



PUBLIC PASSENGER TRANSPORT



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Contents

Introduction	4
Key issues of the transport sector	6
Vision and goals of the transport sector	8
Measures of the performance of the sector strategy	8
The principle of strategy development	9
Implementation plan	9
Key issues of the transport sector of Slovakia	10
Rail transport	14
Issues in the area of planning	15
Infrastructure problems	15
Problems of rail passenger transport	18
Public transport and sustainable transport	24
Infrastructure problems	25
Problems of the preferences of PPT	29
Problems of the organization of PPT	34
Problems of the operation of PPT	41
Vision and objectives of the transport sector	47
The specific objectives	
of the transport sector and their background	48
Horizontal specific objectives	49
Modal specific objectives	51
Measure definition for the implementation of the strategy	56
Systemic measures	57
Infrastructure measures in railway transport	60
Infrastructure measures	
in public passenger and non-motorized transport	62
Organizational measures in rail transport	65
Organizational measures	
in public passenger and non-motorized transport	67
Operational measures in rail transport	67
Operational measures in public passenger transport	69
Development strategy	70
Basic requirements for the implementation of systemic measures	71
Development strategy in the field of infrastructure	78
Conclusion	84
List of abbreviations	87



INTRODUCTION

Public passenger transport 2030 is a summary of the Strategic Plan for the Development of Transport of the SR until 2030, which was prepared by the Ministry of Transport and Construction of the SR and which was approved by Government Resolution No. 13/2017 on 11 January 2017. The strategic plan of the development of transport of the SR until 2030 continuously follows up on the Strategic plan for the development of the transport infrastructure of the SR until 2020, which included the separate Strategy for the development of public passenger transport and non-motorized transport. For simplification, the Ministry of Transport and Construction of the SR issued a promotional booklet in 2015 entitled Strategy for the development of public passenger transport and non-motorized transport for the SR until the year 2020 - a summary, which represented a summation of the essential information from the full text of the strategy. As the Strategic plan of the development of transport of the SR until 2030 directly contains sections related to public passenger and non-motorized transport and is a document with a greater degree of integration of the individual modes, a new promotional brochure has been drawn up, which selects parts relating to public passenger and non-motorized transport from the strategic plan in an appropriate way, in order to follow up on the promotional brochure of the strategy. In order to ensure the necessary consistency with the full text of the strategic plan, the parts which relate to all the modes across themes are also presented.

The Strategic plan for the development of transport in the SR until 2030 itself is a strategic document of a long-term character, which aims to set up an effective direction of the development of the transport sector and determines the implementation method of its development vision. This concerns the output of the 2nd phase of preparation of the strategy for the development of transportation of the SR until 2030 and is the actual implementation of the set ex ante conditionalities. The financing of development activities from EU funds in the years 2016 - 2020 is therefore directly dependent on this document, respectively its approval by the EC.

Key issues of the transport sector

Key issues of the transport sector were identified after conducting extensive analytical activities whose outputs are annexed to this document. The analytical part was focused both on individual transport modes, divided into road, rail, public passenger and water transport and civil aviation as well as on problems extending across transport modes, limiting the operation of multi-modality in passenger and freight transport. In the global perspective, it is necessary to mention one of the fundamental problems of the transport sector in Slovakia, which is the long-term unfavorable development of the division of transport work in favor of road, especially individual (non-public) transport. At this point it should be noted that neighboring European countries with a similar economic development are facing similar problems.

While in 1995 the ratio of the performance of public and private transportation was almost the same, in 2014, public transport accounted for only a quarter of total transport performance. The logical consequence of this situation

THE VISION OF THE DEVELOPMENT OF THE TRANSPORT SECTOR UNTIL THE YEAR 2030

A sustainable, integrated multimodal transport system, which meets the economic, social and environmental needs of society and contributes to a deeper inclusion and the full integration of the Slovak Republic in the scope of the European Economic Area.

STRATEGIC GLOBAL OBJECTIVE 1

Ensuring equivalent access to settlements and industrial zones, promoting economic growth and social inclusion in all regions of the Slovak Republic (on the national and European scale) through non-discriminatory access to the transport infrastructure and services.



is the disproportionate increase in individual automobile transport, which is a burden on the road infrastructure and the environment. There is also a significant negative effect of congested roads in terms of time losses resulting from congestion, which has an indirect impact on the economic activity of the population.

STRATEGIC GLOBAL OBJECTIVE 2

The long-term sustainable development of the transport system of the Slovak Republic with an emphasis on the generation and efficient use of funds in relation to the real needs of users.

STRATEGIC GLOBAL OBJECTIVE 3

Increasing the competitiveness of transport modes in both passenger and freight transport (the counterpart of road transport) by setting the corresponding operational, organizational and infrastructural parameters leading to an effective and integrated multimodal transport system supporting the economic and social needs of the Slovak Republic. Increasing the quality of transport planning in the Slovak Republic by defining the optimal target value of the division of labor in the conditions of the Slovak Republic and determining the steps to achieve it.

STRATEGIC GLOBAL OBJECTIVE 4

Increasing the safety and security of transport leading to the permanent ensuring of safe mobility through a secure infrastructure, the introduction of new technologies / procedures for the use of preventive and control mechanisms.

STRATEGIC GLOBAL OBJECTIVE 5

The reduction of negative environmental and negative socio-economic impacts of transport (including climate change) as a result of environmental monitoring, effective planning / implementation of infrastructure and by reducing the number of conventionally fueled vehicles, or by using alternative fuels.

Vision and goals of the transport sector

The process of setting the vision and objectives of the transport sector of the Slovak Republic was in close accordance with European and national legislative-development documents, which set the global vision and objectives, and the needs of the various transport sub-sectors identified in the analyzes performed. The vision and objectives of the transport sector of the Slovak Republic thus reflects both the European requirements as well as the national interests and challenges the sector faces. This approach ensured the sufficient level of integration of the Slovak Republic in the European transport area and at the same time the gradual elimination of internal problems and needs. The global strategic objectives were set analogously to the vision of the transport sector of the Slovak Republic. They reflect the trends and needs that are anchored in the European and national strategic, or as the case may be, analytical documents. For the needs of the future evaluation of the course of implementation of this strategy in practice, indicators enabling the comparison of the future state of the transport sector of the Slovak Republic with the state at the time of its preparation were set up. The indicators are defined at the level of the global strategic and specific objectives (horizontal and modal) and contain information both about their baseline values with respect to 2015, as well as the values expected after the implementation of the strategy between 2023 and 2030.

Measures of the performance of the sector strategy

Measures for the fulfillment of the strategy have been defined based on global trends, international agreements and the commitments of the SR and the problems identified in the analytical part of the preparation of the strategy. Each is a set of activities, initiatives or projects integrated based on the substantive nature of the target, or the issue to be addressed. In consistency with the other parts of this strategy document, the measures are also divided in terms of infrastructure, organization and operation, as well as in accordance with the individual transport modes.



The set of measures as a whole represents a tool for the fulfillment of the global strategic objectives, specific objectives and the vision for the development of the transport sector itself until 2030.

The principle of strategy development

The Strategic plan for the development of transport of the SR until 2030 is based on the principle „from analysis to design,“ which was consistently applied throughout the entire process of its preparation. Based on the problems identified in the analytical part, the target development vision with the horizon of the year 2030 was defined in relation to the European strategic and development documents. The fulfillment of this vision is structured into several levels - global strategic objectives, specific objectives and measures. The custom strategies consist in setting the so-called strategic priorities, namely measures valued and prioritized in terms of their potential contribution to the transport sector on the one hand and economic efficiency on the other. For each group of priorities, strategic guidelines to be considered in the process of implementation are further set. An integral part of the strategy is the implementation plan, annexed to this document. The individual measures are divided into sub-project plans there, or as the case may be activities, which must be carried out in the context of the fulfillment of the strategy.

Implementation plan

In the wake of the defined strategic guidelines and priorities, an implementation plan was drawn up, which is a method of implementing this development strategy. It indicates the starting direction of the implementation of the strategic development of the transport sector of the Slovak Republic and it will be necessary to regularly update it in accordance with the relevant strategic guidelines. The objective of the implementation plan is the fulfillment of the vision and the individual objectives of the transport sector of the Slovak Republic set up with a view to 2030. This is about setting the chronology of the implementation of the individual measures in order to match not only the strategic guidelines and priorities set out in the strategy, but also the surrounding conditions affecting the process.



KEY ISSUES OF THE TRANSPORT SECTOR OF SLOVAKIA

The key problems of the transport sector of the Slovak Republic are listed below, identified within the extensive analysis of the individual transport sub-sectors. The above matters directly enter into setting the objectives of transport development of the Slovak Republic, the implementation of which will result in the listed problems being gradually minimized.

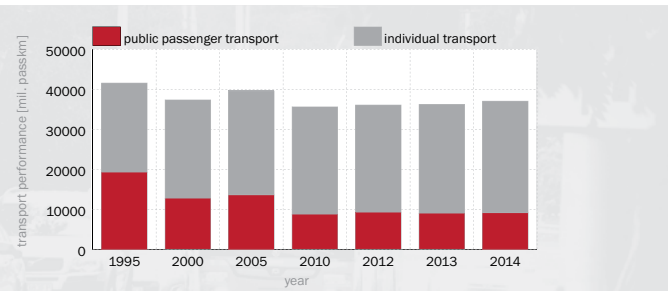
One of the fundamental problems of the transport sector in Slovakia is the long-term unfavorable development of the division of transport work in favor of road, especially individual (non-public) transport. At this point it is necessary to point out that surrounding European countries with a similar economic development are having similar problems. This trend is best illustrated by the charts on the following page.

While in 1995 the ratio of the performance of public and private transportation was almost the same, in 2014, public transport accounted for only a quarter of total transport performance. The cause of this situation is the disproportionate increase in static and dynamic individual automobile transport, which is a burden on the road infrastructure and the environment. A significant negative effect of roads congested above the permissible limit are also time losses resulting from congestion, which has an indirect impact on the economic activity of the population.

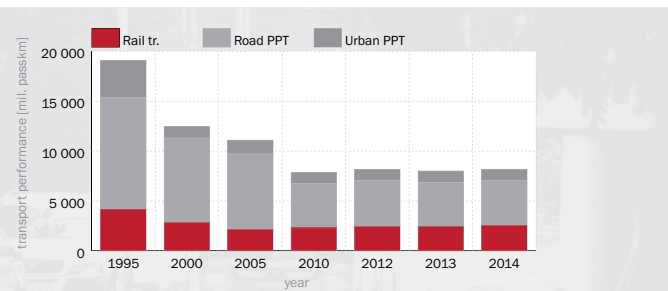
The growth of individual automobile transport and road transport as a whole can also be illustrated in indicators of the level of automobilization and motorization, i.e. the number of passenger cars or road motor vehicles per capita in Slovakia. While in 1995, 1 passenger car accounted for more than 5 inhabitants, in 2014 it was already 2.8 per capita. As mentioned in the introductory chapter of this document, one of the key parameters affecting the growth of individual automobile transport is increasing the living standards of the population and their growing demands for the quality of transport. As mentioned above, public passenger transport and non-motorized transport recorded a significant setback in the last 20 years. Between 1995 - 2010, there was a steep drop in the transport performance, in the last 5 years the situation has relatively stabi-

lized and transportation services in public transport have more or less stagnated. However, the volume of individual automobile transport continues to rise. On the contrary, a slightly increasing trend of the performance of rail passenger transport can be considered as a positive effect.

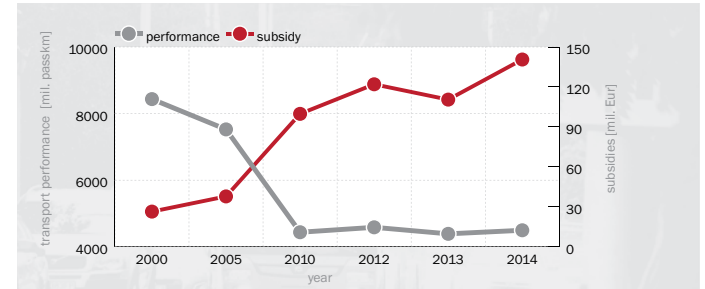
One of the negative consequences of a lack of demand for public transport is the increasing demands on its funding. State administration and local government is obliged to provide the basic transport service of public transport for its citizens, and therefore orders connections with carriers, which it must then subsidize. The volume of such connections remains more or less constant (as required by the basic transport services), but demand, or occupancy is declining on these routes in the long-term. The logical consequence is a higher volume of subsidies required by private or public carriers from the state. This situation is illustrated in the following graphs.



