

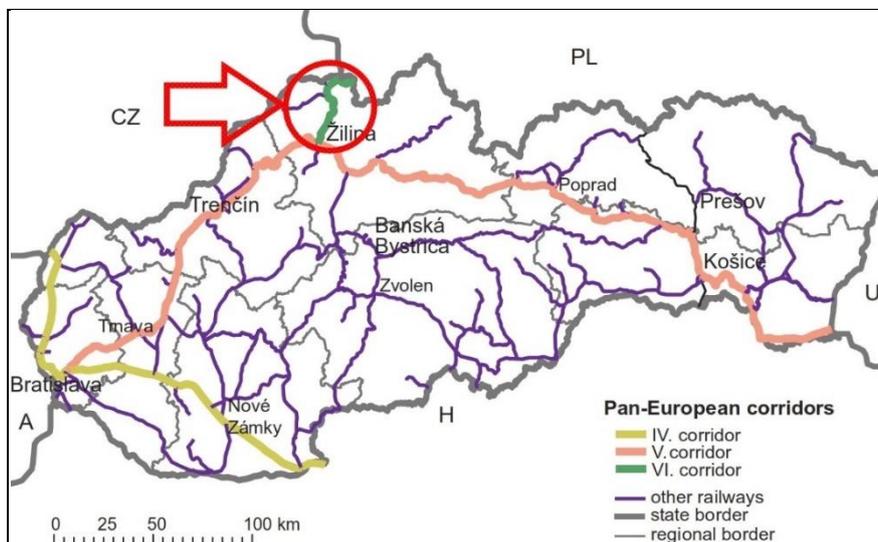
## Modernisation of the railway corridor State Border of the Czech Republic/Slovak Republic–Čadca–Krásno nad Kysucou

### General information

The project regards the **modernisation of the railway line from the state border between Czech Republic/Slovakia–Čadca–Krásno nad Kysucou**. The railway section extends for about 17 km and is part of the Rhine-Danube CNC, namely of the section Ostrava/Prerov–Žilina–Košice-UA border. It is also part of the Pan-European Corridor VI and part of Rail Freight Corridors 5 and 9. The line is internally codified as 106D by ŽSR (i.e., the Rail Infrastructure manager of Slovakia).

The localisation of the line is presented in Figure 3-1.

**Figure 3-1: Localisation of the railway line from the state border between Czech Republic/Slovakia–Čadca–Krásno nad Kysucou**



Source: Michniak (2015)

The line is part of different corridors and is therefore interested by a modernisation plan. The **bottleneck** is mainly represented by speed limits (due to the strong slope) and to the lack of ETCS between Čadca and the border with Czech Republic.

The modernisation of the entire corridor is under development. The section connecting Žilina and Krásno nad Kysucou has a maximum speed of 140 km/h and it is equipped with ETCS 2 plus GSM-R.

The project is part of the Operational Programme Transport (i.e., OPT), priority axis n. 1. The **main goals** of the project, as described by the OPT documentation, are the following:

- increasing safety of travel and overall standards;
- reduction of negative environmental impact;
- increasing the railway route transport capacity;
- provide more effective transport management and time saving.

The project will satisfy the following **TEN-T priorities**:

- Bridging missing links and removing bottlenecks, particularly in cross-border sections, mainly by increasing speed limits and introducing an interoperable signalling system.

- Promoting the efficient and sustainable use of the infrastructure and, where necessary, increasing capacity, with a significant modernisation of the railway line.
- Improving or maintaining the quality of infrastructure in terms of safety, security, efficiency, climate resilience, environmental performance, social conditions and accessibility for all users. The improvement of the rail infrastructure will produce a modal shift from the road mode with a positive impact on safety and environment.

The **beneficiary** of the project is ŽSR (Rail Infrastructure manager in Slovakia).

