



REPUBLIC OF SLOVENIA
MINISTRY OF INFRASTRUCTURE
SLOVENIAN INFRASTRUCTURE AGENCY

 *Investing in your future*
OPERATION PART FINANCED BY THE EUROPEAN UNION
Cohesion Fund



THE PRAGERSKO—HODOŠ RAILWAY LINE

PHOTOBOOK







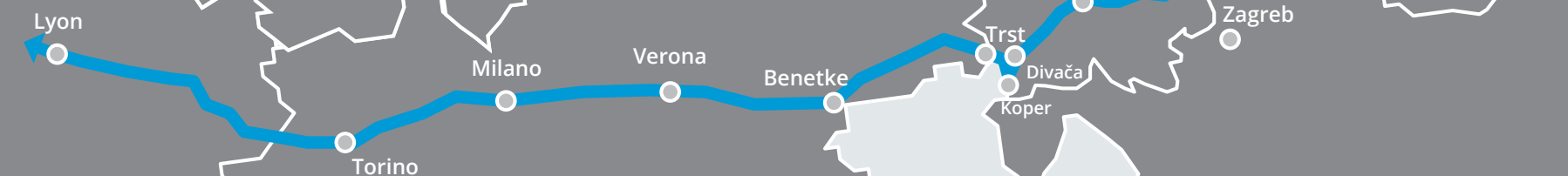
MODERNISATION OF THE PRAGERSKO–HODOŠ RAILWAY LINE

The modernisation of the railway line on the Pragersko–Hodoš section was one of the priorities in establishing a competitive railway connection with Eastern Europe. The Pragersko–Hodoš line is an integral part of the Mediterranean Corridor and the Lyon–Trieste–Divača/Koper–Divača–Ljubljana–Budapest–Ukrainian border railway axis, which represents TEN-T Priority Project No. 6. The fastest possible development of the relevant railway axis is determined as the priority of the European Union. The Pragersko–Hodoš line was the only section of the transport corridor not yet electrified.

The project to modernise the Pragersko–Hodoš line was implemented in two phases.

Phase 1 included the reconstruction, electrification and upgrading of the line for speeds up to 160 km/h, which provided conditions for increasing train speeds.

Phase 2 encompassed the modernisation of level crossings and construction of underpasses at railway stations.



PROJECT FINANCING

The project represented the largest infrastructural investment in the field of railway infrastructure in the 2007–2013 financial framework. After the completion of the project, the Pragersko–Hodoš–state border line is now one of the most modern railway lines in Slovenia. The entire investment amounted to EUR 465 million, and the European Union contributed EUR 231.1 million from the Cohesion Fund.





RECONSTRUCTION, ELECTRIFICATION AND UPGRADING OF THE PRAGERSKO–HODOŠ LINE FOR SPEEDS OF UP TO 160 KM/H

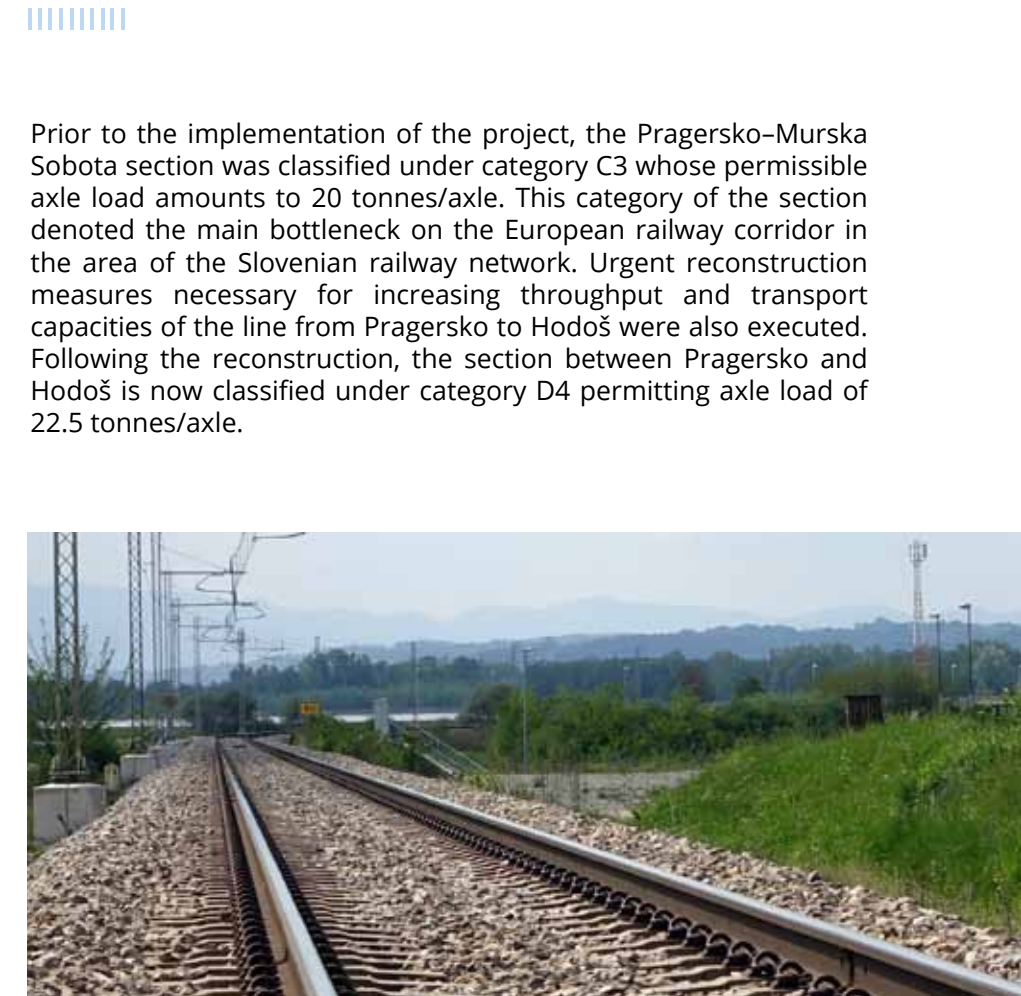
The first phase, which included reconstruction, electrification and upgrading of the railway line, was implemented in three stages:

The electrification of the line in the total length of 109 kilometres was implemented within **the first stage** between 2013 and 2016. Five substations were also constructed during this stage.

The second stage took place between 2009 and 2015, and involved the reconstruction and upgrading of the railway line, including measures on individual sections and stations. Category D4 was thus enabled on reconstructed and upgraded line sections and stations, and train speeds have also been increased.

The third stage of activities implemented between 2013 and 2015 encompassed measures to prevent excessive impacts on the environment. All areas affected by noise pollution were protected with noise barriers over a total length of 13.5 kilometres, and passive noise protection for 145 buildings was implemented.





|||||||

Prior to the implementation of the project, the Pragersko–Murska Sobota section was classified under category C3 whose permissible axle load amounts to 20 tonnes/axle. This category of the section denoted the main bottleneck on the European railway corridor in the area of the Slovenian railway network. Urgent reconstruction measures necessary for increasing throughput and transport capacities of the line from Pragersko to Hodoš were also executed. Following the reconstruction, the section between Pragersko and Hodoš is now classified under category D4 permitting axle load of 22.5 tonnes/axle.

Travel times (due to shorter transport times) were also shortened, i.e. by:

- 22 minutes in the Pragersko–Hodoš direction or 20 minutes in the Hodoš–Pragersko direction for direct passenger trains,
- 36 minutes in the Pragersko–Hodoš direction or 37 minutes in the Hodoš–Pragersko direction for local passenger trains, and
- 40 minutes in the Pragersko–Hodoš direction and 40 minutes in the Hodoš–Pragersko direction for freight trains.

Furthermore, the time of trains stopping at Pragersko and Hodoš stations is also shorter because towing changes are no longer required, i.e. by 14 minutes at Pragersko station and 15 minutes at Hodoš station. The conditions for the introduction of direct trains were thus enabled and the number of locomotive runs on the entire line has also reduced.

The operating of tilting passenger trains is enabled, which significantly shortens travel times on important routes (e.g. Maribor–Murska Sobota, Ljubljana–Murska Sobota etc.). The introduction of tilting trains makes the railway passenger transport competitive with road transport.





WORKS IMPLEMENTED DURING THE RECONSTRUCTION, ELECTRIFICATION AND UPGRADING OF THE PRAGERSKO–HODOŠ LINE:

- electrification of 109 kilometres of the existing railway line, including stations and the construction of the catenary, and new construction of five substations in Ptuj, Pavlovci, Ljutomer, Murska Sobota and Gornji Petrovci,
- reconstruction of the line before Ormož, Pavlovci and Ivanjkovci,
- reconstruction of stations Ptuj, Ivanjkovci, Ljutomer, Murska Sobota and Hodoš,
- arrangement of stops in Šikole, Strnišče, Hajdina, Zamušani, Osluševeci, Velika Nedelja, Pušenci, Pavlovci, Mekotnjak, Ljutomer-mesto and Veržej,
- new construction and reconstruction of municipal and electric energy infrastructure,
- relocation, new construction and reconstruction of telecommunication infrastructure facilities, lines and devices,
- upgrading the Pragersko–Murska Sobota section in the total length of 58.4 kilometres for providing declared length and axle load of the line for category D4,
- construction of bridging structures,
- water management arrangements,
- reconstruction of dilapidated bridges and culverts with large spans,
- upgrading four large steel bridges,
- installation of noise barriers in the total length of 13.5 kilometres and passive protection of 145 buildings.