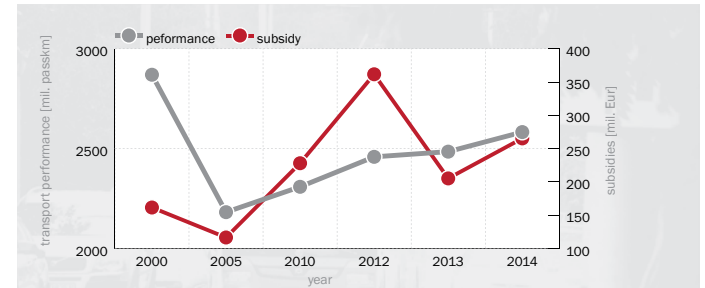
Graph nr. 1 The ratio of public passenger transport and individual transport performance



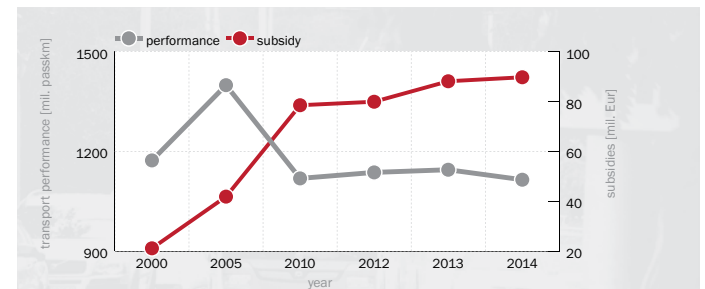
Graph nr. 2 The modal split in public passenger transport



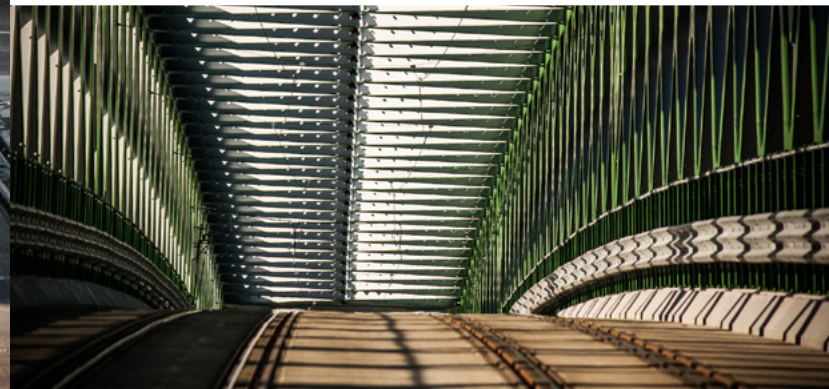
Graph nr. 3 The Comparison of subsidies and performances in public passenger transport



Graph nr. 4 The comparison of performances and subsidies in rail transport



Graph nr. 5 The comparison of performances and subsidies in urban PT





RAIL TRANSPORT

Issues in the area of planning

Insufficient justification for the choice of limiting potential routes for more efficient rationalization

The operation of rail transport on routes that do not enable the achievement of an attractive offer of transport with their parameters now or in the future, and which show low passenger movement, is unsustainable for the long-term. For such routes, it is necessary to determine whether a different method of organizing traffic or multi-modal cooperation would provide an attractive transport offer, or whether connection to an existing, often parallel road infrastructure would serve the area more effectively. The potential of routes in Slovakia is assessed through multi-criteria analysis in the study of the Transport Research Institute (TRI) in 2015, but the methodology of determining the boundaries of potential routes for more efficient rationalization is not obvious. A transport model will also help to better reveal the potential of routes.

The related measures identified for solving the above-stated problems:

- Determination of the operating concept of passenger transport by rail (as part of a nationwide operating concept of public transport) and its Implementation Plan until 2030 with a view to 2050 (OPŽ2)
- Rationalization of traffic on other lines with respect to the operating concept of passenger transport (OPŽ11)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Enhancements to the capabilities and management of the multimodal transport model of the Slovak Republic (OPS5)

Infrastructure problems

Lack of functionality of the railway hub in Bratislava

At present, a lack of capacity of railway lines is already being exhibited in the largest Slovak agglomeration, which also adjoins the largest Austrian agglomeration. Bratisla-

va lies at the crossroads of several major pan-European freight corridors. In addition to the two rail freight corridors (RFC 5 and 7) the Danube river also flows through Bratislava, which is an important source and destination of shipments of commodities, which can be further carried inland only by rail transport with adequate capacity (bulk substrates, liquids). A further increase in demand for transport can be expected due to the expected continued urbanization, growth in the number of passengers on long-distance freight and regular passenger commuters. Bratislava's railway hub is the main (or a major) cornerstone of the whole Slovak railway system and its adequate functioning is a prerequisite for economic growth and sustainable transport development. The impact of the railway hub extends beyond the border, including Vienna and the whole Slovakia-Austria-Hungary-Czech metropolitan (functional) region.

Another potential problem affecting the railway hub are stations limited capacity-wise, in particular the main Bratislava station.

These problems are addressed in detail and analyzed in the forthcoming study of the feasibility of the Bratislava railway hub.

The related measures identified for solving the above-stated problems:

- The modernization and improvement of the wider Bratislava hub including the selected and affected routes resulting from the study of the feasibility of the Bratislava railway hub (OPŽ7)
- The process of the preparation and implementation of development projects, including related activities (OPS3)

Unquantified internal debt in the maintenance of infrastructure

The amount of internal debt in infrastructure maintenance has never been objectively quantified. Nevertheless, the



high level of hidden debt is clear. The long-term underfunding of maintenance is reflected in the numerous speed reductions, affecting travel time, in driving comfort and the impact on fleet maintenance and in the state of the premises and facilities for passenger and freight transport. The strategy in the maintenance of the infrastructure should be linked to the decision on which routes and what services or segments of services rail transport has transport potential in, and make it a priority to direct funds to them for maintenance.

The related measures identified for solving the above-stated problems:

- Setting the principles of sustainable financing of the transport sector (OPS1)
- Periodic training plans for transport infrastructure maintenance (OPS2)

Lack of connection parameters of an operational concept, infrastructure and the vehicle fleet

The rail transport infrastructure needs to be modernized along with a clear forward-looking operational concept. A forward-looking operation concept, particularly in the form of a nationwide timetable, determining the location of the basic transfer junctions in the network and setting the requirements to achieve a competitive system of the travel times between them. The achievement of the desired travel time is possible in several ways, while the method of costly renovation or the reconstruction of infrastructure is always the last option. A significant time savings can be achieved by adapting the vehicle fleet (e.g. the deployment of more dynamic vehicles with more power, if necessary with tilting bodies on the tracks with numerous directional arcs) or through organizational measures - by the zonation of longer transport segments (personal versus express trains), by shortening travel times by passing over little used stops, by shortening transfer connections and more clearly arranging them. Similar visionary concepts of operation clearly define the configuration requirements of rail tracks and platforms of railway stations, of the location of passing tracks for the increased throughput of single

tracks or traction system dimensioning. Expensive, but targeted structural interventions then have unquestionable benefits and high efficiency.

The related measures identified for solving the above-stated problems:

- Determination of the operating concept of passenger transport by rail (as part of a nationwide operating concept of public transport) and its implementation plan until 2030 with a view to 2050 (OPŽ2)
- The completion of the implementation of the Target timetable 2020 (OPŽ3)
- The setting and implementation of the Target timetable 2030 - treatment of the cycle and the number of connections for connecting lines to the corridor Žilina - Košice and Kúty state border. - Štúrovo / Komárno state border associated with the infrastructure changes to these lines (OPŽ6)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- Enhancements to the capabilities and management of the multimodal transport model of the Slovak Republic (OPS5)

Problems of rail passenger transport

Underestimation of operating frequency

In terms of the attractiveness of transport services, it is essential that the travel time (i.e. travel time including waiting at the first suitable link in the starting station) from point A to point B is the least dependent as possible on the date of the decision of the passenger to take the trip. In the event that, for example, a suburban or regional line is operated at an interval of 120 minutes, the probability of long waiting times for the nearest suitable connection is very high. This situation leads passengers to prioritize other more operational modes of transport. Although there is demand for rail connections, it is „discouraged“ by the insufficient frequency of connections. Therefore, filling a connection traveling at 120 minute intervals with travellers is very difficult (except during rush hour), which often leads



to the erroneous belief that because of the lack of interest of passengers the interval can be further extended. The constant lengthening of intervals in order to achieve higher occupancy and efficiency of lines is called the vicious cycle of the demise of public transport.

Where railway is an effective alternative to passenger transport, transport supply (connection frequency) should not only be based on current demand, but also by the reasonable potential demand estimated on the basis of traffic and frequency. This should guarantee the passenger attractive quality at any time and a reduced total travel time, including the transparency of timetables.

The related measures identified for solving the above-stated problems:

- Determination of the operating concept of passenger transport by rail (as part of a nationwide operating concept of public transport) and its implementation plan until 2030 with a view to 2050 (OPŽ2)
- The completion of the implementation of the Target timetable 2020 (OPŽ3)
- The setting and implementation of the Target timetable 2030 - modification of the cycle and the number of connections for connecting lines to the corridor Žilina - Košice and Kúty state border - Štúrovo / Komárno state border associated with the infrastructure changes to these lines (OPŽ6)
- The modernization and improvement of the wider Bratislava hub including the relevant routes affected by the needs arising from the feasibility study of the Bratislava railway hub (OPŽ7)
- Rationalization of traffic on other lines with respect to the operating concept of passenger transport (OPŽ11)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Enhancements to the capabilities and management of the multimodal transport model of the Slovak Republic (OPS5)

Although there are significant differences in this area among the regions in Slovakia, in general, the frequency of service in the regions of the Slovak Republic can be evaluated in comparison with the standard frequency of service in other Western European countries, as low and chronically under-competitive.

The institutional setting of the minimum quality standards of service for all carriers operating in the obligation of public service

As is apparent from the description of the previous problem, in the early planning of transport service of a territory, an institutional definition of the minimum quality standards of service of an area must be set, under which the parameters of the offered transport services of the transport network must never fall. The determination of the minimum service interval in the individual segments is especially crucial in this respect (long-distance, inter-regional, regional, suburban transport). Other qualitative parameters such as travel comfort, a high-quality information system, wheelchair accessibility, amenities of transfer junctions, stations and stops etc. should be defined in detail, and in the case of vehicle parameters, equal for all carriers providing transportation services in commitment to public service.

The related measures identified for solving the above-stated problems:

- Determination of the operating concept of passenger transport by rail (as part of a nationwide operating concept of public transport) and its implementation plan until 2030 with a view to 2050 (OPŽ2)

Insufficient intermodal coordination

The characteristic feature of rail transport is its high transport capacity, which predetermines the role of rail as the backbone of public transport. For the effective performance of a leading role, it is necessary to suitably direct passengers for most railway lines.

At the same time, however, it is not possible for railways to provide across-the-board service to too many transfer



points because it would disproportionately increase the travel time. Railroad lines must be tied together with other types of transport at transport junctions (bus, public city transport, as well as individual automobile transport by means of P + R car parks, walking and cycling transport).

The related measures identified for solving the above-stated problems:

- Determination of the operating concept of passenger transport by rail (as part of a nationwide operating concept of public transport) and its implementation plan until 2030 with a view to 2050 (OPŽ2)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Enhancements to the capabilities and management of the multimodal transport model of the Slovak Republic (OPS5)

Part of inter-modal coordination in passenger transport, apart from operational integration, should also be tariff integration, which is very important from the view of passengers. We recommend, for example, the implementation of a tariff system, in which three tariffs simultaneously co-exist:

- The basic fare should cover the whole network, full transfer and uniform for all types and segments of public transport. This tariff must be obligatorily respected by all carriers operating in the commitment of public service (rail and bus operators, urban transport companies).
- The integrated tariff for urban areas should be valid only for a limited part of the transport network ensuring the transport needs of the population of agglomerations or areas that fall under the center (or more centers) of attendance.
- The commercial tariff, optionally implemented by carriers beyond the scope of the basic tariff (the cus-

tomer can always choose a basic tariff) - e.g. temporary seasonal special fares etc.

Bad image of public transport in the public eye

Public transport, particularly rail transport, is often considered to be an outdated and obsolete mode of transport by the residents of Slovakia. Public transport got into this position due to its inability to respond to the increasing level of motorization from the 1990s and since then, public attitudes to it has not improved much. In order to succeed in reversing this unfavorable trend, conceptual changes in the planning of transport service as described for example in the paragraphs above must occur. After carrying out conceptual changes, it is necessary to alert the public to the new public transport options and return public transport to a modern status, in which marketing and the active promotion of public transport plays a crucial but often underestimated role. A separate issue is the impact of introducing a zero transport fare (for children under 15 years of age, full-time students under 26 and seniors) on the public perception of rail transport, which increased the interest of the listed segments.

The related measures identified for solving the above-stated problems:

- The completion of the implementation of the Target timetable 2020 (OPŽ3)





PUBLIC TRANSPORT AND SUSTAINABLE TRANSPORT

Infrastructure problems

Fleet renewal

It is difficult to deal with the regular renewal of the vehicle fleet for cities, particularly for urban public transport. The average tram age in 2013 was in the range of more than 20 years, trolleybuses 19 years and buses 12 years. The situation has radically improved in Bratislava (new trams and trolleybuses) and Košice (new trams and buses) with co-financing from EU funds, but the next renewal cycle is not resolved in these cities either (in Košice not even the loan repayments for buses). The risk for the future is the same age of new vehicles. The regional rail transport fleet is renewed with subsidies from EU funds, but the vehicles cover only a part of the traffic and transport and ZSSK is not yet able to guarantee the transport of modern low-floor vehicles on most lines.

The related measures identified for solving the above-stated problems:

- Ensuring the possibility of fleet renewal in an adequate quality (OPV03)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- Periodic training plans for transport infrastructure maintenance (OPS2)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Regular updating of strategic and development documents (OPS6)
- Regular monitoring of noise and air quality and the implementation of measures reducing the negative impacts of transport on the environment (OPS7)

Incomplete infrastructure

Lack of transfer terminals, inappropriate design of transfer junctions and the poor state of stops reduce the attractiveness of PPT (Public passenger transport) and increase pressure for direct connections without having to transfer. Missing and unlinked trolleybus routes in Bratislava, Ban-

ská Bystrica and Žilina do not allow the full potential of trolleybus transport. The tram network in Bratislava does not serve some of the major sources and objectives of transport and its potential is thus not completely utilized, in Košice the completion of the existing tram network is missing (especially in the city center) as well as the connection of the Ťahanovce settlement to this network and it is not clear whether the trolleybus transport will be maintained.

