig. 1).



Figure 1: Development of the total population in today's territory of the Czech Republic, 1921–2018 (as of 1 July)



Source: CZSO

These changes, as can be seen from the aforementioned historical overview, were not only the result of fundamental changes in the demographic reproduction regime, such as, for example, the demographic revolution peaking and fading in the 1920s – the transition from the extensive pre-industrial and early industrial type to the intensive type of reproduction of modern times. It is enough to recall the two world wars and the direct and indirect population losses associated with them. World War I, together with the Spanish flu epidemic, in addition to the temporarily suppressed population growth, also marked the end of the relatively regular age structure of the population. The indents in the curve, caused by both events, as well as the subsequent compensatory wave of the first half of the 1920s, could be observed in the age structure of the population throughout the rest of the 20th century. Other irregularities were gradually added. The demographic structure of the population of the Czech lands was particularly affected by the reproductively weak 1930s, the rise in the birth rate in the early 1940s and the subsequent "baby boom" after the end of World War II, which in our territory did not end until the second half of the 1950s, the low birth rate of the second half of the 1960s and the high birth rate of the 1970s, as well as a significant drop in the birth rate in the 1990s and at the beginning of the new century, which was further accentuated by a distinct wave of a compensatory birth rate at the end of the first and start of the second decade. All these irregularities together meant a transition from a real age pyramid to a bushy tree of life with a very irregular crown, while the originally established irregularities have practically disappeared in the current structure (Figs. 2 and 3).



Figure3 Gender-age structure of the population of the Czech Republic, 1993 (as of 1 January)

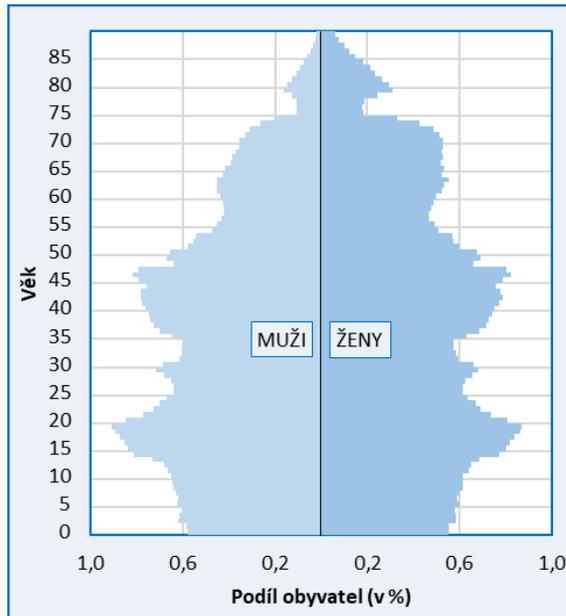
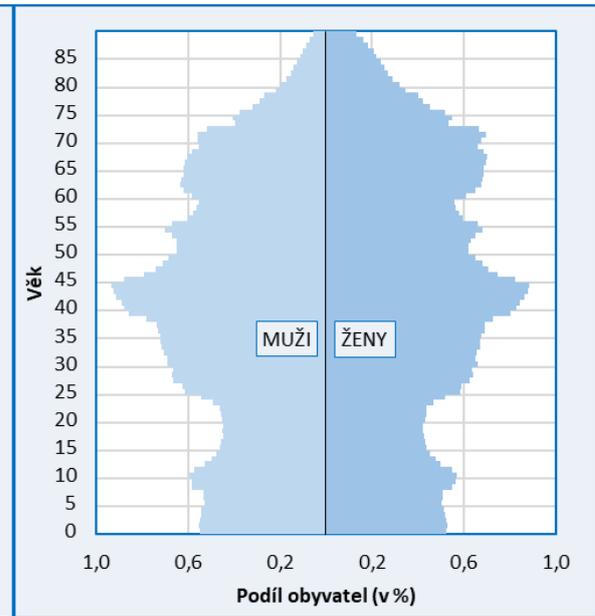


Figure2 Gender-age structure of the population of the Czech Republic, 2018 (as of 1 January)



Source: CZSO

Current demographic development and its context

The population development of the Czech Republic and its regions has undergone a number of fundamental changes in the past three decades. Some basic development trends, such as a steady decline in the overall mortality rate, have been observed for thirty-three years, while others have undergone repeated changes. The new directions of development are sometimes vastly different from the previous directions. As an example, we can cite the turn in the development of the total fertility, which occurred at the turn of the century, or the relatively frequently changing parameters of migration movements – volumes, demographic structures and directions of migration flows. The aforementioned and many other changes are mainly a reaction to the development of the environment in which the overall reproduction takes place, i.e. to the development of social, economic, cultural, political and security conditions, not only in the given territory but also in its essential surroundings that, in some in some cases, reach beyond state borders.

From the point of view of the current population development of the Czech Republic and its territorial components, the most significant changes in the environment, in addition to the permanent process of modernization, were above all the fundamental political and subsequent socio-economic changes after 1989. For example, the country's accession to the European Union in 2004, together with joining the Schengen Agreement at the end of 2007, had a significant influence. To a certain non-negligible extent, the population reproduction responded to the protracted global economic crisis that our economy faced between 2008 and 2014, as well as to the subsequent significant economic upswing and the further social development related to it. The economic and social growth led to an increase in social security, which is naturally reflected in population reproduction, especially in further growth in the overall level of fertility and also in increased migration activity, especially of foreigners. However, the growth of social and economic security is, to a certain extent, disrupted by international security threats and the uncertainty of further international political developments.

The circumstances of population development have changed in the last three decades not only under the influence of the aforementioned macroeconomic, social or (geo)political changes, but also with regard to fundamental changes in the housing market. These led to a transition from the historical development based



on a significant excess of demand over supply to relative saturation of the market. The role of new housing construction as a factor in population development will therefore tend to weaken in the coming years at all levels of territorial division, while at the national or regional level, with the exception of the capital city of Prague and the Central Bohemian Region, this factor will almost certainly not become the determining factor. There are several reasons. First of all, the Czech Republic or most of the regions as a whole do not have the corresponding residential attractiveness. Only the most important population centres and their hinterland (suburbia) have this. At the same time, the intensive aging of the population and the gradual dying of the older generations will lead to an intensive release of the already existing housing stock, which will further weaken the link between new construction and population reproduction.

Although migration, especially its foreign component, represents a relatively significant population potential, for the future development of the number of inhabitants of most regions, the balance of natural change will probably be more important than migration for the decisive part of the forecast period. The number of deaths increasingly prevailing over births in the period up to 2050 is an inevitable phenomenon, taking into account the current age structure of the population of most regions. The number of deaths will increase in the long term, as the very numerous generations born in the war and post-war years will move into the area immediately surrounding the modal age at death (normal life expectancy). They are significantly more numerous than the generations born in the 1930s, whose members currently predominate among the deceased inhabitants of the Czech Republic. At the same time, the number of children born in most regions will decline due to a decrease in the overall reproductive potential of the contingent of women of childbearing age (15-49 years). This potential will decrease as a result of the decreasing total number of women in this age category as well as the gradual transition of increasingly fewer women to the age of the most intense fertility (25-35 years). Only the Czech Republic as a whole can be an exception, thanks mainly to the capital city of Prague and the Central Bohemian Region, which are attractive in terms of work and residence for young people from all over the country and from abroad, so these regions are not threatened by a deficit of migration or natural change today and probably not even in the future.

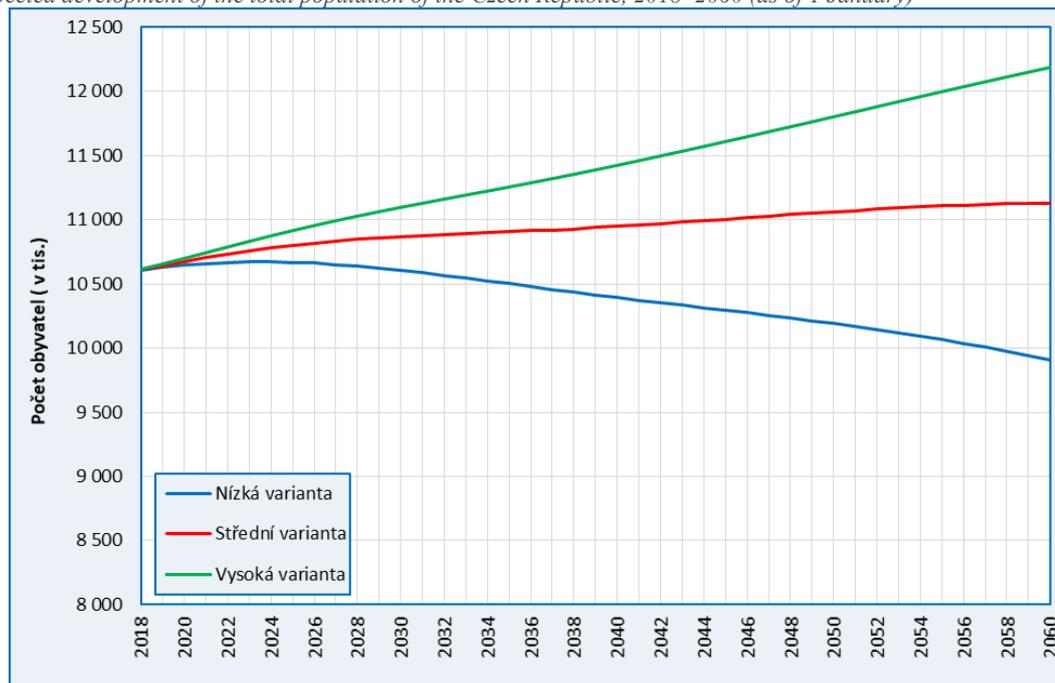
Expected development of the number and age structure of the inhabitants until 2060

Compared to the population of many other European countries, especially those located in the south-eastern and eastern parts of the continent, the population of the Czech Republic has a relatively high reproductive potential. This is thanks to the relatively high current fertility and its quite favourable outlook, more favourable mortality rates, both current and expected, and mainly thanks to a higher net migration in relation to the total population, which will compensate for the expected deficit of natural change due to the unfavourable age structure. The total reproductive potential of CZ population should thus correspond to expanded reproduction and lead to a continuous population growth during the forecast period of 2023 to 2060. In the horizon of the next 25 years, even before the year 2045, it can be realistically expected that CZ population will reach the mark of 11 million, and before reaching the forecast horizon (2050) it will probably exceed this mark by more than 100,000 people (Fig. 3).

The medium variant of the forecast for the Czech Republic can be considered more "optimistic" because it is slightly skewed towards the high variant of the forecast. The analogous population of the Czech Republic corresponding to the low variant represents 89% and the high 110% of the target value according to the medium variant. We can interpret this fact as a natural expression of the subject's key role in prognostic activity. Even the most objectively compiled forecast is not free from the influence of the environment, moods and expectations in which it is created. This forecast was created in the first half of 2018, i.e. at a time of boom and general, albeit cautious, optimism in society, which may be one of the main reasons for the slight deviation of the medium variant towards the high variant.



Figure4 Expected development of the total population of the Czech Republic, 2018–2060 (as of 1 January)

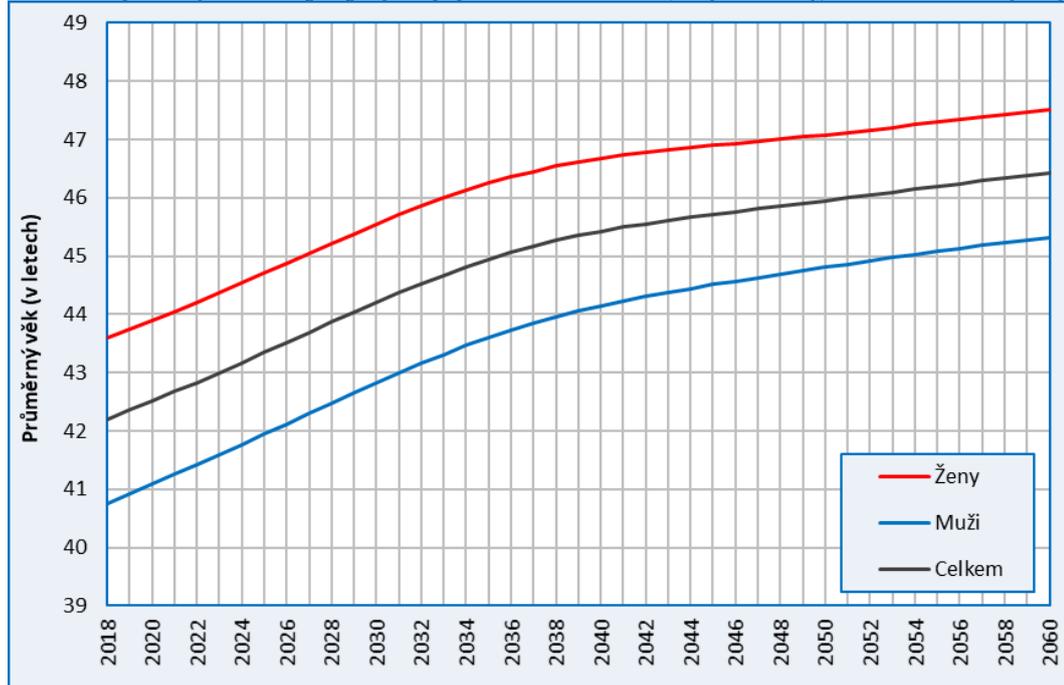


Source: Burcin and Kučera (2018)

The transformation of the initial age structure of the CZ population will most likely manifest as the reproduction of already established irregularities and their natural levelling mainly due to the gradual departure of generations. Migration will probably have a significant effect on levelling out the imbalances and irregularities in the age structure, especially at lower age levels. The development of the age structure of the Czech population will be marked by aging. It will age from above throughout the forecast period, due to the permanent increase in the number of senior citizens (persons aged 65 and over), and for most of the forecast period also from below, due to the reducing numerical size of the child component. The average age of the population will continue to grow, from the current roughly 42.5 years dynamically to the mark of 45 years, which should most likely be reached around 2035, and then at a slower pace up to the level of 46.5 years at the forecast horizon.



Figure5 Expected development of the average age of CZ population, 2018–2060 (as of 1 January), medium variant of the forecast

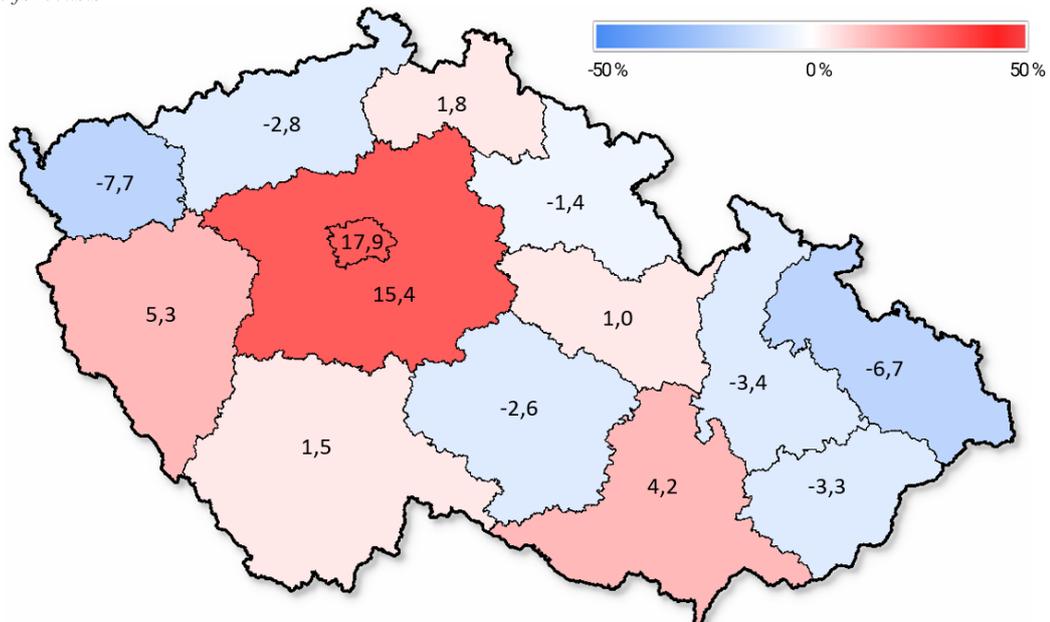


Source: Burcin and Kučera (2018)

Expected development of the population in the regions until 2050

In the short term, in the period up to 2030, the population will grow in roughly half of the regions - Prague, Central Bohemia, Plzeň, South Moravia, Liberec and Pardubice Regions (Fig. 6). However, in the medium term, until 2050, only the first four of them are most likely to show real growth (Fig. 7).

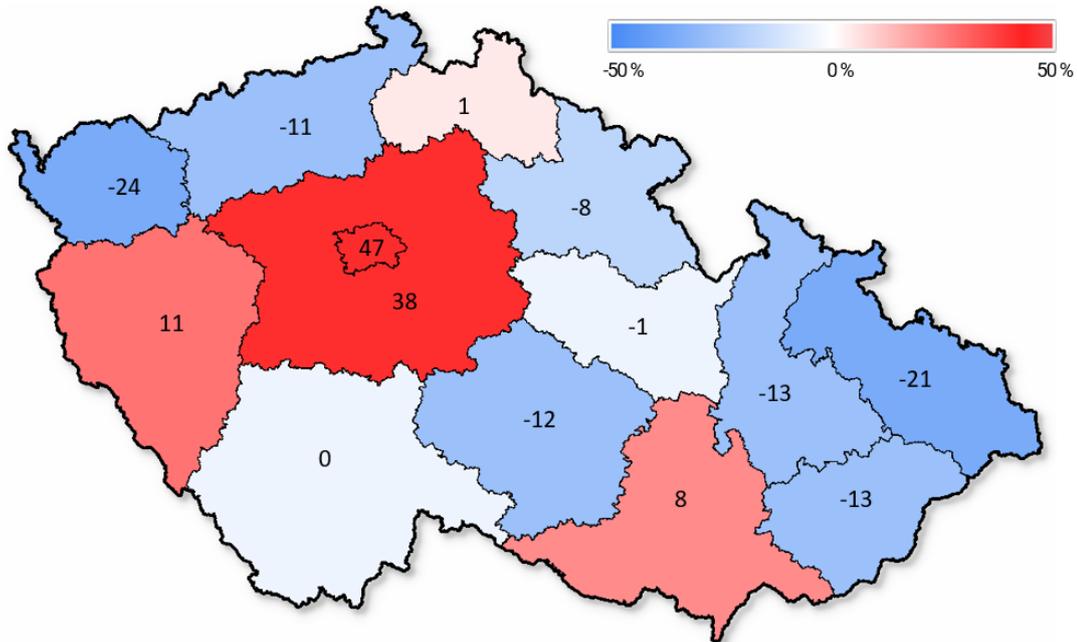
Figure6 Expected change in the total population of the regions between 2017 and 2030 (%), as of 31 December of the given year, medium variants of the forecasts



Source: Burcin, Kučera and Kuranda, 2018



Figure 7 Expected change in the total population of the regions between 2017 and 2050 (%), as of 31 December of the given year, medium variants of the forecasts



Source: Burcin, Kučera and Kuranda, 2018

The above cartograms suggest that the most likely scenario is the continued concentration of the population in the metropolitan area. The population size of the two regions (Prague and Central Bohemia) combined should realistically increase by about one-sixth in the coming thirteen-year period, by the end of 2030, and by more than two-fifths of the baseline by 2050. The growth of the population of the City of Prague should be roughly one-fifth more dynamic compared to the population growth in the Central Bohemian Region. The population of the Plzeň and South Moravian Regions should increase by approximately 5% and 4% respectively by 2030, and by 11% and 8% by 2050. The population of the Liberec, South Bohemian and Pardubice Regions is expected to stagnate rather than grow or decline.

On the other hand, the most significant decrease in the population in both time horizons is expected in the the Karlovy Vary and Moravian-Silesian Regions, by roughly a quarter and one-fifth of the baseline respectively. However, the remaining Moravian regions, the Vysočina Region and the Ústí nad Labem Region are also likely to experience changes that can already be described as depopulation. All these regions should lose more than a tenth of their baseline population by 2050.

The causes of the decline will include not only migration losses but also, and often above all, the deficit of natural change. In the future, in most regions, the number of deaths will increase, while the number of live births will decrease, and a natural change deficit will arise or further deepen, if already present. This is due to the age structure and its almost certain changes - a significant increase in the number of older people, regardless of the development trend of the total population, and an equally significant decrease in the number of potential mothers.

The rise in the number of deaths will necessarily occur as a result of the dynamically growing numbers of elderly residents. This increase will be the most intense in the period when the numerous generations born between 1940 and 1956 will gradually reach the age corresponding to the normal life expectancy (the age at which people die absolutely most often in the given mortality regime - the mode of distribution of the statistical number of deaths by age). At that time, the expected increase in life expectancy at birth will no longer be able to eliminate the effect of population aging on the development of the number of deaths.



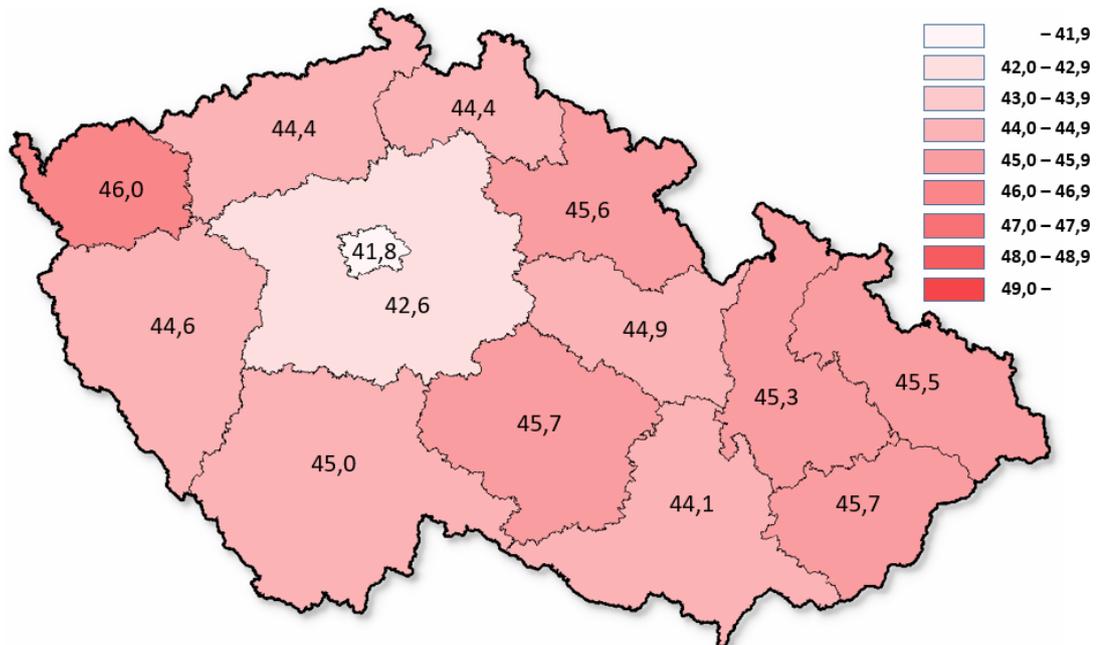
The number of live births in most regions will decline as a result of a decrease in the reproductive potential of their populations, i.e. a decrease in the numerical size and aging of the contingent of women of reproductive age. The decline in reproductive potential will be mainly the result of the low numbers of births in the second half of the 1990s and at the beginning of the new century. These were and are significantly lower, by roughly a half, than the numbers of births in the 1970s, which produced the majority of women giving births in the recent past. The rise in fertility in any realistic framework will not be high enough to fundamentally affect the decline in numbers.

Similarly to the development of the numbers, the development of the age structure, or aging of the population of the regions, will also be differentiated. Decisive changes in the age structure of the population of the regions without exception are coded in the baseline age structure. Further aging of the population of CZ regions is inevitable. However, there will be significant differences. In the metropolitan area, and especially in the metropolis itself, it should slow down due to expected migration gains. On the other hand, in areas with a migration deficit, this process will intensify, as the migration exchange will drain primarily young people, including potential mothers, which will subsequently further intensify the aging process, as the number of children born in the territory will decrease more rapidly.

This development will lead to a differentiation of the average age of the population, while only the population of the capital city of Prague will probably be slightly younger by the end of 2030, and that of the Central Bohemian Region only slightly older, than the current national average (42.2 years). The other regions will have significantly older populations with the average age in the range of 44 to 46 years (Fig. 8).

The differentiation of the regions in terms of the average age of their inhabitants will continue also after 2030, when the difference between the highest and lowest expected value should be approximately 4.2 years, then in 2050 it should be somewhere around 6.8 years (Fig. 9). In both cases, the oldest population is expected in the Karlovy Vary Region, followed by the Vysočina, Zlín and Moravian-Silesian Regions. In the first period, the Hradec Králové Region should also belong to this group.

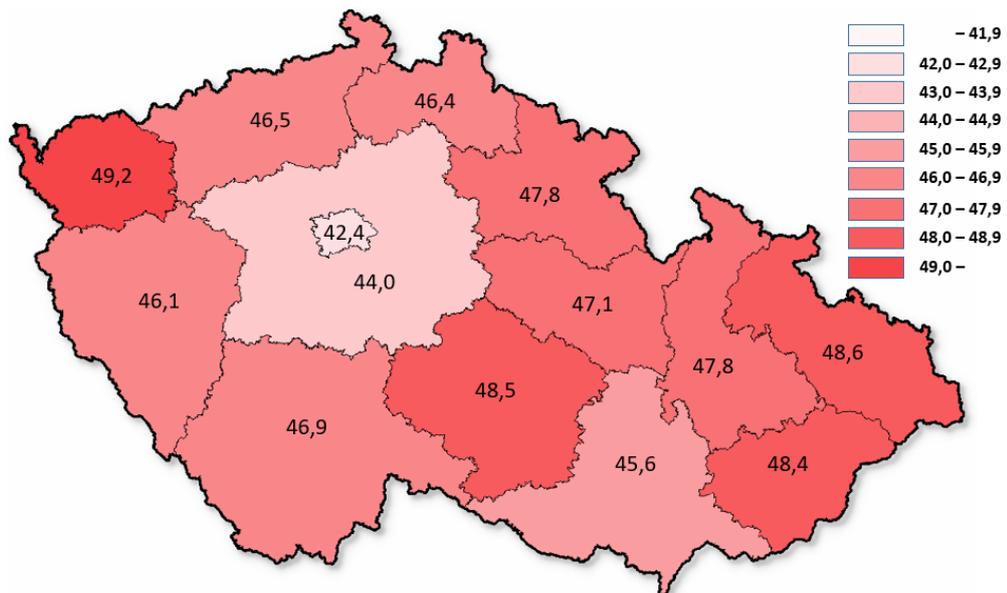
Figure 8 Expected average age of the population of the regions (years), as of 31.12.2030, medium variants of the forecasts



Source: Burcin, Kučera and Kuranda, 2018



Figure9 Expected average age of the population of the regions (years), as of 31.12.2050, medium variants of the forecasts



Source: Burcin, Kučera and Kuranda, 2018

Conclusions

For further analyses presented in this chapter, following the content and structure of Chapter 2, the population of the Czech Republic in 2050 will be assumed to be approximately 12 million inhabitants. This population estimate can be considered rationally justifiable in view of the above analyses and forecasts.

In terms of the population distribution, it is important to note the relatively significant differentiation of the parameters of demographic development and its individual components at the level of CZ regions, substantial differences in the age structures of the regional populations, their very different migratory attractiveness. This is based on their different geographical location in relation to the main centres and axes of development as well as on the level of their development, largely dependent on the location, the social and economic structure of the population, the environmental situation and other essential parameters of the territory and its inhabitants.

Changing all these essential parameters and levelling the playing field is a very long process. Therefore, the above-mentioned differences between the regions cannot be ignored.