### Technical description

The existing characteristics are<sup>1</sup>:

- Double track, electrified at 3 kV DC;
- Weight limits: category D4 (22.5 tons for axle load, 8 tons/m);
- Loading gauge: UIC GB;
- Design speed: 100 km/h;
- Maximum permitted train length: 700 m;
- Signalling: automatic track signalisation, track with transmission of signal aspects of light signals to railroad vehicle, train run allowed against the right track side, GSM-R (no ETCS between Čadca and the border with Czech Republic).

The project comprises the elaboration of complete project design documentation for railway track modernisation in the concerned section. The project comprises also the implementation of ETCS level 2 signalling system.

No further indications were made available with regard to the technical characteristics of the project.

The **estimated investment cost** of the project amounts to € 5,48 million. Information is not available regarding investment cost breakdown and operating and management costs.

### Project implementation

On the basis of the information collected on the Operational Transport Programme of Slovakia, the implementation status on 5 August 2013 was<sup>2</sup>:

- public tender to select the contractor for project design documentation took place in 2010; in May 2010, the framework contract was signed with the contractor based on the result of the public tender;
- application for the provision of a non-returnable subsidy from the EU Cohesion Fund was approved by the Managing Authority on 29 September 2011;
- the contract for provision of a non-returnable subsidy was signed on 22nd December 2011;
- the works are being carried out in compliance with the schedule. The contractor has submitted the processed documentation until the stage “Document for planning permit” financed with TEN-T funds. A protocol from intra-departmental and state expert opinion was issued as well as

<sup>1</sup> See Annex 3.3.2.1B of the ŽSR Network Statement of year 2018, “Line characteristics and codes for combined transport on railway lines of ŽSR”, available on line at [http://www.zsr.sk/buxus/docs/Marketing/SVen/2018/Annex\\_3\\_3\\_2\\_1\\_B-TrackcharacteristicsZSR.xls](http://www.zsr.sk/buxus/docs/Marketing/SVen/2018/Annex_3_3_2_1_B-TrackcharacteristicsZSR.xls).

<sup>2</sup> See <http://www.opd.sk/en/13460>.

appropriate land-use decisions. At the moment, project building permit documentation is being processed for GSM-R, European Train Control System and the actual track modernisation.

No further indications were made available to the Consultant as regards the situation after the date indicated on the OPT website.

### Transport demand

No specific transport demand study regarding this section was delivered to the Consultant. The Feasibility Study for the section Nové Mesto to Váhom-Žilina-Čadca of February 2008 (SUDOP BRNO, spol. s r.o. and SUDOP PRAHA a.s. (2008)) presents the forecasts for the section Žilina-Čadca that is partially overlapped to the section state border-Čadca-Krásno nad Kysucou. The results for three scenarios assumed (i.e., do nothing, do minimum and do something scenarios) are presented in Table 3-1, Table 3-2, Table 3-3 and Table 3-4.

**Table 3-1: Passenger traffic forecasts on the Žilina-Čadca rail section [1.000 passengers-km/year]**

Year	Do nothing			Do minimum			Do something		
	Long-distance	Suburb	Total	Long-distance	Suburb	Total	Long-distance	Suburb	Total
2005	14.235	21.353	35.588	14.235	21.353	35.588	14.235	21.353	35.588
2015	13.652	20.717	34.369	13.969	20.754	34.722	15.619	24.868	40.487
2020	13.204	20.391	33.595	13.888	20.939	34.827	16.532	27.295	43.827
2021	13.114	20.326	33.440	13.891	21.018	34.909	17.192	27.486	44.677
2030	12.308	19.738	32.046	13.943	21.462	35.405	19.049	29.436	48.486
2037	11.681	19.280	30.961	14.088	21.956	36.044	19.360	30.035	49.395

Source: SUDOP BRNO, spol.s r.o. and SUDOP PRAHA a.s. (2008)