Coordination centers of PPT subsystems are not created and in some public transport operations PPT vehicles are not sufficiently equipped with modern means for communication. Lack of smart stops and other information systems to provide real-time information have resulted in a lack of information to passengers about the actual departures and the traffic situation of PPT.

Missing and unconnected bike-paths in most cities and regions do not allow the use of the bicycle as a full-value means of transportation. Missing P + R parking lots or their non-existent or inappropriate connections to PPT contribute to the massive rise of individual car transport (ICT) directly into city centers. Emphasis on increasing the road capacity for ICT is worsening conditions for other transport modes and for non-transport functions of streets. Other problems also include:

- the number and placement of road public transport turnabouts on road networks in the optimum position (in terms of the quality of service and efficiency of the operation), especially in new developments;
- the number and placement of sufficiently sized equipment for K + R and B + R near major stations and stops of public transport.

The related measures identified for solving the above-stated problems:

- Modifications of public spaces of cities and construction of new infrastructure for pedestrians and



cyclists (OPV04)

- Building car parks and parking areas around railway stations and terminals (OPV05)
- Revitalization of railway stations and stops in order to improve the culture and quality of travel (OPV06)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Regular updating of strategic and development documents (OPS6)

Maintenance

The insufficient level of maintenance of tram and trolleybus lines has resulted in a series of point and sectional limitations, in Bratislava and Košice extensive modernization with co-financing from EU funds is underway. In the case of the delivery of new trams, some tracks are currently impassable for modern low-floor vehicles. Even after modernization from EU funds, ensuring the adequate maintenance and renewal of tracks will be needed.

A lack of maintenance and restoration led to repeated interruptions in the past (e.g. traffic interruption of the tram line for the main station in Bratislava from 2011 - 2015). The state of the infrastructure of trolleybus transport in Košice has led, along with the economic situation of the carrier, to the recommendation to stop the operation of trolleybuses and to look for other possible solutions using modern technology in the drawn-up Strategy. In the future, the operation of public transport will also be jeopardized by deficiencies in maintenance if the funding for the operation and maintenance of public transport is not increased.

The related measures identified for solving the above-stated problems:

- Ensuring the possibility of fleet renewal in an adequate quality (OPV03)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- Periodic training plans for transport infrastructure maintenance (OPS2)

Inappropriately configured maintenance of public transport vehicles is leading to their increased failure rate and to lower attractiveness for passengers.

Shortcomings of road infrastructure

Cities and counties do not have enough funds for road maintenance, which also leads to the damage and slowing down of public transport vehicles.

Roads are not modified for the operation of public transport, causing damage in the low use of public transport and higher operating costs.

PPT traffic on roads is not yet considered to be a decisive factor when deciding on their construction or reconstruction, the needs of local transport and public transport to deal with the rapid passage through congested junctions and place stops in them optimally with respect to transfers and other needs of the passengers are not respected, this is leading to a preference for automobile transport at the expense of public budget supported public transport.

The road infrastructure is being developed without regard to the needs of bicycle transport.

The related measures identified for solving the above-stated problems:

- Modifications of public spaces of cities and construction of new infrastructure for pedestrians and cyclists (OPV04)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Regular updating of strategic and development documents (OPS6)
- The regular carrying out of safety audits and the implementation of measures increasing transport safety (OPS8)



Problems of the preferences of public passenger transport

The lack of legislation and technical standards

Existing legislation inadequately promotes environmentally friendly modes of transport, or directly supports the development of automobile transport. As an example, we can mention Act 8/2009 Coll. on Road Traffic, as amended, that dramatically expanded the number of parking spaces in cities through the legalization of parking on sidewalks. The technical standards for the construction of roads do not sufficiently take into account developments in Europe over the past decades and often leads to the realization of solutions for ICT and conversely to insufficient solutions for other modes of transport (such as the inability to design narrowed lanes for the addition of cycling lanes).

The related measures identified for solving the above-stated problems:

- The establishment of the National Transport Authority and the integration of public transport (OPV02)
- Modifications of public spaces of cities and construction of new infrastructure for pedestrians and cyclists (OPV04)
- Modernization and construction of trams and trolleybus lines and the related maintenance base and infrastructure for low-emission buses and electric buses (OPV08)

Weak level of preference of PPT vehicles

The transport policy of cities often does not favor the preference of PPT vehicles over individual car transport in practice. Nor does the legislation set a priority for individual modes of transport when considering transport solutions. For example, Act 171/1993 Coll. on the Police Force, as amended, defines oversight of the safety and flow of traffic and interaction during its management, regardless of more environmentally friendly modes of transport, as one of the tasks of the Police Force. The preference for PPT is thus un-

systematically applied in practice and only in those places where ICT is not restricted or only minimally restricted.

The absence of the binding of urban development and the construction of new settlement units with a conceptual solution of public passenger transport and infrastructure, and access for pedestrians and cyclists.

The related measures identified for solving the above-stated problems:

- The preference of public passenger transport in urban areas (OPV01)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Regular updating of strategic and development documents (OPS6)
- Regular monitoring of noise and air quality and the implementation of measures reducing the negative impacts of transport on the environment (OPS7)

Low preference for tackling the issue of public transport

Slovak society is strongly oriented on the use of cars and building infrastructure for automobile transport, relatively low amounts are being spent on the financing of public transport. Since most of the settlements in Slovakia are of a smaller size, this development does not cause serious clashes with the interests of environmental protection and such an unacceptable situation has not been created in a large part of the territory. In recent years, the situation in the capital Bratislava has become unsustainable, where the poor quality of public transport and free parking in the city has resulted in a very high use of cars alongside the above-average standard of living of the population (division of ICT: PT 54:46). The modern road network of Košice is also fully utilized for traveling by car, which are usually very fast, the division is also 54:46. Mass transport there cannot compete as concerns speed, even if fleet renewal



The related measures identified for solving the above-stated problems:

- The preference of public passenger transport in urban areas (OPV01)
- The establishment of the National Transport Authority and the integration of public transport (OPV02)
- Modernization and construction of trams and trolleybus lines and the related maintenance base and infrastructure for low-emission buses and electric buses (OPV08)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Regular updating of strategic and development documents (OPS6)

will offer greater comfort. Smaller cities offer a much lower range of public transport. In the last decade, regional systems have gained a relatively high quality in bus service and rail transport has also been improved, but the offer is relatively limited. With declining passenger numbers, the costs for regional transport have rapidly increased along with the growth of quality and maintaining its scope in the future is endangered.

It will be necessary to break the chain of low sales - unattractiveness of the services offered - loss of passengers. This is possible only through well targeted investment in the attractiveness of public transport while limiting the access to city centers by cars.

The low speed of public transport in cities creates a problem. A crucial measure for greater sustainability is a preference for and increasing of the speed of public transport. So, at the same time, its attractiveness is increased and operating costs are reduced.

Regions and cities are making little use of the possibility of financial support for innovative projects in public trans-

port, for example, CEF - Horizon 2020 - smart, green and integrated transport.

Limited perception of the importance of public passenger and non-motorized transport

The massive shift of individual automobile transport in the last two decades has reached a situation where the share of public transport in the number of all motorized trips, according to opinion polls, is only 28% (in large cities 39%) while 80% of trips are shorter than 15 km. Up to a third of trips in Slovakia are done on foot, but only 7% by bicycle. 10% of the population uses pre-paid passes on public transport, in cities up to 22%. The division of transport work is higher for public transport when it comes to commuting to Bratislava, for long-distance routes using the busy rapid rail links (along the lines Kúty - Bratislava - Košice and Bratislava - Nové Zámky) and the frequented bus lines (eg. Bratislava - Nitra). The minority share of public transport users is leading to an apparent loss of its importance, its poor quality is not perceived by policy makers as a major issue. This approach leads to a further reduction of the importance and quality of public transport.

Non-motorized transport is considered as even less important than public transport and its importance is underestimated. The condition of sidewalks is therefore worse than the condition of the roads, they are normally used for parking (pedestrians often have to walk along roads because of a lack of spaces), they lack wheelchair accessibility, large settlements in some cities have not created access for pedestrians and cyclists at all. Moreover, cycling is considered a leisure activity and not as an equal transport system.

The related measures identified for solving the above-stated problems:

- The preference of public passenger transport in urban areas (OPV01)
- The establishment of the National Transport Authority and the integration of public transport (OPV02)
- Modifications of public spaces of cities and construction of new infrastructure for pedestrians and cyclists (OPV04)



- Modernization and construction of trams and trolleybus lines and the related maintenance base and infrastructure for low-emission buses and electric buses (OPV08)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Regular updating of strategic and development documents (OPS6)

Insufficient attention is paid to the access of passengers, the quality of the premises and the motivating factor

The poor quality of the environment of the stops, stations and arrivals to them as well as non-existent additional services and marketing discourage people from an increased use of public transport.

The related measures identified for solving the above-stated problems:

- The establishment of the National Transport Authority and the integration of public transport (OPV02)
- Modifications of public spaces of cities and construction of new infrastructure for pedestrians and cyclists (OPV04)
- Revitalization of railway stations and stops in order to improve the culture and quality of travel (OPV06)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Supplementing and ongoing maintenance of the databases of individual subsectors (OPS4)
- Enhancements to the capabilities and management of the multimodal transport model of the Slovak Republic (OPS5)

Problems of the organization of public passenger transport

Fragmentation and a lack of competence in the field of public passenger transport

Public passenger transport is ordered by a number of entities (Ministry of Transport and Construction of the Slovak Republic, higher territorial units (HTUs), towns, villages, in big cities it is necessary to handle the often conflicting interests of the large number of urban areas).

Individual transport clients usually do not have professional expertise for the skilled planning and evaluation of transport, so their tasks are assumed directly by the carriers, which determine the specific form of the order of the performances of public services and submit it for approval to the client. This is particularly true for public transport and also in some HTUs ordering bus transport, the Ministry of Transport and Construction has taken over the role of the client in train transport, but it has a lack of data on regional needs and a lack of capacity and power to negotiate with the regions. Traffic in regional transport is also often in conflict with the needs of long-distance transport, which the state naturally favors.

The related measures identified for solving the above-stated problems:

- The establishment of the National Transport Authority and the integration of public transport (OPV02)
- Modifications of public spaces of cities and construction of new infrastructure for pedestrians and cyclists (OPV04)
- The achieving of high quality terminals, transfer junctions and integrated stops minimizing barriers and maximizing compactness and efficiency (OPV07)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- The process of the preparation and implementation of development projects, including related activities (OPS3)



- Regular updating of strategic and development documents (OPS6)

The lack of function of some parts of the client (local government) - supplier (carrier) relationship is fairly widespread, especially in the largest public transport operations. The client does not have an overview of the planned and actual performance of the carrier and is not fully informed about what they are paying for, they do not insist on the delivery of services in the required quality or do not even demand sufficient quality, on the contrary, the supplier does not receive payment for all of the losses during performances in the public interest. The opportunity to resolve inspection activities collectively for all modes of PPT through the organizer of an integrated transport system, or transport authority has not been used so far, even with the existing regional integrated system in the Bratislava autonomous region.

Financial problems

The Ministry of Transport and Construction of the Slovak Republic (MTC SR) has a budget of around 230 million euros per year (in 2015 - 245 million) for the ordering of performances in the public interest in railways, to which it is necessary to adjust the scope of services.

The policy of free trains for students and pensioners, which is in place since 17. 11. 2014 has brought new passengers to rail and increased operating compensation, but have also brought inequality in the conditions of transport by rail, bus and public transport. State social policy must be implemented equally in the full extent of PPT and the activities of the state in social policy in transport are a strong argument for the state also gradually taking over responsibility for the process of the integration of public transport.

From their budgets, HTUs can only finance the basic transport services of a territory, even in suburban areas with a high demand for transport to cities. Suburban municipalities do not have the financial resources to finance a higher standard of regional transport. A declining use of regional

buses and rising costs, especially after fleet renewal, are putting a considerable burden on the budgets of HTUs.

Cities, including the largest ones, generally have low budgets and a low possibility of compensation for the loss of public transport traffic and are thus very limited compared to other EU countries. Cities do not typically finance the entire loss of transport enterprises which are loss-making. Cities with tramway transport therefore do not have sufficient funds for its maintenance, which is especially noticeable in cities with tramway transport (Bratislava, Košice). Without a systemic solution to improve funding, but at the same time maintenance checks, it will not be possible to properly maintain even new and upgraded lines. The current solution of the need to modernize infrastructure with the help of EU funds is very helpful, but you cannot count with it either after 2020 as the only possible solution in the medium and long term.

Income of cities, e.g. from parking is not properly utilized, it can be a source for financing public transport, and benefits for holders of pre-paid passes can also be offered in the form of discounts on parking, for example during afternoons and weekends. For funding mobility, it will be important to ensure the financial participation of passengers around the city, primarily cars, for example by removing the possibility of very extended parking on sidewalks, which can achieve a significant transfer of ICT to public transport.

The related measures identified for solving the above-stated problems:

- The establishment of the National Transport Authority and the integration of public transport (OPV02)
- Ensuring the possibility of fleet renewal in an adequate quality (OPV03)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- Regular updating of strategic and development documents (OPS6)



Poor coordination between different transport subsystems

Despite the recent positive steps, the various entities ordering public passenger transport communicate with each other in an unsatisfactory manner, if at all, resulting in often uncoordinated rail, suburban bus and public transport with each other.