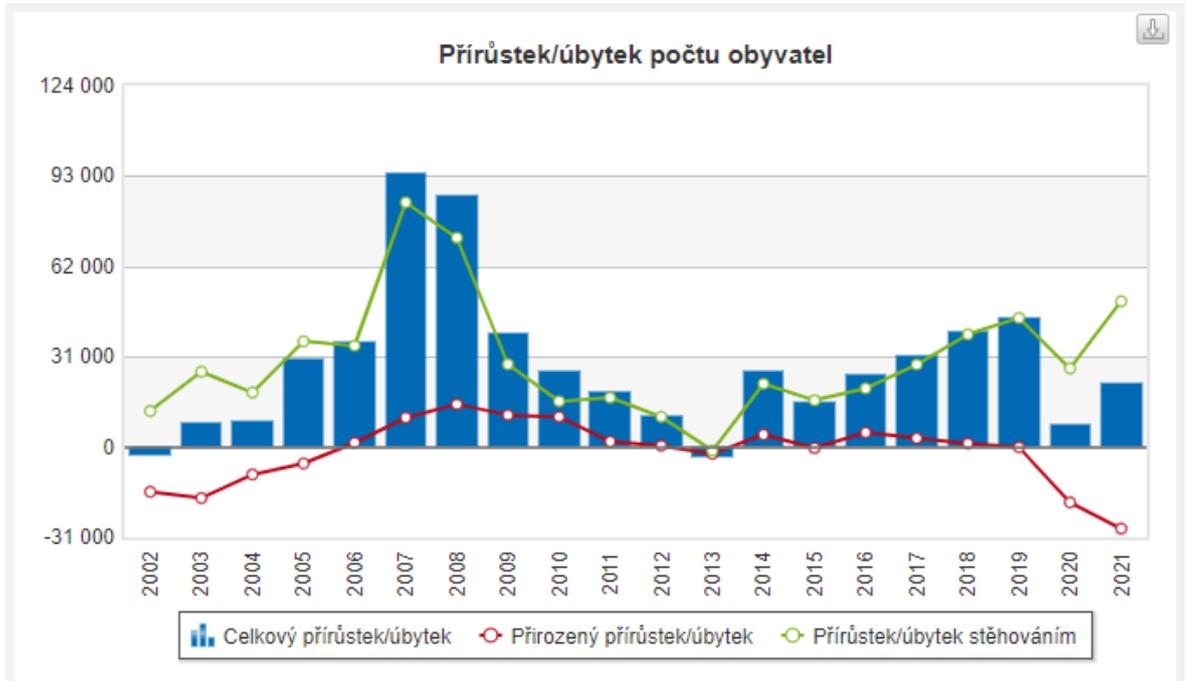
Reaching the ad hoc set limit of 12 million inhabitants in the Czech Republic is above the upper limit of what can be expected in the high variant of the only real and at the same time current forecasts of the CZ population development, but it is still realistic, i.e. if we accept the assumption that the Czech Republic is not fully utilizing its migration potential, or migration attraction, especially compared to a number of developed European countries of similar population size, and that the net migration may in fact be significantly higher in the coming decades than that based on current population forecasts.

From the spring of 2020, the Czech Republic struggled with the COVID-19 pandemic. Since its beginning, approximately 40,000 people have died in connection with it. In the first three quarters of 2021, 102,932 people died in the Czech Republic, a fifth more year on year. The country's population therefore decreased to 10.68 million. At the beginning of 2021, the Czech Republic had 10.7 million inhabitants. Migration also had an effect on the decline, as more people emigrated from the Czech Republic. This follows from data published by the Czech Statistical Office (CZSO).



Figure 10 Population increase/decrease (2002-2021)

Česká republika měla k 31. prosinci 2021 **10 515 669** obyvatel.



Data source: CZSO public database

2.2.2 State Energy Concept (or National Clean Mobility Action Plan) and the principle of Do No Significant Harm (DNSH)

In connection with observing the DNSH principle in road projects, it is necessary to point out the gradual greening of road transport, which is ensured at the national level (in accordance with the long-term goals of the EU) by the National Action Plan for Clean Mobility (NAP CM), as an implementation tool of the State Energy Concept). Below is an overview of the goals resulting from the NAP CM Update, as approved by the CZ government in April 2020.



Table 3: Overview of the goals contained in the updated National Action Plan for Clean Mobility

Vehicles	Year 2030
electric cars	220,000 - 500,000
electric buses	800 - 1,200
CNG cars	20,000 - 44,600
CNG buses	1,740 - 2,650
LNG trucks	3,500 - 6,900
LPG	170,000 - 250,000
hydrogen cars	40,000 - 50,000
hydrogen buses	870
Recharging points/ refuelling stations	Year 2030
electric	19,000 - 35,000
CNG	350 - 400
LNG	30
hydrogen	80

Another update of the NAP CM can be expected following the adoption of the proposal for an Alternative Fuels Infrastructure Regulation, as it will lay down a requirement to update the so-called national policy frameworks for the area of alternative fuels. In general, it can be expected that further development of European legislation in this area (see the Fit for 55 package) will lead to an increase in the targets regarding the number of emission-free vehicles (electric cars and hydrogen vehicles) by 2030, which in the long term (by 2050) means that the share of emission-free vehicles in the traffic on Czech roads will increase. If we take into account the expected end of the production of new passenger cars with combustion engines by 2035, then with the current age of the vehicle fleet in CZ (over 18 years) and the average mileages related to the age of the vehicles¹¹, it can be estimated that emission-free passenger cars could account for at least 70% of passenger transport volume in 2050.

2.2.3 Climate Protection Policy

Under the *Paris Agreement*, the Czech Republic as a member of the EU committed, along with other EU Member States, to reducing, by 2030, greenhouse gas emissions by at least 40% compared to 1990. By its accession to the Agreement and to this commitment, it will fulfil the common goal of the EU and its Member States, which was adopted by the European Council as part of the conclusions of the European Council on the 2030 Framework for Climate and Energy Policies, approved on 24 October 2014.

¹¹ See, for example, data from the Transport Research Centre project on the average mileage of vehicles by Euro emission standard for 2019: Vehicles with Euro 0 = 2333 km, Euro 1 = 6841, Euro 2 = 8482, Euro 4 = 10 251, Euro 5 = 19 191 (Source: David, Andrlik: *Analysis of vehicle charges and taxes*, 2019)



The *Paris Agreement* was adopted by the Parties to the UN Framework Convention on Climate Change in 2015. The Agreement implements the provisions of the Convention and after 2020 it has replaced the previous Kyoto Protocol.

The agreement entered into force on 4 November 2016, less than a year after its adoption in Paris, and was ratified by the EU and all its Member States. The Czech Republic became a contracting party to the Agreement on 4 November 2017.

The Czech Republic's approach to the issue of climate change can be divided into a policy aimed at reducing anthropogenic emissions of greenhouse gases (so-called mitigation) and into a policy of adaptation to the adverse impacts of climate change (so-called adaptation). *The climate protection policy* is primarily focused on the analysis and proposal of options for sufficient and cost-effective reduction of greenhouse gas emissions in the conditions of the Czech Republic. It is a policy concept that determines the basic and indicative goals of the Czech Republic in the field of climate protection up to 2050 and thus represents a long-term strategy for the low-carbon development of the Czech Republic. The policy is designed as proactive and so in the areas concerned, i.e. especially in the sectors of energy, final consumption of energy, industry, transport, agriculture and forestry, waste management, science and research and voluntary instruments, it defines specific measures and tools for gradual reduction of greenhouse gas emissions, with respect to the economically exploitable potential. At the national level, the Climate Protection Policy takes into account existing EU commitments stipulating that greenhouse gas emissions must be reduced by at least 40% by 2030 compared to the baseline year of 1990. These goals were adopted at the level of the European Council as part of the climate-energy package from 2009, or the climate-energy framework from 2014 together with the goals for renewable energy sources and energy savings. In the longer term, the EU plans to achieve so-called carbon neutrality, which corresponds to the goal of reducing greenhouse gas emissions by 80-95% by 2050 compared to the level in 1990, however, a similar contribution from all economically developed states and adequate involvement of all other world emission producers is expected.

A new strategic management document is the National Energy and Climate Plan of the Czech Republic until 2030, approved by the government and notified to the EU authorities, in which CZ established an effectively guaranteed (sanctioned) commitment to reduce final energy consumption by 8% between 2020 and 2030 (i.e. by approx. 0.8%/year) and reduce carbon dioxide production by 10% (i.e. by approx. 1%/year). These are very serious commitments for transport, as the recent CZ trend has been quite the opposite: energy consumption in transport grows by an average of 3.5% per year and carbon dioxide production in transport by 4%. To ensure the required decrease in energy consumption and carbon dioxide production, it will be necessary, first of all, to stop their increase in transport.

Without exploiting the potential of energy and emission savings in transport, CZ cannot meet its goals and commitments in this area. Therefore, it is important that in the programming period 2021 to 2030, transport is significantly included in the relevant grant programmes aimed at reducing final energy consumption by increasing energy efficiency and at reducing carbon dioxide emissions.

The potential for energy savings in transport is considerable. Both by intramodal savings (i.e. energy savings achieved within one mode of transport, typically the replacement of the internal combustion engine with an electric traction drive, the indicative value of a decrease in final energy consumption to 40%), and especially by extramodal savings (i.e. the motivation of passengers and transporters to switch to a more energy and emission efficient mode of transport, typically from road to rail, indicative value of decrease in final energy consumption to 13%). By combining both of these steps, CZ could reduce the final energy consumption in transport by 2050 from the current 300 PJ/year (in the structure 98% hydrocarbon fuels and 2% electricity, production of 21 Mt CO₂/year) with the same transport output to a target value of 100 PJ/year (production of 0 Mt CO₂/year), i.e. save 200 PJ/year of final energy consumption and 21 Mt CO₂/year.



On the basis of the climate and energy obligations towards the EU and European legislation, CZ drew up its National Energy and Climate Plan that, in fact, newly combines the scope of the State Energy Concept with the Climate Protection Policy and other policy concepts for improving air quality and thus represents a plan for an integrated approach in energy and climate-environmental policy. The main goals of *the National Climate and Energy Plan (NCEP)* are to increase the ambition of the share of renewable energy sources and energy efficiency by 2030, as well as to reduce greenhouse gas emissions and focus on interconnectivity.

2.2.4 State Environmental Policy

The State Environmental Policy (SEP) is a long-term top strategic document at the national level, safeguarding environmental protection in CZ. The main goal of SEP is to provide CZ citizens with a safe, healthy and resilient environment that will ensure a high quality of life also for future generations. SEP strives to minimize the negative impacts of human activity on the environment, to prepare society and the economy as best as possible for climate change, to ensure efficient use of all resources with a preference for secondary raw materials and emission-free energy sources. It is also essential to use the landscape in a sustainable way and to support biodiversity. SEP emphasizes the protection of the environment and resources not only on a local but also on a global scale, because, through its economy, CZ influences international activities, the extraction of raw materials and global biodiversity.

The issue of transport is relevant for SEP in all three thematic areas - Environment and health, Low-carbon and circular economy, and Nature and landscape. The adoption and implementation of adequate measures in the field of transport is absolutely essential for achieving the goals of improving air quality and reducing noise pollution in settlements, as well as limiting greenhouse gas emissions. The growing density of the transport network causes the take of often very fertile agricultural land. The transport network and especially the high intensity of traffic on the roads cause fragmentation of the landscape and ecosystems, therefore, mobility is also addressed from the point of view of biodiversity protection, permeability for migration of animals and use of the landscape.

2.2.5 Strategy on Adaptation to Climate Change in the Czech Republic

Climate change is currently understood as an important global factor that can have a major negative impact on human society. The basic conceptual approach is prevention and preparedness for potential impacts. Early and effective adaptation reduces vulnerability and increases resilience to the effects of climate change, and thus also reduces economic losses caused by its negative impact.

Transport, together with energy, is the main integrating sector of the entire economy and the functioning of society. The negative effects of climate change can cause cumulative and synergistic effects even in a relatively minor impact on transport itself. Therefore, due attention should be paid to climate change in the transport sector.

The main goal for the transport sector is, in accordance with the Strategy on Adaptation to Climate Change in the Czech Republic, to increase the ability to adapt to the negative effects of climate change, to increase resilience to the negative effects of climate change and to support low-emission development in the field of transport without jeopardizing the quality of the environment and economic and social potential for development.

2.2.6 National Emission Reduction Programme of the Czech Republic

The National Emission Reduction Programme of the Czech Republic is a strategic document that determines the state's action in reducing the amount of selected pollutants released into the air. These include sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds and dust particles. The current update of the National Emission Reduction Programme of the Czech Republic is mainly related to the necessity to fulfil



national obligations of reducing emissions, set for 2025 and 2030. The forecast for the development of the amount of pollutant emissions does not show that the Czech Republic could fulfil its obligations without introducing additional measures after 2020. Designing such additional measures is the main goal of the update of the National Emission Reduction Programme of the Czech Republic. Limiting the amount of pollutants released into the air will improve air quality in the Czech Republic.

2.2.7 Do no significant harm (DNSH) principle

The multimodal approach is the main tool for sustainable mobility. The Czech Republic must fulfil obligations in the area of air pollution by harmful substances (National Emission Reduction Programme), reduction of greenhouse gas emissions (*Paris Agreement*), with the common denominator being energy savings (National Energy and Climate Plan). It is necessary to start from the fact that the internal combustion engine in transport shows low efficiency compared to the electric motor and is a source of emissions of harmful substances and noise. The lower rolling resistance and lower air drag of the rail transport are also important. For regular and strong transport flows, it is necessary, first of all, to ensure the use of rail transport with electric tractive vehicles, both in passenger and freight transport. Moreover, the multimodal approach must be advantageous not only from the point of view of the environment, sustainable development and public health, but also as an economically advantageous alternative. Therefore, emphasis must be placed on inter-sectoral cooperation.

The DNSH principle (*Do No Significant Harm*, loosely translated also as "do no significant harm to environmental goals" or "the no significant harm principle") is anchored in the Communication from the Commission - *European Green Deal*, point 2.2.5 A green oath: 'do no harm', and in a number of EU legislative acts. The purpose is not to provide environmentally harmful grants or other public aids, which the EC has committed to across the EU funding. It is also one of the four legislative conditions that the assessed economic activity must meet in order to be considered "environmentally sustainable" according to Regulation (EU) No 2020/852 (Taxonomy Regulation). Regulation (EU) No 2021/241 on the Recovery and Resilience Facility stipulates that no measures (i.e. no reform and no investment) included in the national recovery and resilience plan should lead to significant damage to environmental objectives, i.e. it must comply with the DNSH principle as per Article 17 of the Taxonomy Regulation.

2.2.8 State Raw Material Policy

The State Raw Material Policy is a strategic document expressing the state's goals in the field of mineral resources in accordance with the needs of economic and societal development, including environmental protection. It is based on the principle of sustainable development as a general overarching factor. The purpose is to cover the raw material needs of the state, to ensure stable, secure and economically advantageous access to mineral resources, necessary for sustainable development of the entire society and functioning of the Czech economy. Mineral resources come from three basic sources, namely domestic sources, import into CZ, and secondary sources such as recycling, or reformation.

The State Raw Material Policy is formulated in such a way as to help secure the necessary mineral resources for the Czech economy and at the same time enable the necessary development of the raw materials industry. Mineral resources are essential as they form the basic and irreplaceable inputs for the country's economy. Their effective use promotes prosperity and can help overcome crises. Broad consensual and societal acceptance of the use of domestic mineral resources naturally requires the fulfilment of strict environmental protection criteria and the maximum use of modern extraction and processing methods with minimal environmental impacts.

Achieving a climate-neutral circular economy requires a full mobilization of industry. It takes 25 years, i.e. the time of one generation, to transform a certain industrial sector and all value chains. It is necessary to take decisions and start the activity by 2025 so that the transport sector is ready. *The Action Plan for a Circular*



Economy will have to guide the transformation in all sectors, but the action will have to focus especially on the sectors that are the most resource intensive - i.e. also in transport constructions, which are among the important sectors of the construction industry.

2.2.9 State Energy Concept

The vision of *the State Energy Concept* (SEC) is achieving a reliable, affordable and long-term sustainable supply of energy to households and the economy, which is represented by three top strategic goals of the Czech energy industry: security - competitiveness - sustainability. The main mission of SEC is to ensure a reliable, secure and environmentally friendly supply of energy for the needs of the CZ population and economy, at competitive and acceptable prices under standard conditions. As well as to ensure uninterrupted energy supplies in crisis situations. Last but not least, it aims to ensure a stable and predictable business environment, efficient state administration and sufficient and secure energy infrastructure.

For the field of transport, the SEC requires a fundamental reduction in the consumption of hydrocarbon fuels, especially oil products, and a higher use of electricity. This replacement is associated with significant savings - the decrease in consumption of fuels for internal combustion engines is many times higher than the increase in electricity consumption. This saving is physically due to the higher efficiency of electric traction drive compared to combustion engine drive and to the priority application of electric tractive vehicles in the less energy-demanding rail transport.

2.2.10 Spatial Development Policy of the Czech Republic

(amendment binding from 1 September 2021)

The Spatial Development Policy of the Czech Republic, that includes the necessary diagrams, is, in accordance with Section 32 of Act No 183/2006 Coll., on spatial planning and the building code (the Building Act) as amended, divided into chapters:

- National spatial planning priorities for ensuring sustainable territorial development (selection)
- Development areas and development axes
- Specific areas
- Corridors and areas of transport infrastructure
- Corridors and areas of technical infrastructure and of related development plans
- Other tasks for ministries, other central administration authorities and for spatial planning.

The Spatial Development Policy of the Czech Republic defines areas, axes, corridors and sites with regard to the proven needs of the state territory development, which justify, in accordance with Section 5 of the Building Act, interference with the powers of the regional and local authorities in matters related to their spatial development, and whether it is justified to establish criteria and conditions for deciding on changes in such areas, axes, corridors and sites.

National spatial planning priorities for ensuring sustainable territorial development (selection)

Create conditions for the development, use of potential and multifunctional use of abandoned premises and sites (so-called brownfields of industrial, agricultural, military and other origin, including the territory of former military training areas). Manage the use of built-up areas (support for rebuilding through revitalization and rehabilitation of the area) and protect the undeveloped areas (especially agricultural and forest land) and preserve public greenery, including minimising its fragmentation. The goal is the effective use and arrangement of the territory, which is economical in terms of demands on the public budgets for transport and energy and which, by coordinating public and private interests in the development of the territory, limits the negative consequences of suburbanization for sustainable development of the territory.



Create territorial conditions to ensure permeability of the landscape for the migration of wild animals and for humans, especially when placing transport and technical infrastructure and when defining sites for housing, civic amenities, manufacturing and storage.

Depending on local circumstances, create conditions for better accessibility of the territory and improvement of transport and technical infrastructure with regard to the permeability of the landscape. When placing transport and technical infrastructure, maintain the permeability of the landscape and minimize the extent of landscape fragmentation; if it is expedient from these points of view, to place these infrastructures in parallel (in one line). For existing and being constructed network of motorways, expressways and class I roads, take into account the need and possibilities of placing rest areas, which are an integral part of such roads. Mitigate the exposure of urban areas to the adverse effects of transit rail and road traffic, including through bypasses of urban areas, or ensure protection by other appropriate measures in the area. At the same time, however, demarcate sites for new residential development in such a way that a sufficient distance is maintained from the demarcated corridors for new sections of motorways, class I roads and railways, and in this way consistently prevent the impassability of the area for transport structures and the possible adverse effects of traffic on public health (without the need to build expensive technical measures to eliminate such effects).

Create conditions for improving the accessibility of the territory by expanding and improving the quality of the transport infrastructure with regard to the needs of public transport and the requirements of public health protection and in accordance with the principles of the development of sustainable mobility of people and goods, especially within development areas and development axes. New construction must be directly conditioned by sufficient public infrastructure. Create conditions for increasing the safety and fluency of traffic, protection and safety of the population and improving its protection from noise and emissions, with this in mind, create conditions for environmentally friendly forms of transport (e.g. rail, bicycle) in the territory.

Create conditions for the coordinated placement of public infrastructure in the territory and its development and thereby support its purposeful use within the settlement structure, including conditions for the development of digital technical infrastructure. Create conditions for improving the transport accessibility of municipalities (towns) that are natural regional centres in the territory so that, thanks to the facilities, location and infrastructure of such municipalities, the conditions are also improved for the development of the surrounding communities in rural areas and in areas with specific geographical conditions. In spatial planning activities, establish the conditions for the creation of an effective network of passenger and freight rail, road, water and air transport, including networks of regional airports, efficient transport networks to connect urban areas with rural areas, as well as solutions for cross-border transport, because mobility and accessibility are key prerequisites for economic development in all regions.

In order to ensure the quality of life of the inhabitants, take into account the needs of the territorial development in the long term and the demands on public infrastructure, including public spaces. Address the design and protection of high-quality urban spaces and public infrastructure in cooperation between the public and private sectors and the public.

Pay special attention to the interconnectivity of different modes of transport. Create territorial conditions for prioritizing public, cycling and pedestrian transport. With that in mind, delimit the sites and corridors necessary for efficient integrated public transport systems or urban public transport, enabling effective links between residential areas, recreational areas, public amenities, public spaces, production and other sites, meeting the requirements for high-quality environment. Create conditions for the development of an effective and accessible system that will provide residents with equal opportunities for mobility and accessibility in the territory. With this in mind, create conditions for the construction and use of a suitable network of pedestrian and bicycle paths, including accompanying greenery where appropriate.



Development areas, development axes

Development axes can be described as strips of territory including municipalities or their parts in which there are, or realistically can be expected, increased requirements for changes in the territory. They are characterized by a strong linkage to the existing settlement structure and are influenced by the development dynamics of the respective settlement centres. They interconnect development areas, such as settlement centres of the highest category, and have similar characteristics as development areas, but with their lower intensity. Another sign of development axes is the presence of existing or planned high-quality and high-capacity transport infrastructure of a higher order. Municipalities that are already part of development areas are not included in development axes. *The Spatial Development Policy* defines the following:

Metropolitan development area Prague

The national capital Prague, the territory of municipalities falling within the administrative districts of local authorities of municipalities with extended powers (MEP) Benešov (excluding municipalities in the western and southeastern parts), Beroun (only municipalities in the central and northern parts), Brandýs nad Labem-Stará Boleslav (excluding municipalities in the northern part), Černošice (excl. municipalities in the southern part), Český Brod (excl. municipalities in the southeastern part), Dobříš (only municipalities in the northwestern part), Kladno (excl. municipalities in the southwestern part), Kralupy nad Vltavou (excl. municipalities in the northeastern part), Lysá nad Labem, Neratovice (excl. municipalities in the northwestern part), Říčany (excl. municipalities in the eastern part), Slaný (only municipalities in the southern and central part), Rakovník (only municipalities in the eastern part).

The territory affected by the development dynamics of the national capital Prague, in combination with secondary centres, especially Kladno and Beroun. This is the strongest concentration of population in the Czech Republic, as well as the concentration of cultural, institutional, organizational, economic, educational and R&D activities, which for the most part also have international significance; a fundamental development prerequisite is the connection to the motorways, the completion of the D0 motorway (Prague ring road, or earlier also the road around Prague), the connection to the transit railway corridors (TRC) 1, 3 and 4 and the high-speed railway network, and effective interconnectivity of individual modes of transport including air, and the creation of an efficient system of integrated public transport.

Metropolitan development area Ostrava

The territory of municipalities falling under MEP Bílovec (excl. municipalities in the southwestern part), Bohumín, Český Těšín, Frýdek Místek (excl. municipalities in the southeastern part), Havířov, Hlučín (excl. municipalities in the northern part), Karviná, Kopřivnice (excl. municipalities in the central part), Kravaře (only municipalities in the southwestern part), Orlová, Opava (excl. municipalities in the western and southern parts), Ostrava, Třinec (excl. municipalities in the southern and southeastern parts), Frýdlant nad Ostravicí (only municipalities in the northern part). The territory influenced by the development dynamics of the regional capital of Ostrava and the multifaceted effect of the dense network of secondary centres and urbanized settlement. This is a very strong concentration of population and economic activities, which is characterized by the dynamic development of international cooperation with the neighbouring Polish region of Upper Silesia; an important prerequisite for development is the connection to the Czech and Polish motorway network, which is currently being built, as well as the location on TRC 2 and 3.

Metropolitan development area Brno

The territory of municipalities falling under MEP Brno, Blansko (only municipalities in the central, southeastern and southwestern parts), Kuřim, Pohořelice (only municipalities in the central and northern parts), Rosice (only municipalities in the eastern part), Slavkov u Brno (only municipalities in the northern part), Šlapanice, Tišnov (only municipalities in the southeastern part), Židlochovice, Ivančice (only municipalities in the



southeastern part). The territory affected by the development dynamics of the regional capital of Brno. It is a very strong concentration of population, economic activities, as well as a concentration of cultural, institutional, organizational, educational and R&D activities, which largely have international significance; a development-supporting factor is good accessibility by motorways and TRC 1; strengthening international cooperation ties connect the region especially to the area of Vienna and Bratislava.

Development area Hradec Králové/Pardubice

The territory of municipalities falling under MEP Holic (excl. municipalities in the eastern part), Hradec Králové, Chrudim (only municipalities in the northern and northeastern parts), Jaroměř (only municipalities in the southern part), Kostelec nad Orlicí (only municipalities in the northwestern part), Nový Bydžov (excl. municipalities in the western and northern parts), Pardubice, Přelouč (only municipalities in the eastern part). The territory affected by the development dynamics of the regional capitals of Hradec Králové and Pardubice, in combination with the secondary centre Chrudim. It is a strong double-core concentration of population and economic activities, a significant part of which is of international importance. The development-supporting factor is the location of Pardubice on TRC 1 and 3, the D11 motorway from Prague to Hradec Králové with a planned continuation to Poland, and the prospective connection by the D35 motorway with Olomouc, which will provide an alternative for a fast west-east road connection in the Czech Republic alongside the D1 motorway.

Development area Plzeň

The territory of municipalities falling under MEP Nýřany (excl. municipalities in the northwestern part), Plzeň, Přeštice (only municipalities in the northern and central part), Rokycany (only municipalities in the western part), Stod (excl. municipalities in the southwestern and northwestern part). The territory affected by the development dynamics of the regional capital of Plzeň. It is a strong concentration of population and economic activities, largely of international importance; development is supported by the location on the D5 motorway and on TRC 3.

Development area Ústí nad Labem

The territory of municipalities falling under MEP Teplice (excl. municipalities in the southern part), Ústí nad Labem, Děčín (only municipalities in the northwestern part). The territory affected by the development dynamics of the regional capital of Ústí nad Labem in combination with the secondary centre of Teplice and the urbanized settlement. The development area represents a strong concentration of population and economic activities, most of which are of national importance; the supporting factor of development is the location on TRC 1 and 4 and the link of the statutory city of Děčín to the D8 motorway by the feeder road - the corridor of the new track of class I road I/13 mentioned in Art. (120).

Development area Liberec

The territory of municipalities falling under MEP Jablonec nad Nisou (excl. municipalities in the northern part), Liberec (excl. municipalities in the western and northeastern parts), Tanvald (only municipalities in the western part). The territory affected by the development dynamics of the regional capital of Liberec in combination with the secondary centre of Jablonec nad Nisou. This is a strong concentration of population and economic activities; the majority of economic activities are of national importance. The development-supporting factor is the existing connection with Prague by the D10 motorway and the I/35 road, and the planned connection with Hradec Králové by the I/35 road in a new track, linked to the planned D35 motorway, while the connection to the modernized railway lines in the direction of Prague is also decisive.

Development area Olomouc



The territory of municipalities falling under MEP Olomouc (excl. the military training area Libavá), Šternberk (only municipalities in the southern part). The territory affected by the development dynamics of the regional capital of Olomouc. This development area is territorially tied to the strong concentration of population and economic activities, the majority of which are of national importance. The development-supporting factor is the location on TRC 2 and 3 and the existing motorway connection with Brno (D46, D1) and Ostrava (D35, D1), as well as the prospective motorway connection with Prague (D35, D11).