BENEFITS OF RECONSTRUCTION, ELECTRIFICATION AND UPGRADING OF THE PRAGERSKO–HODOŠ RAILWAY LINE:

- increasing line capacity,
- electrification of 109 kilometres on the Pragersko–Hodoš–state border line thus enabling electric traction as a more environment-friendly type of transport,
- upgrading the line for speeds of up to 160 km/h,
- increasing throughput capacity of the Pragersko–Ormož line from 78 trains a day to 84 trains a day, and the Ormož–Hodoš–state border line from 46 trains a day to 67 trains a day,
- significant shortening of travel times of all trains on the relevant line,
- eliminating the need for towing changes at Pragersko and Hodoš stations thus shortening travel times of trains,
- reducing the number of locomotive runs on the entire line or route,
- enabling the operating of tilting passenger trains, which significantly shortens travel times on important routes, and
- facilitating access for persons with disabilities with newly constructed ramps at stations and stops.



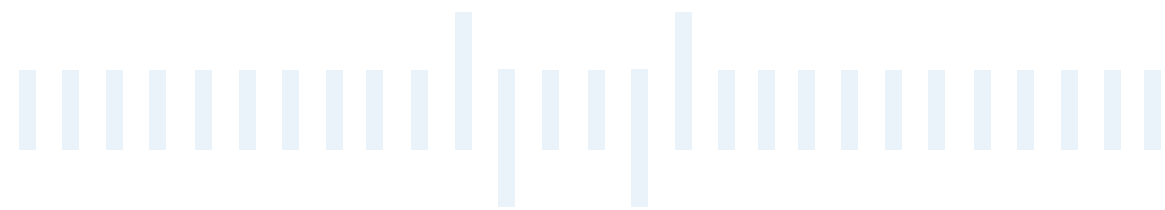
PROJECT FINANCING

The entire value of the investment under Phase I (reconstruction, electrification and upgrading of the Pragersko–Hodoš line for speeds of up to 160 km/h) is estimated at **EUR 325 million** of which the European Commission provided a share in the amount of **EUR 145.80 million** from the Cohesion Fund.



