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EVENTUALITIES MODERNIZATION OF RAILWAY LINE SECTIONS ŽILINA - ČADCA - ZWARDOŇ

Summary. The paper presents facility of modernization corridor number 6: Kittse - Bratislava - Žilina - Čadca - Zwardoň in section line Žilina - Čadca - Zwardoň. Here are presents various facilities increasing speeds in the particular section.

MOŻLIWOŚCI MODERNIZACJI LINII KOLEJOWEJ ŽILINA – ČADCA – ZWARDOŇ

Streszczenie. W artykule przedstawiono możliwość modernizacji międzynarodowego korytarza nr 6: Kittse – Bratislava – Žilina – Čadca – Zwardoň na odcinku Čadca – Zwardoň. Zaprezentowano różne możliwości podwyższenia prędkości na tym odcinku

1. INTRODUCTION

Railway traffic has important position in European traffic network. In conception strategic intention ŽSR there is considered with development of railway infrastructure. Development will be realize on basis international convention by system modernization of railway lines and construction high-speed line.

Among modernized railway lines, which have been put on into the register of international raylway magistrals, is also corridor number 6: Kittse (ÖBB) - Bratislava - Žilina - Čadca - Zwardoň (PKP). Part of this corridor on territory Slovak republic is also the line section Žilina - Čadca - Zwardoň. Modernization of railway line on this section are accomplished: on line section Žilina - Čadca on speed 120 km/h and on line section Čadca - Zwardoň on speed 70 km/h.

2. ACTUAL ASPECT ON THE RAILWAY LINE

Actual aspect on the section Žilina - Čadca - Zwardoň is possible separate up into two parts from viewpoint of direction and speed coefficients. Line section Žilina - Čadca constitutes double-line railway. This line section is located in the of the river Kysuca. These valley is built-up and from station Krasno nad Kysucou is very narrow. Actual railway line in this section has these critical running speeds :

km 338,746 - km 254,997	speed 100 km/h
km 254,997 - km 258,868	speed 80 km/h
km 258,868 - km 269,540	speed 100 km/h
km 269,540 - km 270,450	speed 90 km/h
km 270,450 - km 273,448	speed 80 km/h
km 273,448 - km 278,535	speed 70 km/h
km 278,535 - km 279,008	speed 80 km/h
km 279,008 - station Čadca	speed 60 km/h

Single-line railway in the section Čadca - border between Slovakia and Poland is located on built-up territory of the river Čerňanka. In mountain scene Kysuce railway line is located on arduous direction and down-gradient coefficients. These coefficients agree only raise critical running speed. On line section station Čadca - border between Slovakia and Poland are these critical running speeds:

station Čadca - km 1,869	speed 40 km/h
km 1,869 - km 3,661	speed 80 km/h
km 3,661 - km 6,569	speed 50 km/h
km 6,569 - km 9,063	speed 60 km/h
km 9,063 - km 13,021	speed 50 km/h
km 13,021 - km 13,755	speed 40 km/h
km 13,755 - km 20,007	speed 50 km/h

From actual speed coefficients on railway line section Žilina - Čadca - Zwardoň result of demand of modernization railway line for claim speed on all sections.

3. FACILITY OF MODERNIZATION LINE SECTION ŽILINA - ČADCA - ZWARDOŇ

On basis actual aspect of direction coefficients on this railway line section were examined facility increases of speed:

station Žilina - station Krasno nad Kysucou	from 100 to 140 km/h
station Krasno nad Kysucou - station Čadca	from 80 to 100 km/h
station Čadca - station Skalité	from 80 to 120 km/h
station Skalite - station Zwardoň	from 70 to 100 km/h

Facility increase of speed in call of embarrassed coefficients as so requirement minimal cut of railway line were check up with untraditional settings out data (Bloss). These facility were checked up for noticed speed (chard 1).

From check up facility increase of speed on minimal re-aligning of the track as so from demand speed serene section put off:

- station Žilina - station Krasno nad Kysucou to maximum speed 120 km/h.

- station Krasno nad Kysucou - station Čadca to maximum speed 80 km/h,
- station Čadca - station Skalité to maximum speed 100 km/h,
- station Skalité - station Zwardoň to maximum speed 70 km/h.

Against actual asped is the fewest increases of speed on section Krasno nad Kysucou - Čadca, where in call of actual direction coefficients (minimal track curve radius 298 m) isn't possible without rekonstructed line increase speed. In this scene the proliminary line of the railway line invites construction of the railway tunnels. Second possibility on this section is minimal re-aligning of the track and line high-speed construct built in future.

4. INCLUSIONS

In the is possible to say. The railway line, which have been put on into the register of railway magistral on section Žilina - Čadca - Zwardoň is possible to modernize over demand increase of speed to required indexes except section station Krasno nad Kysucou - station Čadca. Over design larger adjustment of track level is possible increase speed so above this

Table 1

Facility increase of speed

[km]	Radius R [m]	Speed V [km/h]	Deficiency			Evaluat			of cant np [mm]
			Rmin [m]	Lo [m]	Lpb [m]	do [m]	dob [m]		
5.73365 - 5.88468	560	80	350	17		20	54	Yes	
		100	550	40	34	71.021	25	84	Yes
		110	650	45			27.5	102	No
		120	775	58		30	120	No	
6.29791 - 6.49115	950	80	350	10		20	31	Yes	
		100	550	17	20	159.236	25	49	Yes
		110	650	26			27.5	60	Yes
		120	775	34		30	71	Yes	
6.56969 - 6.60576	900	80	350	11		20	34	Yes	
		100	550	0	21	36.079	25	52	Yes
		110	650	28		27.5	64	Yes	
		120	775	36		30	75	Yes	
6.70590 - 6.74197	1050	80	350	9		20	29	Yes	
		100	550	0	18	36.079	25	44	Yes
		110	650	24			27.5	54	Yes
		120	775	31		30	65	Yes	

requiment and it: on section Žilina - Krasno nad Kysucou except for 140 km/h (transfer railway line behind stop Brodno), on section Čadca - Skalité to 120 km/h (transfer railway line in front station Skalité) and on section Skalité - Zwardoň to 80 km/h (larger re-aligning of the track in courves, more galore land-work). Problem is only on section Krasno nad Kysucou - Čadca. The last possibility is only construction of new railway line for high-speed. All stations are necessary rebuilt to required speed on main tracks.

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Streszczenie

Transport kolejowy zajmuje poczesne miejsce w europejskiej sieci transportowej. W koncepcjach strategicznego rozwoju ŽSR przewiduje się rozwój infrastruktury kolejowej. Wśród modernizowanych linii kolejowych, które zostaną dostosowane do standardów międzynarodowych magistral, jest korytarz nr 6: Kittse (ÖBB) – Bratislava – Žilina – Čadca – Zwardoń (PKP). Przewiduje się dostosowanie odcinka Žilina – Čadca do prędkości ruchu 120 km/h, natomiast odcinka Čadca – Zwardoń do prędkości 70 km/h.

W artykule przedstawiono krytyczne punkty powodujące ograniczenia prędkości na ww. odcinkach oraz różne środki, jakie należy podjąć w celu podwyższenia prędkości w tych punktach.