Development area Zlín

The territory of municipalities falling under MEP Holešov (only municipalities in the southeastern part), Otrokovice (excl. municipalities in the western part), Vizovice (only municipalities in the western part), Zlín, Uherské Hradiště (only municipalities in the northeastern part). The territory affected by the development dynamics of the regional capital Zlín, in combination with secondary centres, especially Otrokovice and Holešov. It is a strong concentration of population and economic activities, largely of national importance; development is supported by the location (Otrokovice) on TRC 2 and the planned connection of Zlín by D49 motorway to D1 motorway via Otrokovice and Hulín, and to D55 motorway from Hulín to Břeclav.

Development area České Budějovice

The territory affected by the development dynamics of the regional capital of České Budějovice. The development area represents a strong concentration of population and economic activities, a significant part of which is of national importance; a development-supporting factor is the location on the planned D3 motorway from Prague to Austria and on TRC 4.

Development area Jihlava

The territory of municipalities falling under MEP Havlíčkův Brod (only municipalities in the central and southern part), Humpolec (excl. municipalities in the western and northern parts), Jihlava (excl. municipalities in the southwestern part). The territory affected by the development dynamics of the regional capital of Jihlava. It is a relatively strong concentration of population and economic activities, a large part of which is of national importance; a development-supporting factor is the location on the D1 motorway.

Development area of Karlovy Vary

The territory of municipalities falling under MEP Karlovy Vary (only municipalities in the central part), Ostrov (excl. municipalities in the northeastern and northwestern parts), Sokolov (only municipalities in the central and northeastern parts). The territory affected by the development dynamics of the regional capital of Karlovy Vary in combination with the secondary centres Ostrov and Sokolov. The development area is characterized by a strong concentration of population and economic activities, most of which are of national importance (the spa industry is of international importance); a development-supporting factor is the location on the planned D6 motorway Prague – Karlovy Vary – Cheb – st. border CZ/Germany (DE).

Development axis Prague – Plzeň – st. border CZ/Germany – (Nuremberg)

Municipalities outside the development areas, with a significant link to an important transport route, i.e. the D5 motorway and a part of TRC 3 in the section Prague - Stříbro. The territory affected by the D5 motorway and the railway line in the section Prague - Stříbro, in combination with the settlement centres of Hořovice, Rokycany, Stříbro and Tachov. It connects to a development axis abroad.

Development axis Prague – Ústí nad Labem – st. border CZ/Germany – (Dresden)



Municipalities outside the development areas, with a significant link to an important transport route, i.e. the D8 motorway and TRC 1 and 4. The territory affected by the D8 motorway and the railway line Prague – Roudnice nad Labem – Lovosice – Ústí nad Labem – Děčín – the CZ/DE border – (Dresden), in combination with the settlement centres Mělník, Roudnice nad Labem, Lovosice, Litoměřice and Děčín; in the section Ústí nad Labem – Děčín, the development plan of the Spatial Development Policy (SDP) is road I/13, continuing to Liberec. It connects to a development axis abroad.

Development axis Prague – Liberec – CZ/DE/PL border – (Görlitz/Zgorzelec)

Municipalities outside the development areas, with a significant link to important transport routes, i.e. the D10 motorway and class I road I/35. Area affected by the D10 motorway and the I/35 road, in combination with the centres Mladá Boleslav and Turnov.

Development axis Prague – Hradec Králové/Pardubice (along the D11 motorway) – Trutnov – CZ/Poland (PL) border - (Wrocław)

Another branch of the development axis is Prague – Kolín – Chvaletice – Pardubice (along the railway connection Prague – Kolín – Pardubice). Municipalities outside the development areas, with a strong link to important transport routes, i.e. the D11 motorway and its planned continuation to Poland, and TRC 1 and 3 in section Prague - Pardubice. The territory affected by the D11 motorway and its planned continuation Hradec Králové – Jaroměř – Trutnov – CZ/PL border - (Wałbrzych), the railway line in the section Prague – Kolín – Pardubice, in combination with the centres of Nymburk, Poděbrady, Kolín, Jaroměř, Dvůr Králové nad Labem and Trutnov. It connects to a development axis abroad.

Development axis Prague – (Kolín) – Jihlava – Brno

Municipalities outside the development areas, with a significant link to important transport routes, i.e. the D1 motorway, roads I/38 and I/12, affected by the development plans of the high-speed line. Territory affected by the D1 motorway in the section Jihlava – Brno, in the section Havlíčkův Brod – Jihlava affected by development plans of the high-speed line, road I/38 and the centres of Kolín, Kutná Hora, Čáslav, Havlíčkův Brod.

Development axis Prague – Jihlava

Municipalities outside the development areas, with a significant link to an important transport route, i.e. the D1 motorway in section Prague - Jihlava. Territory significantly affected by development related to the D1 motorway.

Development axis Prague – Benešov – Tábor – České Budějovice – CZ/AT border – (Linz)

Municipalities outside the development areas, with a significant link to important transport routes, i.e. the D3 motorway, road I/3 and TRC 4. The territory affected by the D3 motorway and its planned section in the territory of the Central Bohemian Region and further on up to the CZ/AT border – (Linz), the railway line Prague – Benešov u Prahy – Tábor - Veselí nad Lužnicí – České Budějovice – CZ/AT border – (Linz) in combination with the centres of Benešov, Tábor and Soběslav. It connects to a development axis abroad.

Development axis Ústí nad Labem – Chomutov – Karlovy Vary – Cheb – CZ/DE border – (Bayreuth)

Municipalities outside the development areas, with a significant link to important transport routes, i.e. in the western part to the D6 motorway, and in the eastern part to road I/13. The territory affected by dense urbanized settlement with the centres of Teplice, Most, Litvínov, Chomutov, Kadaň, Karlovy Vary, Ostrov, Klášterec nad Ohří, Sokolov and Cheb, by the concentration of surface mining of lignite with major impacts on



changes in the territory. In the section Chomutov - Karlovy Vary, the development plan is road I/13. It connects to a development axis abroad.

Development axis Hradec Králové/Pardubice – Moravská Třebová – Mohelnice – Olomouc – Přerov

Municipalities outside the development areas and the OS11 development axis, with a significant link to important transport routes, i.e. the D35 motorway and its part under preparation, road I/35 and TRC 3, in the western part to TRC 1, in the eastern part to TRC 2. The territory affected by the D35 motorway in the section Mohelnice – Olomouc and its prepared part in the section Sedlice – Moravská Třebová – Mohelnice, the prepared motorway D55 in the section Olomouc – Přerov, railway lines in the section Pardubice – Ústí nad Orlicí – Česká Třebová – Zábřeh – Olomouc – Přerov and in combination with the centres Vysoké Mýto, Litomyšl, Ústí nad Orlicí, Česká Třebová, Svitavy, Moravská Třebová, Zábřeh and Mohelnice.

Development axis Brno – Svitavy/Moravská Třebová

Municipalities outside the development areas and the OS8 development axis, with significant links to important transport routes, i.e. road I/43, the corridor of the planned capacity road SD20 (I/73) and TRC 1 Česká Třebová – Brno. The territory affected by road I/43, the planned capacity road SD20 (I/73), the railway line Brno – Blansko – Svitavy – Česká Třebová in combination with the centres of Blansko, Boskovice, Svitavy and Moravská Třebová.

Development axis (Katowice–) CZ/PL border – Ostrava – Lipník nad Bečvou – Olomouc – Brno – Břeclav – CZ/Slovakia (SK) border – (Bratislava)

Municipalities outside the development areas, with significant links to important transport routes, i.e. the D1, D2, D35, D46 and D48 motorways and TRC 1 in the section Brno – Břeclav and TRC 2 and 3 in the section Bohumín – Hranice na Moravě – Olomouc. Territory affected by the motorways D1 in the section (Gliwice–) PL/CZ border – Ostrava – Brno, D2 in the section Brno – Břeclav – CZ/SK border – (Bratislava), D35 in the section Lipník nad Bečvou – Olomouc, D46 in the section Olomouc – Vyškov and the gradually completed D48 motorway in the section Frýdek-Místek – Běloutín, railway lines in the section Bohumín – Ostrava – Hranice na Moravě – Přerov – (Olomouc) – Brno – Břeclav and in combination with the centers of Kopřivnice, Nový Jičín, Hranice, Prostějov, Vyškov and Břeclav.

Development axis Lipník nad Bečvou – Přerov – Uherské Hradiště – Břeclav – CZ/AT border

Municipalities outside the development areas and the OS10 development axis, with significant links to important transport routes, i.e. road I/55, the corridor of the planned D55 motorway (I/73) and TRC 2 and 3 in section Lipník nad Bečvou - Přerov, and TRC 2 in section Přerov - Břeclav. The territory affected by the planned D55 motorway in the section Přerov – Uherské Hradiště – Břeclav, railway lines in the section Lipník nad Bečvou – Přerov – Břeclav and in combination with the centres of Přerov, Uherské Hradiště, Veselí nad Moravou, Hodonín and Břeclav.

Development axis Zlín - CZ/SK border - (Púchov)

Municipalities outside the development areas, with a significant link to an important transport route, i.e. the corridor of the planned D49 motorway and road I/49. The territory affected by the planned motorway D49 Hulín – Zlín – Vizovice and road I/49 Vizovice – Horní Lideč – CZ/SK border – (Púchov).

Development axis Ostrava – Třinec – CZ/SK border – (Žilina)

Municipalities outside the development areas, with significant links to important transport routes, i.e. roads I/11, I/68 Třanovice – Mosty u Jablunkova – CZ/SK border – (Žilina) and TRC 3 Český Těšín – Mosty u Jablunkova – CZ/SK border – (Žilina). The territory affected by dense urbanized settlement with the centres of Třinec and Jablunkov, the railway line in the section Český Těšín – Mosty u Jablunkova – CZ/SK border – (Žilina); roads



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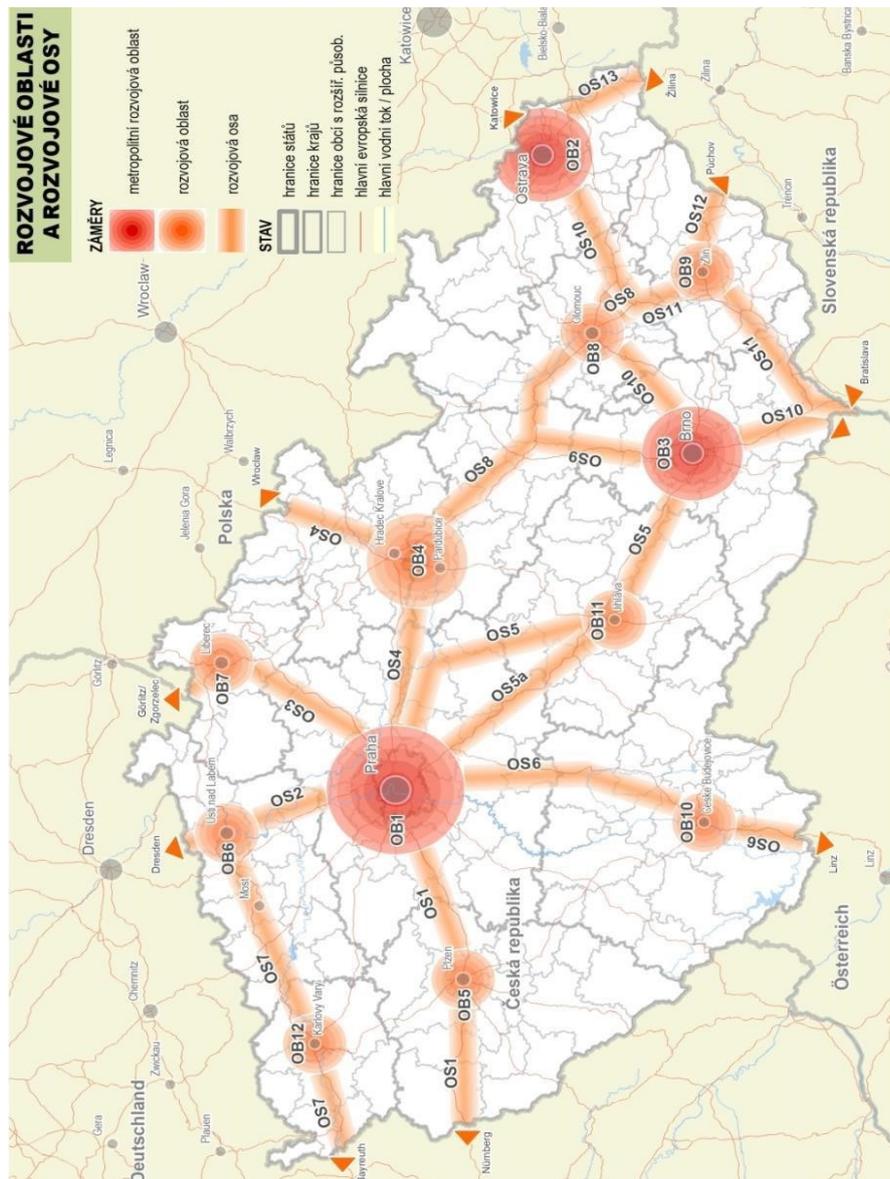


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I/11 and I/68 in the section Třanovice – Jablunkov – CZ/SK border – (Žilina). It connects to a development axis abroad.



Figure 11 Diagram 1 Development areas and development axes



Corridors and areas of transport infrastructure

Transport infrastructure as part of public infrastructure is financed and used in the public interest. The purpose of defining transport corridors in the Spatial Development Policy is to create territorial conditions for the location of e.g. roads, railways, waterways and airports that have an impact on the development of the territory of the Czech Republic, their significance goes beyond the territory of one region and they will interconnect the basic network of transport routes within the Czech Republic and with neighbouring states. The CZ Spatial Development Policy provides binding delimitations of the transport infrastructure corridors in its text part, in the form of a list of places that are to be connected by the plan. The graphic diagrams, or data on the technical parameters of the plan, if provided, are only indicative. The areas and corridors of the transport infrastructure are shown schematically. If there is an overlap of an area or corridor covered by a plan defined in the CZ Spatial Development Policy with another plan that is not defined in the Policy or with a plan for which a territorial reserve is defined in the spatial planning documentation, then the spatial planning documentation must not specify conditions that would make it impossible or significantly difficult to



implement the plan defined in the Spatial Development Policy, unless such conditions result from the state or limits of land use.

Different transport infrastructure systems necessarily require coordination of their location in the territory with regard to the protection and development of the territory's values and, for this reason, a high-quality and considerate passage through the territory must be sought. It is also essential to coordinate transport infrastructure in built-up and undeveloped areas.

The development plans are designated: for railway corridors and areas as "ŽD" (railway transport), and for corridors of motorways, capacity roads and class I roads as "SD" (road transport), accompanied with a serial number. The plans for water transport corridors and areas are marked as "VD", for public terminals and ports with a link to logistics centres as "VTP", and airports as "L". In the delimitation, the corridor is identified by the number of the line, motorway and class I road. If the category has not been specified in road transport, it is called "capacity road".

Spatial planning must delimit areas, corridors and territorial reserves for the localization of transport infrastructure projects.

Criteria and conditions for making decisions on changes in the territory:

When making decisions and assessing development plans, the following must be pursued in particular:

- ensuring a higher quality of transport, e.g. increasing transport speed and the attractiveness of rail transport,
- minimizing conflicts with nature and landscape protection, and cultural and civilizational values in the territory,
- respecting the requirements of international agreements and the Regulation of the European Parliament and of the Council on Union Guidelines for the Development of the Trans-European Transport Network TEN-T.

The *Spatial Development Policy* delimits the following corridors and areas of transport infrastructure:

Rail transport - Corridors of high-speed transport

ŽD 1 – rapid link RS4 section (Dresden) – st. border DE/CZ – Lovosice/Litoměřice – Prague

Connecting the network of high-speed rail transport in CZ to Germany, connecting Prague and the cities of the Ústí nad Labem Region along the corridor. Section Prague – Lovosice/Litoměřice as part of the TEN-T core network.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the corridor of high-speed rail transport. Examine the possibility of connecting Ústí nad Labem to the high-speed rail corridor with a stop for long-distance transport, finalize entrances/exits to/from Prague, ensure cross-border coordination with Germany. Examine the connection of the branch Prague – Kralupy nad Vltavou – Most. Responsible body: Ministry of Transport in cooperation with the Ministry of Regional Development, the Ministry of the Environment, the City of Prague and the Central Bohemian Region, the Ústí nad Labem Region

Spatial planning tasks:

Based on the variants selected by the Ministry of Transport, delimit the corridor in the section Prague – Lovosice/Litoměřice – Ústí nad Labem – CZ/DE border – (Dresden) for high-speed rail transport. Responsible



body: City of Prague, Central Bohemian Region, Ústí nad Labem Region in cooperation with the Ministry of Transport.

ŽD 2 – rapid link RS4 section Prague – Kralupy nad Vltavou – Most

Examine the delimitation of the corridor of high-speed rail transport. This is to connect Prague with the Louny and Most districts, and to shorten travel times in the Podkrušnohoří area.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the corridor of high-speed rail transport. Responsible body: MoT, MoRD, MoE, with the City of Prague, the Central Bohemian Region and the Ústí nad Labem Region.

Spatial planning tasks:

Based on the variants selected by the Ministry of Transport, delimit a territorial reserve or delimit a corridor for high-speed rail transport. Responsible body: Central Bohemian Region and Ústí nad Labem Region in cooperation with the Ministry of Transport.

ŽD 3 – RS2 section Brno – Šakvice – Břeclav – CZ/AT and CZ/SK border – (Wien/Bratislava)

A need to delimit the corridor of high-speed rail transport in the section Brno – Šakvice and the existing line corridor in the section Šakvice – Břeclav – CZ/AT/ and CZ/SK border – (Wien/Bratislava) to identify any spatial planning changes required by increasing the speed on the existing corridor. Connecting CZ to the high-speed railway in Austria and connecting to Slovakia. Meeting the TEN-T requirements.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the high-speed rail corridor Brno – Šakvice and any spatial planning changes on the existing corridor. Responsible body: Ministry of Transport in cooperation with the Ministry of Regional Development, the Ministry of the Environment and the South Moravian Region.

Spatial planning tasks:

Based on the variants selected by the Ministry of Transport, delimit a high-speed rail corridor in the section Brno – Šakvice – Břeclav – CZ/AT and CZ/SK border – (Wien/Bratislava). Responsible body: South Moravian Region in cooperation with the Ministry of Transport.

ŽD 4 – RS1 section Prague – Brno

The need to delimit the high-speed rail corridor in the Prague – Brno section. Connecting the largest CZ cities by backbone high-speed rail transport. Part of TEN-T.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the high-speed rail corridor Prague - Brno with a connection to Jihlava and specifying the section Prague - Běchovice - Poříčany. Responsible body: Ministry of Transport in cooperation with the Ministry of Regional Development, the Ministry of the Environment, the City of Prague and the Central Bohemian Region, the Vysočina Region and the South Moravian Region.

Spatial planning tasks:

Based on the variants selected by the Ministry of Transport, delimit the corridor for high-speed rail transport in section Prague - Poříčany - Brno. Responsible body: City of Prague, Central Bohemian Region, Vysočina Region and the South Moravian Region in cooperation with the Ministry of Transport.



ŽD 5 – RS1 section Prosenice – Ostrava – CZ/PL border – (Katowice) including a seamless connection of RS1 to the existing line in the direction of Ostrava – Vítkovice – Havířov – Český Těšín

Connecting the largest CZ cities by backbone high-speed rail transport. Ensuring high-speed rail transport on section Prosenice – Ostrava – Svinov – CZ/PL border – (Katowice). Meeting the TEN-T requirements.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the corridor of high-speed rail transport. Responsible body: Ministry of Transport in cooperation with the Ministry of Regional Development, the Ministry of the Environment and the Olomouc Region and Moravian-Silesian Region.

Spatial planning tasks:

- Based on the variants selected by the Ministry of Transport, delimit the corridor for high-speed rail transport in section (Přerov–) Prosenice – Ostrava – Svinov.
- Based on the variants selected by the Ministry of Transport, delimit a territorial reserve or delimit a corridor for high-speed rail transport in section Ostrava – Svinov – CZ/PL border – (Katowice).

Responsible body: Olomouc Region, Moravian-Silesian Region in cooperation with the Ministry of Transport.

ŽD 6 – RS1 section Brno – (Přerov) – Prosenice

Connecting the largest CZ cities by backbone high-speed rail transport. Based on solving the problem of the need for high-speed rail transport in the section Brno - connection to the Přerov - Olomouc railway line or via Přerov.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the corridor of high-speed rail transport. Responsible body: Ministry of Transport in cooperation with the Ministry of Regional Development, the Ministry of the Environment, the South Moravian Region, Olomouc Region and possibly the Zlín Region.

Spatial planning tasks:

Based on the variants selected by the Ministry of Transport, delimit a territorial reserve or delimit a corridor for high-speed rail transport. Responsible body: South Moravian Region, Olomouc Region, and Zlín Region, where appropriate, in cooperation with the Ministry of Transport.

ŽD 7 – RS3 section Prague – Beroun

Examining the need for high-speed rail transport towards Plzeň, as part of a wider European rail corridor. The Prague – Beroun section is part of the TEN-T. Minimizing impacts on the Český Kras Protected Landscape Area (PLA) and other natural values in the territory.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the corridor of high-speed rail transport. Responsible body: Ministry of Transport in cooperation with the Ministry of Regional Development, the Ministry of the Environment, the City of Prague and the Central Bohemian Region.

Spatial planning tasks:



Based on the variants selected by the Ministry of Transport, delimit the corridor for high-speed rail transport in section Prague - Beroun. Responsible body: City of Prague, Central Bohemian Region, in cooperation with the Ministry of Transport.

ŽD8 – RS5 section Prague – Hradec Králové – CZ/PL border – (Wrocław)

The need to connect high-speed rail transport with Poland. Part of the TEN-T network.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the corridor of high-speed rail transport. Responsible body: Ministry of Transport in cooperation with the Ministry of Regional Development, the Ministry of the Environment, the City of Prague and the Central Bohemian Region, the Hradec Králové Region and the Pardubice Region.

Spatial planning tasks:

Based on the variants selected by the Ministry of Transport, delimit a territorial reserve or delimit a corridor for high-speed rail transport. Responsible body: City of Prague, Central Bohemian Region, Hradec Králové Region, Pardubice Region in cooperation with the Ministry of Transport.

Corridors of conventional rail transport

ŽD 9 – Line section Beroun – Prague

Increasing the attractiveness and capacity of rail transport on major international routes. Part of TEN-T. The corridor is part of TRC 3.

ŽD 10 – Line section Prague – Benešov – Veselí nad Lužnicí – České Budějovice – Horní Dvořiště – CZ/AT border – (Linz)

Increasing the attractiveness and capacity of rail transport on major international routes. Part of TEN-T. The corridor is part of TRC 4. It is the modernized line Prague – Benešov – Veselí nad Lužnicí – České Budějovice and the new corridor of the capacity line České Budějovice – Horní Dvořiště – CZ/AT border – (Linz).

ŽD 11 (a) – Line section Dětmorovice – Karviná – Český Těšín

ŽD 11 (b) – Line section Hranice na Moravě – Valašské Meziříčí – Vsetín – Horní Lideč – CZ/SK border – (Púchov)

Part of TEN-T. Increasing line speed and capacity.

The section Dětmorovice – Karviná – Český Těšín is part TRC 3.

Section (branching from TRC 2 and 3) Hranice na Moravě – Valašské Meziříčí – Vsetín – Horní Lideč – CZ/SK border – (Púchov).

ŽD 12 – Line section Děčín – Ústí nad Labem – Střekov – Lysá nad Labem – Kolín – Havlíčkův Brod, including the Libice interconnection.

Increasing line speed and capacity. Part of TEN-T. This is the line Děčín – Ústí nad Labem Střekov – Lysá nad Labem – Kolín – Havlíčkův Brod and the Libice interconnection, which represents a newly arranged higher-capacity connection of the national line from Hradec Králové to the corridor addressed.

ŽD 13 – Line section Brno – Blažovice – Přerov, branch line section Kojetín – Kroměříž – Hulín and section Otrokovice – Zlín – Vizovice



Creating a corridor for a fast, high-capacity transport route where a high intensity of passenger transport is expected. Introducing more environmentally friendly transport to areas with increased nature and landscape protection.

The section Brno – Kojetín – Přerov, part of the TEN-T, a branch line, section of the regional line Kojetín – Kroměříž – Hulín, section of the national line Otrokovice – Zlín střed and of the regional line Zlín střed – Vizovice.

ŽD 14 – Line section Pardubice – Hradec Králové

Conducting the capacity transport route through a corridor due to the high intensity of passenger traffic. A section of a national line.

ŽD 15 – Line section Karlovy Vary – Ostrov

Overall modernization of the railway corridor on the route Karlovy Vary - Ostrov. Enhancing the service to the territory, an alternative to road transport. Supporting the development of tourism through environmentally friendly transport in an area with a significant population concentration, therefore higher transport demands and an increased need for a quality environment. Creating conditions for a higher speed of the railway line included in the European TEN-T railway network, the section may require relocation of the corridor.

ŽD 16 – Line section Plzeň – Strakonice – České Budějovice – České Velenice – CZ/AT border – (Wien)

Enhancing the service to the territory. Supporting the development of tourism through environmentally friendly transport. Creating conditions for increasing the speed and capacity (double-tracking) of the railway corridor included in the European TEN-T railway network, the section may require relocation of the corridor, also as an interconnection of TRC 3 and 4 and as a connection to Austria. Line Plzeň (TRC 3) – Strakonice – České Budějovice (TRC 4) – České Velenice – CZ/AT border – (Wien).

ŽD 17 – Line section Plzeň – Domažlice – CZ/DE border – (Regensburg)

Supporting the development of tourism through environmentally friendly transport, improving the railway connection Prague - Plzeň - CZ/DE border - (Regensburg - München). Enabling a faster and higher capacity connection to existing and planned high-speed rail transport networks in Germany.

Enhancing the service to the territory. Creating conditions for meeting the requirements of the TEN-T line Plzeň – Domažlice – CZ/DE border – (Regensburg), the section may require relocation of the corridor and capacity increase in the territory as a conventional line.

Spatial planning tasks:

Delimit the corridor based on the variants selected by the Ministry of Transport. Responsible body: Plzeň Region in cooperation with the Ministry of Transport.

ŽD 18 – Line section Choceň – Ústí nad Orlicí

Creating conditions for increasing the speed (Ústí nad Orlicí area) in the section where it drops and increasing the capacity of TRC 1 and 3 included in the European TEN-T railway network, the section may require relocation of the corridor. Developing environmentally friendly long-distance transport (Prague – Brno/Ostrava).

ŽD 19 – Line section (Zawidów–) PL/CZ border – Liberec – (Turnov) – Mladá Boleslav and selected connections in the section Mladá Boleslav – Prague

Creating conditions for a higher speed, improving connections and electrifying the lines:



- on the section of the existing line Prague – Všetaty, and
- using a section of the Prague - Lysá nad Labem line (part of the TEN-T) and the line to Milovice, with a new interconnection to the Nymburk - Mladá Boleslav line.

Examining the section of the line Mladá Boleslav – (Turnov) – Liberec – CZ/PL border - (Zwidov)

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the railway connection corridor in the section Mladá Boleslav - Liberec - CZ/PL border - (Zawidów). Responsible body: Ministry of Transport, deadline: 2022

Spatial planning tasks:

On the basis of the variants selected by the Ministry of Transport, delimit the railway connection corridor in the section Prague - Mladá Boleslav - Liberec - CZ/PL border - (Zawidów). Responsible body: City of Prague, Central Bohemian Region, Liberec Region in cooperation with the Ministry of Transport.

ŽD 20 – Line section Ostrava-Svinov – Havířov – Český Těšín

A corridor for future line modernization to ensure cohesion, interconnection and interoperability, part of TEN-T.