ELECTRIFICATION

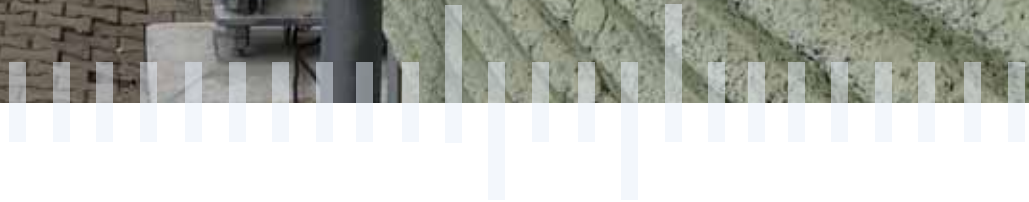


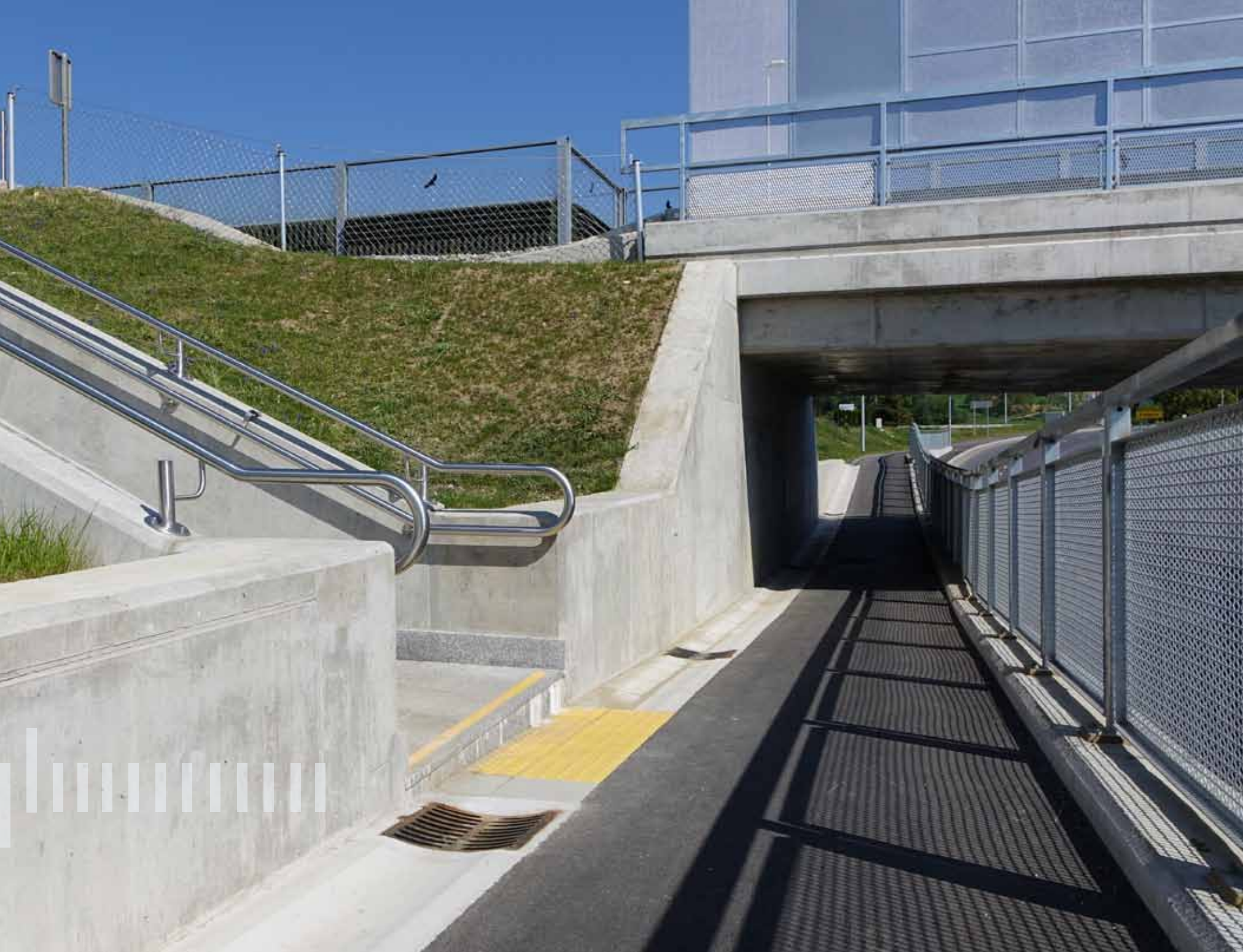




BRIDGES







MODERNISATION OF LEVEL CROSSINGS AND CONSTRUCTION OF UNDERPASSES AT RAILWAY STATIONS

The second phase of projects encompassed several activities, including the arrangement of all crossings of roads with the railway line on the relevant section, which significantly increased traffic safety of the road and rail traffic since there are no crossings on the section between Pragersko and Hodoš which would be secured merely by a warning sign in the form of a St Andrew's cross. All road and railway crossings are grade-separated or secured by means of a device for automatic traffic protection, which increases the traffic flow capacity on roads, and the protection of crossings ena-

bles greater speed of trains on the line. The greatest challenges on this project were the implementation of works, which ran simultaneously with regular rail traffic, and the technologically demanding construction of underpasses in settlements and towns.

But this project has many more benefits: The newly constructed grade-separated accesses to platforms increase passenger safety and the throughput capacity of the line, which reduces the time needed to protect the train path, resulting in shorter stopping intervals at stations.



WORKS IMPLEMENTED DURING THE MODERNISATION OF LEVEL CROSSINGS AND CONSTRUCTION OF UNDERPASSES AT RAILWAY STATIONS:

- 32 level crossings were closed,
- upgraded and arranged protection with automatic devices for protection of 27 level crossings,
- 19 grade-separated crossings were arranged, i.e. 12 underpasses, 5 overpasses and 2 underpasses for pedestrians and cyclists,
- connecting routes and deviations in the length of 41.6 kilometres were arranged, including several road bridging structures (culverts, bridges),
- construction of stops Cirkovce and Grlava,
- arrangement of municipal and electric energy infrastructure in the area of crossings,
- water management arrangements,
- installation of passive noise protection in Ljutomer and Murska Sobota, and
- modernisation of signalling safety and telecommunications devices.