The railway public transport graphical timetable (RPGT) is firmly set with a priority of long-distance transport and HTUs are not always able to influence the time positions of regional trains according to the needs of villages and towns. Due to the poor quality and the small number of regional trains, HTUs often order connections at the same times as train connections are operated, along only a bit different routes. On suburban rail sections in big cities, the number of regional trains is inadequate in terms of capacity and the time distribution of offers during rush hour. Given that suburban railway transport inadequately covers the required volume of mobility, passengers also use overcrowd long-distance trains and as well as regional express trains, whose insufficient number is boosted by the REX only during rush hours.

HTUs often order bus transport in a partial overlapping with rail transport and do not intend to fundamentally change this approach for the following reasons:

- the elimination of overlapping would mean a significant decline in the ordered performance in bus transport, which is often at odds with the concluded contracts with carriers, or the transfer of performances to locations with fewer passengers, which would mean a greater loss of bus operators and the need for greater compensation from the budget of HTUs without a higher transfer from the state budget
- in the given section there is a lack of frequency or capacity of trains (e.g. service to / from work shifts with a determined start / end)
- railway infrastructure is of a poor quality with a low travel speed and a low standard of stations and

stops, lacking park and ride facilities and transfer terminals

- the position, or density of the railway stations and stops is inadequate
- bus connections are sometimes better connected to the centers of catchment areas than railway lines
- Apart from IDS BK and Rajecká dolina there is no functional tariff integration, i.e. the elimination of the overlapping would make trips more expensive and worsen the attractiveness of PPT
- the insufficient interlinking of the dispatching of individual transportation (information on deviations from the timetable are not transmitted, it is impossi-

The related measures identified for solving the above-stated problems:

- The establishment of a national transport authority and the integration of public transport (OPV02)
- Modifications of public spaces of cities and construction of new infrastructure for pedestrians and cyclists (OPV04)
- Building car parks and parking areas around railway stations and terminals (OPV05)
- The achieving of high quality terminals, transfer junctions and integrated stops minimizing barriers and maximizing compactness and efficiency (OPV07)
- Modernization and construction of trams and trolleybus lines and the related maintenance base and infrastructure for low-emission buses and electric buses (OPV08)
- Setting the principles of sustainable financing of the transport sector (OPS1)
- Enhancements to the capabilities and management of the multimodal transport model of the Slovak Republic (OPS5)
- Regular updating of strategic and development documents (OPS6)



ble to guarantee traceability) and this option is often not even within the same carrier

- the prohibition of concurrency is not sufficiently defined (while the need to clearly define the terms „acceptable concurrency“ and „unacceptable concurrency“).
- There is no functional inspection of compliance with the prohibition of concurrency.

Different interpretation of „public interest“

A plan for transport services of the SR is not elaborated, the definition of transport service standards is lacking. The Act on Road Transport No. 56/2012 Coll. Although Section 18 defines the transport services, the definition in question should be further specified.

The term „liability arising from public service“ is also defined in Regulation (EC) No. 1370/2007.

The interest of considering PPT as a viable alternative to ICT has been declared, although financial resources are sufficient especially in HTUs only for basic transport service - the way to / from work, schools and medical facilities.

Insufficient transport planning

Not all clients of transport services in the public interest use the results of traffic surveys for transport planning , not all use data from ticket sales, not all are able to obtain sufficient information, in particular from private bus operators carrying out subsidized services in the public interest. On the state level, despite the clearly formulated assignment of the concept of the order of performance on the railways, there is a lack of professional capacity for more detailed transport planning, at HTUs, transport planning using the stated data is carried out only in a few cases (eg. Department of Transport of the Košice Region realizes the analyses, breakdowns, modifications of transport offers and transport coordination in cooperation with all carriers, removing concurrency, it also introduces lines for the acquisition of new passengers and is preparing tariff

integration), cities do not have the professional capacity for planning and ordering public transport performances in the public interest. There is still no work at all occurring to analyze the development of transport using transport models, describing what comprehensive effects the different measures in the area of transport, including the inter-modal relations will have. Good information on relations between individual modes of transport and estimates of traffic induction and traffic reduction is lacking.

It is usually carriers who ensure transport planning instead of clients, often very responsibly, but also with varying degrees of application of the public interest and without sufficient follow-up to other transport systems.

Especially larger cities do not have accurate data on parking spaces and the number of vehicles parked outside them.

Traffic surveys are focused almost exclusively on road and public transport and not also on cycling and walking.

The related measures identified for solving the above-stated problems:

- The establishment of a national transport authority and the integration of public transport (OPV02)
- The process of the preparation and implementation of development projects, including related activities (OPS3)
- Supplementing and ongoing maintenance of the databases of individual subsectors (OPS4)
- Enhancements to the capabilities and management of the multimodal transport model of the Slovak Republic (OPS5)
- Regular updating of strategic and development documents (OPS6)



Problems of the operation of public passenger transport

Division of transport work with a low and declining share of public, rail and non-motorized transport

According to opinion surveys, and according to the results of traffic modeling only about 30% of road transportation falls under public transport (from particularly low values in „rural“ regions, but also, for example, within the Bratislava and Trnava region).

Only 18% of journeys by public transport are realized by trains, the attractiveness of trains is growing only where there has been a significant strengthening of transport in terms of potential demand (ie. Bratislava - Pezinok, Komárno - Bratislava). The offer of trains is limited, primarily in suburban transport, and do not connect to regional buses.

- The availability of public transport in settlements in regions without modernized railway lines is much slower than cars.

The boom in ICT has adversely affected PPT and non-motorized transport:

- PPT traveling along roads, with the impact of traffic congestion and building traffic lights without an effective preference slows down and increases its costs.
- The decline of passengers in favor of ICT continues, especially paying full fare, which is causing significant drops in PPT revenues, with consequent negative impacts on the amount of loss payments during the implementation of performances in the public interest..
- The loss of passengers is faster in „rural“ regions, where sequential transport to catchment centers throughout the day is not secured, but only selected connections of a social nature are operated.

- The loss of passengers is causing the cancellation of little used connections in particular in the evening, which generates a further decrease of passengers in view of the decreasing attractiveness of PPT.
- Non-motorized transport is gradually being pushed out by car traffic - cyclists due to the intensity of ICT on roads, pedestrians because of legalized parking on sidewalks. Inappropriate construction and technical solutions for roads and intersections are creating barriers for non-motorized transport from the spatial and time aspect.

Insufficient frequency of trains

The current frequency of trains is not, during greater integration (removal of concurrency with bus transport), prospectively sufficiently attractive. There is room for a radical increase in the frequency, after optimization of the railway network, in the mode of reducing the downtime of transport vehicles and their full use throughout the day. Here, the costs of the transport route and energy also in-

The related measures identified for solving the above-stated problems:

- The preference of public passenger transport in urban areas (OPV01)
- Ensuring the possibility of fleet renewal in an adequate quality (OPV03)
- Modifications of public spaces of cities and construction of new infrastructure for pedestrians and cyclists (OPV04)
- The achieving of high quality terminals, transfer junctions and integrated stops minimizing barriers and maximizing compactness and efficiency (OPV07)
- Modernization and construction of trams and trolleybus lines and the related maintenance base and infrastructure for low-emission buses and electric buses (OPV08)
- The process of the preparation and implementation of development projects, including related activities (OPS3)



crease by the same rate, but the costs of other operations are negligible in most cases compared with the increase in performance as they already arise in the current state (eg. downtime train personnel that are already paid in full).

The fundamental obstacle is the current high costs of the operation of regional rail transport and without the internal optimization of operation (full-blown hourly sequential mode during the day) a significant increase in frequency will not be possible. Without a significant increase in the frequency, there will be no significant change to the division of transport labor.

In a large part of the network, regional rail services are operated every 2 hours, which does not correspond to the backbone role of the railway and does not offer an attractive option for commuting.

The problem is caused by the insufficient supply of long-distance transport, which largely ensures fast regional transport (eg. in the strengthening and reorganizing of service, it is possible to commute over distances up to about 100 km by train daily).

The related measures identified for solving the above-stated problems:

- The achieving of high quality terminals, transfer junctions and integrated stops minimizing barriers and maximizing compactness and efficiency (OPV07)
- Setting the principles of the sustainable financing of the transport sector (OPS1)
- Regular updating of strategic and development documents (OPS6)

Lack of capacity of public transport in the cities and suburban transport

Especially in Bratislava, Prešov and partially in Košice, a sufficient capacity of PPT during peak traffic is not ensured, which does not enable the stopping or reversing of the decline of passengers in favor of ICT.

Súvisiace opatrenia identifikované na riešenie uvedených problémov:

- The establishment of a national transport authority and the integration of public transport (OPV02)
- Setting the principles of the sustainable financing of the transport sector (OPS1)
- Regular updating of strategic and development documents (OPS6)

Non-transparency of the regional bus transport system

Regional bus transport systems in most regions are organized according to the demand of their passengers, underused connections are canceled. The result is a not entirely systematic arrangement of lines, which is not adequately transparent to attract new and occasional travelers.

The related measures identified for solving the above-stated problems:

- The establishment of a national transport authority and the integration of public transport (OPV02)
- The achieving of high quality terminals, transfer junctions and integrated stops minimizing barriers and maximizing compactness and efficiency (OPV07)

Unresolved operation of integrated passenger transport terminals

The first implemented integrated passenger transport terminals (eg. Moldava nad Bodvou) highlighted the unresolved funding of the operation of terminals and the difficult coordination of rail and regional bus transport without a joint ordering of performances. The result is a lack of use of the potential of the terminals and higher costs of compensation for losses after their introduction into service.



The related measures identified for the solving of the above-stated problems:

- The establishment of a national transport authority and the integration of public transport (OPV02)
- Modifications of public spaces of cities and the construction of new infrastructure for pedestrians and cyclists (OPV04)
- The achieving of high quality terminals, transfer junctions and integrated stops minimizing barriers and maximizing compactness and efficiency (OPV07)
- Regular updating of strategic and development documents (OPS6)



In the environment of the European Economic Area, it is necessary to ensure the setting of harmonized development activities and the systematic fulfillment of a comprehensive vision for a competitive and sustainable European transport system. This vision is defined by strategic documents of the European Commission, especially the so-called White Paper, which defines the basic limitations for determining the national development strategies of individual member states.

The process of setting the vision and objectives of the transport sector of the Slovak Republic was in close accordance with European and national legislative-development documents, which set the global vision and objectives, as well as the needs of the various transport sub-sectors identified in the analyzes performed. The vision and objectives of the transport sector of the Slovak Republic thus reflects both the European requirements as well as the national interests and challenges the sector faces.

The stated approach ensured a sufficient level of integration of the Slovak Republic in the European transport area and at the same time the gradual elimination of internal problems and needs.

Vision of the transport sector and its background

The European Commission, taking into account the diversity of transport problems, focuses on three main modes in its vision of a competitive and sustainable transport system defined by the White Paper:

- medium distance transport,
- long distance transport and
- urban transport.

Emphasis is placed on creating new, efficient, safe and environmentally friendlier methods of the use of transport, which would be the most effective, or in a combination of several modes of transport, while simultaneously transporting a higher volume of cargo as well as a higher number of passengers to their destinations. On the final leg of the journey, individual transport with the use of in-

VISION AND OBJECTIVES OF THE TRANSPORT SECTOR

formation technologies is preferred for easier and more reliable transportation. This requires that a higher degree of integration of modal networks is ensured - airports, ports, railway and bus stations and metro stations should be increasingly interconnected and should be changed to multimodal transport junctions for passengers. Online information systems and electronic reservation and payment systems, including all means of transport, should further facilitate multimodal travel and transport costs. For the wider use of public transport, the relevant passenger rights should be determined.

At the highest, strategic level, it is therefore necessary to define the vision for the development of transport of the Slovak Republic to 2030, which reflects the current and projected development trends in both the transport sector, as well as the Slovak Republic as a whole, reflecting the development of the European Union and lastly addresses the current and anticipated problems of the transport sector. The vision of the transport sector is described on page 6.

The specific objectives of the transport sector and their background

The specific objectives are a means to achieve global strategic objectives. However, unlike them, the specific objectives do not only reflect global European trends and needs, but in particular the specific needs of the national level resulting from international obligations and agreements, as well as from the current problems of the transport sector.

For the purposes of setting the integral strategy for transport development, the transport sector considered as a whole, and not just as a set of individual transport modes, the specific objectives are defined in two complementary categories:

- Horizontal specific objectives and
- Modal specific objectives.

Horizontal specific objectives determine the direction in selected areas of all transport modes and thus compre-



hensively affect the further development of the transport system. These are cross-cutting objectives that must be met regardless of the transport mode, but using different types - universal or modal specific - measures.

Modal specific objectives reflect the particularities of individual modes of transport, which could not be covered by the horizontal objectives due to their subject matter. These are the goals that will be fulfilled through modal measures and their combinations.

Horizontal specific objectives

In accordance with the above-mentioned characteristic, the horizontal specific objectives of the transport sector of the Slovak Republic to 2030 are further defined.

ŠHC 1: ENSURING THE PREPARATION AND CONDITIONS FOR THE SYSTEMATIC AND CONCEPTUAL DEVELOPMENT OF TRANSPORT OF THE SLOVAK REPUBLIC

Ensuring the preparation and conditions for the systematic and conceptual development of the transport sector of the Slovak Republic is an important cross-cutting specific objective to ensure an effective approach to the planning and preparation of development activities.