ŽD21 - Line section Česká Třebová – Brno

Preparing for spatial planning changes to achieve the required speed parameters and overtaking lengths of passing loops for freight trains, adding passing loops on other parts of the line to further increase capacity, and completing the construction of platforms at public transport stops, removing some level crossings. Meeting the TEN-T requirements on a section of TRC 1, line Česká Třebová – Svitavy – Blansko – Brno – Maloměřice.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the corridor. Responsible body: Ministry of Transport in cooperation with the Pardubice and South Moravian Regions

Spatial planning tasks:

Delimit the corridor based on the variants selected by the Ministry of Transport. Responsible body: Pardubice and South Moravian Regions in cooperation with the Ministry of Transport.

ŽD 22 – Line section Velký Osek – Hradec Králové – Choceň

Increasing the capacity and speed on the national railway line Velký Osek – Hradec Králové – Choceň, extending the freight corridor from the right-bank Elbe railway, relieving the section of the parallel line Kolín – Pardubice – Choceň for freight transport (parts of TRC 1 and 3 and TEN-T), increasing the attractiveness of the railway connection to the regional capital Hradec Králové from Prague, improving the connection of the Kvasiny industrial zone to rail transport.

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the corridor. Responsible body: Ministry of Transport in cooperation with the Central Bohemian, Hradec Králové and Pardubice Regions

Spatial planning tasks:

Delimit the corridor based on the variants selected by the Ministry of Transport. Responsible body: Central Bohemian Region, Hradec Králové Region, Pardubice Region in cooperation with the Ministry of Transport.



ŽD 23 – Section Prague – Benešov

Creating a corridor for a fast, high-capacity transport route where a high intensity of passenger transport is expected, reinforcing a section of TRC 4 Prague – Benešov – Veselí nad Lužnicí – České Budějovice – Horní Dvořiště – CZ/AT border – (Linz).

Tasks for ministries and other central administration authorities:

Prepare background documents for delimiting the corridor. Responsible body: Ministry of Transport in cooperation with the Ministry of Regional Development, the Ministry of the Environment, the City of Prague and the Central Bohemian Region.

Spatial planning tasks:

Delimit the corridor based on the variants selected by the Ministry of Transport. Responsible body: City of Prague, Central Bohemian Region, in cooperation with the Ministry of Transport.

Road transport

The task of the SDP in this part is mainly to create the conditions for the completion of the basic network of motorways and other capacity roads and class I roads, so that they can take on a part of the intensive traffic.

Motorway corridors

SD 1 – D1 section Říkovice – Přerov

Preparing the completion of the basic motorway network (in this case the entire D1 motorway) and ensuring the transfer of the expected load of traffic intensities to this qualitatively higher level of transport. Part of TEN-T.

SD 2 – D11 section Hradec Králové – Smiřice – Jaroměř – Trutnov – CZ/PL border – (Wałbrzych)

Preparing the completion of the basic motorway network and ensuring the transfer of the expected load of traffic intensities to this qualitatively higher level of transport. Part of TEN-T.

SD 3 – D3 sections Prague – Tábor – Dolní Třebonín – Kaplice – Dolní Dvořiště – CZ/AT border – (Linz)

Preparing the completion of the basic motorway network and ensuring the transfer of the expected load of traffic intensities to this qualitatively higher level of transport. Part of TEN-T.

SD 4 – Motorway D0 (Prague ring road, formerly also the road around Prague) connects the international and national routes to Prague at the border of the City of Prague and the Central Bohemian Region

Delimitation reasons

Transferring the transit road traffic outside intensively built-up parts of the city, effectively distributing the source and destination traffic in the metropolitan area. Part of TEN-T. Delimiting the corridor in the Spatial Development Principles of the respective Regions. Responsible body: City of Prague, Central Bohemian Region

SD 5 – D49 section Fryšták – Zlín – Vizovice

Transferring the increased traffic volume from the existing road I/50, passing through the Bílé Karpaty Protected Landscape Area (PLA). Link to the Slovak road network. Part of TEN-T.

SD 6 – D6 sections Nové Strašecí – Karlovy Vary, Cheb – CZ/DE border – (Bayreuth)

Improving the road connection Prague – Karlovy Vary – Cheb – Germany – (Bayreuth). Link to the German road network. Part of TEN-T.



In cooperation with the Ministry of Transport and the Ministry of Culture, examine the delimitation of the corridor for the Karlovy Vary bypass to relieve the backbone through-traffic roads I/6 and I/13 in Karlovy Vary. Integrate the examination results in the downstream spatial planning documentations. Responsible body: Karlovy Vary Region

SD 7 – D35 sections Úlibice – Hradec Králové, Opatovice nad Labem – Vysoké Mýto – Moravská Třebová – Mohelnice and D35 section Křelov – Břuchotín – Olomouc (Slavonín)

Parallel route relieving the D1 motorway. Part of TEN-T.

SD 8 – D52 sections of D2 – Rajhrad, Pohořelice – Mikulov – CZ/AT border – (Drasenhofen).

Improving the quality of the motorway connection Brno – Vienna. Link to the Austrian motorway network. Part of TEN-T.

SD 9 – D4 section Příbram – Nová Hospoda

Providing for one of the main transport directions in the country.

SD 10 – D7 section Slaný – Louny – Postoloprty

Providing for one of the main transport directions in the country.

SD 11 – D55 sections Olomouc – Přerov and Otrokovice – Napajedla – Uherské Hradiště – Hodonín – D2

Providing a qualitatively higher level of service in areas with a high concentration of settlements and population. Part of TEN-T.

When making decisions and assessing plans for changes in the territory, priority should be given to creating conditions for passage through the territory having minimal impacts on the environment, especially when passing through the bird area Bzenecká Doubrava - Strážnické Pomoraví.

SD 12 – D48 section Běloutín – Frýdek-Místek – Český Těšín – CZ/PL border – (Kraków)

Completing the upgrade of the four-lane road to a motorway and solving the Frýdek-Místek bypass. Part of TEN-T.

Corridors of class I roads and capacity roads

SD 13 – Class I road I/49 section Vizovice – Horní Lideč – CZ/SK border – (Púchov)

Transferring the increased traffic volume from the existing road I/50, passing through the Bílé Karpaty Protected Landscape Area (PLA). Link to the Slovak road network. Part of TEN-T.

In order to maintain the homogeneity of the class I road route connected to a motorway section, it is necessary to ensure that crossings are designed only as interchanges, including crossings with railways. The design of links to the surrounding area must bear in mind that the road will be accessible only for motor vehicles (limited access). Minimize the impact on the landscape and permeability of the landscape for wildlife migration.

SD 14 – Class I road I/35 section Palačov – Lešná – Valašské Meziříčí, I/57 section Valašské Meziříčí – Vsetín – Pozdětchov

Transferring road I/35 into a new corridor from D48 motorway (Palačov) to Valašské Meziříčí. Interconnecting the D48 motorway with the I/49 road. Improving the connection by road I/57 in the southern part of the large settlements in the east of the Zlín Region, providing a connection to Slovakia - the Váh river valley in the Púchov



and Trenčín area and a connection to the regional capital using other roads, in the northern part this is a substitute route for the road I/35, passing through a PLA.

Criteria and conditions for making decisions on changes in the territory:

When making decisions and assessing plans for changes in the area, priority should be given to creating conditions for transferring traffic towards Valašské Meziříčí and relieving the spa area of Teplice nad Bečvou while minimizing the impact on the environment.

SD 15 – Class I road I/35 section Turnov – Rovensko pod Troskami - Úlibice

Improving the road connection Hradec Králové - Liberec. Part of TEN-T. Delimit the proposed corridor for the new I/35 capacity road.

SD 16 – Class I roads I/11, I/59, I/67, I/68 section Bohumín – Karviná – Havířov – Třanovice – Mosty u Jablunkova – CZ/SK border – (Žilina)

Connecting to the development plan of an expressway in Slovakia in the direction from Čadca. Link to the Nošovice industrial zone solution. Along the roads I/11 and I/68 from the D48 motorway to the Slovak border, it is part of the TEN-T. Improving the interconnection of the D1 and D48 motorways using relocations of the I/59 and I/67 roads in the section Bohumín – Karviná – Havířov.

When making decisions and assessing plans for changes in the territory, priority should be given to strengthening the service of the territory (connecting the D1 and D48 motorways and the large towns of Bohumín, Karviná, Havířov and Třinec) and links to Slovakia and its motorway network in the north while minimizing the environmental impact.

SD 17 – Class I road I/38 section (Mladá Boleslav) – D10 – Nymburk – Poděbrady – D11 – Kolín – Čáslav – Golčův Jeníkov – Havlíčkův Brod – D1 – Jihlava – Znojmo – Hatě – CZ/AT border – (Wien)

Improving the quality of transport connections in the northwest-southeast direction, with a connection to Austria, (Wien) – AT/CZ border – Znojmo – Jihlava – D1 – Havlíčkův Brod – Golčův Jeníkov – Čáslav – Kolín – D11 – Poděbrady – Nymburk – D10 near Mladá Boleslav to Turnov and further to Liberec.

When making decisions and assessing plans for changes in the territory, priority should be given to strengthening the service of the territory, especially in the Vysočina Region, while minimizing the environmental impact.

SD 18 – Class I road I/13 section Ostrov – Chomutov

Transferring the increased traffic load between the Karlovy Vary and Ústí nad Labem Regions, also in relation to the cross connection with the Free State of Saxony. The possibility of using a potential capacity connection to Saxony and towards Germany and Poland.

When making decisions and assessing plans for changes in the territory, priority should be given to improving the service of the territory with the towns of Ostrov – Klášterec nad Ohří – Kadaň – Chomutov and the connection of the D6 and D7 motorways while minimizing the environmental impact.

Prepare up-to-date background documents for delimiting the corridor for relocating the class I road in the section Ostrov - the border of the Region, taking into account the complicated territorial conditions. Responsible body: Ministry of Transport in cooperation with the Karlovy Vary Region

SD 19 – Class I road I/13 section D8 – Děčín – Česká Lípa – Svor – Bílý Kostel nad Nisou

Transferring the increased traffic load between the Ústí nad Labem and Liberec Regions, also in relation to the cross connection with the Free State of Saxony.



Criteria and conditions for making decisions on changes in the territory:

When making decisions and assessing plans for changes in the area, priority should be given to improving the service of the territory while satisfactorily solving the problems of the passage of road I/13 through the territory of two PLAs. Minimize interference with the PLA Labské pískovce and the PLA České Středohoří.

SD 20 – Capacity road section Brno – Moravská Třebová

Interconnecting the D1 and D35 motorways as part of the TEN-T and improving the road connection of the South Moravian, Pardubice, Hradec Králové and Olomouc Regions with a capacity road.

SD 21 –

- a) **Capacity road section (Plzen) – D5 – Nepomuk – Blatná – D4 (Nová Hospoda) – Písek – Vodňany – České Budějovice**
- b) **Capacity road section Písek – Tábor – D3 – Pelhřimov – D1**

Transferring the possible increased traffic load between the Regions concerned. Section of road I/20. Road I/29 Písek – Oltyně, I/19 Oltyně – Tábor – D3 – Pelhřimov and road I/34 Pelhřimov – D1.

In cooperation with the Ministry of Transport, examine the possibility of designing the section of road I/20 Písek – Vodňany – České Budějovice as a capacity road. Responsible body: South Bohemian Region in cooperation with the Ministry of Transport.

Water transport

VD 1 – The Elbe River: Pardubice - CZ/DE border - (Dresden)

Creating spatial conditions for ensuring the navigability of the Elbe as a waterway of international importance. Part of TEN-T.

- a) Examine whether it is realistic and effective to make the river section navigable and what parameter improvements are needed on the waterways used, define the conditions for creating territorial reserves, if relevant.
- b) Examine the possibilities of minimizing the environmental impact of the canalisation. Responsible body: Ministry of Transport in cooperation with the Ministry of the Environment

Take into account the conclusions resulting from the completed task for ministries and other central administration authorities. Responsible body: Pardubice Region, Central Bohemia Region, Ústí nad Labem Region

VD 2 – Waterway used on the Vltava in the section Mělník (confluence with the Elbe) – Prague – Třebenice

Ensuring the parameters of waterways important for transport and used as part of inland water transport and part of TEN-T.

Take into account the conclusions resulting from the completed task for ministries and other central administration authorities. Responsible body: City of Prague, Central Bohemian Region

VD 3 – Waterway used on the Vltava in the section Třebenice – České Budějovice

Ensuring the parameters of waterways important for transport and used as part of inland water transport and for recreational boating According to the fulfilled task of the MD in chapter 7.3, the region will define a corridor for the waterway in the section Třebenice - České Budějovice. Responsible body: Central Bohemia Region, South Bohemia Region

Combined transport



Public terminals and ports with links to logistics centres (abbreviated as VTP)

- a) freight transport terminals Ostrava, Plzeň, Přerov, Brno (road, railway, or airport),
- b) inland river ports of Prague, Děčín, Ústí nad Labem, Lovosice, Mělník and subsequently Pardubice.

The gradual, staged construction of a VTP network connected to rail, road and possibly also water and air transport, built in a uniform design for the purpose of providing transshipment and a wide range of logistics services. The VTP network will make it possible to optimize road transport and apply the principle of co-modality (effective use of different modes of transport operated separately or as part of multimodal integration in order to achieve optimal and sustainable use of resources). Part of the European network of public terminals and ports TEN-T.

Criteria and conditions for making decisions on changes in the territory:

When making decisions and assessing plans for changes in the territory, take into account the current accessibility of the anticipated public terminals for transport modes, and preferentially take into account transport flows and the possibility of transferring them, using VTP, outside specially protected areas of nature, NATURA 2000 sites and significant concentrations of housing.

Examine the territorial conditions for the location of the development plan and, according to the results of the examination, delimit the area or ensure the protection of the area by delimiting territorial reserves, or by delimiting areas for inland river ports in Prague, Děčín, Ústí nad Labem, Lovosice, Mělník and subsequently in Pardubice. Responsible body: City of Prague, Pardubice Region, Central Bohemia Region, Ústí nad Labem Region

Airports

L1 – New parallel runway, take-off and approach areas of the Prague-Ruzyně airport, including related check-in capacities, modernization of facilities and safety of airport operations

Increasing the capacity of the international airport, improving air traffic safety (i.e. operational security and protection of aviation against illegal acts). Part of TEN-T.

Coordinate the project idea of the new parallel runway with the project idea of connecting the Prague-Ruzyně airport to the railway network. After building the new parallel runway, examine the possibility of further use of runway 12/30.

- a) Depending on the development needs of the Prague-Ruzyně airport, address the territorial development of the affected municipalities.
- b) Address the connection of the airport to other modes of transport (preferentially the railway network). Responsible body: City of Prague, Central Bohemian Region

L2 – Extension and expansion of the existing runway, take-off and approach areas of the Karlovy Vary airport, including the necessary enlargement of the airport facilities

Increasing the capacity of the international airport, improving air traffic safety.

- a) Depending on the development needs of the Karlovy Vary airport, address the territorial development of the affected municipalities.
- b) Address the connection of the airport to other modes of transport.

Responsible body: Karlovy Vary Region in cooperation with the Ministry of Transport



L3 – Extension and expansion of the existing runway, take-off and approach areas of the Brno-Tuřany airport, including the necessary enlargement of the airport facilities

Increasing the capacity of the international airport, improving air traffic safety and capacity for multimodal transport. Part of TEN-T.

- c) Depending on the development needs of the Brno-Tuřany airport, address the territorial development of the affected municipalities.
- d) Address the connection of the airport to other modes of transport.

Responsible body: South Moravian Region in cooperation with the Ministry of Transport

Figure 12: Diagram 4 Rail transport

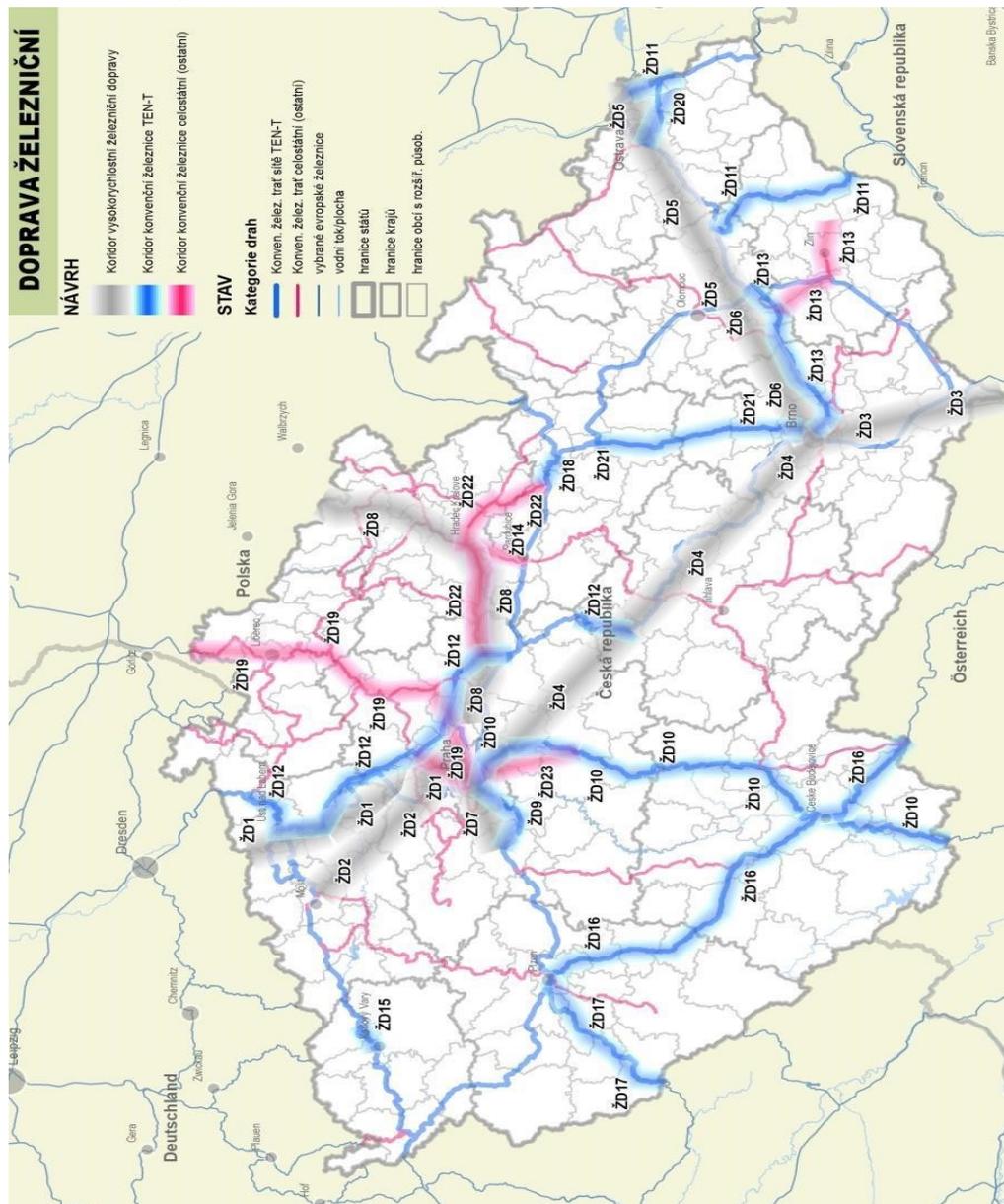




Figure13 Diagram 5 Road transport

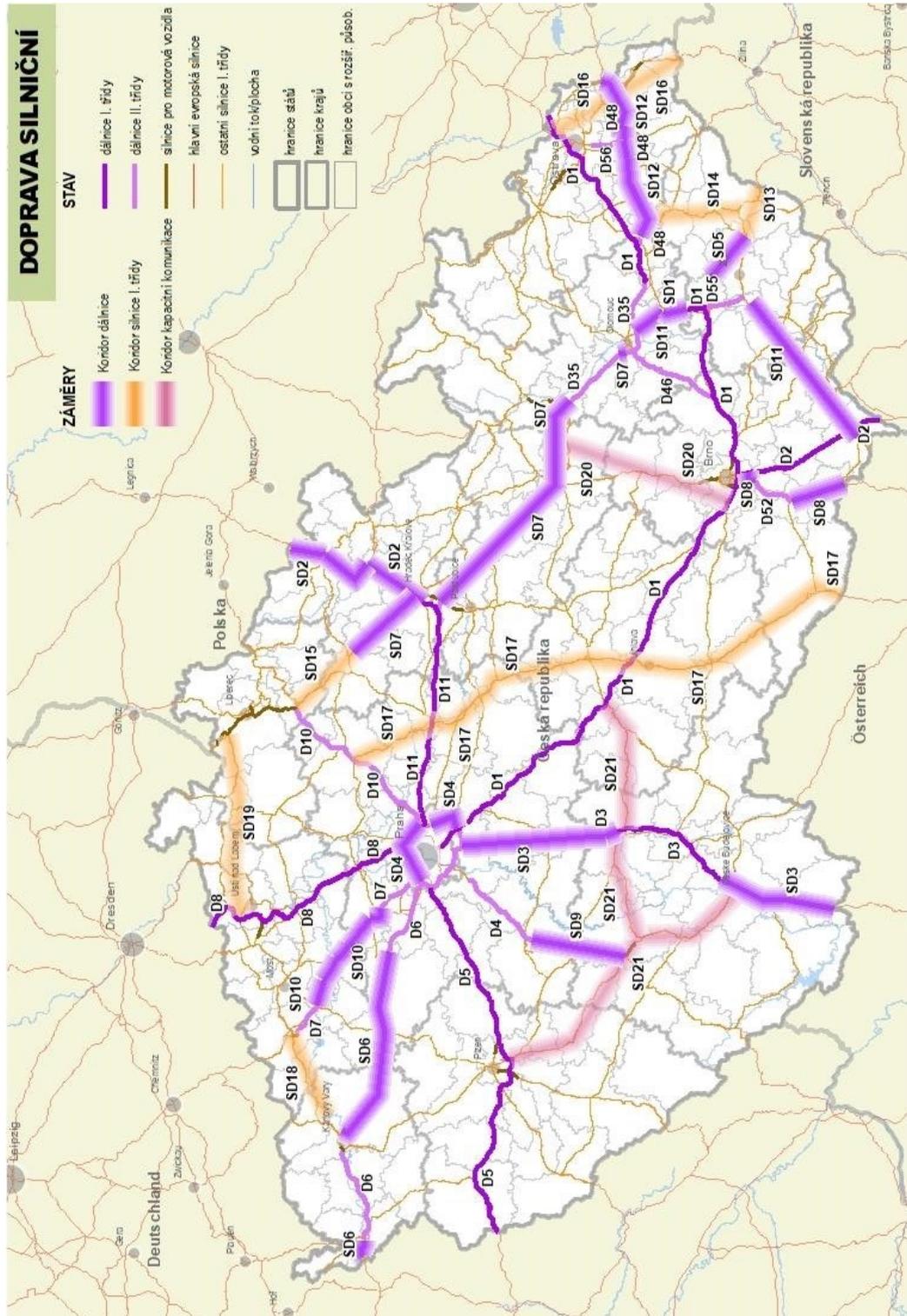
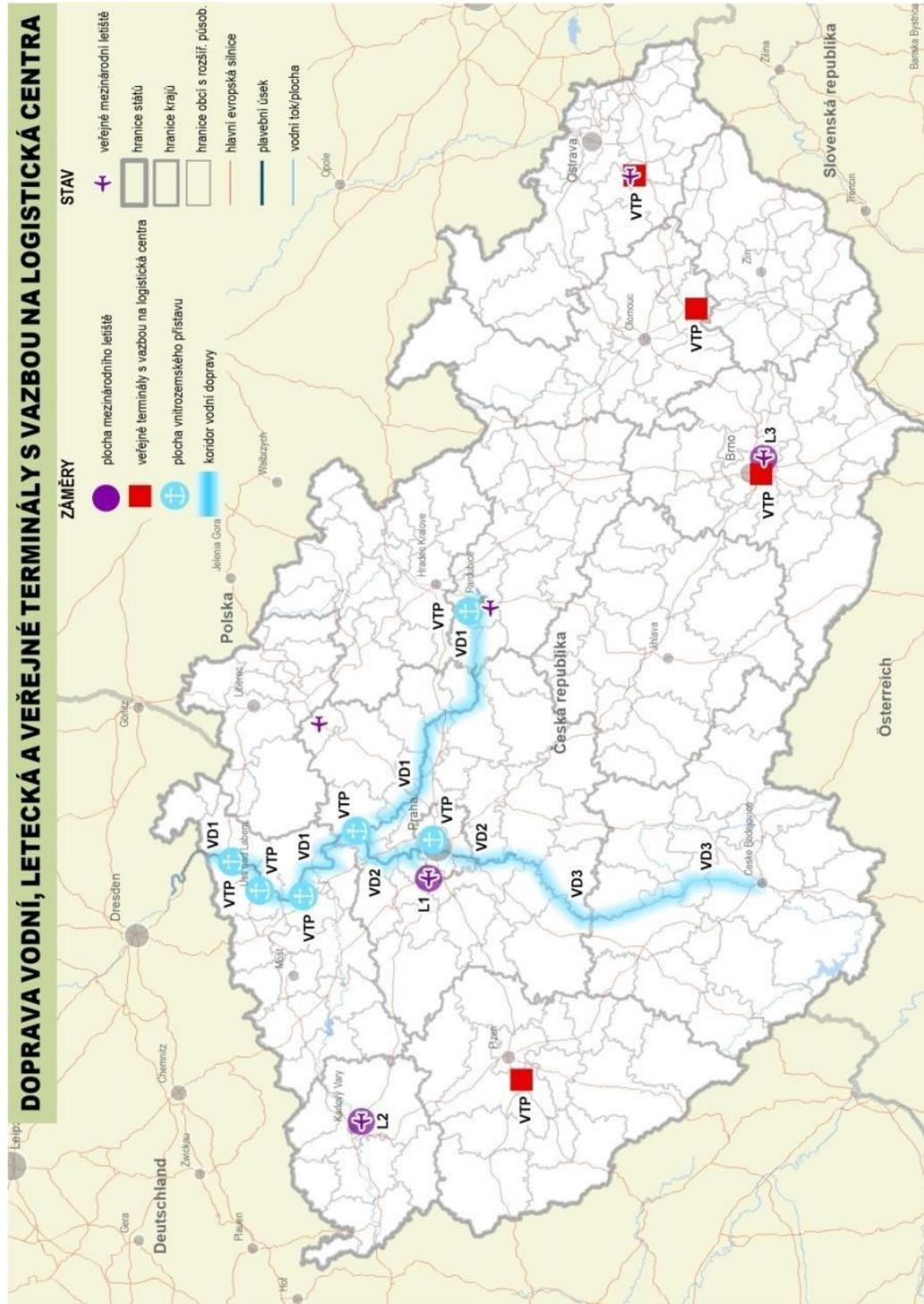




Figure 14 Diagram 6 Water and air transport, and public terminals with links to logistics centres



Other tasks

Examine the effectiveness and feasibility of the Danube – Oder – Elbe canal connection, assessing, in a full European context, the aspects of its possible implementation (including environmental aspects), transport effectiveness and investment requirements of the individual branches.



Responsible body: Ministry of Transport in cooperation with the Ministry of the Environment, Ministry of Culture and Ministry of Agriculture. Deadline: 2023

The task is completed, the territorial reserve will not be monitored.

Spatial planning tasks

In the spatial planning documents or their updates, the Regions will check the possibilities of locating an industrial zone of approx. 100 to 200 ha, and check the possibilities of using brownfields within specific area SOB4, or development area OB2. The checking must take into account air pollution limits. Responsible body: Moravian-Silesian Region

Examine the territorial conditions for locating the development plan for the railway connection Vizovice - to the line Hranice na Moravě - CZ/SK border - (Púchov) in the Vsetín - Horní Lideč section and, according to the results of the examination, safeguard the territory for this development plan by delimiting a territorial reserve or by delimiting a corridor. Responsible body: Zlín Region

Delimit a corridor for rail connections

- a) Chrudim – Pardubice,
- b) Hradec Králové – Jaroměř.

Responsible body: Hradec Králové Region and Pardubice Region

Delimit a corridor for increasing the capacity and improving the railway connection Nymburk - Mladá Boleslav.

Responsible body: Central Bohemian Region in cooperation with the Ministry of Transport.