BENEFITS OF MODERNISATION OF LEVEL CROSSINGS AND CONSTRUCTION OF UNDERPASSES AT RAILWAY STATIONS:

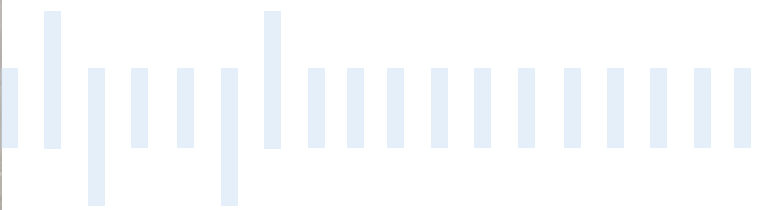
- upgrading the line for speeds of up to 160 km/h due to protection and closing of level crossings,
- increasing the level of traffic safety due to closing and arrangement of level crossings, and the construction of grade-separated crossings,
- shortening of travel times, and
- saving of time of road traffic users due to the arrangement of grade-separated crossings of roads and the railway line.



PROJECT FINANCING

The entire value of the investment under Phase II (modernisation of level crossings and construction of underpasses at railway stations) is estimated to **EUR 140 million** of which the European Union provided a share in the amount of **EUR 61.23 million** from the Cohesion Fund.









The project "Introduction of the digital radio system (GSM-R) to the Slovenian railway network", upgraded the existing analogue system on the Pragersko-Hodoš line to a wireless digital radio communications system (GSM-R), which enables continuous and reliable communication.

Simultaneously with the introduction of the digital radio system implemented throughout the entire Slovenian railway network, the ETCS Level 1 (the European Train Control System) was introduced to the Pragersko-Hodoš line by the project "Implementation of the ERMTS/ETCS L1 system in the public railway infrastructure on Corridor D in the Republic of Slovenia".





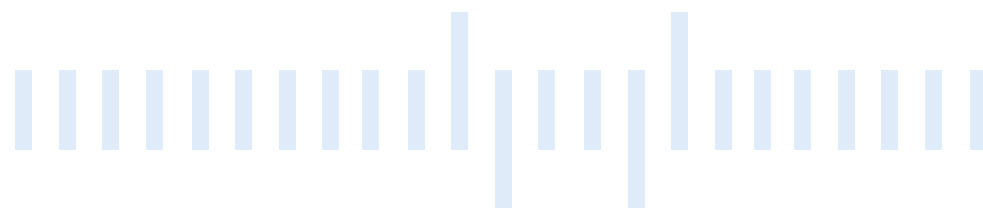
PARTICIPANTS ON THE PROJECT:

- **Damir Topolko**, Director
- **Dejan Jurkovič**, Project Manager and Responsible Construction Site Manager
- **Maksimiljan Dolinšek**, Project Manager
- **Bojan Vogrinec**, Project Manager
- **Mitja Kosec**, Project Manager

- **Marko Movrin**, Engineer and Responsible Supervisor
- **Ciril Cerar**, Engineer and Responsible Supervisor

- **Aleš Rudl**, Responsible Supervisor
- **Matjaž Tominc**, Responsible Supervisor
- **Boris Petelinšek**, Responsible Supervisor
- **Franc Pevec**, Responsible Supervisor
- **Milenko Čučić**, Responsible Supervisor
- **Peter Rozman**, Responsible Supervisor
- **Zoran Jelovčan**, Responsible Supervisor
- **Marijan Veber**, Responsible Supervisor
- **Marjan Hribar**, Responsible Supervisor

- **Aleksander Turšič**, Responsible Works Manager
- **Branko Bitenc**, Responsible Works Manager
- **Marko Končan**, Responsible Works Manager
- **Aleš Zalokar**, Responsible Works Manager
- **Franc Snoj**, Responsible Works Manager
- **Davorin Čmak**, Responsible Works Manager
- **Radivoj Vižintin**, Responsible Works Manager
- **Samo Đukić**, Responsible Works Manager
- **Jože Trstenjak**, Responsible Works Manager
- **Miha Štucin**, Responsible Works Manager
- **Ivan Debeljak**, Responsible Works Manager
- **Matej Jarm**, Responsible Works Manager



Published by: Slovenian Infrastructure Agency,
Tržaška cesta 19, 1000 Ljubljana

• gp.drsi@gov.si • www.krajsamorazdalje.si

Design: Cobit d.o.o.

Photographs: Klavdij Čotar

Edition: 50 copies

Printing: CEWE

The operation is partly co-funded by the European Union, i.e. the Cohesion Fund. The operation is being implemented within the Operational Programme “Development of environment and transport infrastructure” for the period 2007–2013; Priority axis 1: Railway infrastructure – Cohesion Fund.