From a substantive point of view, the objective will be pursued by the implementation of measures aimed at the methodological and factual parts of the processing of development documents, at the pre-investment preparation, financing, changes in the organization of transport, including the related adjustments of legislation documents, training in technical professions, etc.

With regard to the effectiveness of the implementation of this specific objective, activities related to securing the data base and supporting various decision-making processes must also be carried out.

ŠHC 2: IMPROVING THE SAFETY, EFFICIENCY AND SUSTAINABILITY OF TRANSPORT OPERATIONS BY STRENGTHENING NEW TECHNOLOGIES

The introduction of new technologies is an objective whose fulfillment shall ensure the increased efficiency and safety of the infrastructure and operational measures in respect of both passenger and freight transport. It leads e.g. to the expansion of information systems, control systems, support of development and preferences of integrated transport systems, security systems, etc. An important aspect of achieving this objective must also be the coherence in the implementation of new technologies across transport modes. In this way, the indirect support of the competitiveness of transport modes and creating the potential for changing the distribution of transport work also occurs.

ŠHC 3: SYSTEMATICALLY REDUCING THE NEGATIVE SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACTS OF TRANSPORT

Reducing the socio-economic and environmental impacts of transport is an important objective mainly aimed at:

- reduction of greenhouse gas emissions into the atmosphere.
- minimizing the number of people affected by noise, vibration, traffic accidents and other health determinants generated by the transport sector,
- reducing energy consumption,
- taking over of land,
- nature and the landscape,
- the risks associated with climate change.

The primary references must be the legislation regarding protected areas and the EU legislation in the field of environment.



ŠHC 4: SYSTEMATICALLY IMPROVING THE PARAMETERS OF SAFETY AND SECURITY ELEMENTS OF POINT AND LINE ELEMENTS OF THE TRANSPORT SYSTEM

In addition to increasing safety through the introduction of new technologies, it is necessary to focus on the basic parameters of transport infrastructure. This concerns minimizing the number of accident localities, but also prevention through the modifying of inappropriate design parameters of roads, waterways etc., which were identified by safety audits. In the multimodal context, this objective will be pursued primarily by focusing on infrastructural modifications of railway crossings, or other safety-critical parts of the infrastructure. To fulfill the objective, the issue of security must also be considered, which is important especially in the field of civil aviation.

Modal specific objectives

Modal specific objectives are defined for each transport mode separately and along with the horizontal objectives, they form the initial basis for the definition of measures leading to their fulfillment and hence also the implementation of this strategic document.

ŠŽ 1: STRENGTHENING THE ROLE OF THE RAILWAY AS A PRIMARY TRANSPORT MODE IN THE SYSTEM OF PUBLIC TRANSPORT WHERE THIS IS JUSTIFIED

Effective and efficient public railway transport has the potential to be a modern, safe and environmentally friendly transport mode, which is useful to be supported in particular as the leading part of the PPT system, on the international (cross-border), inter-regional as well as suburban scale. The railroad is generally a good solution if there is sufficient demand

to justify the costs and environmental impacts (both construction and operation).

Where the traffic intensity is lower, but still significant, it is possible to use other modes of transport based on railway transport, or support the BRT concept - fast bus transport preferably powered by alternative fuels.

ŠŤ 3: : IMPROVING THE QUALITY AND THE ENVIRONMENTAL IMPACT OF RAILWAY OPERATION

Improving the quality and the environmental impact of passenger and freight transport will be required to strengthen the role of railways as the backbone of PPT, improving the performance of freight transport. In freight transport, the goal is the interoperability, efficiency and environmental friendliness of powered vehicles, and in passenger transport, particular emphasis is placed on a sufficient number (and capacity) of modern, comfortable vehicles in the PPT system, while on non-electrified lines, especially in urban and suburban areas, another important goal is also to achieve greener powered vehicles, including through promoting alternative fuels.

The tools of this objective is to ensure the necessary legislative adjustments for long-term non-discriminatory support for the purchase and modernization of the vehicle fleet, compliance with quality standards for train passenger transport, securing the financing of the acquisition and operation of vehicles for PPT, ensuring the maintenance of PPT and their backgrounds and the modernization of the vehicle fleet in order to reduce the burden on the environment.



ŠVO 1: MAKING PUBLIC AND NON-MOTOR TRANSPORT ATTRACTIVE THROUGH SOCIAL SECURITY EVERYWHERE AND THE NATURAL CHOICE FOR TRAVELLING IN URBAN AREAS

Public transportation is offered mostly as a service in the public interest, but the same social standards or standards of public transport in the territory of the state are not applied and the currently set system is not meeting the increased potential demand for transport around major cities and thus facilitating their better availability and a higher quality environment. Through the activity of a national transport authority, it will be required to unify the social, transport and tariff standards as the minimum mandatory offer throughout the territory of the state, with the preferred use of railways for follow-up and separate bus service for minimum social standards. In places with increased demand, it will be necessary to closely link urban and regional transport system services and create integrated systems of suburban and urban transport, which will be offered to passengers in an appropriate manner and its increasing use will also be monitored.

ŠVO 2: REORGANIZING THE INSTITUTIONAL ARRANGEMENTS FOR PUBLIC TRANSPORT

The scope of transport clients in the public interest is fragmented in Slovakia and the result is usually a lack of coordination between rail, bus and regional public transport. It is necessary to avoid unnecessary and inefficient competition between different modes of transport. For the coverage of all kinds of public transport, it will be necessary to set up a national transport authority on the state-level, which will have competency for the ordering of railway transport, a single countrywide tariff on the railway and the ordering of follow-up and separate bus services in the scope of the minimum standards in coordination with urban and regional clients. It will be necessary to define nationwide standards and legal regulations and ensure the nationwide con-



nectivity and compatibility of integrated transport systems. At the level of suburban and urban transport, it is necessary to develop the activity of transport clients at the level of autonomous regions and/or cities. The formal structure is left to the will of cities and regions, but it will be necessary that municipal and regional authorities take over full responsibility for ordering urban and suburban transport, for its integration and its coordination with the nationwide organized segment with the methodological support of the national transport authority.

ŠVO 3: TERRITORRIALLY AND TECHNICALLY INTEGRATE PUBLIC TRANSPORT IN URBAN CENTRES AND THEIR SURROUNDING AREAS, AND ON THE NATIONAL LEVEL

Due to fragmented responsibilities and the fact that the needs of passengers are not always fully taken into account, public service is not always offered within a reasonable range and line management, suburban transport timetables are usually non-transparent and services are not always sufficiently coordinated. New services to potential customers are not sufficiently offered through the appropriate marketing of the services. It will be necessary to create suburban integrated transport systems at the local level with a strong involvement of the mayors of the concerned cities and municipalities and municipal administrations and in cooperation with the transport departments of regional offices. Integrated transportation systems will be adapted to local needs so that they use the means to compensate for losses in the most effective manner and maximize the use of the services offered above the range of minimum standards. In places where suburban and urban integration will be prepared, the national transport authority will then work closely with self-governing regions on mutual coordination, it will be a partner of suburban integrated systems. The interface between nationwide integrated transport and suburban systems will be the subject of an agreement and the national authority will be obliged to be accommodating to cities and regions.



ŠVO4: ENSURING BETTER CONDITIONS FOR CYCLING AND PEDESTRIAN TRAFFIC ON THE LOCAL AND REGIONAL LEVEL

Since the construction of transport infrastructure in Slovakia has long been focused on the construction of urban roads, expressways and highways, as well as bypasses of cities, for the needs of fast automobile transportation with high demands on capacity, it is virtually impossible to make bicycle traffic safe in Slovak cities, while the conditions for pedestrians have also worsened. Cycling infrastructure was created in a very limited extent, new walkways were built only for access to new houses or commercial zones, not on a citywide level, sidewalks along roads with the growing intensity of car traffic have created many barriers and crossings that are often dangerous. It will be necessary to adopt a whole series of measures from changes in the approach to spatial planning to the priority of non-motorized modes, through the modification of existing spaces wherever the space for automobile transport is not fully exploited, or is used in conflict with basic urban functions. The parking of cars on sidewalks must be eliminated, it is necessary to design, finance and implement new spatially integrated infrastructure for pedestrians and cyclists where it is needed.





MEASURE DEFINITION FOR THE IMPLEMENTATION OF THE STRATEGY

Measures for the fulfillment of the strategy have been defined based on global trends, international agreements and the commitments of the SR and the problems identified in the analytical part of the preparation of the strategy, the outputs of which are summarized on pages 10 to 44.

Each measure is a set of activities, initiatives or projects integrated based on the substantive nature of the objective which should be fulfilled or the problem to be addressed. In consistency with other parts of this strategy document, the measures are also divided in terms of infrastructure, organization and operation, as well as in accordance with the individual transport modes. Systemic measures are a separate group, whose definitions apply to the transport sector as a whole. Such an approach will facilitate not only preparation, but also the actual execution of the implementation plan of the strategy.

The set of measures as a whole represent a tool for the fulfillment of the global strategic objectives, specific objectives and the vision for the development of the transport sector itself until 2030.

Systemic measures

The category of systemic measures represents a group whose measures are related to the transport sector as a whole, regardless of the individual transport modes. The definitions of the individual measures were carried out by identifying recurring problematic issues of individual sub-sectors.

OPS 1: Setting the principles of sustainable financing of the transport sector

In relation to one of the major problems of the transport sector of the Slovak Republic, which is an insufficient amount of financial resources, it is necessary to prepare a specific plan for their security and effective use.

This plan must reflect the real needs of the transport sector as a whole and approach the planning of funding of all transport modes, including addressing their internal debt

in a consistent way. In order to improve the impact assessment of transport policy and the adoption of strategic decision-making, which should be based on evidence, it is also necessary to create systemic conditions for strengthening analytical capacity and the performance of necessary activities of the systematization of the internal capacity of the relevant specialized departments of the MTC SR, implementing this measure.

OPS2: Periodic training plans for transport infrastructure maintenance

The measure is aimed at ensuring the processes of the implementation of multiannual plans for the maintenance of transport infrastructure in a regular period. Through this measure, the conceptual approach to maintenance will be secured, which further supports the effective management of funds, including addressing the internal debt of the individual modes of transport infrastructure.

OPS3: The process of the preparation and implementation of development projects, including related activities

The investment planning process follows up on European and national binding conventions, which include the most important investment activities. The measure is aimed at ensuring the processes of the implementation of the development of the transport infrastructure in the required scope and depth. Through this measure, the conceptual approach to the development of the transport infrastructure will be secured, which further supports the effective planning and management of funds.

Currently, the largest volume of projects in the medium term are actions co-financed from EU funds, which are structured according to the priorities of the European Commission. It is therefore necessary to adjust the process and methodological procedures of the implementation of individual parts of the project preparation, which will be linked to the implementation part. It will also be necessary to intensify the mutual exchange of information between state administration bodies, respectively investors as builders of infrastructure projects and local authorities in order to



exclude, or limit and reduce, the negative impact of these structures on public health in their preparation, construction and operation, including their modernization. It is also necessary to coordinate the procedure of investors as builders of infrastructure projects with each other during the planning and implementation of transport infrastructure projects so as to avoid or minimize the risk of adverse cumulative effects on the environment and public health, especially in protected areas.

OPS4: Completion and ongoing maintenance of the databases of individual subsectors

With regard to the lack of input data to enable detailed planning of the development of the transport sector, this measure is designed for its supplementing or the setting of processes that will ensure this data accordingly. An important part of the implementation of this measure must also be the plans of the continuous updating of data.

Thus, the implementation of this measure, apart from the completion and ongoing maintenance of the data base needed for the effective development planning of the transport sector will also contribute to ensuring the necessary data for updating and to ensure the functioning of the transport model of the Slovak Republic. It is necessary to pay particular attention to addressing the availability of the data for professional associations, the academic community, research organizations and so on. Under the measure, it is necessary to eliminate the legal obstacles to providing professionals with transport data.

OPS5: Enhancements to the functionality and the management of the multi-modal transport model of the Slovak Republic

Improvement to the functionality of the multimodal transport model is key to setting the processes of efficient transport planning and the development of the transport infrastructure in the Slovak Republic. Equally important is its continuous updating based on available data sources. Ensuring this process has a direct connection to the fulfillment of the systemic measure OPS4 - Completion and ongoing maintenance of databases of individual sub-sectors.

OPS6: Regular updating of strategic and development documents

Significant strategic and development documents must be updated regularly. Only thus will it be possible to ensure the continuity of the planning process, which will be able to respond to the latest developments of surrounding conditions directly affecting the transportation system of the Slovak Republic.

OPS7: Regular monitoring of noise and air quality and the implementation of measures reducing the negative impacts of transport on the environment

Since transport is one of the major air polluters and producers of a noise burden, it is desirable to regularly monitor the levels of these negative effects in order to monitor trends and the scheduling of preventive and corrective measures. The continuous monitoring of relevant indicators in the field and the processing of related analyzes is an important basis for the creation of conceptual, regulatory and organizational as well as infrastructure measures, whose implementation will reduce the negative effects of transport on the environment.

OPS8: The regular carrying out of safety audits and the implementation of measures increasing transport safety

In addition to safety inspections and inspections resulting from the law in the phases of planning, construction and bringing into use the new / modernized infrastructure, it is necessary to devote attention to transport infrastructure that is already in operation through regular safety audits. The outcomes of audits are a key basis for the draft measures enhancing the safety and serving for the prevention of traffic accidents.

Infrastructure measures in railway transport

OPŽ1: The completion of the modernization of the main TEN-T tracks, which are in a high degree of



preparation: Púchov – Žilina, Žilina – Čadca – state border, Devínska N. Ves – state border AT

Modernization of inter-station segments and stations, increasing speed, preparing the transition to an AC power system. The change of the timetable in conjunction with the shortening of the travel times.