Delimit a corridor for the railway connection in sections Prague - Prague-Ruzyně airport; Prague – Kladno. Responsible body: City of Prague and Central Bohemian Region, in cooperation with the Ministry of Transport.

Delimit a corridor for a capacity road in the section Mohelnice - Jeseník.

Responsible body: Olomouc Region

Examine the possibilities of removing bottlenecks on the road České Budějovice – Jindřichův Hradec – Třebíč – D1, especially by town and village bypasses. Based on the examination, safeguard the land for improving the traffic fluency by delimiting corridors for partial relocations of the road. Responsible body: South Bohemian Region

Delimit the territorial reserve for the canal connection Danube – Oder – Elbe and safeguard the land until the government decides on the next step.

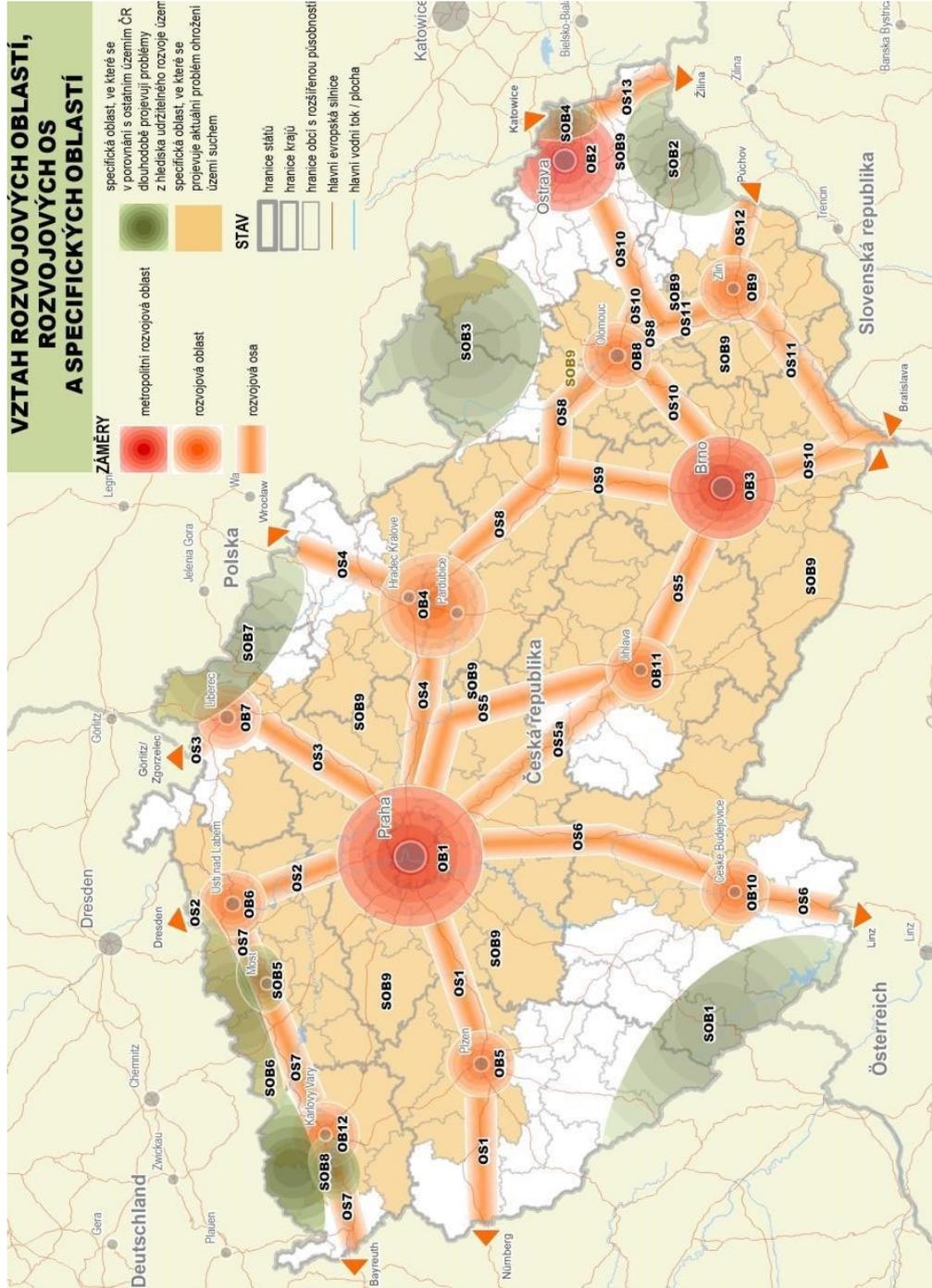
Responsible body: Pardubice Region, Olomouc Region, South Moravian Region, Zlín Region and Moravian-Silesian Region

The task is cancelled, the territorial reserve will not be monitored.

The subject of Update No 7 of the SDP is the cancellation of Articles (180) and (198) of the previous SDP, concerning the examination of the effectiveness and feasibility of the Danube-Oder-Elbe canal connection and safeguarding the land by a territorial reserve for the Danube-Oder-Elbe canal connection. The SDP update is induced by pressing public interest in cancellation of the territorial reserve for the entire Danube-Oder-Elbe canal connection, which was approved by the government, in accordance with Section 35, paragraph 5 of the Building Act, in its Resolution No 105 of 8 February 2023. Based on Government Resolution No 105/2023, the MoRD is to procure and submit to the government the proposed Update No 7 of the SDP by 31.12.2023.



Figure 15 Diagram 11 Relationship of development areas, development axes and specific areas





2.2.11 Regional Development Strategy of the Czech Republic 2021+

The goals of the Regional Development Strategy 2021+ (RDS) will be pursued through activities in national action plans (RDS action plans), which will also take into account regional action plans designed by each of the regions. The RDS will serve as a basis for development strategies of regions, that should elaborate on the topics addressed in the RDS with regard to the specifics of the given region.

Transport from the point of view of the development of regions and the territorial dimension:

- Metropolitan areas
- Agglomeration
- Regional centres and their rural hinterlands
- Structurally affected regions (Ústí nad Labem, Moravian-Silesian, Karlovy Vary Regions - addressed also in a separate MIT document)
- Economically and socially vulnerable areas.

General objectives:

- to improve transport connections between metropolises and important central European settlement centres
- to strengthen high-quality transport connections between metropolises and their hinterland
- to increase the attractiveness of modes of transport other than private car transport
- to improve the interconnectivity of different modes of transport
- to improve or complete the connection of agglomerations to nearby, large settlements abroad and to neighbouring agglomerations or metropolises
- to improve transport between the cores of agglomerations and their hinterland
- to improve conditions for the attractiveness of modes of transport other than private car transport
- to improve transport accessibility within regions
- to ensure good transport accessibility within the region, and in relation to agglomerations and metropolises

Metropolitan areas:

One of the partial barriers to the development of metropolitan areas, both in terms of economy and quality of life, or living standards, is an underdeveloped infrastructure. This concerns, above all, the still insufficient international transport accessibility of metropolitan areas. The insufficient accessibility is caused by the absence of high-speed rail lines and the distant time horizon of their implementation. The intensity of development and growth of metropolitan areas is reflected in the pressure on land grabbing, and on the natural environment in general, which leads to changes in land use. One of the problems faced by metropolitan areas is the intensifying construction of residential family houses in their hinterlands.

- Suburbanization and motorised private transport – degree of private care use
- Transformation of brownfields
- Climate change adaptation

The increase in motorised private transport has a negative impact not only on suburban communities but also on the city itself, to which a large proportion of people commute for work and services. The insufficient capacity of transport infrastructure incl. the missing interconnection of public transport and transport nodes and car parks (P+R) results in congestion and increased pollution from traffic (e.g. noise, emissions) in city centres and in their hinterlands. In addition to increased levels of emissions and noise, cities have to face other forms of pollution and their effects on the urban environment (e.g. thermal or light pollution).



The new residential development brings a uniform appearance to the suburban municipalities, with elements of urban architecture which is in some cases not aligned with the existing houses. Spatial expansion of municipalities affected by suburbanization increases the pressure on the development and maintenance of technical and transport infrastructure. New suburban development also places a heavy financial burden on public administration, which in these suburbs invests in infrastructure, public transport and community amenities, with little or no private developer involvement.

Strategic Objective 1: Internationally competitive metropolitan territories adapted to economic, spatial and population growth

Specific Objective 1.1: Improving the transport connections between metropolises and major Central European settlement centres, enhancing quality transport connection between metropolises and their hinterland, increasing the attractiveness of modes other than motorised private transport and improving the interconnection of different modes of transport.

Strong metropolitan areas are not yet sufficiently well connected to modern transport routes in comparison with Western European metropolises of similar size and importance. Therefore, steps will be taken to improve international connections, such as the preparation of the concept of rapid links (a system of high-speed rail and conventional rail of higher parameters), but also an increase in the capacity of the international Václav Havel Airport Prague (Ruzyně Airport). Good transport links are also necessary between the hinterland and the core of the metropolis.

Solution: The issue of transport will be addressed in the sustainable urban mobility plans of the metropolises and their suburban areas. Transport will be tackled in terms of supporting the integration of the public transport system as well as improving the quality of connections to European metropolises (i.e. strengthening trans-regional and transnational links).

Measures will be implemented to improve the interconnection of metropolitan areas by different transport modes to ensure sufficient transport capacities at short intervals and with high reliability. Stimulating and restrictive measures will be supported to promote greater effectiveness of public transport and of alternative modes of transport and to reduce/stabilize motorised private transport, including support for low-emission and emission-free individual transport and a system of sharing means of transport, as well as to optimize the supply of goods and services in the city with regard to the principles of city logistics. Given the environmental aspects, the insufficient size of the public space for transport and the need to increase the attractiveness of the city for public life, intensive metropolitan traffic is not desirable. It is desirable to further develop suburban and intra-city rail connections as the backbone of integrated transport.

The solution must include a significant enhancement of the role of intelligent transport systems and user applications supporting reliability and safety, including acceleration of transit for IRS components during their rescue missions, multimodality, comfort and more efficient use of transport infrastructure for its users. In metropolitan areas, the infrastructure for cycling will be strengthened in terms of ensuring an adequate connection from the hinterlands to the city centres, and the building of P+R and B+R, modernization of the public transport fleet, etc. will be supported. To increase intermodality, the metropolises will strengthen bikesharing and safe storage of own bicycles, and carsharing.

Steps will be taken to strengthen the international transport links of metropolises (in particular the preparation of the concept of rapid links, solving the capacity problems of railway junctions in metropolises and completion of key sections of the motorway network). In this context, it is also essential to work on quality and capacity connections to international airports and on strengthening the function of the international airports.

Type measure1: Greater integration of the public transport system and urban mobility



Problem: A large number of people travel daily from the hinterland to the core city for work, services or schools. Due to the high use of motorised private transport, problems arise (congestion, pollution, reduced safety for pedestrians and cyclists) already in the hinterland on the busiest routes leading to the core, and in the core the problems are further concentrated (e.g. parking problems, etc.).

Content: Ensuring sufficient capacity of lines for public transport, increasing transport connectivity and integrating the fares of the individual types of public transport. Support for building P+R and B+R. Increasing the attractiveness of public transport by modernizing the fleet, but also by increasing the frequency of service and the offer of lines that will meet passenger demand. Planning the transport to ensure its sustainability - using sustainable urban mobility plans. Increasing the share of non-motorized and alternative transport - identifying key locations and complementing the relevant infrastructure - cycle paths for commuting to work or to the nearest urban public transport (e.g. metro station), parking of bicycles (biketowers, etc.).

Restrictive measures (e.g. city-centre toll systems, inner city speed limits) will also be considered in order to better plan intra-urban mobility where relevant (e.g. protection of cultural heritage, spa industry). Possible concrete solutions will also be identified on the basis of good practice learnt from the Partnership for Urban Mobility. The possible solutions include the development of clean mobility.

Target situation: An increased share of sustainable forms of transport in the traffic volume, eliminated negative effects of motorised private transport.

Target group: public transport system users

Main holder: MoT

Other potential holders: MoRD, MoE

Main implementers: municipalities, Regions

Type measure 2: Improving the connection to European metropolises

Problem: The Czech Republic does not have a completed transport infrastructure enabling quality connections with European metropolises. Planned infrastructural constructions of supraregional and transnational importance do not even have project preparation carried out.

Content: In the field of air transport, it is necessary to increase the capacity of the international Airport Prague-Ruzyně as the number of flights has reached the limits of the current runway. With the growing number of passengers, it is necessary to put into operation a capacity connection between the airport and the Prague city centre.

In the future, it is appropriate to develop also the Brno airport and develop a strategic partnership with airlines. For the Brno metropolitan area, an important issue will be the solution to the reconstruction of the railway junction and the city ring road.

All necessary steps will be initiated to build the rapid links and to complete key transport connections (especially in the direction of Austria) and the Prague ring road. All these activities are described in the already existing national strategic documents, their implementation is conditioned by obtaining funding and the appropriate permits (e.g. EIA, planning decision, building permit). Steps will be taken to speed up construction through legislation, for example through the Act on Linear Infrastructure, or the Building Act.

Target situation: Transport infrastructure providing good connections with European centres, capable of diverting transit traffic out of settlements.

Target group: transport infrastructure users

Main holder: MoT

Other holders: MoE (regarding EIA), MoRD (regarding spatial planning)



Main implementers: MoT, RMD, Railway Administration, regions

Agglomeration

These areas have weaker links to strong and rapidly growing metropolitan areas (Prague, Brno), both in terms of transport connection and in terms of cooperation in science and research.

That is often caused by poor quality transport links of the agglomerations to strong metropolitan areas (e.g. Prague - České Budějovice, or Prague - Karlovy Vary). In some cases the problem is the low quality of transport (road and railway) interconnection of the agglomerations with each other (for example Liberec - Hradec Králové).

The agglomeration territories must address problems such as population growth in the hinterlands, so-called manifestations of suburbanization, same as the large growing metropolises. The manifestations and impacts of suburbanization on the physical and social environment of municipalities in the hinterlands of cities are the same as in metropolises; they differ only in the intensity of pressure on the natural environment and land use change (pressure on land grab, a growing intensity of motorised private transport, pressure on sufficient capacity of public services, transport and technical infrastructure both in suburban municipalities and in the cities themselves).

The growth of motorised private transport and the insufficient capacity of transport infrastructure (e.g. missing or unfinished city bypasses) and variously frequent local transport problems are also linked to differently developed public transport systems, especially in the case of integrating public transport in the closer and more remote hinterland of a city, or in the whole Region (region).¹² The absence of city bypasses also means increased concentrations of emissions and noise.

Strategic Objective 2: Agglomerations exploiting their growth potential and playing the role of important regional economic, cultural and academic centres

Specific Objective 2.1: Improving or completing the connection of agglomerations to nearby large settlements beyond state borders and to neighbouring agglomerations or metropolises, improving transport between agglomerations' cores and their hinterlands and improving conditions for the attractiveness of modes of transport other than motorised private transport.

A sufficient-capacity and fast connection of agglomerations to the nearest metropolis is still not completed in all cases and represents one of the limitations of their development. This applies to both road and rail connections. Mutual connections between some agglomerations are also insufficient, but this does not apply to all directions to the same extent. Some agglomerations do not even have sufficient links to the nearest large foreign cities. A problem, the solution of which is at different stages in different agglomerations, is the attractive suburban transport of sufficient quality and capacity, or the connection of the agglomeration cores with their nearby and more distant hinterlands.

However, transport service in the wider hinterlands of agglomerations is also problematic, as the supply does not always match the demand of passengers. In addition, poor air quality (and other negative aspects) is evident, among other things, due to the high density of motorised private transport and poor transport permeability of cities.

Solution: There will be interventions that will contribute to ensuring adequate transport connections with metropolises in CZ and with other metropolises in neighbouring countries and in Europe, as well as mutual

¹² Connecting urban and regional transport to an integrated transport system is a necessary step for the other metropolises to ensure sustainable transport services. In connection with the development of an integrated transport system, it is necessary to invest also in modern and environmentally friendly public transport vehicles, incl. the accompanying infrastructure.



connections between agglomerations. Integrated transport systems will continue to be supported in the Regions, i.e. sub-measures will be aimed at strengthening multimodality between motorised private transport and public transport (including rail) as well as between the different types of public transport (based on a backbone and full-area service system) in order to alleviate the burden on the cores of agglomerations and streamline the transport from hinterlands, without increasing the load of motorised private transport on the cores.

Based on the interventions of the State, Regions and cities, the fleet will be modernized in the sense of supporting emission-free and low-emission and safe public transport, which will always be linked to other measures intended to increase the efficiency of public transport. Improvement of the connection between the hinterlands and cores of the agglomerations will also be supported. The construction of bypasses is essential for some agglomerations as it will contribute to improving the accessibility of TEN-T networks. The railway connection between some agglomerations will be provided by high-speed lines. The airports of some agglomerations will be strengthened as their development is conditioned by their connection to European transport hubs. The implementation of intelligent transport systems (traffic management based on the current situation, guiding to free parking spaces, etc.) will also be supported in order to reduce the negative impacts of transport.

The issue of transport will be addressed, inter alia, in the sustainable urban mobility plans of cities and their suburban areas.

Type measure 3: Ensuring high-quality transport connections and service of the territory of agglomerations

Problem: Insufficient transport links (frequency and travel time) with metropolises, insufficiently served functional area (core-hinterland), low investment in transport infrastructure (connection to metropolises in CZ and in the border areas of neighbouring countries and other European metropolises, TEN-T, the system of rapid links, support of airport development), further development of the potential of urban public and non-motorised transport.

Content: Support for ensuring transport service in the territory through the development of fare and operational integration, investments in urban and suburban public transport fleets (respecting environmental aspects), construction of transport terminals and multimodal hubs, support for non-motorised transport, telematics, investments in rail and road infrastructure, with good connection to the metropolis and TEN-T (planned high-speed rail in the context of rapid links), support for bikesharing and carsharing, investment in airport development and new bypasses.

Target situation: Higher-capacity and accelerated transport links between agglomerations and metropolises in CZ, other metropolises in Europe and in the border regions of neighbouring countries, improved transport service in the functional areas (core-hinterland), increased modernization of vehicle fleets and environmentally friendly modes of transport.

Target group: city dwellers and commuters, potential investors

Main holder: MoT

Other holders: MoE, Railway Administration, RMD, road maintenance administration, carriers (public, private)

Main implementers: Regions, municipalities and their public transport companies

Type measure4: Effective traffic management reducing the negative effects of traffic

Problem: Poor air quality caused, among other things, by high density of motorised private transport and poor transport permeability of cities, having other negative aspects (e.g. noise, dust or parking problems).



Content: Support for the deployment of intelligent transport systems (traffic management based on the current situation, guiding to free parking spaces, acceleration of transit for IRS components during their rescue missions, etc.) and sustainable forms of transport.

Target situation: Reduced pollutant emissions from transport thanks to a reduction in unnecessarily driven km (e.g. in search of free parking space) and improved traffic flow and safety.

Target group: city dwellers and visitors

Main holder: MoT

Other holders: municipalities, Regions, MoE, MoRD

Main implementers: municipalities, Regions

Specific Objective 2.2: Effectively addressing environmental problems associated with the concentration of large population and adapting agglomerations to climate change

The impacts of intensive traffic in city centres will be controlled also through the promotion of multimodality, the systemic deployment of the use of alternative propulsion in transport and the deployment of intelligent transport systems. These systems will monitor and regulate traffic and its negative impact on the environment. Support will also be provided for public transport services and clean mobility incl. cycling and its infrastructure, and intermodality as in metropolitan territories.

For some cities in this category, it is important to regenerate brownfields and post-industrial areas (transport brownfields), both for business and non-business use (including their conversion to rest and leisure zones).

Specific Objective 2.3: To improve transport accessibility within regions

Not all regional centres are suitably connected with their hinterlands in terms of transport. Pollution (especially air and noise pollution) is a frequent problem in regional centres, also due to the fact that in many towns of this category, the main traffic routes run through their centres. Moreover, the transport infrastructure (local roads) in micro-regional centres and their hinterlands is currently in poor condition.

Smaller regional centres have more difficult conditions for introducing urban public transport and therefore the problem of heavy load by private transport is difficult to solve. For this reason, it is appropriate also for smaller regional centres to develop at least a simplified version of the Sustainable Urban Mobility Plan. Integrated transport systems should also be deployed in rural areas as part of Region-wide systems, including P+R. In addition to the coordination of intra-urban transport, it is advisable to further improve the coordination of transport services between the centre and its hinterland so that the supply of connections corresponds to real passenger demand.

Solution: At the micro-regional level, steps will be taken to improve the connectivity and accessibility of the micro-regional centres (e.g. former district capitals and municipalities with extended powers).

Within the Regions, maintaining and further developing the integrated transport systems covering the entire territory of the Region with a link to the neighbouring Regional ITS. Furthermore, the P+R system, a network of safe cycle paths associated with commuting to work, schools and services.

The actors concerned will maintain links ensuring at least a minimum connection between the hinterlands and the regional centres. Steps will be taken to ensure effective transport service, for example by ensuring sufficient intensity of the connections.

In order to reduce pollution in town centres, construction of bypasses of municipalities will be considered for some centres but the risk of outflow of economic activities from the town centres must also be considered. The Urban Policy Principles recommend that cities over 40 thousand inhabitants draw up Sustainable Urban



Mobility Plans (SUMP) and ensure their implementation, but smaller settlements are advised to do so too. It is necessary to design quality Regional transport service plans. It is also necessary to focus on promoting P+R and cycling as important transport segments. Steps will be taken in the regional centres and their rural hinterlands to improve the condition of local roads.

Type measure5: Ensuring transport coordination in regions

Problem: Within regions, the problem may be a poor connectivity of the individual types of transport (within regions, but also on the borders of Regions). The public transport lines are often not interconnected on the borders of Regions. In some cases, short transfer times between the various modes of transport (e.g. road, rail), transport service in municipalities on all days of the week and tariff integration are still not sufficiently ensured. The supply of transport does not always correspond to real demand, which leads to a loss of competitiveness of public transport and a decrease in transport output. Particularly problematic is the situation in remote regions where sufficient connections are often lacking. Moreover, the problem of coordinating public transport goes beyond the regions. The current situation sometimes leads to omitting the peripheral areas of regions and areas on the border between regions, and weaker coordination between regional authorities creates problems in the network effect of public transport.

Content: Increased use of public transport, better coordination at regional and interregional levels, and promoting the mutual integration of transport systems and the development of transfer terminals. Support for the design of sustainable mobility plans (SUMP) and their implementation, and in connection with them, for regional transport service plans. It is necessary to build regional dispatching centres which will operatively ensure the continuity of connections (solving problems of operational irregularities).

Target group: public transport users

Target situation: Increased use of public transport and increased transport output. Effective transport service in the region respecting the transportation needs of the inhabitants and the quality of the environment.

Main holder: MoT

Other holders: MoE

Main implementers: Regions

Type measure6: Improving the condition of roads

Problem: Road repairs usually represent large investments for most smaller towns and villages, significantly burdening local budgets. Moreover, transport infrastructure in regional centres and in their hinterlands is currently in poor condition.

Content: Subsidy support for the repair of existing roads and cycle paths (and, in case of objective need, the construction of new roads), which will reflect the scope of the problem in a given municipality - e.g. the cadastral area of the municipality, or the number of kilometres of the managed network.

Target situation: Improved technical condition of roads in regional centres and their functional hinterlands, which will help to stabilize the regions and improve the quality of life in their municipalities.

Target group: users of roads and paths

Main holder: MoT

Other holders: MoRD

Regional centres and their rural hinterlands



Small municipalities in the hinterlands of regional centres perceive the accessibility and quality of public and commercial services and the quality of transport infrastructure (e.g. quality of pavements and roads, or conditions for cycling) as problematic¹³.

Many regional centres face transport problems. At least some towns located on transport-intensive routes have problems with heavy traffic in their centres. Another problem is also the connection to the motorway network or a quality connection to TEN-T. In the category of regional centres, a frequent traffic problem is also the poor availability of parking places, excessive traffic intensity and poor condition of roads¹⁴. However, smaller municipalities are often unable to finance major repairs / construction from their own resources and if so, it is often a significant, many-year burden on local budgets.

Structurally affected Regions

Inadequacies in infrastructure – the Regions lack not only better connections by road infrastructure to the main transport arteries outside the Region, or capacity connection of the main centres in the Regions to railway infrastructure (mainly the Karlovy Vary Region), but also infrastructure for industrial real estate (industrial zones and areas ready for investment), and the Ústí nad Labem Region also has an insufficient energy transmission system.

Economically and socially vulnerable areas

Strategic Objective 3: Good quality of life in economically and socially vulnerable areas

Type measure7: Addressing problems related to socially excluded localities in the rural environment

Problem: The last mapping of socially excluded localities (SELS) revealed their increase in rural municipalities. Social exclusion has a specific character here. With regard to transport accessibility and the service provision system (responsibility for services at MEP level), municipalities and local units have a much more limited range of tools to address this problem.

Content: Ensuring the accessibility of social and other services to prevent and address social exclusion, stabilization and problem solving of rural SEL residents, including the availability of non-segregated housing and employment support. Working on the availability of kindergartens, primary and secondary schools.

Target situation: Fewer socially excluded localities in rural areas and effectively set up mechanisms to prevent the emergence of new socially excluded localities.

Target group: SEL residents

Main holder: AGENCY FOR SOCIAL INCLUSION

Other holders: MoRD, MLSA, MEYS

Main implementers: municipalities, voluntary associations of municipalities, Regions, local action groups, regional labour offices, non-profit organizations

Specific Objective 3.1: Ensuring good transport accessibility within the region and in relation to agglomerations and metropolises

It is essential to have good transport links to regional centres, even from outlying villages. Limited transport service at weekends but also on weekdays hampers the mobility of the local population.

¹³UTM CR (2017): Starting points for establishing the position of the Union of Towns and Municipalities of the Czech Republic on the Cohesion Policy of the European Union after 2020 - working version.

¹⁴UTM CR (2017): Starting points for establishing the position of the Union of Towns and Municipalities of the Czech Republic on the Cohesion Policy of the European Union after 2020 - working version.



Solution: Connections within regions will be improved and possible ways to improve the transport service in remote rural and peripheral regions (including possible legislative arrangements for effective transport services) and to ensure better transport accessibility of public administration services will be considered. Interconnection of Regional integrated transport systems will be improved at the national and international level, thus achieving better transport connection of municipalities near Regional and State borders.

Type measure8: Ensuring transport service

Problem: Inhabitants of remote and hard-to-reach locations face a number of difficulties (e.g. low accessibility of the labour market, insufficient links to regional centres, etc.) associated with the lack of transport service in such areas. Transport service could also be provided by alternative means (e.g. subsidized minibuses, etc.), but legislation prevents their efficient use in peripheral areas.

Content: To enable the use of alternative methods of transport service, MoT will promote a legislative change so that municipalities can, under specified conditions, transport their inhabitants to and from the village for a fee in passenger cars of the Transit type, i.e. in a similar way to how a taxi service is operated, while the price would be significantly different and can be subsidized (note: currently, municipalities or other partners can operate such a service either through licensed entities for public transport or through licensed taxi companies. Both ways are expensive, complicated and completely unusable for peripheral rural regions.

Target situation: Sufficient transport accessibility of remote and difficult to reach locations.

