

Ministry of Transport and Construction of the Slovak Republic  
Námestie slobody 6, 810 05 Bratislava

**National implementation plan for the technical specification of interoperability related  
to infrastructure of the rail system of the European Union**

## **Legislative Background**

In order to achieve a common transport policy for the interoperability of national rail systems, it is necessary to harmonize technical, administrative and safety rules. In order to ensure the interoperability of the Community's railway system and to enable the EU citizens, economic operators or competent authorities to take full advantage of the existence of the Single European Railway Area, EU legislative instruments have been developed, including Directive 2008/57/EC of the European Parliament and of the Council on the interoperability of the rail system within the Community. In order to pursue the defined objective of interoperability, the level of technical harmonization should be optimized and the improvement and development of international rail transport services should be facilitated and it should be contributed to the progressive establishment of the internal market for equipment and services for the construction, renewal, modernization and operation of the Union rail system. By the Interoperability Directive, as an essential tool for technical harmonization, individual subsystems have been introduced, as well as the obligation to develop a technical specification for interoperability (hereinafter referred to as "TSI") for each subsystem. Based on the above obligation, the Commission Regulation (EU) No. 1299/2014 on the technical specifications for interoperability relating to the 'infrastructure' subsystem of the rail system in the European Union was adopted. Under the Directive, the infrastructure subsystem includes railways, engineering construction (bridges, tunnels, etc.), associated infrastructure - stations, platforms, access zones, including facilities for persons with reduced mobility, etc., safety and protective equipment subject to technical, administrative and safety harmonization. The aforementioned Directive of the European Parliament and of the Council 2008/57/EC on the interoperability of the rail system within the Community was rewritten as part of the fourth rail package by Directive (EU) 2016/797 of 11 May 2016 on the interoperability of the rail system within the European Union which took over the same subsystems.

At national level, there was the harmonization with Directives performed in particular through the adoption of Act No. 513/2009 Coll. on railways and on amendments and supplements to certain acts, as amended. The implementing regulation to the Act is the Decree of the Ministry of Transport, Posts and Telecommunications of the Slovak Republic No. 350/2010 Coll. on the Construction and Technical Regulations of Railways, the subject of which is the modification of the details of the technical-safety test of constructions, construction-technical requirements for the design of railways and their construction and operation, technical parameters of the railways.

## Current condition

Development of railway infrastructure in the Slovak Republic is based on basic international agreements AGC and AGTC (European Agreement on Main International Railway Lines and European Agreement on Important International Combined Transport Lines and Related Installations). With the integration of the network of Slovak Railways (ŽSR) into European transport routes, ŽSR has also taken on the obligation to respect international agreements and technical requirements that guarantee the possibility of further development and compatibility with the surrounding railway administrations. Strategic goals of railway infrastructure development are aimed at increasing line speed, modifying stations and stops, or building interchanges. After the line adjustments, the highest speed of train sets reaches 140 to 160 km/h.

Currently, several public procurements take place for the selection of contractors for project documentation and implementation of the following projects:

*Modernization of the line Devínska Nová Ves - Kúty - state border of the SR - CR, section of railway station Devínska Nová Ves (excluding) – railway station Malacky (including) – railway station Kúty (excluding) – state border SR/CR*

The subject of the project is the modernization of the railway line (including the ERTMS system) in the section of railway station Devínska Nová Ves (excluding) – railway station Malacky (including) and railway station Kúty (excluding) – state border SR/CR and radio communication system GSM-R in the section Malacky (excluding) - Kúty (including) to the speed of 200 km/h. It is especially important to increase the line speed to 200 km/h, full peronisation of railway stations and stops, including the provision of elevated access (including comprehensive access for the disabled persons and persons with reduced mobility), modern voice and video information systems, coordination with preparation and construction of interchange terminals of the integrated transport and car parks by self-government and ŽSR. Overall, the elimination of level crossings with roads will increase safety of transport, modernize station and track equipment, fixed traction equipment, reduce the negative effects of the track on the environment (noise barriers, vibration reduction). Standard 750 m long freight trains will be allowed to run along the route and the railway station equipment will be innovated for freight transport. An important part of the construction is the border bridge over the Morava River.

*Modernization of the line Liptovský Mikuláš – Poprad, section of railway station Lučivná – Poprad (excluding)*

The subject of the project is the modernization of the railway line (including the ERTMS system) in the section of Lučivná - Poprad (excluding) to the speed of 160 km/h. It is especially important to increase the maximum speed to 160 km/h, full peronisation of railway stations and stops, including the provision of elevated access (including comprehensive access for the disabled persons and persons with reduced mobility), modern voice and video information systems. Overall, the elimination of level crossings with roads will increase

safety of transport, modernize station and track equipment, fixed traction equipment prepared to the change of traction to 25 kV, 50 Hz, reduce the negative effects of the track on the environment (noise barriers, vibration reduction). Standard 750 m long freight trains will be allowed to run along the route and the overall railway station equipment will be innovated for freight transport.