The mentioned tracks are part of the backbone of today's railway system in Slovakia. They are part of the network TEN-T and RFC, they show high transport potential both in passenger and freight transport.

OPŽ4: Modernizing of the main track Žilina - Košice - Čierna nad Tisou

Modernization of inter-station segments and stations, re-routing of selected segments, increasing speed, preparing the transition to an AC power system.

Changing the timetable, increasing the number of connections.

Key east-west route in Slovakia. It is part of the basic network TEN-T and RFC9. Most burdened freight transport railway with growth potential. The only fast east-west railway connecting line in passenger transport. Modernization in accordance with the approved feasibility study will ensure interoperability and shorten travel time.

OPŽ5: Modernization of the corridor Kúty state border - Bratislava - Štúrovo / Komárno state border

Modernization of the inter-station sections and stations, increasing speed.

Changing the timetable, increasing the number of connections.

The backbone line of southwestern Slovakia, important especially for international passenger transport, suburban transport around Bratislava as well as international freight transport. It is part of the basic network TEN-T and RFC7.

Modernization in accordance with the approved feasibility study will ensure interoperability and shorten travel time.

OPŽ7: The modernization and improvement of the wider Bratislava hub including the relevant routes affected according to the needs arising from the feasibility study of the Bratislava railway hub

Operationalization of the Bratislava railway hub including key stations is considered crucial in terms of its strategic position on the main rail corridors and in terms of its potential to contribute to the sustainability of regional and long-distance transport. The current state of infrastructure, limited functionality and operability are not sufficient for future transportation needs.

All of this will be analyzed in detail in the feasibility study of the Bratislava railway hub, currently being prepared. Based on the results of this study, measures will be adapted and possible projects will be included in the implementation plans.

OPŽ8: Modernisation of the track TEN-T: Púchov-Horní Lideč

Modernization (extension) of stations, ensuring interoperability, preparing for the transition to the AC power system.

Moderately important international connecting line. It is part of the basic network TEN-T and RFC9. The track has potential to develop transit passenger and freight transport, particularly with a view to the forthcoming optimizing of the follow-up track on the Czech territory Horní Lideč - Hranice in Moravia.

Infrastructure measures in public passenger and non-motorized transport

OPV01: The preference of public passenger transport in urban areas

The transport policies of cities in practice do not prefer PPT vehicles, nor does the legislation establish a priority for PPT, the construction of new settlement units is not tied with the conceptual design of PPT. The systematic



preference of PPT vehicles must become part of the development of sustainable mobility in cities in the scope of integrated transport systems, at intersections controlled by RS and the establishment of preferential lanes reserved for trolleybuses and buses, where needed. It is also desirable to equip roads and urban streets with devices that adequately serve the needs of PPT, such as the location of PPT bus stops at the intersections of lines, so as to minimize pedestrian walks while waiting for connections and during transfers, or the establishing of bus turnabouts in a sufficient number and at an optimal location in terms of the quality of service and efficiency. Projects for new residential and commercial units should primarily calculate with non-motorized and public passenger transport solutions in their concepts, while providing sufficient capacity and the expected automobile transport. In addition to this, legislative changes, modifications of norms and changes to transport policies are necessary.

OPV04: Modifications of public spaces of cities and the construction of new infrastructure for pedestrians and cyclists

It will not always be possible to solve the outdated state of walking and cycling routes in and around cities only through financial resources and through the available space limited by the construction of new infrastructure. It is much more important to gradually adapt urban cities and the roads around cities to the needs of non-motorized transport during the reconstruction of surfaces. As a matter of course, solutions that give priority to pedestrians and respect cyclists need to be searched for even though that may limit car transport, including ensuring easy access for people with reduced mobility in accordance with Regulation of the EP and the Council No. 1371/2007 concerning the rights and obligations of all passengers in rail transport.

OPV05: Building car parks and parking areas around railway stations and terminals

For a higher share of rail transport in transport work, it is necessary to promote combined transport of individual and public transport, which is currently only of a limited use. Demand is high in places where there is offered a rel-

actively frequent suburban transport which is faster than commuting by car, for example in the suburban railway section Trnava - Bratislava. Therefore, Park & Ride facilities will be built with sufficient capacity to protect cities from the part of vehicles arriving at rush hour and increase the use of rail transport. In addition, at integrated transport terminals, whose task will be to enable the integration of bus and rail transport, it will be necessary to build a sufficient capacity for the parking of cars. In the event that the analysis of the potential of public passenger water transport demonstrates the economic sustainability of the national water carrier, it is possible to contemplate the construction of parking areas for public transport in ports thus creating opportunities for the expansion of integrated transport in the water transport mode.

OPV06: Revitalization of railway stations and stops in order to improve the culture and quality of travel

The poor environment of railway stops, stations and arrivals to them and their lack of facilities for the handling and provision of information to passengers discourages the use of rail services in regional and long-distance transport. Not only the modernization of railways, but also a systematic reconstruction of the main railway stations in a higher standard and ordinary stops in the basic standard is a prerequisite for increasing the share of rail transport in transport work. Additional services such as WiFi or lockers for luggage and bicycles also have a positive impact on the quality of traveling. With a view to achieving a higher proportion of the traveling public, it is necessary to continuously improve the quality of services provided.

OPV07: Achieving a high quality terminals, transfer junctions and integrated stops while minimizing barriers and maximizing compactness and efficiency

Entities providing public passenger transport cooperate with each other insufficiently: rail transport, suburban bus transport and municipal public transport are not coordinated, and suitable premises for the interdependence between urban and suburban connections or buses and trains are not available either. To support integration, it is



appropriate to build transfer terminals that must be compact, built in the minimum necessary space and with the minimum operating costs and very efficiently on the basis of predefined concepts of integrated public transport, which in practice will be reviewed and lead to a higher quality of service provided without an undue increase in operating costs.

OPV08: Modernization and construction of tram and trolleybus lines and the related maintenance base and infrastructure for low-emission buses and electric buses

Over the last decades, tram and trolleybus lines in Slovak towns as well as maintenance bases have only been maintained in the extent of the financial opportunities of carriers or in the scope of one-off modernization co-financed from EU funds. Thus, we lack systematic and heavy maintenance as well as regular reconstruction and the restoration of infrastructure. At present, it is necessary to realize the modernization of tracks using co-financing from EU funds. However in the future it will also be necessary to gradually introduce financial models in cities with track transport which shall provide for the financing of reconstruction of infrastructure without jeopardizing safety and the actual operation of public transport vehicles. It will be necessary to gradually implement smart stops and other information systems providing real-time information in order to adequately inform passengers about the actual departures and the traffic situation of PPT. In the case of proving the suitability and effectiveness, it will also be necessary to ensure the construction of the infrastructure of charging and filling stations with alternative fuels (e.g. CNG and LNG), especially in urban and suburban public transport in order to reduce greenhouse gas emissions, nitrogen oxides, particulate matter in urban areas and also reduce the noise level.

Organizational measures in rail transport

OPŽ9: Improvement of the conditions for combined transport and the operation of complete

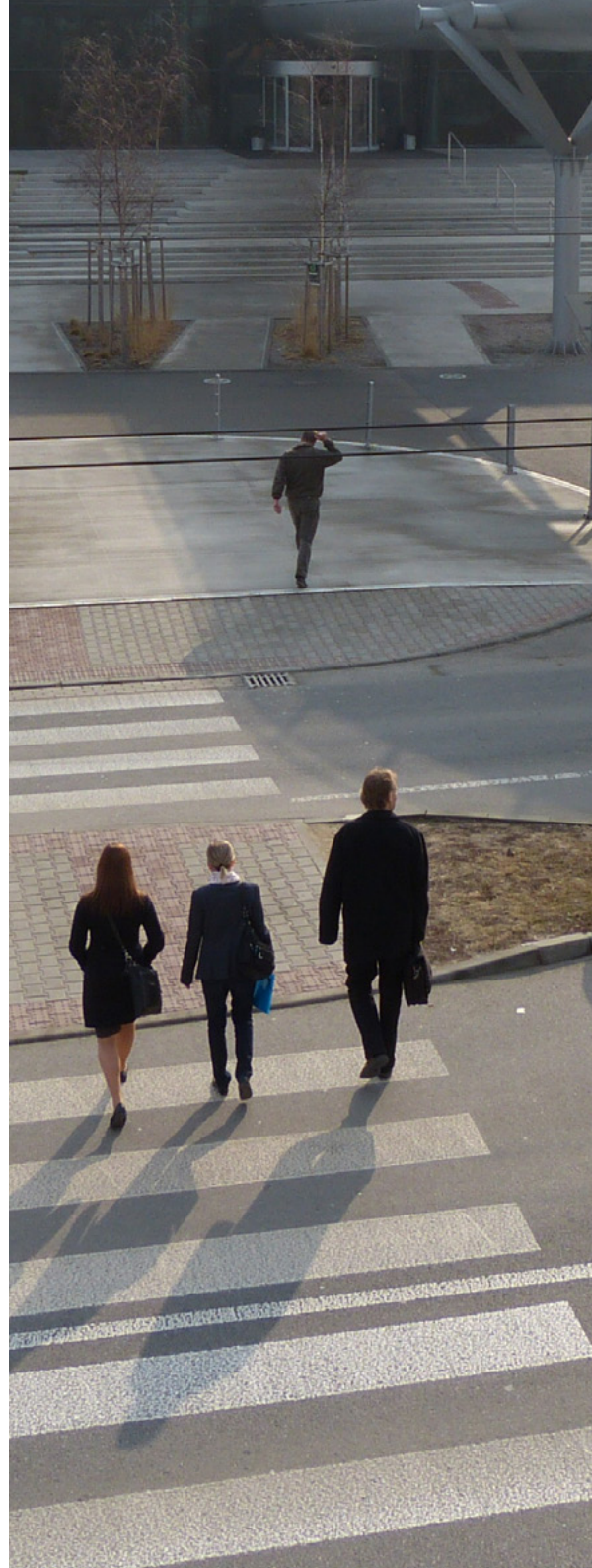
sets of freight transport and support for the interoperability of freight vehicles (organizational, infrastructure and vehicles)

Support for the development of combined transport, support for ensuring the interoperability of powered vehicles and the recovery of vehicles.

Construction of central dispatch centers, gradual modification of the safety equipment of tracks for the transition to central operation. Resolving and the restoration of construction of intermodal terminals.

The analysis shows that the potential for the development of freight transport lies in combined transport and unit trains. It is therefore necessary to promote and develop combined transport terminals and support the development of important points of loading goods on the railway. The aim is to facilitate the transfer of freight transport from road to rail and reduce the production of CO₂.

The model of the support of the operation of SWL (single wagon loads) will be subject to further partial strategies and documents, or the internal implementation strategy of the respective carriers, while the selected approach will respect the results of the demand analysis of the market for this segment as well as the financial possibilities of the state budget. For the Slovak Republic, it is very important to maintain or even increase the proportion of heavy goods transport from road to rail, also in the case of SWL. It is necessary to create such conditions so that the development of rail freight transport in this segment develops according to the rules which were set by the EU and are already in use within the EU. Based on experience from abroad it is necessary, in compliance with state aid rules, to analyze the possibilities of the support of small measures to contribute to the fulfillment of the objectives of the White Paper, that is to transfer 30% of road freight over 300 km to other modes of transport, such as to the railways or waterways by 2030.



Organizational measures in public passenger and non-motorized transport

Organizational measures in public passenger and non-motorized transport

To ensure the practical functioning of the system of public transport organization by organizers directly representing the state, region or city, it is necessary to establish a national transport authority. If the justification and feasibility are confirmed, a regional transport authority could be established in this way. This organization, in which the individual regions will be represented, will be responsible for the overall concept of transport services in Slovakia for long-distance and regional transport with an overlap in the urban and suburban transport system. It will ensure the application of uniform state social policy, the implementation and operation of the basic nationwide integrated transport system based on transport, physical, legislative, information and tariff integration with the supporting role of the railways. It will define the order for rail transport, selected connections or long-distance bus lines and part of the regional transport importance for nationwide serviceability or follow up to a long distance lines. It will also guarantee the application of the social policy of the State on the whole transport system, it will ensure a uniform nationwide tariff on railways and the connectivity of the various integrated transport systems. It will ensure the integration of public transport services on the nationwide level, operated under a public service contract and its coordination with commercially operated and international lines, whose national sections will be fully integrated into the national scheme. It may also become the owner of a part of the fleet of railways, purchased with investment subsidies, which will be leased to the carriers. The national transport authority should, in the context of the liberalization of rail passenger transport, also address the question of the operation of the connections associated with the liberalized track, regardless of whether it is rail or bus transport.

Operational measures in rail transport

OPŽ2: Determination of the operating concept of passenger transport by rail (as part of a nationwide

operating concept of public transport) and its plan of implementation until 2030 with a view to 2050

The establishment of a central coordinator and the organizer of public transport, creating a nationwide operational concept of public transport and its implementation plan. Currently, bus and rail passenger transport is not coordinated in Slovakia. There is a concurrence of buses and trains which results in inefficiency. In many places in Slovakia, the railway has potential to become the backbone of public transport, even without significant investment in infrastructure, but with the assumption of vehicle fleet renewal, which is currently considerably outdated in Slovakia.

OPŽ3: The completion of the implementation of the Target timetable 2020

The Target timetable 2020 primarily aims to improve transfer links on the railway by adjusting the times of trains in sequential transport, in particular through the removal of bottlenecks in the railway infrastructure preventing the introduction of a uniform timetable.