Target group: Residents of remote and hard to reach locations

Main holder: MoT, main implementers: Regions, municipalities and regional public transport companies

Table 4: SWOT analysis - regional development

Strengths (S)	Weaknesses (W)
Integrated transport systems are already being developed in almost all Regions of the Czech Republic	Unfinished backbone road network
Above-average density of road and rail network	Problematic transport accessibility of inner peripheries (along the borders of Regions, rural areas, state border areas)
Internationally important and continuously developing Prague-Ruzyně airport	Absence of high-speed railway lines in the Czech Republic
Municipalities in Moravia and Silesia are larger in terms of territory and population and can be more efficiently served by public transport	Poor technical condition of the road and railway network, especially of lower orders
Good transport service in metropolitan regions, often thanks to the interconnection of urban transport with regional/suburban transport.	Insufficient connection to the railway and road infrastructure is mainly in the South Bohemian and Karlovy Vary Regions
Public transport integration	Absence of fast rail connections.
	Congested sections of motorways on the borders of large cities, especially Prague and Brno, and the connecting roads towards city centres
	Low availability of public transport in parts of the Plzeň, South Bohemian and Vysočina Regions,



	especially the areas of Třebíč, Jindřichův Hradec, Vimperk, Kralovice and Nýřany.
	Parts of the Plzeň, South Bohemian and Vysočina Regions are less accessible by public transport.
	Almost half of the municipalities with up to 3,000 inhabitants, mostly in Bohemia, are not served by public transport on weekends.
	Rural areas are not served by public transport on weekends.
	Still unfinished main road routes (e.g. D1, D3, D6, D11 and D35 motorways)
	The limit values of immissions from transport are still exceeded in a relatively large part of the territory.
	Pollution from transport
	Insufficient international transport accessibility of metropolitan areas
	Increase in motorised private transport in metropolises and agglomerations
	Growing intensities of motorised private transport
	Poor-quality transport links of agglomerations to strong metropolitan areas (e.g. Prague - České Budějovice, or Prague - Karlovy Vary).
	Low quality of road and railway interconnection of different agglomerations (for example Liberec - Hradec Králové).
	Unbuilt or unfinished town bypasses
Opportunities (O)	Threats (T)
Completion of backbone transport infrastructure	Continuing population growth in growing metropolises without an adequately fast response of the transport infrastructure and public transport service.
Commencement of works enabling rapid rail links.	Failure to complete the backbone transport infrastructure (road and rail).
Interconnection of public transport with transport hubs and car parks (P+R)	Remote areas will not be sufficiently served by public transport, which will lead to a further loss of population and an overall decline.
Investing also in modern and environmentally friendly public transport vehicles, incl. the accompanying infrastructure.	Increase in motorised private transport in metropolises and agglomerations
Active mobility support	Growing intensities of motorised private transport



Improvement of conditions for cycling	
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2.2.12 Delimitation of the territory for Integrated Territorial Investments (ITI) in CZ

The aim of this part is to uniformly define metropolitan areas for the purpose of an effective use of ESI funds through *Integrated Territorial Investments (ITI)* as well as the implementation of regional policy (in accordance with the Regional Development Strategy of the Czech Republic 2021+). This fulfils the EU's current intention to use Integrated Territorial Investments as a tool for territorial development, enabling efficient, transparent and administratively simpler implementation of the territorial strategy. The ITIs emphasize the role of metropolitan areas that are perceived as the poles of growth and development of the territory. The Czech Republic intends to use ITI for sustainable development of metropolitan areas according to the relevant EU regulations in the new EU programming period, and will use the European Structural and Investment Funds for the integrated approach that is implemented on the basis of an approved integrated strategy.

ITIs require the delimitation of all metropolitan areas and agglomerations, the cores of which are statutory cities in the Czech Republic.



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Figure16 Statutory cities in the Czech Republic in 2019

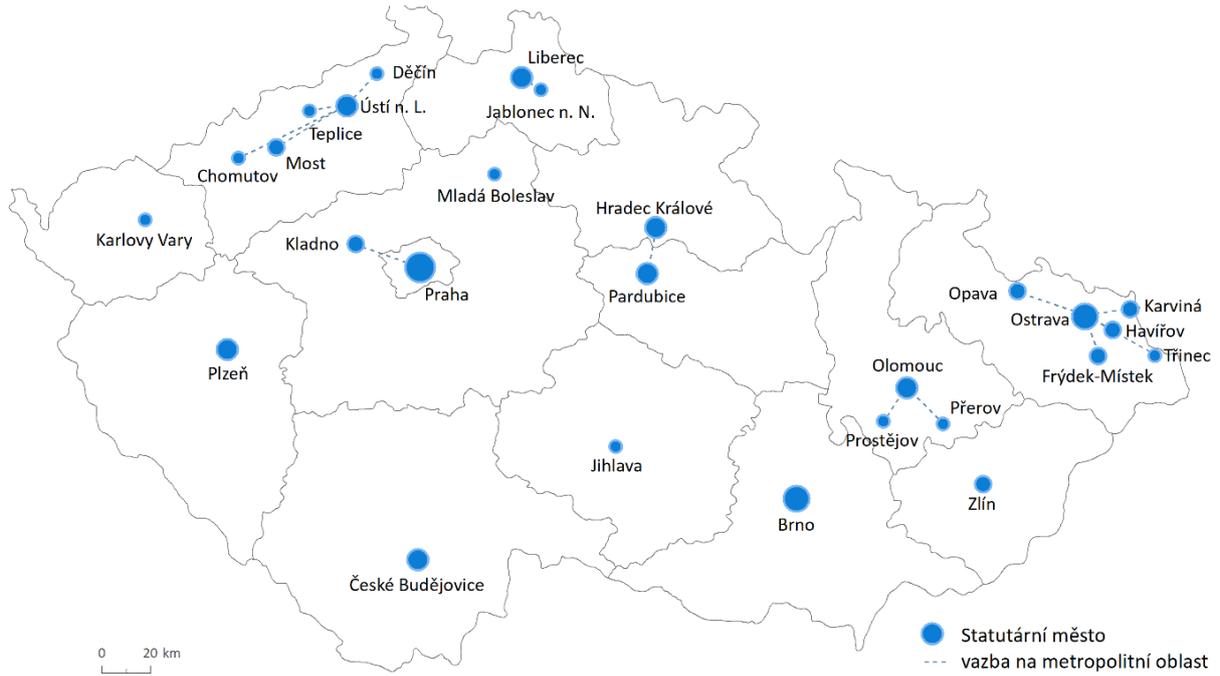


Figure17 Delimitation of metropolitan areas and agglomerations in 2019

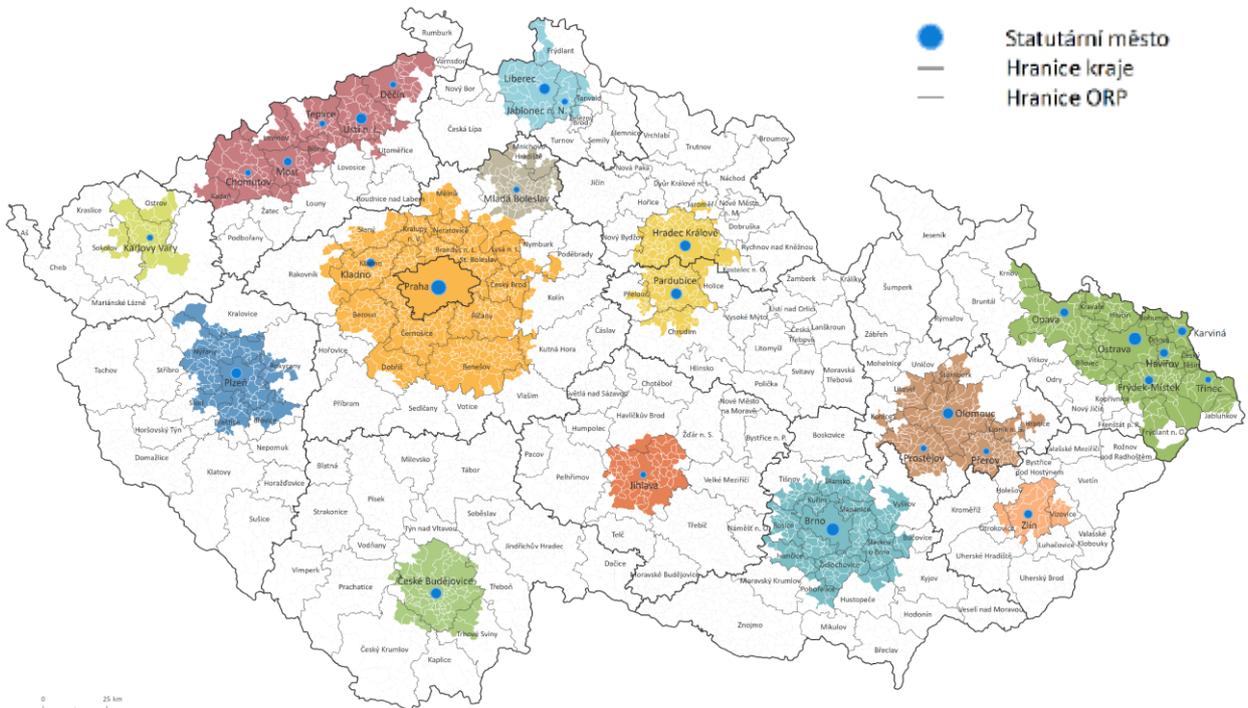




Table 5: List of statutory cities and their location in metropolitan areas and agglomerations

Name of metropolitan area/ agglomeration	Statutory cities in the territory
Prague Metropolitan Area	Prague, Kladno
Ostrava Metropolitan Area	Ostrava, Frýdek-Místek, Opava, Třinec, Havířov, Karviná
Brno Metropolitan Area	Brno
Ústí nad Labem-Chomutov Agglomeration	Ústí nad Labem, Teplice, Most, Děčín, Chomutov
Olomouc Agglomeration	Olomouc, Přerov, Prostějov
Hradec Králové - Pardubice agglomeration	Hradec Králové, Pardubice
Plzeň Agglomeration	Pilsen
Liberec-Jablonec nad Nisou Agglomeration	Liberec, Jablonec nad Nisou
České Budějovice Agglomeration	České Budějovice
Karlovy Vary Agglomeration	Karlovy Vary
Zlín Agglomeration	Zlín
Mladá Boleslav Agglomeration	Mladá Boleslav
Jihlava Agglomeration:	Jihlava

The uniform procedure of delimiting the metropolitan areas and agglomerations of statutory cities in the Czech Republic brought about relatively significant changes in some urbanized territories.

The functional delimitation must primarily be a functional tool for an efficient use of ESI funds and the implementation of regional policy in accordance with the Regional Development Strategy of the Czech Republic 2021+. Both of these goals should be implemented in relatively narrowly defined urbanized areas, which, in contrast to the broad hinterlands of cities, have specific problems related to metropolitanization and suburbanization processes. The allocation of funds to these narrower areas should not only overcome the problems caused by suburbanization, but also strengthen the role of metropolitan areas and agglomerations as development poles of the respective Regions.

2.2.13 Transport Policy of the Czech Republic

The Transport Policy of the Czech Republic for the period 2021 to 2027, with a 2050 perspective sets out strategic and conceptual objectives and main principles of development of transport and transport networks. These are gradually elaborated in follow-up strategies. The main objective of the Transport Policy is to ensure the development of a high-quality, functional and reliable transport system based on the use of the technical, economic and technological properties of individual modes of transport, on the principles of economic competition with regard to its economic and social effects and impacts on the population (social cohesion, public health, standard of living), security and defence of the state and all components of the environment, while adhering to sustainable use of natural resources.

The vision of the transport system of the Czech Republic from a long-term perspective sees the Czech Republic and its individual regions equipped with a transport system that will meet the requirements of transport needs in both passenger and freight transport, will support sustainable economic development, and pursue an



inclusive policy aimed at structurally disadvantaged regions and their inhabitants. This transport system will meet the sustainability requirements, which means that it will have a neutral impact on global (not only climate) changes (in terms of mitigation and adaptation), it will have the least possible impact on public health, it will only minimally affect biodiversity, nature and the landscape, and will use natural resources in a balanced way on a renewable basis so as not to increase the debt to future generations. It will be necessary to satisfy the need for the mobility of people and things, while the way of meeting these needs must be influenced in such a way as to ensure sustainability in relation to further economic development. The goal is not to limit transport, but to develop it. But it must not be developed in its current extensive form with a strong dependence on high energy consumption, especially fossil fuels, but in an energy-efficient and environmentally friendly form. So the societal task is to increase the energy efficiency of transport. This means reducing specific energy consumption (proportion of energy consumption and the transport work performed).

This vision will be achieved through the following **three consecutive steps**:

1. Measures will be sought to enable a thrifty use of the transport of people and goods by making the transport needs arise as little as possible, without affecting economic development (optimization of transport needs). To that end, the results of applied research will be put into practice and modern technologies will be used, spatial planning will be improved, especially in cities, and the economy restructuring will be promoted so as to create higher added value. This first step will be the subject of a broader state policy in accordance with the adopted *Strategic Framework Czech Republic 2030*.
2. The transport system fulfilling the above-mentioned vision must be based on a multimodal approach using the advantages of each mode of transport, and on intersectoral cooperation. In the case of concentrated (strong and regular) transport flows, it is necessary to make more use of more energy-efficient modes of transport supported by quality transport infrastructure built for that purpose, including energy and information superstructures, as these achieve the lowest energy demand (kWh/pkm, kWh/tkm) and also the lowest production of carbon dioxide (kg/pkm, kg/tkm).
3. Each mode of transport must be developed with regard to the needed accessibility of individual regions, the transport needs, and with regard to reducing the environmental impacts. A prerequisite is a high-quality transport infrastructure equipped with modern technologies as well as means of sharing transportation information and data. Moreover, the conditions for energy efficiency and minimization of emissions must be met for each mode of transport. It is necessary to closely link the transport system with the energy system, energy in transport must be assessed as a whole, the use of fossil fuels must be minimized, both for the sake of climate protection and for the sake of protecting the environment and the health of the population.

2.2.14 Urban and Active Mobility Concept for the period 2021–2030

In the course of the 2014-2020 programming period, cities began to address the issue of sustainable urban mobility according to the plans developed in connection with *the White Paper - Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system*. The European Commission required the design of Sustainable Urban Mobility Plans (SUMPs) for that programming period as a condition for receiving EU funding. The Czech Republic rejected that due to the insufficient time, as it would only lead to a formal design of the plans without the desired effect. It was agreed that for the 2014-2020 period, it would be sufficient to prepare provisional plans that would be replaced by full SUMPs after 2020. The Ministry of Transport certified a methodology for designing SUMPs, which was updated in 2021 in connection with European and national strategies.

In 2021, the Urban and Active Mobility Concept for the period 2021-2030 was approved at the national level, elaborating the main principles of transport policy to be applicable in the conditions of self-government. The



draft Concept deals with planning sustainable urban and active mobility in accordance with the proposals and requirements for urban mobility from the European Commission, and is based on experience with the first generation of SUMP's designed by cities in previous years. The Concept is methodological in nature and should make it easier for cities to draw up and update sustainable urban mobility plans that fall within the competence of city authorities.

The Concept distinguishes two parts. The first part (chapters 2.1 and 2.2 of the Proposal part) deals with urban and suburban mobility and serves as a methodological aid for cities and Regions in the process of planning sustainable urban mobility, with regard to the defined categories of cities. The implementation part mentions follow-up methodologies for the individual areas of urban mobility planning, which will be gradually drawn up in cooperation with the research and academic sectors. The second part (chapter 2.3 of the Proposal part) deals with active mobility and follows on from the National Cycling Strategy that expired in 2020.

The Concept is based on European guidelines (Guidelines for developing and implementing a Sustainable Urban Mobility Plan (2nd edition)), takes national specifics into account, and is based on evaluation of the 1st generation of SUMP's. The Concept addresses the specifics of each category of cities (based on the size of the city, position in the agglomeration, climatic conditions, predominant type of urban development), and with regard to suburban areas.

2.2.15 Public Transport Concept

It is typical for the current situation in public transport that its condition is co-determined by many tendencies observed on the market and concepts that have been established in particular by the EU authorities and whose implementation is legitimately essential for the Czech Republic. These development tendencies and concepts of primarily EU bodies can significantly influence the development of public transport and in some cases lead to opposing directions of development, which would be extremely unfavourable. As an example, here are several basic propositions that determine the field of public transport indisputably and very significantly:

1. The State Energy Concept increasingly emphasizes the need for decarbonization of industry and transport so as to reduce the carbon footprint resulting from industry and transport in the Czech Republic. The follow-up *National Action Plan for Clean Mobility* deals with energy in transport, the upcoming updated version no longer deals with only road transport.
2. The growing interest of passengers in public transport. In accordance with the transport policy of the Czech Republic, the demand for public (mass) transport services is growing, especially in the area of rail transport.
3. Changes in the approach to transport at the European level. In December 2019, the European Commission presented one of its flagship initiatives, the so-called European Green Deal. It is a set of initiatives that should make the EU a climate-neutral economy by 2050. The EGD will cover all sectors of the economy, especially transport, energy, agriculture, construction of buildings and industry in general. Transport is directly addressed in section Accelerating the shift to sustainable and smart mobility.
4. Opening of the market for the provision of public services in passenger transport. The goal of this liberalization strategy from the beginning was not the market per se, but the improvement of the quality and efficiency of public transport and the elimination of monopolies.
5. The backbone infrastructure for public transport is overloaded.
6. The quality of the company's approach to the transport of groups of passengers with special needs is being improved, for example the legitimately increasing requirements for the transport of people with limited mobility, orientation or communication, or the rules for the transport of baby carriages, carers with a child under 3 years of age or cyclists with bicycles, mentioned in the upcoming EU regulations.

The task of the Public Transport Concept is to set, in the light of development tendencies that are objective, the next direction of public administration activities in the field of public transport, in which the public



administration plays a decisive role both organizationally and financially. The main goals and priorities of the state in the field of public services in passenger transport are as follows:

- Appropriate distribution of competences in public transport
- Concession model
- Tariffs in public transport and their regulation
- Availability of information about public transport
- Equal conditions and opportunities for accessibility in public transport
- Adaptation of vehicles to new needs
- Mobility chain

The main backbone axes of the provision of public services in passenger transport and the distribution of the main transfer nodes at the national level until 2025 are provided by transport segment I (express transport); transport segment II (fast interregional transport) and transport segment II (backbones of regional systems) The Concept also establishes the basic framework for the cooperation of the state, regions and municipalities in the provision of transport service and proposes measures for the implementation of the Public Transport Concept.

2.2.16 Road Safety Strategy (BESIP) 2021-2030

For the period 2021-2030, the BESIP Strategy defines the main goal as reducing the fatal consequences of traffic accidents by 50% (in 2030, 50% less than in 2020). In addition to protecting human life and health, increasing road traffic safety also has a significant positive impact on the CZ economy.

Strategic pillars: Traffic participants; Infrastructure; Vehicles and technologies

Infrastructure - Removal of accident blackspots: Collisions with trees; railway level crossings; comprehensible and predictable route; traffic signs; Smart Cities and Cooperative Intelligent Transport Systems.

The road infrastructure of the Czech Republic has one of the highest densities in Europe. The total length of the CZ road network is 55,769 km, but the motorway network has only 1,276 km (2.3%). Apart from motorways, the transport infrastructure includes 5,826 km of class I roads (10.4%), 14,585 km of class II roads (providing transport connections between districts; 26.2%) and 34,081 km of class III roads (mutually connecting municipalities or connecting them to other roadways; 61.1%). In addition, the road infrastructure is complemented by local roads (street network) and private roads (forest and field roads) with a total length of approx. 75 thousand km.

Most deaths in accidents occurred on class I roads, followed by class II roads, and class III roads. The set target of maximum deaths was exceeded in the period 2012-2019 similarly on all the types of roads (in the range of 15-17%). From the point of view of fulfilling the National Road Safety Strategy, local roads can be assessed as clearly the worst - in the number of people killed, the target was exceeded by 66%, and by 31% in the case of seriously injured people.

The development of roads in built-up areas must focus on the development of infrastructure for non-motorized and mass transport according to the principles of sustainable development.

Removal of accident blackspots

Due to the use of GPS for accident localization (since 2007), it is possible to use advanced statistical methods to identify accident blackspots. Moreover, these methods enable the sorting of the blackspots according to collective risk, and the setting of priorities for their removal.



The implementation of cooperative intelligent transport systems (C-ITS) in EU member states is one of the priorities of the European Commission for increasing road traffic safety, or reducing the accidents rates and, as a result, reducing the number of deaths and injuries.

C-ITS services can be used to provide reliable real-time information and warning messages to road users. The aim is to reduce the number of accidents due to inattention or adverse weather conditions. In terms of the coverage of the road network by C-ITS services, the following areas/situations were identified as key:

- With a high risk of collision with another vehicle (passenger vehicle, train, tram, etc.).
- When a vehicle of the integrated rescue system is approaching
- When road work or maintenance is being carried out.
- When a vehicle in the vicinity, in the direction of travel, has suddenly braked.
- With road parameters that require the driver to adjust the driving (ice, bumps on the road, sharp turns, climbs, etc.).
- Traffic congestion etc.

Thanks to the C-ITS elements, drivers will have timely information or a warning message during driving about emergency events ahead that are approaching and so a very short reaction time may be available to adjust the driving, especially in bad weather conditions (heavy snow, precipitation, ice etc.). This will have a positive impact on reducing the number of accidents and the number of deaths and injuries.

It is expected that the extent and coverage of the road network with C-ITS services in CZ and in other EU member states will reach such a level after 2025 that their use by road users will reduce the number of accidents and the number of deaths in road traffic in the EU by 4-6 %.

CZ has already carried out pilot verification of the C-ITS implementation in national conditions, and under the *C-Roads Czech Republic* project, a part of the motorway network and urban road network was covered by C-ITS services by the end of 2022.

Vehicles and technologies

The average age of passenger cars, of which there are more than 6 million registered, increased to 15.11 years in 2Q 2020. The imported used vehicles, of which more than 50% are older than 10 years, also contributes significantly to this growth.

EU member states have approved a list of safety measures that will be part of mandatory vehicle equipment from 6 July 2022. This is Regulation (EU) 2019/2144. Advanced technologies to prevent the consequences of traffic accidents on lives and health will become standard for all newly produced vehicles (so far only available in some models, mostly as extra-paid equipment). The introduction of the above measures could represent the biggest progress in road safety in Europe since the introduction of the seat belt.

Systemic measures

A high degree of supervision in road traffic is key for reducing the number of traffic accidents.

Table 6: Action plan 2021-2022 - measures

Measurement of section and instantaneous speed in part closures on motorways and in risky locations of	RMD	<ol style="list-style-type: none"> 1. By V/2021, select 40 risk locations based on the accident rate and dangerousness of the section /Police CZ in cooperation with MEPs/: number of selected sections 2. By VI/2021, introduce the requirements for the system of measuring section or instantaneous speed in part closures into the internal regulations of the RMD /RMD/:YES/No 3. Implement section or instantaneous speed measurements
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motorways and class I roads		in 15 selected locations in 2021 and in 25 locations in 2022 /RMD/: duration of measurements carried out by a section measurement device in the selected location and the number of vehicles checked by devices measuring section or instantaneous speed in 2021 and 2022 4.MEPs: number of speeding/other offenses handled by MEPs in the selected locality in a given year
Removal of accident blackspots	Removal of accident blackspots according to the conditions of the STIF contribution in 2021 and 2022	
Collisions with trees	Removal of blackspots due to collisions with trees according to the conditions of the STIF contribution in 2021 and 2022	
	Installing guardrails in locations with new planting/regeneration of trees on road land at speeds above 60 km/h	
Railway level crossings	Installing barriers at level crossings with class II roads, min. 50 pcs per year	
	Securing 90% of level crossings of railways with class I roads by flashing light signals with barriers (with the exception of crossings with zero or minimal traffic)	
	Renewal of vertical and horizontal road markings at railway level crossings on regional roads according to the conditions of the STIF contribution for the removal of accident blackspots in 2021 and 2022	
Comprehensible and predictable route	Installing barriers preventing motorcyclists passing under, and providing anti-skid surface in the curves of motorcyclist accidents according to the conditions of the STIF contribution for the removal of accident blackspots in 2021 and 2022	
Road traffic signs	Increasing the number of zones 30 on category C roads according to Czech National Standard ČSN 73 6110 with a high number of vulnerable road users (e.g. shopping and residential areas)	
	Expanding the number of informative traffic signs Safe distance (IP 32) on motorways and class I roads	
Smart Cities and C-ITS	Expanding the installation of C-ITS elements (after the introduction of EU standardization) in locations where they can significantly contribute to increasing road traffic safety	
Digital maps	Technical preparation for the implementation of analytical services over digital spatial data as part of the prepared map portal of the Ministry of Transport.	

2.2.17 Strategy for the development of intelligent transport systems 2021-2027 with a 2050 perspective

The ITS Development Strategy 2021-2027 with a 2050 Perspective sets out the ITS priorities to be pursued, how cooperation with various stakeholders is to be organized and what tools (legislative, standardization, financial) are to be available to support the development of intelligent transport systems.



Development activities in the field of transport systems should be carried out with the vision of reliable, safe, efficient and effective transport of people and things, corresponding to the present day requirements, bearing in mind future development. ITS systems are the key tool for realizing that vision.

The definition of ITS is specified by Act No 13/1997 Coll. on roads as follows: "An intelligent transport system is a set of electronic means, technical equipment, software and other tools that enable the search, collection, access to, use and other processing of data on roads, road traffic, travel, logistics and transport connections, and the purpose of which is to increase safe and coordinated use of roads and reduce the negative impacts of road traffic on the environment."

Each mode of transport uses different means and components for the implementation of ITS systems, based on its own needs and requirements, while each mode of transport may have a different legal definition of ITS. For example, Act No 266/1994 Coll., on railways, as amended, Part 8, Section 49a - 49e defines the operational and technical interconnection of the European railway system. The system of river information services is defined by Section 32a paragraph 1 of Act No 114/1995 Coll., on inland navigation, as amended.

The development of ITS is one of the modern trends in transport. ITS systems enable transport to be better planned, organized and managed so that transport is sustainable, accessible, interoperable, safe and economical. The field of transport has one of the highest innovation potentials. New applications of state-of-the-art detection, diagnostic, information and control technologies based on ITS, global navigation satellite systems (GNSS) and Earth observation systems are emerging and will continue to emerge.

In ITS, the (intelligent) infrastructure and (intelligent) means of transport interact with each other, and other active participants in the traffic or the transport process equipped with appropriate devices and means also interact with each other. Through ITS, intelligent infrastructure can provide high-quality traffic information or travel information in real time, e.g. dispatch centres of public transport companies or integrated systems can issue organizational and control instructions to vehicles, or vehicles can communicate with other vehicles and also with equipment on the infrastructure with the aim of increasing safety and traffic fluency, reducing energy consumption or shortening travel time.

The core of ITS is the use of information and communication technologies, therefore, the sector is developing faster than the transport system itself. Global technological trends such as digitization and automation are also penetrating the transport system through ITS. In the future, these could even further reduce the influence of human error in the transport system and also enable the vulnerable traffic participants to have even more independent and safe access and movement in public buildings, movement on roads and in publicly accessible space, as well as barrier-free use of public transport.

ITS make it possible to organize the process of moving people and things and to influence traffic in such a way that the existing transport network can be used optimally. ITS technologies can provide data that can be used to reduce the costs of operating and maintaining transport infrastructure. ITS allow traffic flows to be optimized in such a way that vehicles travel smoothly without sudden stops and subsequent starts, thereby eliminating excessive energy consumption. At present, the massive development of large cities is evident. Apart from transport infrastructure construction projects, it is necessary to invest in ITS systems for influencing and controlling urban motor vehicle traffic, urban public transport and city logistics. It is also possible to adapt the ITS functions to rural areas. ITS can be used in cases of certain restrictions in the use of the road network (restriction of vehicle traffic by traffic signs), but they can also be used in restrictions on the railway network (e.g. slow driving, work on the track), or in restrictions in the use of the waterway network.

ITS finds application in all modes of transport: road, rail, water, air, passenger, public passenger, and freight. As mentioned above, ITS are applied to increase the capacity of the transport route, economic efficiency, safety, for the management and influence of traffic, reduction of energy intensity, optimization of transport



and transportation processes, elimination of harmful impacts on health and the environment. Each mode of transport uses different components of the ITS system, based on its needs and requirements.