### **Projects that are at the late stage of construction or completed:**

#### *Modernization of the line Púchov - Žilina*

Modernization project for the Line Púchov - Žilina, for the line speed of up to 160 km/h was divided into two stages. I. stage is at the line section Púchov - Považská Teplá and the II. stage Považská Teplá (excluding) - Žilina (excluding), 2. phase section Dolný Hričov - Žilina.

#### *I. stage of the line section Púchov - Považská Teplá*

The project of modernization of the 18.7 km railway track between the towns of Púchov and Považská Teplá in Slovakia will allow trains to travel at speeds of up to 160 km/h. The modernization includes a 15% reduction of the railway track to 15.9 km and the construction of two tunnels and three main bridges. The result will be a reduced travel time between the towns of Púchov and Žilina. The project also includes the modernization of two railway stations, namely in Považská Teplá and Považská Bystrica. The project contributes to the construction and modernization of the Trans-European Transport Network (TEN-T) and its corridors, several of which cross the territory of Slovakia.

Works carried out on the section between the towns of Púchov and Považská Bystrica include the construction of a new train stop in Nosice together with two platforms with a length of 250 m (the original train stop will be taken out of service). The new railway bridges will be built across the Nosický Canal (379 m long), the Váh River (288 m) and the Nosická Dam (589 m). In addition, two new tunnels will be built: the Diel tunnel (1,082 m long) and Miločov (1,861 m long), as well as a new pedestrian bridge across the Nosický Canal. Modernization of the section between the towns of Považská Bystrica and Považská Teplá includes removal of level crossing and its replacement by a new flyover, and also the construction of a new train security equipment between Považská Bystrica and Plevník-Drienové. On both sections, a new overhead contact line will be installed that meets the requirements of the ŽSR railway network and is suitable for train speeds of up to 160 km/h. The project includes also structural changes of existing roads or the construction of new roads, as well as construction of noise barriers.

During the modernization of the railway station in Považská Bystrica, changes were made to its horizontal and vertical alignment, so that trains could pass through it at an increased speed. The station has maintained all of its current basic functions, including the management of consecutive trains, train despatch, loading and unloading of goods, and

sidings. Other proposed changes for this station include: passing tracks with a length of at least 750 m; side platform at the platform No. 3 and the island platform with elevated access between tracks No. 4 and 8. In addition, a sub-level access will be built on one platform. Modernization of the railway station in Považská Teplá included the construction of new platforms and two new side platforms, the construction of a pedestrian underpass and the installation of a new line signalling equipment. After the implementation of works, the station was requalified to a train stop.

As part of the project in the section between Púchov and Považská Bystrica, a new telecommunication system, including digital data transmission, will be provided. Completion and hand-over of the construction is planned on January 2021.



Figure 1: Railway line in the section Púchov (excluding) - Považská Teplá (including)

## *II. stage Považská Teplá (excluding) – Žilina (excluding), 2. phase Dolný Hričov - Žilina*

The subject of modernization included the existing 8.8 km long double track to the speed of up to 160 km/h. The aim of the construction was to modernize the technical infrastructure of the line in the given section, which is part of the TEN-T network and European Rail Corridor No. V, in order to achieve parameters pursuant to legislation of the European Community. The project also included the modernization of the station in Dolný Hričov and the stop in Horný Hričov, where new elevated platforms were built for passengers and the public with elevated access and a new automated audiovisual information system. The modernization also included the construction of a new signalling system, which enables the safe running of trains at the speed of up to 160 km/h. The total length of the modernised

section, including stops, points and railway stations, is 22.7 km. 6 new railway bridges were built, 9 existing ones were reconstructed, 5 new road bridges and 5 new underpasses were built. In accordance with a noise study, 12 km long noise barriers are built to protect the population from the adverse effects of traffic. The construction was completed on 31 December 2017. The occupancy permit procedure was opened on 13 June 2019.



Figure 2: Modernized railway station and line in Dolný Hričov

## Conclusion

Interoperability is an essential prerequisite for the functioning of the integrated trans-European conventional rail system. Interoperability means the ability of this system to allow the safe and uninterrupted movement of trains of different carriers that meet the basic parameters established for these selected tracks. To achieve this goal, all regulatory, technical and operational conditions set out in the relevant EU directives and regulations must be met.

The reasons why interoperability is needed are mainly of a security, economic and commercial nature. The competitiveness of the rail system currently depends on differences between Member States in terms of material, technology, signals, safety rules, braking systems, traction current and speed limits. International trains that cross many states are forced to stop at the border crossing points of neighbouring states in this situation where there are systemic differences.

Interoperability is one of the absolutely essential factors for the revival of rail transport and the consistent balancing of the transport market. Thanks to the interoperability and construction of the rail sector, which is legally and technically integrated and commercially competitive, the objective of reducing road congestion, while reducing pollution and clear environmental benefits, becomes real.

The Slovak Republic intensively deals with the issue of interoperability and emphasizes it in the modernization of rail transport, but also its transposition and implementation into national legislation. The fulfilment of the requirements of the TSI is the basis for enhancing the quality, availability and unification of the European rail system.

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Written by:

Ing. Eva Ďurišová 

Approved by:



JUDr. Andrea Horváthová  
Director of the State Railway  
Administration Department



Ing. Ján Farkaš  
Director General of  
the Rail Transport and Railways Section