OPŽ6: The setting and implementation of the Target timetable 2030 - treatment of the cycle and the number of connections for connecting lines to the corridor Žilina - Košice and Kúty state border - Štúrovo / Komárno state border associated with the infrastructure changes to these lines

The construction of new passing tracks at locations as required by the operating concept. After the modernization of the track Žilina - Košice - Čierna nad Tisou and Kúty state border - Štúrovo / Komárno state border, a change in the time position of trains at connecting stations will occur due to the shortening of travel times. To ensure connections from feeder routes, it is necessary to determine the organizational and infrastructural measures on related lines. This only applies to shipping lines with potential for passenger transport.



OPŽ10: Centralization of operations management

Ensuring the implementation plan of centralized traffic management, preparation of the construction of the central dispatch centers. Construction of a central dispatch centers, gradual modification of the safety equipment of tracks for the transition to central operation.

OPŽ11: Rationalization of traffic on other lines with respect to the operating concept of passenger transport

Remaining railway network may or may not have the potential for the long-term provision of transport services in the area. Currently, there are multiple tracks maintained with irregular passenger transport or even without it, which is not a sustainable condition in the long-term. It is necessary to rationalize the operation of these lines and if they are not made use of for public transportation, it is necessary to look for other potential for them, such as tourist railways. During the process of the setting of rationalization measures, strategic and social aspects will also be considered in addition to economic and transport aspects.

Operational measures in public passenger transport

OPV03: Ensuring the possibility of fleet renewal in an adequate quality

It is difficult for carriers to deal with regular fleet renewal, especially in public transport. The national rail carrier ZSSK also does not have the means to deal with the restoration of vehicles, especially in suburban transport. For resolving the critical state, subsidies from EU funds were needed and will continue to be needed, but it will also be necessary to redefine the funding and operation of public transport (e.g. greater involvement of private carriers) so as to enable the renewal of the vehicle fleet from funds raised during normal operation from sales and compensation, even while demand for railroad vehicles is growing after the integration of public transport and strengthening the role of rail and tram.



DEVELOPMENT STRATEGY

This part of the document describes the strategy leading to the fulfillment of the vision of the transport sector of the Slovak Republic and the simultaneous removal, or minimizing of the problems identified by the analysis.

The custom strategy is presented as so called strategic principles, which are formulated on the basis of the synthesis of knowledge gained in the process of preparing this material and indicating a clear direction for the development of all areas of the transport sector of the Slovak Republic.

The compilation of the strategic principles is based on a multimodal approach to the transport system, reflecting the strong links between infrastructure, organizational and operational components. It reflects the issues and objectives of the transport sector in general terms and at the same time takes into account the outcomes of the strategic review of the individual measures which were aimed at their efficiency - in terms of the impact on the transport sector and related investments.

This approach ensures the defining of the development activities of the transport sector in a manner that completely transparently leads to the fulfillment of the highest strategic level, i.e. the vision and global strategic objectives.

Basic requirements for the implementation of systemic measures

Setting the principles of sustainable financing of the transport sector

Principle nr. 1 Setting up a sustainable financing of the transport sector is an essential precondition for its further sustainable development. The initial step must be the processing of a detailed, realistic plan for the sustainable financing of the transport system of the Slovak Republic which takes into account current and new possibilities of its financing (using principles of structured finance).

Principle nr. 2 Parameters ensuring the sustainability of the existing transport infrastructure must be set by the priority objective of the plan of sustainable funding for the

transport sector. This is represented mainly by the secured financial coverage of the operation, maintenance and repair (including disposal of the existing domestic debt for the maintenance of the transport sector), provided the stabilization of national financial resources. New investment construction must not interfere with this requirement even at the cost of its lower growth.

Principle nr. 3 Financial revenue from payments for the use of transport infrastructure should be redistributed by the individual management entities, primarily for the maintenance and repair of infrastructure. The secondary criterion should be the targeted redistribution of potential surplus in order to contribute to the amortization of the internal debt maintenance.

Principle nr. 4 Due to the budgetary possibilities of the Slovak Republic and the capital needs related to the development of transport infrastructure, which is part of the TEN-T network, it is necessary to negotiate co-financing by the European Union for the next period.

Periodic preparation and implementation of plans for the maintenance of transport infrastructure

Principle nr. 5 With regard to growing transport demand and the inadequate performance of maintenance in recent years which resulted degradation of infrastructure, it is necessary to prepare detailed plans for repairs and maintenance for all transport modes. These plans must contain, in addition to setting the standard financial requirements for operation and maintenance based on the relevant technical conditions, as well as the breakdown of the financial needs related to the amortization of the internal debt maintenance.

Principle nr. 6 The maintenance plan must constitute one of the inputs into the preparation of plans for the sustainable financing of the transport sector. Adherence to the approved maintenance plans and their financial allocations should be thoroughly treated by legislation.



The process of the preparation and implementation of development projects, including related activities

Principle nr. 7 In the process of preparing the project plan certain orders and rules should be followed that define the best solution for its implementation. Equally important is the simplification and improvement of the quality of project preparation, which consists of the following:

Conceptual preparation:

- forecasts, surveys
- conceptual studies (studies of the possibilities and opportunities) - variant solution
- feasibility study (FU), including the selection of an appropriate route taking into account the interests of environmental protection and human health, protected areas and Natura 2000 sites
- preparing amendments of land use plans and the assessment of their cumulative environmental impact through strategic evaluation in accordance with Section 4 para. 1 of Act No. 24/2006 Coll.
- territorial technical study, the basis for the documentation of the building plan
- preparation of the investment - producing of documentation
- documentation of the building plan of the selected options
- documentation to assess the impact of the construction on the environment (EIA)
- documentation for the zoning permit
- documentation for the building permit
- realization of investments - construction of buildings
- documentation for the carrying out of the construction, for the selection of a contractor
- realization of construction
- documentation of the actual execution of the construction

The need for the implementation of all the above steps must be assessed in cooperation with the competent au-

thorities. Follow-up documentation, which should be prepared, should be considered at the systemic level - some steps may be combined in order to improve and optimize the authorization procedure.

In more complex cases, it can be conversely complemented by various additional forecasts and surveys. In the preparation of various infrastructure projects, it is necessary to choose the route with respect to protected areas, Natura 2000 sites and valuable landscape elements and assess land use management at the level of territorial plans of the SEA process.

Principle nr. 8 In connection with strategic guideline 7, it is necessary to define the categories / types of projects with the required range of documentation in the conceptual stage of preparation. Failure to comply with the required scope and timeline of the conceptual preparation does not allow the transition to the phase of the preparation of the investment. The set out requirements of the scope and sequence of the individual steps of the conceptual preparation must be, along with the recommended methodology for their treatment, enshrined in the relevant regulations that govern this issue.

Completion and ongoing maintenance of the databases of individual subsectors

Principle nr. 9 With regard to the lack of input data enabling the detailed planning of the development of the transport sector, it is necessary to set up the processes through which the needed databases will be adequately secured, maintained and updated.

Principle nr. 10 For each transport sub-sector, it is necessary to compile a list of the databases necessary for its effective management, optimization functions and planning its development. Building on these lists, comprehensive plans for the collection, evaluation, updating and archiving of these data, including details of individual data items and their attributes will be prepared. Acquired entries will be included in the „Plan of supplementing, maintenance and updating of databases of the transport sector and the



creation of a central database of transport, economic and financial data of the sector.“

Principle nr. 11 The obligation to collect, integrate, periodically update and archive data sets, as defined by strategic guideline No. 10, or by „The plan for the supplementing, maintaining, and updating of the databases of the transport sector and the creation of a central database for transport, economic and financial data of the sector“, must be set minimally at the level of the internal regulations of the concerned bodies and organizations.

Enhancements to the functionality and the management of the multi-modal transport model of the Slovak Republic

Principle nr. 12 The strategic transport model of the Slovak Republic and its quality, or explicitness, is directly related to the extent and quality of the input data. It is therefore necessary to provide a comprehensive list of requirements for the input data for the needs of the transport model, and in accordance with strategic guideline No. 10, to incorporate them into the plan for the completion, maintenance and updating of databases of the transport sector.

Principle nr. 13 With regard to the data requirements associated with updates and modifications of the transport model, it is necessary to ensure interoperability across departments and thus guarantee obtaining data falling outside the transport sector (demographic data, economic indicators, etc.). Access to data from both the public and private sector for passenger and freight transport must be ensured.

Principle nr. 14 For the purposes of the use of the strategic model of transport of the Slovak Republic, it is necessary to ensure its regular updating. The period of these updates must be set in accordance with the Plan for the supplementing, maintenance and updating of databases of the transport sector, and be its integral part.

Principle nr. 15 In the context of future modifications of the transport model, it is necessary to ensure the full

integration of all transport modes, passenger and freight transport into a common transport model.

Regular updating of strategic and development documents

Principle nr. 16 Following the periodic updating and maintaining of databases of the transport sub-sector, all key strategic and development documents should be regularly evaluated and subsequently updated. In particular it concerns the updating of the:

- Implementation plan of the Strategy of transport development of the SR by 2030;
- Plans for financing the transport infrastructure;
- Plans for the maintenance of the transport infrastructure;
- Plan for the supplementing, maintenance and updating of databases of the transport sector;
- Monitoring reports of the impacts of transport on the environment and population;
- Safety audits of transport infrastructure;
- Strategic transport model of the SR

and other documents that must be listed for these needs across the transport sector.

Principle nr. 17 For each of the documents mentioned in the list processed according to strategic guideline 16, the update period must be fixed, whose adjustment shall be in accordance with the updating of the databases. Furthermore, the entity and its organizational unit / component, which is responsible for the updating of the given document and its archiving must be clearly defined.

Regular monitoring of noise and air quality and the implementation of measures reducing the negative impacts of transport on the environment

Principle nr. 18 For the purposes of the effective implementation of measures with a potential impact on the environment, uniform rules and parameters of the regular monitoring of noise and air quality, monitoring of mortality on roads and railways and the mapping of the migration



corridors of the animals, must be set, supplementing the measures that prevent collisions and measures allowing migration to the current infrastructure (ecoducts, wide under-bridge spaces and culverts with dry banks, fences and barriers against the amphibians, together with passages). From the perspective of a substantive nature, these rules must be set in accordance with the standards that govern the given issue. The obligation of periodic implementation of environmental monitoring should be enshrined in legislative standards and consistently required.

Principle nr. 19 The outcomes of environmental monitoring carried out in accordance with strategic guideline 18 will be the starting basis for the design and implementation of technical measures (noise barriers, bypasses around cities, etc.) and any technical proposal will be documented within the EIA process.

Principle nr. 20 When planning new ones or the reconstruction and renewal of existing parts of the transport infrastructure, its requirements must be reflected and its technical parameters defined after the establishment of the „National policy framework for the implementation of infrastructure for alternative fuels and common technical specifications“. The support of the commercial sector to supplement the existing energy transport infrastructure and the infrastructure for alternative fuels must occur simultaneously with this process. Therefore, it is also necessary to implement, including support measures, the Directive of the European Parliament and Council Directive 2014/94 / EU on the implementation of infrastructure for alternative fuels and the European strategy for low-emission mobility and continuously monitor the milestones laid down therein, so that emission targets for 2050 are able to be met.

Regular safety audits and the implementation of measures increasing transport safety

Principle nr. 21 In order to meet the European Commission's objectives directed towards the area of transport safety, it is necessary to regularly carry out safety audits of the transport infrastructure and carry out corrective measures on this basis. Audits should be carried out in

accordance with international methodologies enabling the comparison of results across EU Member States (in road infrastructure e.g. the EuroRAP Methodology). The obligation of the periodic implementation of infrastructure safety audits should be enshrined in legislative standards and consistently required.

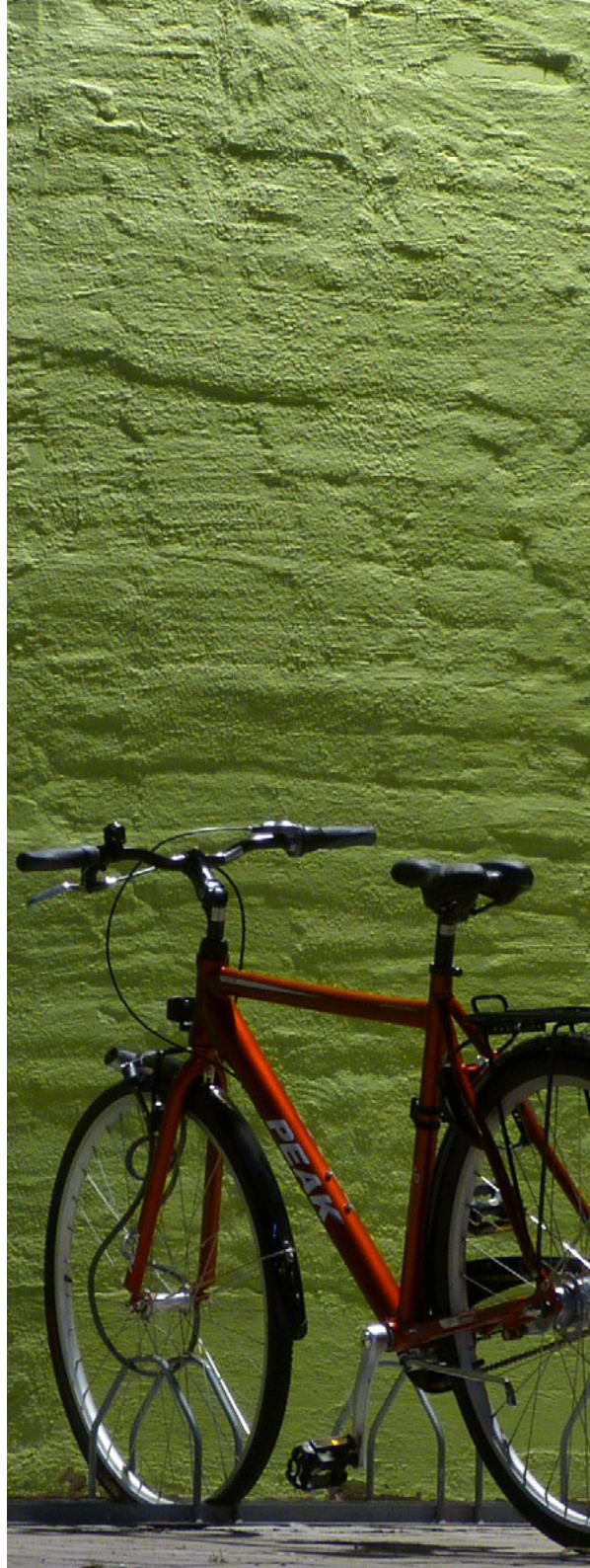
Principle nr. 22 Given the fact that part of the transport infrastructure falls within the so-called critical infrastructure and at the same time, that the transport infrastructure is often the target of terrorist attacks, it is important to ensure safety parameters, not only on the part of the operation, but also on the side of safety and security. Special attention must be paid to the recent acceptance of international standards in the field of railway transport and civil aviation.