ITS is of fundamental importance for ensuring intermodality and multimodality, i.e. passenger and freight transport services across the modes of transport. An effective traffic management or facilitated coordination of the interconnection of different types of transport systems brings with it the need for up-to-date, detailed and accurate view of individual situations. Individual parts of ITS on the transport infrastructure and in means of transport, instructions, information and data structures must be interoperable at the regional, national and international level. The end user (driver, passenger, carrier, transporter, the sender or the recipient of the shipment) expects a continuous provision of a certain service (e.g. traffic information, public transport connection or control instruction for a railway vehicle) throughout the duration of their journey, regardless of their current location, while using the transport infrastructure of different owners or travelling by vehicles of different carriers.

2.2.18 Cooperative Intelligent Transport Systems, C-ITS

New technologies have already provided, and will continue to provide, additional opportunities for the deployment of active elements of traffic safety, for the reliable and safe operation of ITS systems, which will make the ITS systems trustworthy for the end user. Currently, the field of automated and autonomous vehicles is developing. Fully automated road vehicles are not yet routinely deployed in live traffic. At this time, vehicles equipped with various levels of vehicle control automation are still being tested in a closed environment or are undergoing test operation in a real environment.

But the current trend that is becoming a reality is the deployment of C-ITS. C-ITS systems are based on communication (two-way data exchange) relating to the current road traffic, both between the vehicles themselves and between vehicles and equipment on the road infrastructure. C-ITS systems do not directly interfere with the vehicle's control systems, the appropriate response is decided on by the (pre-warned) driver. Thanks to a warning message received, the driver can be informed in time to respond as quickly and as best as possible (depending on his/her capacity) to an unexpected road traffic situation. This is particularly useful in poor visibility conditions which deteriorate a situation where the driver would otherwise respond correctly and in time. C-ITS systems have the potential to prevent serious traffic accidents.

In this regard, it is necessary to deploy a technology that is already proven and therefore safe. Otherwise, ordinary drivers could be exposed to dangerous road traffic situations to which the deployed system might not respond according to the established conditions and assumptions. Basic principles of building C-ITS:

- a simple but reliable solution;
- uniform solution (technical and organizational cross-border interoperability);
- secure solution (users trust the system).

The implementation of ITS and C-ITS represents the introduction of innovative traffic information services and systems for influencing and controlling traffic and organizing the process of moving people and things, in each mode of transport. The pace of innovation in this area is usually significantly faster than in other parts of the transport system. In order for ITS to fulfil their role and bring the expected benefit, the systems need to be continuously modernized. The useful life of ITS technologies and services is significantly shorter than the useful life of a transport route or a means of transport. That is why, for example, ITS equipment on a motorway, control room technology or locomotive equipment will be upgraded several times during the lifetime of the vehicle or infrastructure.



In the case of a certain form of cooperation with distributed systems (e.g. in vehicles), the introduction of a new ITS system according to the latest trends may require a replacement of thousands of devices, which can be an organizationally and financially demanding operation. It is advantageous to use the life cycle of these devices for their natural renewal but, even then, the renewal cannot be achieved in one moment and it is necessary to ensure backward compatibility with the older technologies in use.

The global goal is trouble-free, safe and efficient travel and transportation, corresponding to the requirements of the time. That can be achieved, among other things, through the digitalization of the transport system in the broad sense of the word, especially by the application of ITS and services, by creating the so-called "digital layer of the transport infrastructure". Developed ITS and C-ITS will be an integral part of safety measures on the transport infrastructure, where there will be almost zero deaths due to traffic accidents, minimal delays in the transport system, environmental impacts will be close to zero and the transport system will be used by fully informed users of the transport system.

2.2.19 Freight Transport Concept for 2017-2023 with a 2030 perspective

The aim of the Freight Transport Concept is to set priorities for logistics and freight transport and to create an environment where the logistics and freight transport can provide the necessary level of service to ensure the competitiveness of the economy and at the same time to economically use the existing resources. One of the means to reduce the negative societal effects of freight traffic is a uniform distribution of the transport work among the different modes of transport. It is necessary to create such an environment in which the advantages of individual modes of transport can be fully developed, i.e. where more effective and efficient logistics services can be provided while fulfilling strategic goals in the area of reducing energy intensity, environmental impact and global climate change.

Railway infrastructure

Freight transport needs are concentrated on the main routes, in particular the routes defined in Regulation No 1315/2013/EU (infrastructure aspect) and in Regulation No 913/2010/EU (RFC, operational aspect). In the rail transport priority below, the main principles of route allocation, as well as solutions in the event of lack of line capacity, are set out.

The main needs include:

- Modernization of the Kolín – Děčín line (right bank line). The line is in poor technical condition, and it is necessary to renew not only the track itself, but also to equip it with the ERTMS.
- Double-tracking of the Velký Osek – Hradec Králové – Choceň line, including the construction of the Libice interconnection. The project will address capacity problems on the congested Kolín - Choceň section.
- Modernization of the line Choceň – Ústí n/O including capacity increase. This is the last line section of the 1st transit railway corridor that has not yet been modernized. The modernization will mean the construction of a new line in a new route, but for capacity reasons it is necessary to preserve the existing line for freight transport (modification of the section Choceň-Brandýs nad Orlicí is completed).
- Modernization of the line Plzeň – Česká Kubice st. border It is necessary to build a new high-capacity railway connection in the south-west direction. The Czech economy is strongly oriented towards the west, so this is a strategic connection. In this case, it is necessary to give more consideration to the needs of freight transport, as its forecasting is quite difficult and in this case it is not possible to base it on the current traffic. The operational technology must enable freight trains to be routed without unnecessary stoppages for crossing with passenger trains.
- Modernization and electrification of the line Cheb – Cheb st. border (following the electrification on the German side). This is another important connection in the western direction, which has the main



advantage that, using the northeast line via Karlovy Vary, it will enable the bypassing of the suburban area of Prague.

- Modernization of the Nymburk – Mladá Boleslav-město line (further stages including electrification, gradual double-tracking and speed increase). The current, already completed stage of modernization was prepared in response to the operational needs of Škoda-Auto. Due to the scale of traffic, electrification is urgent, preparations are underway to double track the section Mladá Boleslav-město - Čachovice.
- Modernization of the line Prague – Lysá n/L. This means improving the parameters of the connection between Prague and the right bank line, including the grade-separated crossing in Lysá nad Labem.
- Optimization of the Prague – Beroun line as part of completing TRC 3. Even in this case, the freight transport capacity problem will not be solved, its solution will be the new tunnel connection between Prague and Beroun.
- The modernization of the Ostrava Kunčice – Valašské Meziříčí line, especially in the section to Frýdek-Místek, is also important for freight transport (terminal Paskov, Biocel, Hyundai Motor Manufacturing Czech). This means double-tracking up to Frýdek-Místek, electrification, extension of tracks at the Frýdek-Místek station and enabling the operation of longer trains to the Nošovice Industrial Zone.
- Extending the useful lengths of selected overtaking tracks on the main lines for freight transport to at least 750 m.

Measures:

- Following the double-tracking of the Velký Osek – Hradec Králové – Choceň line, increasing the capacity of the Choceň – Ústí nad Orlicí section by keeping the existing track for freight transport and regional passenger transport and building a new line for long-distance passenger transport in the MAX variant.
- Increasing the capacity and attractiveness of the proposed variant of modernising the line Plzeň - Domažlice st. border.
- Addressing the capacity of important railway junctions (e.g. grade-separated crossings).
- In the Feasibility Studies, it is essential to ensure that the capacity of station heads is not reduced and, if necessary, it is increased, by designing such an arrangement of switches that will allow to maximize the number of relevant current running, or shunting, routes while maintaining the economic efficiency of the constructions.

Investment measures: according to the schedule of the updated Transport Sector Strategy document.

- In accordance with the requirements of Regulation No 1315/2013/EU on infrastructure parameters for operating trains 740 m long, establishing continuous relations of international freight transport in the axes of freight corridors, consulting railway freight carriers on their needs. Based on this, and following the modernisation of lines suitable for a train length of 740 m, implementing targeted construction measures on the remaining part of the network for the full-scale operation of trains 740 m long on the main freight corridors and, where relevant, on the connecting lines according to the real requirements for hauling 740 m long trains.
- Examining the options, including the proposal for financing and the proposal for legislative amendments, for the introduction of pushers on tracks with unfavourable gradients (task accomplished).

Road infrastructure

It is urgent to complete the motorway network and bypasses on class I roads.

Measures:



- Completing the D0 motorway (Prague ring road),
- motorway D35 in the section Ostrov – Mohelnice,
- motorway D3,
- motorway D6,
- motorway D7,
- other sections of motorways and class I roads according to the Transport Sector Strategy and its Action Plan.

Infrastructure of waterways

Water transport in CZ cannot be functional without solving the reliability of the waterway between Ústí n/L and the state border. Water transport is irreplaceable in the transportation of oversized shipments, and for heavy industry, solving such transports is one of the key factors in maintaining competitiveness. Therefore, it is advisable to examine the effectiveness of connecting Ostrava to the Oder waterway. The canalisation of the Oder to Koźle in Poland mostly concerns the Polish territory, and close cooperation with the Polish side will be necessary. An alternative is the modification of the road or rail network to Koźle for the transport of over dimensional cargo.

Heavy and over dimensional cargo transport and ginaliners

The modernization of road routes using small roundabouts creates problems for the transportation of over dimensional cargo. Routes must be defined also for the so-called ginaliners. Their operation should be allowed only in certain periods according to the road traffic situation. The operation of ginaliners will continue to be tied to the relevant permits, but it is necessary to reevaluate the period of validity of these permits.

RFC and the requirement for quality routes

The rail freight corridors (RFC) must meet the requirements arising from Regulation No 913/2010/EU, which must be reflected in the design of pre-arranged paths (PaP) for international freight transport. Given the fact that the purpose of the regulation is to create conditions for increasing the competitiveness of international rail freight transport, the recommended measure is the design of catalogue routes, especially for combined transport trains and freight express trains with similar parameters, as well as the offer of PaP at regular intervals.

A key condition is also the coordination of PaP cyclic schedule with other transport. The Department of Logistics and Transport Management at the Transport Faculty of the Czech Technical University is currently working on a research project for MoT dealing with capacity allocation in the bottlenecks of the railway network. In addition, it is necessary to meet the requirements arising from Regulation No 1315/2013/EU to enable the running of trains with a length of 740 m. This parameter is especially important for combined transport trains. This parameter should be met not only by building modifications, but also by operational measures included in the design of the WTT diagram (the competitiveness of rail freight transport compared to road transport requires uninterrupted passage through the line without unnecessary stops).

The throughput of the corridors can be increased by implementing the European train control system (ETCS). However, the benefits arising from operation in the ETCS mode can only be utilised in the case of exclusive operation of vehicles with this system. It is therefore advisable, in accordance with the National ERTMS Implementation Plan, to shorten the transition period as much as possible. For the ERTMS/ETCS system, it is necessary, in addition to increasing safety, to declare a clear priority for the goal of increasing the throughput performance of lines and stations compared to the current control equipment. The implementation of ERTMS/ETCS must lead to the shortening of operating intervals and subsequent intermediate periods on heavily used lines, on lines with a significant volume of freight traffic or with the potential for increasing its



volume, especially for capacity-critical infrastructure elements on these lines and in stations. In addition to the general shortening of track sections between branching points on these lines and the further shortening of such sections in an approach to a station, it will probably also require linkage to the existing control equipment and its adjustment so that it is possible to build a train path (issue an authorisation for train movement) in sub-sections, i.e. in a shorter length (i.e. time) interval after the section actually occupied. Similarly, it is necessary to enable the gradual cancellation of the train path after the section between the two nearest points has been vacated.

The line throughput is also related to the appropriate increase in the performance and, in particular, the transmission capacity of the fixed traction devices, so that the limitation is not the electrical subsequent intermediate periods (solved by the transition to a unified 25 kV system), and the mandatory use of powerful tractive vehicles (units) capable of meeting the specified running time (not blocking other routes).

In case of insufficient capacity of the routes, it will be necessary to clearly establish priorities for the allocation of routes with priority bundling and homogenization of the routes of the affected trains. For large agglomerations (especially Prague, Brno and Ostrava), short-interval suburban transport is a high priority in relation to the strategic sustainable urban mobility plans (SUMP). Thus, transport must respond to the adverse effect of strong suburbanization, which induces high commuting to the core city of the agglomeration. When planning the development of the railway network, there is an effort to separate the main routes for freight transport from lines with heavy suburban traffic.

That is why it is important to modernize the right-bank line Kolín – Děčín, and why the main route for freight transport from Austria to Poland is conducted outside the Brno agglomeration. High priority is also given to long-distance passenger transport lines. Although the existing model of operating long-distance lines on the route Prague - Ostrava is advantageous from the point of view of offering quality services and attractiveness for passengers together with the ordered regional and long-distance lines, it does not allow smooth operation of freight trains throughout the day, the traveling speed of freight trains is falling dramatically and energy consumption increases due to frequent stopping and starting, and the lost-time related costs (wages and depreciation) also grow significantly. There is a growing offer of fast, but low-capacity connections in an excessively short interval. At the same time, commercial trains are not able to satisfy all transport needs on the main line. They cannot satisfy transport needs during transportation peaks (it is very expensive), and so an express link must also be ordered. In addition, commercial carriers will not provide service to medium-sized stations, for which a fast train link must also be ordered. The existing system of passenger train operation is difficult to regulate. A suitable solution to this situation for the future period is strengthening the elements of the concession model.

However, on RFC lines and other lines important for freight transport, it is necessary to respect the regulations on RFC and to construct long-distance freight transport corridor routes as a priority over other transport segments. Due to the coexistence of freight transport with other trains, it will be bundles of fast-moving freight trains, which is conditioned by adequately performing fixed traction devices and the use of high-performance locomotives. Technical solutions are available for both of these measures.

In cooperation with prospective operational concepts of the ordering authorities and the predictable intentions of commercial carriers, it is necessary to appropriately construct tact freight paths in such a way that the following characteristics of the paths are ensured to the greatest extent possible:

- Passage through hub stations (if necessary with an alternative option to stop at/ start from these stations).
- Targeted overtaking in stations that have a suitable slope and capacity and enable the useful length of station tracks to be extended to 750 m (overtaking may be different for each direction).



- Generally lower number of regular stops for freight trains.
- Bundling of equally or similarly fast trains (passenger and freight trains), including local "parallelization" (merging) of routes (for passenger and freight trains) in narrow places.

In addition, it is necessary to motivate the ordering authorities and freight carriers to discuss together their capacity requirements. As far as possible, it is necessary to motivate the ordering authorities to make mutually coordinated orders that save the capacity of the railway (and also offer passengers a shorter service interval). For example, stopping the fast trains in Brandýs nad Orlicí and Ústí nad Orlicí, and not providing train service to Bezprávi and Dlouhá Třebová. On single-track lines important for freight transport, it is essential from a capacity point of view to encourage orders of one fast-train and semi-fast train segment with an hourly tact, as is the case, for example, on the Jaroměř - Trutnov line.

Consideration of freight transport when planning the development of transport infrastructure

Multimodal and combined transport

Freight Terminal Network and Public Logistics Centres (PLCs)

Telematics in multimodal transport

- In accordance with the ITS Development Action Plan, creating a Single Information Base for the combined transport sector and focusing on the quality of the acquired technologies supporting the transportation process.
- Ensuring the provision of information services regarding safe and protected parking spaces for trucks and commercial vehicles, including in the territory of major cities.
- Requiring the integration of ITS sensors and services in the construction of new parking spaces.
- For parking spaces for trucks and commercial vehicles, creating conditions for the option of reserving a space in the parking lot. Creating a national/international access point (data distribution interface) to provide data on safe and protected parking spaces and traffic information according to Commission Delegated Regulation No 886/2013/EU.

Support for the construction and modernization of multimodal terminals

A network of multimodal terminals is important for connecting rail and road transport. That way, rail transport can, among other things, provide services to road carriers. Terminals on the TEN-T must meet technical parameters according to Regulation No 1315/2013/EU (e.g. enable the handling and loading of trains at least 740 m long). The support will only apply to transshipment points/terminals of combined transport. The programme to support the modernization and construction of transshipment points for combined transport is based on the Strategy for the support of logistics from public sources (Government Resolution No. 1571 of 21 December 2009), on the text of the Operational Programme Transport 2014-2020 with a 2050 perspective and its Specific Objective 1.3 - Creating conditions for greater use of multimodal transport, under investment priority 3 of Priority Axis 1: Developing and improving environmentally-friendly, low-noise and low-carbon transport systems, including inland waterways and maritime transport, ports, multimodal links and airport infrastructure, in order to promote sustainable regional and local mobility. The programme will be one of the basic tools for implementing the objectives of the Transport Policy of the Czech Republic in the field of combined transport in the next years. The support will be provided on the basis of State aid SA.39962 (2014/N) approved by Commission Decision C(2015) of 12.08.2015.

2.2.20 Equal opportunities

The importance of the use of different modes of transport and their interconnectivity (so-called multimodality and intermodality) is growing, such as increasing the interconnectivity of rail, bus and urban transport, building multimodal transport hubs for passengers with well synchronised connections or linking private and public transport by building parking systems at public transport stations. The principle of multimodality can be seen



as beneficial for women, because it is women who use public transport more often and make multiple, shorter journeys during the day, often combining different modes of transport. Likewise, this principle is beneficial for children and senior citizens who use public transport more often. On the other hand, it is important to motivate men to make greater use of alternative modes of transport instead of private transport, which is very important from the point of view of meeting goals in the area of energy savings and reducing emissions of greenhouse gases and pollutants.

A number of European cities apply on a regular basis so-called gender planning in transport services, infrastructure and spatial and transport planning, based on the principles of sustainable development. E.g. Vienna has applied gender planning since the 1990s, when it focused on the collection of gender-sorted data, which revealed differences in traffic behaviour patterns. Since then, gender in Vienna has been mainstreamed in more than 60 pilot projects focused on public space and urban planning. The planning focused that way can remove barriers discriminating entire groups of residents and, as a result, improve traffic services, increase the economic activity of residents, rationally distribute resources and improve the city's living conditions overall.

The policy of equal conditions and opportunities as a cross-cutting principle is supported by setting equal conditions, opportunities and accessibility and free movement for all groups of the population. The aim is to apply an approach aimed at all groups of transport users in order to achieve the highest possible level of accessibility of all modes of transport.

In relation to the transport system, this mainly concerns the area of accessibility of transport structures and the technologies related to them. Accessibility, in general terms, means ensuring an independent and full involvement of people with disabilities in all areas of society's life, by removing obstacles and barriers that prevent the accessibility of buildings, transport and information and information technologies.

People in wheelchairs are not the only ones who need to move without barriers. The removal of barriers in transport infrastructure and the accompanying transport infrastructure is important for all groups of citizens, e.g. people with reduced mobility, orientation and communication, pregnant women, caregivers, parents with prams, elderly people with reduced mobility or people with temporarily limited mobility, and therefore accessibility of the environment should become a completely common standard.

Obligations in terms of the accessibility of transport infrastructure for all population groups are linked, in cooperation with the Ministry of Regional Development, to Decree 398/2009 Coll., which ensures the uniformity of adjustments across sectors. The Building Act and the implementing decree are supplemented by technical standards that ensure technical parameters (for example, Czech National Standard ČSN 73 6425-1 Bus, trolleybus and tram stops, transfer nodes and stations – Part 1: Designing stops). Innovations, including smart stops and ITS in transport, also contribute significantly to increasing comfort and improving the quality of services for passengers.

2.3 SWOT analysis

Table 7: SWOT for Transport Sector Strategies

Road infrastructure	
Strengths	Weaknesses
Above-average density of road network - high density of the road network as a whole, with a sufficient proportion of class I roads serving the regions	Unfinished backbone road network
Optimal service across the territory, especially at the local/regional level over shorter distances	Problematic transport accessibility of inner peripheries (along the borders of Regions, rural areas, state border areas)



Flexibility and efficiency of road transport when high speed and accuracy of goods delivery is needed	Low-quality road transport connections between agglomerations.
	Highest accident rate of all sectors (number of deaths)
	Excessive use of road transport at the expense of other modes of transport.
	The biggest environmental impact of all transport sectors.
	Poor technical condition of the road network, especially of lower classes.
	Energy intensity of road transport.
Opportunities	Threats
The construction legislation process may speed up the construction preparation.	Failure to complete the backbone road transport infrastructure due to lack of funds.
Introduction of performance-based charging for services – transferring the costs of externalities to the user	Continuing increase in the volume of both passenger and freight road transport at the expense of other modes of transport (increase in the volume of externalities).
Improving road capacity by implementing telematics applications to increase safety	Inadequate infrastructure funding leading to a lack of funds for maintenance and troubleshooting.
Reduction of some of the negative effects of traffic by building motorways, expressways and bypasses of towns and municipalities (positive effect on the built-up areas of the affected municipalities).	Increasing impact of transport on the environment in case of failure to implement simultaneous measures in other modes of transport (negative influence in wider relations).
The DNSH principle is an opportunity not to significantly damage the environment.	Growing intensities of motorised private transport
Rail transport	
Strengths	Weaknesses
Modernized railway corridors	Unfinished railway corridors
A relatively dense rail network connecting most of the main centres and ensuring relatively good accessibility for passenger and freight transport.	Absence of fast rail connections.
The combination of relatively high comfort, satisfactory speed and low price on some lines establishes a competitive advantage for rail transport (e.g. a higher preference for the rail connection between Prague and Ostrava).	Insufficient connection to the railway infrastructure is mainly in the South Bohemian, Karlovy Vary and Liberec Regions
Low accident rate.	Insufficient capacity of suburban rail transport, especially in metropolises (and the resulting congested sections of motorways in the outer belt).
Low environmental impact compared to road transport (10-33% emissions compared to truck transport).	Insufficient capacity and parameters (length of overtaking tracks) for freight rail transport on main routes.
Conducting daily volumes of passenger transport to city centres without major land claims.	Low-quality railway transport connections between some agglomerations.



	Inadequate level of transport-related services compared to other sectors (e.g. train station facilities vs. airport facilities).
	On the TEN-T, the speed of 160 km/h for passenger traffic and 100 km/h for freight traffic is not reached in many sections.
	High accident rate at railway level crossings.
	Small proportion of electrified lines, there are relatively large areas that cannot be served by battery vehicles.
	A high proportion of lines have low-grade control equipment or no control at all.
	There is only one capacity and electrified border railway crossing to Germany
Opportunities	Threats
Commencement of works enabling rapid rail links, especially accelerated preparation of pilot projects.	Failure to complete the backbone railway infrastructure.
Connecting railway lines to major airports – Prague Ruzyně, Brno.	Poor technical condition and insufficient parameters of lines of the national network and regional lines important for backbone passenger transport, including the outdated location of some r. stations and stops that does not correspond to developmental changes, including their accessibility for people with limited mobility and orientation and communication.
Connecting railway transport with urban and other regional transport – integrated transport systems.	Reducing the capacity for freight transport by reducing the extent of the rail yards as part of modernization.
Shifting a part of road transport to rail.	Insufficient connection of strategic industrial and logistics sites to the railway network.
Increasing the quality of services through tendering procedures for contracts to provide passenger transport.	Lack of political will to enable the entry of other entities into the provision of passenger transport.
	The dense rail network can lead to a situation where there will be a higher number of underutilized lines.
Water transport	
Strengths	Weaknesses
A safe way of transportation.	A minimum of suitable watercourses for navigation (in fact only the Elbe and a part of the Vltava, the Vltava for another 149 km and the Baťa canal are used for recreational boating).
Compared to the other transport sectors, low negative environmental impact of the operation.	Impact on the environment when ensuring higher reliability of navigability on sections of waterways without water level stabilization using weirs, disturbance of hydrology and hydrobiology due to the regulated waterway.
Completion of the water transport telematics system LAVDIS (Elbe-Vltava Transport Information System) integrated into the	Problems with navigability of the section the Elbe - Ústí nad Labem - state border.



European EuRIS portal enabling navigation using modern digital means and the electronic provision of River Information Services informing on the navigability and movement of vessels, increasing the safety and smoothness of water transport.	
Transportation of over dimensional cargo.	Insufficient connection of water transport with logistics processes (door-to-door transport, consolidation and deconsolidation of shipments).
Involvement of water transport in the system of sustainable urban logistics in Prague	
Opportunities	Threats
Development of recreational boating.	Non-implementation of the Děčín lock project.
Development of international navigation in the Elbe section.	
Sustainable freight transport	
Strengths	Weaknesses
A dense network of combined transport terminals.	Exhausted capacity and insufficient equipment of terminals for intermodal transport, insufficiently developed network of loading points. Absence of loading points in the capital.
A high share of rail transport in the transportation to seaports.	Insufficient capacity of the backbone network for freight rail transport.
Czech port area in Hamburg	Insufficient parameters on the main routes for freight transport (clearance gauge, length of overtaking tracks, international interoperability).
	There is only one high-capacity border railway crossing to Germany.
	There is only one electrified border railway crossing to Germany.
Opportunities	Threats
The involvement of railways in the system of sustainable urban logistics and the use of railways for the transport of parcels.	Economic viability of operating single wagonloads.
The existence of a network of regular continental combined transport lines in Western Europe and the possibility of greater connection of the Czech Republic to this network.	Labour shortage in freight transport.
	Insufficient reliability in the regularity of deliveries in freight transport, not only due to operational failures in the Czech Republic, but also abroad.
Sustainable urban and suburban mobility	
Strengths	Weaknesses
Existence of transport service plans of the Regions.	Poor service in peripheral parts of some regions.



Good transport service in metropolitan regions, often thanks to the interconnection of urban transport with regional (suburban) transport.	Almost half of the municipalities with up to 3,000 inhabitants, mostly in Bohemia, are not served by public transport on weekends.
The existence of SUMP of statutory cities.	A small share of cycling in the transport service.
	Less developed Mobility as a Service (MaaS).
Opportunities	Threats
The existence of the 1 st generation of sustainable urban mobility plans	Continued population growth in Prague, to which the public transport service will not respond quickly enough.
Interconnection of public transport with transport hubs and car parks (P+R).	Inadequate service of more remote areas by public transport, which ultimately has a significant negative impact on demographic development in these areas.
Investments in modern public transport vehicles using alternative drives incl. the accompanying infrastructure.	Lack of manpower in public passenger transport (limiting further development of that transport).
Improvement of conditions for cycling and walking.	

3 Basic strategic principles

3.1 General principles

The project clusters (comprehensive routes) consisting of individual projects are prioritised in order to meet the main CZ needs in the development of transport infrastructure. The prioritisation must take into account:

- the TEN-T policy that strictly requires to meet the deadlines of 2030, 2040 and 2050, in addition, the European Commission will, according to the proposal for the TEN-T regulation, request the notification of a national conceptual document on the development of transport infrastructure,
- the objectives of the Regional Development Strategy, and so help to stop the widening of the gap in economic development of the regions, and to reduce the pressure on the central metropolis by decentralizing the functions to the other ITI regions. One of the conditions for solving regional disparities is, inter alia, the high-quality transport accessibility of the territory, not only by motorway and road infrastructure, but rail connections are also of similar importance. This is to be done in two phases – meeting basic needs by conventional railways, and building the system of Rapid Links (high-speed lines of adequate parameters or conventional lines of higher parameters). In some cases, the division into basic needs and target needs is also established for the road network or conventional railway.

The multimodal approach is the main tool for sustainable mobility. The Czech Republic must fulfil obligations in the area of air pollution by harmful substances (National Emission Reduction Programme), reduction of greenhouse gas emissions (Paris Agreement on climate change), with the common denominator being energy savings (National Energy and Climate Plan). It is necessary to start from the fact that the internal combustion engine in transport shows low efficiency compared to the electric motor and is a source of emissions of harmful substances and noise. The lower rolling resistance and lower air drag of the rail transport are also important. For regular and strong transport flows, it is necessary, first of all, to ensure the use of rail transport with electric tractive vehicles, both in passenger and freight transport. There is potential for using water transport for freight transport if boats are modernised and use alternative drives. Moreover, the multimodal approach must be advantageous not only from the point of view of the environment, sustainable development and public health, but also as an economically advantageous alternative. Therefore, emphasis must be placed on inter-sectoral cooperation.