**Table 3-2: Passenger traffic forecasts on the Žilina-Čadca rail section [daily numbers of train pairs]**

Year	Do nothing			Do minimum			Do something		
	Long-distance	Suburb	Total	Long-distance	Suburb	Total	Long-distance	Suburb	Total
2005	10	17	27	10	17	27	10	17	27
2015	10	17	27	11	19	30	14	23	37
2020	10	17	27	11	19	30	14	24	38
2021	10	17	27	11	19	30	15	24	39
2030	10	17	27	11	19	30	16	24	40
2037	10	17	27	11	19	30	17	24	41

Source: SUDOP BRNO, spol.s r.o. and SUDOP PRAHA a.s. (2008)

**Table 3-3: Freight traffic forecasts on the Žilina-Čadca rail section [1.000 gross tonnes-km/year]**

Year	Do nothing			Do minimum			Do something		
	Long-distance	Local	Total	Long-distance	Local	Total	Long-distance	Local	Total
2005	540.135	11.889	552.024	540.135	11.889	552.024	540.135	11.889	552.024
2015	545.777	11.860	557.637	545.777	11.860	557.637	578.269	12.034	590.302
2020	544.831	11.690	556.521	544.831	11.690	556.521	619.600	13.264	632.864
2021	538.582	11.462	550.045	538.582	11.462	550.045	629.497	13.425	642.922
2030	486.578	9.901	496.479	486.578	9.901	496.479	709.116	14.778	723.894
2037	467.998	9.533	477.531	467.998	9.533	477.531	728.156	15.786	743.942

Source: SUDOP BRNO, spol.s r.o. and SUDOP PRAHA a.s. (2008)

**Table 3-4: Freight traffic forecasts on the Žilina-Čadca rail section [daily numbers of train pairs]**

Year	Do nothing			Do minimum			Do something		
	Long-distance	Local	Total	Long-distance	Local	Total	Long-distance	Local	Total
2005	23	2	25	23	2	25	23	2	25
2015	23	2	25	23	2	25	25	3	28
2020	23	2	25	23	2	25	26	3	29
2021	23	2	25	23	2	25	27	3	30
2030	23	2	25	23	2	25	30	3	33
2037	23	2	25	23	2	25	31	3	34

Source: SUDOP BRNO, spol.s r.o. and SUDOP PRAHA a.s. (2008)

Apart the partial overlapping between the Žilina-Čadca and the state border-Čadca-Krásno nad Kysucou sections, it has to be acknowledged that the forecasts were prepared in 2008 (with a base year set at 2005) and should be updated in order to have a sufficient degree of reliability.

### Financial analysis

The cost benefit analysis was not made available to the Consultant. The only financial information that was possible to obtain was the total design costs, i.e. € 5,48 million<sup>3</sup>, as indicated on the Operational Transport Programme. The financing sources are distributed between EU Cohesion Fund (85%) and State budget of the Slovak Republic (15%).

### Economic analysis

The cost benefit analysis was not made available to the Consultant and no economic indicators are available.

### Environmental analysis

On the basis of what was indicated by the TEN-T Implementation Agency on March 2013, the EIA was delivered at the end date of the first implementation stage (August 2012). However, there is no information available with respect to the content of the document.

### Safety levels

A general improvement of the safety level for both section will be obtained with the implementation of a more advanced signalling system (ERTMS level 2) that will replace the existing one.

There is no specific information on safety issues and black spots, before and after project implementation.

<sup>3</sup> On the basis of what is declared by the TEN-T Implementation Agency (March 2013) at [https://ec.europa.eu/inea/sites/inea/files/download/project\\_fiches/slovakia/fichenew\\_2008sk92307s\\_final\\_3.pdf](https://ec.europa.eu/inea/sites/inea/files/download/project_fiches/slovakia/fichenew_2008sk92307s_final_3.pdf), where the indicated amount for the project activities (indicated as “Documentation of Construction Intent”) and EIA accounts for € 964.000.