Development strategy in the field of infrastructure

Principle nr. 23 Due to the significant amount of investment and operational needs required to assure the sufficient capacity and sustainable infrastructure of the transport sector of the Slovak Republic, it is necessary to spend these resources using all the guidelines of effective planning in order to maximize their benefits. The securing of national and international accessibility of the Slovak Republic in the area of passenger and freight transport should be approached in this way.

Principle nr. 24 With regard to the dates of completion of the TEN-T infrastructure set up by the European Commission, it is necessary to continue in their preparation and implementation with maximum deployment. Priorities should be set taking into account the above listed assessment outcomes, their potential benefits and effectiveness. Technical design parameters must meet not only the requirements for the TEN-T infrastructure, but correspond to real needs.

Principle nr. 25 An important direction of the development of the transport infrastructure in the medium term will be the area of public transport and its preferences, with the necessary overlays in rail and road infrastructure.



In this context, it is necessary to define the optimal target value of the division of transport labor in the Slovak Republic, as part of transport policy. In response to this target value, to determine the tools and steps to achieve it. For each project in the area of transport infrastructure, where feasible and practicable, it is necessary to assess its transport induction and contribution to changing the division of transport labor in favor of environmentally and economically more acceptable modes of transport. In long-distance passenger and freight transport, it is especially important to focus on the completion of the modernization and increasing the capacity of major corridor railway lines and developing the capacity of road infrastructure supported by intelligent transport system technologies.

Principle nr. 26 Support for multi-modality in passenger and freight transport should be an important aspect of the implementation of infrastructure development projects. The development of road and rail infrastructure must support not only these transport modes together, but also prepare the conditions underpinning the effectiveness of investments expended on measures in inland waterway transport and civil aviation.

Principle nr. 27 Due to the high contribution of many of these infrastructure measures on the one hand, but the significant difference of their potential to meet strategic objectives on the other hand, it is necessary to take into account in the decision-making process on the preparation and implementation of individual buildings the possibilities of the division of measures into sub-measures (considering transport logic, the level of completion, the state of preparation, etc.) and prioritize those that exhibit an increased potential to meet the strategic objectives and constitute a better „value for money“.

Principle nr. 28 Preparation of the development plan of an intelligent transport system (INTS) and its implementation plan must be one of the major priorities of the design preparation in this area. The development of road transport infrastructure must then be, in accordance with this plan, accompanied by the deployment of intelligent transport system technologies, as these have a high cost efficiency and potential benefits. Given the current range of

the transport network and the method of its use, not only highways and expressways, but also first-class roads must be equipped with INTS technology. Information from INTS must be processed, extracted and distributed through the National Traffic Information System on the central level.

Principle nr. 29 An integral part of the construction, repair and reconstruction of the network of highways and roads must be the construction and modernization of existing rest stops. Implementation of the construction and reconstruction must be in line with the Concept of the placement of rest areas on motorways and expressways in the Slovak Republic.

Principle nr. 30 Class I and Class II roads that are outside of the route survey network TEN-T, must be modernized and exhibit sufficient capacity and safety parameters. This concerns, for example, Class I roads Nos. I/10, I/51, I/64, I/66, I/68, I/74, I/75 and I/79. In accordance with strategic guideline No. 28, part of the modernization must also be the equipping of roads with INTS technologies.

Principle nr. 31 Given the large contribution of the majority of these infrastructure measures on the one hand, but the significant difference of their potential to meet the strategic objectives on the other hand, it is necessary that priorities of clients of public transport and commercial operators of passenger and freight rail transport are taken into account in the decision-making process on the preparation and implementation of individual buildings.

Principle nr. 32 It is necessary to prioritize the modification / modernization of those tracks or measures with which the perspective possibility of long-term contracting of the carrier is related. These factors must be reflected in the operational concept in a manner ensuring the minimization of long-term closures because of adjustments to the transportation infrastructure. Setting the priorities in relation to the performance of interoperability must also reflect the importance of individual lines and the international obligations of the Slovak Republic.

Principle nr. 33 Available funds should also be sought, inter alia, through the rationalization of operations and the



related restructuring of the railway network in the Slovak Republic, while maintaining the quality of transport services in the territory as a whole. Strategic guidelines Nos. 34-36 and 41 - 44 should also be respected.

Principle nr. 34 Given the ever-growing demand for transport in passenger transport, it is necessary in relation to the operational sustainability of the transport system of the Slovak Republic, to consistently focus on the development of public transport infrastructure. The quality of infrastructures and related services is a factor influencing their attractiveness and acceptability to the public.

Principle nr. 35 The development of public transport infrastructure must take place in a coordinated manner at all levels - from the city, to regional and long-distance transport. Coordination of services at the interface of different levels is another prerequisite for its acceptability.

Principle nr. 36 The implementation of the stated strategic priorities at various levels must be done in accordance with the outputs of the relevant plan of sustainable mobility and under the coordination of the transport authority or transport authorities.

Principle nr. 37 Support for water transport infrastructure is one of the important preconditions for the further development of multimodal freight transport. However, the implementation of individual measures must be performed exclusively with regard to the potential future demand and in close coordination with the development of the adjoining road and rail infrastructure. Fulfilling the objectives and measures in the field of water transport must take place in accordance with the environmental objectives of the Water Plan of Slovakia, or as the case may be the Water Framework Directive. Given the significance of the potential negative impacts of water transport projects, the actual implementation must be preceded by a thorough feasibility study that will assess the impact on the achievement of the objectives of the Water Plan of Slovakia, or as the case may be the Water Framework Directive and propose measures for the elimination or minimizing of the negative impacts on water quality and water management.

Principle nr. 38 An important priority for the development of water infrastructure is ensuring the required parameters of the navigability of the fairways of the Danube waterways and modernization in terms of freight traffic of prospective public ports. It is necessary to ensure the close temporal continuity of the implementation of both of these measures, so that they are completed together in one time frame.

Principle nr. 39 Civil aviation forms a significant part of the transport system covering the area of passenger and freight transport, especially in terms of the cross-border availability of the Slovak Republic. It is necessary to respond to the increasing competition in this sector through the corresponding modernization of infrastructure and providing services along with providing adequate information support.

Principle nr. 40 The availability of aviation infrastructure for other transport modes must be the initial priority in relation to strengthening multi-modality in passenger and freight long-distance cross-border transport.

Principle nr. 41 The planning and development of the transport system itself must be approached in a comprehensive manner and systematically combine the implementation of measures from the area of the organization and operation of infrastructure measures.

Principle nr. 42 The determination and implementation of new operating concepts and the target timetable until 2030 is, together with the implementation target timetable of 2020, the main operational priority for rail transport in the Slovak Republic.

Principle nr. 43 The effective and sustainable development of road infrastructure must be accompanied by organizational changes, on the side of the principles of ensuring its maintenance and management. This is mainly a change on the part of the financing of materially relevant organizations (see systemic measures), the technical background and the operational responsibilities arising from this.



Principle nr. 44 The development of a multimodal concept of transport infrastructure must be accompanied by organizational and operational changes. In passenger transport, this is mainly the establishment of the National Transport Authority (single or multi-level) and its activities, multimodality in freight transport needs to be supported by improvements in the fundamental principles of its operation, the organization and by ensuring public support for the construction of multimodal public logistic centers. The common denominator is the need for organizational changes towards optimizing transport networks of individual modes, as concerns the scope, functionality, availability and serviceability.





CONCLUSION

The draft Strategic plan for transport development of the Slovak Republic until 2030 is based on current knowledge related to the state of the transport sector in the area of the organization, operation, infrastructure, etc. In the wake of European trends and the commitments of the Slovak Republic, a target vision the fulfillment of which will minimize the current problems of effective development of the transport sector was proposed. This will result in a strengthening of economic growth and social integration of the Slovak Republic in the framework of the European Economic Area, accompanied by an increase in the quality of life.

This document continuously follows up on the outputs of the so-called 1st phase of preparation of the transport strategies and developed its outputs into a comprehensive, systematically processed form. Within the analytical part, new data and information inputs have already been incorporated, which were referred to as the key documents required for the successful implementation of the so-called 2nd phase of preparation of the transport strategy during the 1st phase. It was also the same with the principles of its preparation, when the universally valid principles of the formation of strategic development documents were strictly adhered to.

The analytical part was thus elaborated and developed, while focused on identifying the problems of the transport sector in its key areas, as well as the strategic and design part. Emphasis was also placed on the transparent interconnection of the individual levels of strategy, the clear interlinking of the analytical and design part and last but not least on the clear definition of the boundaries for the follow-up preparation of a strategy implementation plan.

The implementation plan must include a definition of projects and activities aimed at fulfilling the target vision in the form of a financing plan, while respecting the set strategic development principles of the transport sector. An important aspect of its preparation must also be a direct link to the real needs and possibilities of the Slovak Republic, ensuring its viability.

The development of the transport sector of the Slovak Republic must be seen as a long-term, continuous activity, representing, in addition to a gradual increase in the performance of the economy, also the growth and deeper integration of the Slovak Republic in global economic structures. The consistency of the performance of the individual steps and the strategic guidelines of this document then directly affects not only the achievement of the vision set out at the given time, but also the efficiency of the process as a whole. At the same time it should be noted that the consequences resulting from this affect not only the present, but especially future generations. It is also very important to ensure the continuity of the planning process through the regular updating of important strategic and development documents provided the creation or strengthening of the analytical capacity and performance of the necessary actions of the relevant divisions of the MTC SR. This creates favorable conditions for improving the assessment of the impact of transport policy, as well as the adoption of strategic decisions.



List of abbreviations

B+R	Bike and Ride
BRT	Bus Rapid Transit
CEF	Connecting Europe Facility
CNG	Compressed Natural Gas
EC	European Commission
EU	European Union, The
HTU	Higher Territorial Unit
ICT	Individual Car Transport
INTS	Intelligent Transport System
ITS	Integrated Transport System
K+R	Kiss and Ride
LNG	Liquefied Natural Gas
MTC	Ministry of Transport and Construction, The
P+R	Park and Ride
PPT	Public Passenger Transport
PT	Public Transport
REX	Regional Express (train category)
RFC	Rail Freight Corridor
RS	Road Signalling
SEA	Strategic Environmental Assessment
SR	Slovak Republic, The
TEN-T	Trans-European Transport Network
TRI	Transport Research Institute
ZSSK	Železničná spoločnosť Slovensko, a. s. (operator)

Better and safe transport thanks to the European Funds

The Operational Programme Integrated Infrastructure is a programming document produced by the Slovak Republic to draw an aid from the funds of the European Union in transport and IT sector in years 2014 - 2020 (Cohesion Fund, European Regional Development Fund). The main goal is to foster sustainable mobility, economic growth, job creation and improving the business environment by the process of the development of transport infrastructure, public passenger transport and information society.

The investments until 2020 are supposed to eliminate bottlenecks and missing links of the essential transport infrastructure at the national and international level with a special emphasis given to sustainable, ecologically effective and efficient transport infrastructure.

The OPII was approved by the European Commission on the 28th of October 2014. The baseline for the operational programme was the Strategic Plan of Road Infrastructure Development until 2020 approved by the Government of the Slovak Republic on the 26th of June 2014. Furthermore, the OPII development process encompassed other relevant documents, their strategies and priorities leading to transport policy goal achievement.

The areas to be fostered by the OPII:

- Railway infrastructure modernization and development;
- Road infrastructure modernization and development;
- Water infrastructure modernization and development,
- Public passenger transport development and
- Building an information society.

OPII's total budget is € 4,666,641,621 (including national co-financing) for the 2014-2020 period. The Ministry of Transport and Construction (MTC) appropriates EU funds and funds from the national budget for major transport projects such as construction of motorways and expressways, upgrading of first class roads, modernisation of railways, purchasing of new trains and ecofriendly public transport vehicles or urban integrated transport systems, but also for projects in the field of water transport, and informatisation of society.

www.opii.gov.sk/eng | www.mindop.sk



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