The development of transport networks must also take into account the specifics of rail transport. This concerns the requirements placed on the compatibility of railway lines and railway vehicles. The implementation of the construction may cause a loss of compatibility of the line with a certain type of vehicle as well as establish compatibility of the line with another type of vehicle, which is a fundamental issue from the point of view of investment protection. Railway vehicles have a service life and depreciation period of 30 years, i.e. many times more than road vehicles, the period is comparable to the life cycle of transport infrastructure. Moreover, the vehicles will be contractually bound to the lines for the long term (usually for their entire technical life) due to the process of liberalization, and it will not be possible to relocate them elsewhere, which has been possible and commonly practiced until now. On the other hand, road vehicles are universal in (at least) the European dimension, they do not adapt to any specific relation. Their operators benefit from every new construction completed. If the construction is not completed on time, the operation works, even though in deteriorated conditions. In the railway, a postponement means that plans for vehicle renewal, public orders and infrastructure modernization will cease to be coherent, moreover, the railway is only able to perform a number of functions after all measures are completed, partial solutions are usually not functional.

With regard to European goals in achieving carbon neutrality, it is necessary to expect changes in both passenger and freight transport in the medium term, and the transport infrastructure must be able to respond to these changes. Taking into account the duration and financial demands of its preparation and construction, these changes must be predicted already at the present. Significantly reducing dependence on fossil fuels is an important goal, as transport is currently dependent on these fuels in 93%. The current political situation further increases the importance of this goal, as these fuels are mostly imported from politically problematic regions. Substitution of the fossil fuels will be particularly difficult in long-distance road transport, which is why further impulses for cooperation between road and rail freight transport can be expected. This will require measures to ensure the regularity and reliability of rail freight transport. Overall, it can be expected that, in the future, the energy industry will cause a change in the operating costs of all the modes of transport, which will also be reflected in the conditions for inter-sectoral cooperation, and the transport infrastructure must be prepared for such situation. Energy for transport in the medium term will be largely emission-free and carbon-neutral, but it will be more expensive and more difficult to obtain, so energy savings will be increasingly required.

In contrast to TSS 2, with regard to the DNSH principle, the prioritization is made multimodally and not for each type of transport infrastructure separately, as it is necessary to monitor the compatibility of the development of all types of transport networks from the very beginning. It is therefore necessary to take into account the following facts:

- When designing transport infrastructure, it is necessary to propose optimal project parameters already at the conceptual level based on available knowledge. The design, in line with DNSH principles, must:
 - take into account land take (and the effect on the water regime in the landscape and the fragmentation of ecosystems),
 - forecast the development of traffic flows in 2030, 2040 and 2050, taking into account the influence of other infrastructure projects including the other modes of transport, and taking into account the influence of energy in transport and measures to support multimodality,
 - the decisive aspect for setting the parameters should not only be time saving, but also multimodally determined traffic intensity in the individual time horizons (actual use of the infrastructure).
- Financing will continue to use European funds to a large extent for some time, but regardless of this fact, it will be necessary to respect the DNSH principle. For example, for road projects, this will mean equipping the infrastructure with ITS and C-ITS, a network of public stations for alternative refuelling,



and measures to increase parameters will also have to be accompanied by measures on parallel railway lines, so that there is no transfer of transportation from rail to road. The projects on accompanying cycling infrastructure will also be included. All this will be part of mitigation measures.

On the basis of demographic forecasts, it will be necessary to start from the optimal variant, i.e. the CZ population at up to 12 million inhabitants after 2050. The implementation of projects is based on the follow-up steps described below.

The conceptual and strategic principle is intended to lead to a correct interpretation of the requirements for fulfilling the DNSH principles by potential investors/applicants when designing a specific call or a subsidy programme. The requirements should have the form of binding parameters that will help to minimise the environmental burden, or will ensure that the principles of "do no significant harm" are observed during implementation. To that end, the following measures must be taken by the contracting authority, in this case the Ministry of Transport:

- find out what laws, decrees, regulations or directives are related to the focus of the call/grant,
- find out whether these laws, decrees, regulations or directives cover all six environmental objectives¹⁵,
- find out whether the relevant laws, decrees, regulations or directives establish (in words, or concrete values) any minimum environmental, material, energy or technical requirements related to DNSH principles (e.g. share of recycled content, share of vehicles with alternative drive, share of energy from RES etc.),
- verify whether the legislatively established minimum requirements can be met by common or best available techniques (BAT), e.g. by means of a preliminary market consultation.

If the minimum requirements are found, then it is assumed that the DNSH principles will be sufficiently applied during the whole life cycle of the project (starting from planning, through the design phase, construction to the actual operation of the infrastructure) to the required degree or higher. The requirements must be stated in the call, including a reference to the relevant legislation. The applicant/investor must confirm in the application how the requirements will be met, or fulfilled. If the minimum requirement in the legislation is formulated only in words (e.g. there must be no increase in emissions...), then the procurement documents must require that the applicant indicates a measurable target parameter in the application. The target parameters must then be checked as part of the monitoring and retrospective evaluation of calls or grant programmes.

If not all environmental objectives are covered by legislation, then it will be sufficient for the applicant/investor to declare that there will be no significant harm in the area, with facts to support the statement. In such a case, the call must state under what conditions the harm could occur (e.g. the activity significantly damages the circular economy, if it leads to a significantly uneconomical use of materials, or if it significantly contributes to the generation, incineration or disposal of waste...). In general, it can be assumed that the main areas of DNSH affecting transport are: (i) *climate change mitigation*, (ii) *circular economy including waste prevention and recycling*, (iii) *prevention and limitation of air, water or landscape pollution*, and (iv) *protection and restoration of biological diversity and ecosystems*.

The Transport Sector Strategies deal with the complete network level of transport infrastructure, which consists of individual network elements that are represented by nodes (metropolises and agglomerations and their sustainable urban mobility plans) and edges (individual clusters and packages). Projects forming clusters

¹⁵ Climate change mitigation, adaptation to climate change, sustainable use and protection of water and marine resources, circular economy including waste prevention and recycling, prevention and reduction of pollution, protection and restoration of biodiversity and ecosystems.



must meet the condition of economic efficiency and must be prepared and built with respect to the following principles taken from the SEA evaluation, i.e. measures to prevent, exclude or reduce the negative effects of the concept:

- Principles for the implementation of projects on all types of transport infrastructure:
 - When proposing and designing transport structures, look for variants without or with the least possible impact on Natura 2000 sites and specially protected areas.
 - When designing linear transport structures, preserve the permeability of the territory for wildlife migration (e.g. design bridge structures with sufficient parameters, or other measures that preserve the migration permeability of the territory).
 - The technical solution and method of construction of bridge structures should be designed with the least possible interference with and the least possible land take of the SCI territory and with regard to not deteriorating the flow conditions (e.g. slide-out construction of bridges, longer elevated road/railway instead of embankment, etc.).
 - When designing the safety of railway crossings in the territory of SCI and BA, give priority to other types of safety measures before building grade-separated crossings.
 - When building tunnels, locate vents, auxiliary, rescue tunnels, or construction site equipment outside the Natura 2000 sites, or at least outside the habitat of the target objects of protection.
 - Rehabilitation of rock slopes and rock massifs should be carried out with regard to the objects of SCI and BA protection, if possible, choosing technical solutions with the least possible impact (installation of barriers or protective nets vs. removal of a part of the massif, etc.).
 - During the implementation of the projects, ensure the protection, improvement and restoration of all artificial and heavily modified bodies of water, with the aim of achieving good status, good ecological potential and good chemical status of surface waters. Minimize interference with Protected Areas of Natural Water Accumulation (CHOPAV) and water source protection zones and prevent the deterioration of the status of all bodies of water.
 - Evaluate transport structures in terms of impact on the landscape character in accordance with Section 12 of Act No. 114/1992 Coll. and integrate them into the landscape, e.g. using greenery.
 - When building, reconstructing, optimizing and modernizing transport structures in locations outside built-up areas of municipalities, respect the recommendations of environmental protection authorities to the maximum extent possible, with an effort to minimize interference with the 'Agricultural land fund' (protection class I and II) and 'Land intended to fulfil forest functions'. Minimize the need to take land of higher quality by choosing more suitable territorial variants of the transport structure areas and corridors.
 - Minimize interventions in landslide areas, exclusive deposits and protected deposit areas.
 - Make climate change adaptation measures to be part of transport infrastructure construction (shading elements, water retention, support for more environmentally friendly forms of transport, etc.).
 - Minimize impacts on heritage-protection areas and cultural heritage sites and areas with archaeological finds.



- The preparation of projects will include waste prevention, minimising the balance of earthworks, applying the principles of a circular economy and consistently applying the waste hierarchy.
- When proposing and designing transport structures, prefer variants without interference with old environmental burdens.
- Principles for the implementation of railway infrastructure projects:
 - Optimising routes so that impacts on residential development are minimised.
 - Solving the acoustic situation on the basis of detailed acoustic studies, which will include the proposal and assessment of suitable noise-control measures. Ensuring compliance with noise limits along all residential developments.
 - Preserving or replacing local connections to non-motorized transport (walking and cycling).
 - The implementation of high-speed lines, which will be fenced, must respect the preservation of wildlife migration corridors and passability in places of collisions with the habitat of specially protected species of large mammals, by using wildlife crossings, elevated railways and bridge structures with sufficient capacity.
 - In the Natura assessment, compensatory measures were proposed only at a general level, namely for objects of protection in sites of Community importance, where a significantly negative impact was identified in the concept assessment. As a compensatory measure for the take of habitats 91F0, 91E0 and 6510 (SCI Libické luhy, SCI Poodří), it is possible to propose the addition of the relevant object of protection in other SCIs in the same biogeographical region or the extension of the SCI borders to the territory where the relevant habitats are found. From this point of view, the creation of the mentioned habitats by targeted management is unfeasible within a reasonable time. In the case of the protection of the great crested newt in SCI Poodří, it is possible to compensate for the take of the habitat by creating new suitable pools within SCI Poodří, as it was already done in project "Connection to the combined transport terminal Mošnov". It must be stated, however, that the need for additional compensatory measures may arise during the design and elaboration of specific projects that follow on the concept.
- Principles for the implementation of road and motorway infrastructure projects:
 - Optimising the routes and technical solution of roads within a corridor with the aim of minimising the impact on residential development.
 - For new road and motorway projects, developing a traffic model of the area taking into account the successive road constructions and, in particular, changes in the traffic load on the existing road network, identifying localities with a risk of an increase in traffic load along residential development. Implementing the below-mentioned measures to minimize immission, acoustic and traffic-safety impacts on the basis of those models, i.e. taking into account changes in the intensity of traffic on the road network in the area.
 - Examining the immission contributions of road structures built in the vicinity of residential development through a dispersal study. If the limit values of immissions are exceeded in the territory, proposing and implementing measures to reduce and compensate for the immission contributions (e.g. vegetation barriers).



- Examining the acoustic contributions of road structures built in the vicinity of residential development through an acoustic study. In places where the road approaches residential development, implementing measures to meet noise limits for all affected protected built-up areas.
- In the acoustic and dispersal studies, include an analysis of cumulative or synergistic effects on human health of all adequate sources of noise and emissions affecting the area. Take the results into account when designing measures to comply with noise and immission limits.
- When permitting the construction of commercial premises along a road route, take into account the level of immission and acoustic load, if there is a risk of exceeding the limits due to the induced traffic, do not permit new development.
- Implement traffic safety measures in locations with a risk of an increase in traffic near residential developments. Limit the transit of the traffic increased due to new and modernized structures through residential areas.
- After the construction of new roads outside the built-up areas, prevent the passage of heavy freight traffic on the existing roads of lower classes and any bypassing of tolled sections.
- Maintain local connections for walking and cycling.
- Visually separate the road bodies from the built-up area (greening, vegetation belts, tunnelling).
- Minimize impacts inducing changes in landscape use.
- Principles for the implementation of inland waterways infrastructure projects:
 - Optimising project designs so that impacts on residential development are minimised.
 - In places where the waterway approaches residential development, implement measures to meet noise limits for all affected residential built-up areas.



4 Terms and abbreviations

Adaptation climate change	A measure of the ability of the transport infrastructure to face the manifestations of climate change
Agglomeration	A grouping of mutually close settlements where one dominates, i.e. a city with its surroundings (suburbs, satellite towns), or several comparably large cities merged into one continuous built-up area - conurbation
APA	Association of Private Agriculture
BC	Blending Call a combination of the Connecting Europe Facility (CEF) contribution and a loan from the European Investment Bank (EIB)
Bikesharing	Shared bikes
Point defect	A defect that can be localised at a specific location or a section of the road limited in length
Brownfields	Real estate (land, building, premises) that is underutilized, neglected and may even be contaminated. It is a relic of industrial, agricultural, residential, military or other activities
Carsharing	Shared cars
TCC	Central dispatch office
CEF	European programme for financing the construction and modernization of the trans-European transport network (TEN-T).
CEF2	European programme for financing the construction and modernization of the trans-European transport network (TEN-T) for the period 2021-2027
Central Commission	The Central Commission of the Ministry of Transport - a body with decision-making powers in matters related to the preparation of construction of transport (road, railway and water) structures
Target needs	Clusters providing further significant improvement in the quality of transport connections beyond the basic needs, which will increase the competitiveness of the respective region so that it can fulfil its "growth pole" function. This is, for example, the construction of high-speed railway lines.
C-ITS	Cooperative Intelligent Transport Systems
City logistics	All transport including flows of goods within a city, which serves the operation of sole traders, services and business activities. City logistics is defined as the legitimate setting of requirements in urban transport taking into account environmental requirements and economic framework conditions
CZ	Czech Republic
Dolphin	A pile for mooring vessels or for navigation
TI	Transport infrastructure
DNSH	Do No Significant Harm, also translated into Czech as "do no significant harm to environmental goals" or "no significant harm principle"
Recharging points AC	The recharging point is designed for 11kW three-phase domestic charging.
Recharging points DC	Public fast charging stations up to 150 kW - direct current. These very fast charging stations provide direct current with an input of up to 150 kW.
Charging hub	A place with multiple fast charging points, able to charge 6 or more cars at a time
CTC	Centralised traffic control is a railway signalling system that remotely controls the interlocking plants in several railway stations simultaneously. These stations are usually located on one line or are part of one railway junction
voluntary associations of municipalities	voluntary inter-municipal cooperatives



TSS	Transport Sector Strategies
TSS2	Transport Sector Strategies - Phase 2
TSS3	Transport Sector Strategies - Phase 3
Dynamic charging	Is based on a dynamic control system that intelligently distributes the available power between active charging points. It takes current consumption into account and checks that the reserved maximum is not exceeded. It also allows prioritizing the charging of a specific vehicle.
EGD	European Green Deal
EIA process	The assessment of the impacts of projects on the environment, regulated in CZ by the Act on Environmental Impact Assessment.
EC	European Commission
Electrification of the line	In this process, only the traction contact line will be installed without major modernization of the line. It will enable the operation of electric trains.
END	Environmental Noise Directive
ERTMS	European Rail Traffic Management System It is implemented by the countries of the European Union, together with Norway and Switzerland.
ESI funds	European structural and investment funds
ETCS	European Train Control System
NPP Temelín	Temelín nuclear power plant
FIDIC conditions	Contractual conditions for the construction of buildings and civil engineering works designed by the contracting authority
Fit for 55	The name is derived from the 55% target of reducing greenhouse gas emissions by 2030, as approved by the European Council in 2020.
GHz / Hz	Hertz (Hz; in full hertz, with lowercase h; pronunciation [herts]) is a unit of frequency in the SI system. It is a derived unit that expresses how many cyclic (regularly repeating) events take place in one second; the expression in basic units is therefore s^{-1}
Gigaliner	A long truck carrying over dimensional cargo
GMS-R -	Global System for Mobile Communications – Railway, or GSM-Railway is an international wireless communication standard intended for railway applications. A sub-system of European Rail Traffic Management System (ERTMS), it is used for communication between train and railway regulation control centres The system is based on GSM and EIRENE – MORANE specifications which guarantee performance at speeds up to 500 km/h without any communication loss.
WTT diagram	Working timetable diagram (train traffic schedule diagram)
Hl.n.	Main station
Tractive unit (vehicle)	In railway terminology, the name for such a railway rolling stock vehicle that is capable of generating tractive power. The tractive power sets both this vehicle and any connected towed vehicles in motion.
Motorised private transport	Motorised private transport
ITS	Integrated Transport Systems
Intermodality/ intermodal transport	Integration of public passenger transport systems both with private car transport (through parking lots "park and ride public transport") and with other types of transport (e.g. shared mobility such as car or bike sharing, active mobility, micromobility) with the aim of offering an alternative and minimize the use of private



car transport. From the point of view of the operator of the road network, it is a suitable tool especially in cases where a solution to eliminating a traffic problem in the given territory cannot be found while maintaining the current shares of the modes of transport used. The societal benefit of intermodality lies in making transport more efficient – reducing costs and externalities while simultaneously maintaining or even improving travel times, the attractiveness of passenger comfort and other travel conditions, which, however, must offset the negative factor of changing the mode of transport.

Built-up area	Summary designation for developed areas of settlements, or for built-up areas and areas intended for development. The undeveloped part of a settlement is referred to as rural zone.
Investment project	Is focused mainly on the construction and purchase of real estate, the purchase of new machinery and technology, etc. It is an acquisition of tangible and intangible fixed assets.
IROP	Integrated Regional Operational Programme
ITI	Integrated Territorial Investments (ITI) are a regional policy tool, which in the 2021-2027 programming period contributes decisively to the implementation of the integrated territorial strategies of 13 agglomerations and metropolitan areas defined by the Ministry of Regional Development.
ITS	Intelligent transport systems
Core city	The core of an agglomeration, from which the population and activities are deconcentrating (moving out) to the hinterland during the ongoing suburbanization process. The core city is the source of the suburbanization movements, the hinterland is their destination
Clusters	They bring together named (specified) projects that are closely related and together contribute to building a continuous route with the required parameters.
Target clusters	Are clusters providing further significant improvement in the quality of transport connections beyond the basic needs, which will increase the competitiveness of the respective region so that it can fulfil its "growth pole" function. This is, for example, the construction of high-speed railway lines or other roads enabling further expansion of the range of services.
Clusters of auxiliary needs	Clusters that further improve the condition in a partial way by removing bottlenecks impeding speed or capacity, or offer additional services in the already implemented basic needs clusters or ensure the interconnection in an alternative way.
Clusters of basic needs	These are clusters of traditional infrastructure with parameters that enable all ITI regions to fulfil their basic functions. They ensure a connection by conventional railway with competitive travel times and capacity, and a road connection of adequate capacity and routing outside the built-up areas of municipalities.
Compensatory measures	For the purposes of TSS3, these measures are to create conditions for the preservation or improvement of objects of protection affected by the plan in the same location or to replace the location with another location in a similar scope and quality, and may include measures to compensate possible temporary losses caused to the object of protection.
Conventional railways	They have modernized conventional lines of higher parameters



Corridor / railway corridor

A main, modernized railway line usually with a speed of 160 km/h intended primarily for suburban, long-distance and transit passenger and freight transport

kV- kilovolt Multiplying prefix kilo- and the unit of electric potential and electric voltage, one thousand volts = 1000 V = 1 kV

Mandatory expenses Compulsory funds that the government must expend. They are mandatory because they are established by law or another legal norm, or result from other fixed contractual obligations of the state. Their amount cannot be changed in any way during budget planning.

MaaS Mobility as a Service

MoT Ministry of Transport

Metropolis An important city that is the cultural, commercial or political centre of a certain area

UPT Urban public transport

Microregional centres/ Microregions

In the Czech Republic, associations of municipalities consist primarily of municipalities, secondarily of organizations.

Grade-separated crossing

An intersection where traffic streams cross at different heights[1] and the number of collision points is reduced. A grade-separated crossing allows straight-going vehicles, right-turning vehicles and left-turning vehicles to pass through the intersection without having to stop and give way to vehicles passing through the intersection in other directions

Missing link Missing connection

Local roads Category of roads in the Czech Republic and Slovakia. In the Czech Republic, according to Section 6 of the Roads Act (No 13/1997 Coll.), local roads are a category of roads, in which the road administration authority includes publicly accessible roads that serve mainly local traffic in the territory of a municipality. According to the law, the owner is the municipality.

Mitigation Reduction of the harmful consequences of a phenomenon that can be long-term (e.g. mitigation of climate change)

MoRD Ministry of Regional Development

Modernising Generally bringing something up to date, e.g. by equipping it with the latest technology and introducing present-day production processes.

Small lock chamber Small lock chamber

MLSA Ministry of Labour and Social Affairs

Kindergarten Nursery school

MEYS Ministry of Education, Youth and Sports

Interchange Grade-separated intersection

Multimodality/ multimodal transport

Public passenger transport provided jointly by one or more carriers in a specified territory within a so-called integrated transport system (ITS) on the basis of uniform transport, tariff, technical and technological conditions, including coordination of timetables, covering the types of public passenger transport in the given territory, such as metro (underground), trams, trolleybuses, buses, railways, urban and suburban bus services, cable cars and ferries.



Multimodal clusters	Multimodal clusters consist of simultaneous clusters for road, rail and possibly water transport and provide a multimodal connection of two or more important places. Multimodal clusters create multimodal corridors that are identical to the multimodal corridors established within the Trans-European transport network TEN-T and, based on the same principle, corresponding corridors of national importance are defined.
MoA	Ministry of Agriculture of the Czech Republic
MoE	Ministry of the Environment
Superior infrastructure	Transport infrastructure of higher importance at an intersection with local road and publicly accessible private road
NAP CM	National Action Plan on clean mobility
Natura 2000	A system of protected areas consisting of two types of protected areas – Special Protection Areas and Special Areas of Conservation.
NCP	Noise Control Programme
Non-investment project	A project related to so-called soft activities, such as education, retraining, provision of social services, organization of leisure activities, in this case it is a project for infrastructure renovation, etc.
New NPP Dukovany	New nuclear power source at the Dukovany power plant
NCEP	National climate and energy plan
SAO	Supreme Audit Office
Extra large and heavy components	Extra large and heavy component
Bypass/ Road bypass	A road that diverts traffic away from the residential area and speeds up the passage around it
Branch	A place on a railway where a branch line is branching off the main line
Remote region	Also called a periphery, a term in geography that, within the polarization of space (that is, the division into the core and the periphery), refers to a territory that is distant in terms of location or importance, marginal or insufficiently integrated.
OPT II	Operational Programme Transport II
MEP	Municipality with extended powers
Regional office	Regional directorate
pkm	Passenger kilometre
UN	United Nations
OTSKP prices)	Sectoral classification of structural members and works (issued annually with current prices)
CLR	Contact line repair shop
RES	Renewable energy sources
PaP	Pre-arranged paths for rail freight transport
P&R	Park and ride
Backbone network backbone connection	The main network to which access network is connected by means of a backbone connection
DD	Design documentation
Noise barriers	Noise abatement walls
Pillar of other needs	Is focused on other projects of regional importance.



Pillar of regional needs

	It ensures comparable transport infrastructure parameters for all regions, where the main factor should not be the size of the region or ITI territory but the current condition of the transport infrastructure
Obligation pillar	The pillar ensuring the fulfilment of obligations towards the European TEN-T policy as of 2030, 2040 and 2050.
LC	Lock chamber
Lock	Lock
Growth pole	A function within the framework of increasing the competitiveness of the respective region, such as the construction of high-speed railway lines or other roads enabling the further expansion of the range of services
PPP	Public-private partnership
Project	In this case, individual projects make up project clusters and project packages, see explanations below
Project package	Smaller projects of a similar focus that are not evaluated within clusters. Each project package has its own prioritisation of the projects contained in it, set out either in action plans of the Transport Sector Strategy or in a separate policy document. A certain amount will be set aside for each project package in each time period.
Project cluster	A comprehensive route, which consists of several consecutive named projects that are prepared separately.
Through-traffic road	A traffic route passing through the centre of a village or town
SDP	Spatial Development Policy of the Czech Republic
ITI territory	Metropolitan areas/ residential agglomerations with a concentration of more than 300,000 inhabitants, namely the metropolitan areas of Prague, Brno, Ostrava, Plzeň and residential agglomerations of the Ústí n/L-Chomutov, Olomouc and Hradec Králové-Pardubice, in accordance with the Regional Development Strategy of the Czech Republic 2014-2020.
Revitalization	Restoration and renewal, rehabilitation of passenger stations and station buildings
RFC	Rail freight corridors
RL	Rapid Link
RMD	Road and Motorway Directorate of the Czech Republic
WD	Waterways Directorate
state enterprise	state enterprise
SEC	State Energy Concept
Marshalling yard	A station that is used for shunting cars or groups of cars between freight trains
STIF	State Transport Infrastructure Fund
Smart Cities	A concept of the operation of a city that uses digital, information and communications technologies in order to make more efficient use of the city's infrastructure and reduce energy consumption.
AC system	Alternating current
Building permit	Building permit
SEP	State Environmental Policy of the Czech Republic
SK	Slovak Republic
Germany	the Federal Republic of Germany



MAMC	A Motorway Administration and Maintenance Centre that manages and maintains an entrusted section of a motorway and its components. The Road and Motorway Directorate maintains motorways through 18 MAMCs.
secondary school	Secondary school
St. border	State border
Feasibility study	The highest level of analysis of an investment plan or a business plan
Suburbanization	The growth of areas, so-called suburbia, on the outskirts of large cities. It is one of the many causes of urban growth. The city is expanding geographically, and suburban municipalities are becoming new geographical parts of the city. The beginning of a strong suburbanization phase dates back to the 1920s
Suburban area	It is a product of suburbanization, i.e. the transformation of the social and physical environment from rural to (sub)urban. Suburbanization can be viewed as a change in the distribution of the population and in the spatial structure of suburban areas, as well as a change in the way of life of "suburbanizing" residents
Suburb	Today, the suburb is part of a town or village and is located around its historical core.
SUMP	Sustainable Urban Mobility Plan - a strategic document designed to meet the mobility needs of people and companies in cities and their surroundings in order to improve the quality of life, which properly takes into account the principles of integration, participation and evaluation.
SEL	Socially excluded locality
Railway Administration	Správa železnic, state organisation managing state-owned railways
t	Tonne
Route	Completed functional unit, of which the the project is a part
LTE Technology	Long Term Evolution, in telecommunications, is a technology for high-speed data transmission in mobile networks, the characteristics of which are close to the requirements for 4G networks
TEN-T	Trans-European Networks - Transport
Terminal / Transport terminal	Any place where cargo (goods) or people enter or leave the transport process or are otherwise transferred. The terminals represent the basic points through which the substrate passes during its own transportation. Terminals are mostly equipped with specific transport facilities.
Freight terminal - see above	
tkm	Tonne kilometres
TPS	Traction power supply system
Transit traffic	Traffic that passes through a territory that is not its origin nor destination
Trimodal	connecting road, rail and water transport
TRC	Transit railway corridor
Private road	In the Czech Republic, according to Section 7 of the Roads Act (No 13/1997 Coll.), private road is a category of roads that connect properties for the needs of the owners of the properties, or connect the properties with other roads, or enable access to agricultural and forest land.
Planning decision	Planning decision
incl.	Including
VD	hydraulic structure



PT	Public transport
PLC (VLC)	Public Logistics Centres
HV/EHV	High voltage/extra high voltage
HSL	High-speed lines
VTP	Public terminals and ports
Vltava waterway	Vltava waterway
WiFi	Wireless networks that are commonly used for local networking of devices and for accessing the Internet, allowing nearby digital devices to exchange data via radio waves. These are the most widespread computer networks in the world, used worldwide in home and small office networks to interconnect desktop and laptop computers, tablets, smartphones, smart TVs, printers and smart speakers and connect them to the Internet using a wireless router, and in wireless access points in public places such as cafes, hotels, libraries and airports that provide visitors with Internet access for their mobile devices.
Basic needs	Completion of fundamental infrastructure that ensures that all ITI regions can fulfil their basic functions.
Station head	A part of the operating control point with track branching, in which the line track branches into other transport tracks (typically when entering a station)
Primary school	Primary school
ŽESNAD	Association of Rail Freight Carriers of the Czech Republic
r. station	Railway station