



MINISTRY OF TRANSPORT AND INFRASTRUCTURE



INVESTMENT PLAN

for the development of the transport
infrastructure between 2020 - 2030



THE STRATEGIC OBJECTIVES OF THE INVESTMENT PLAN

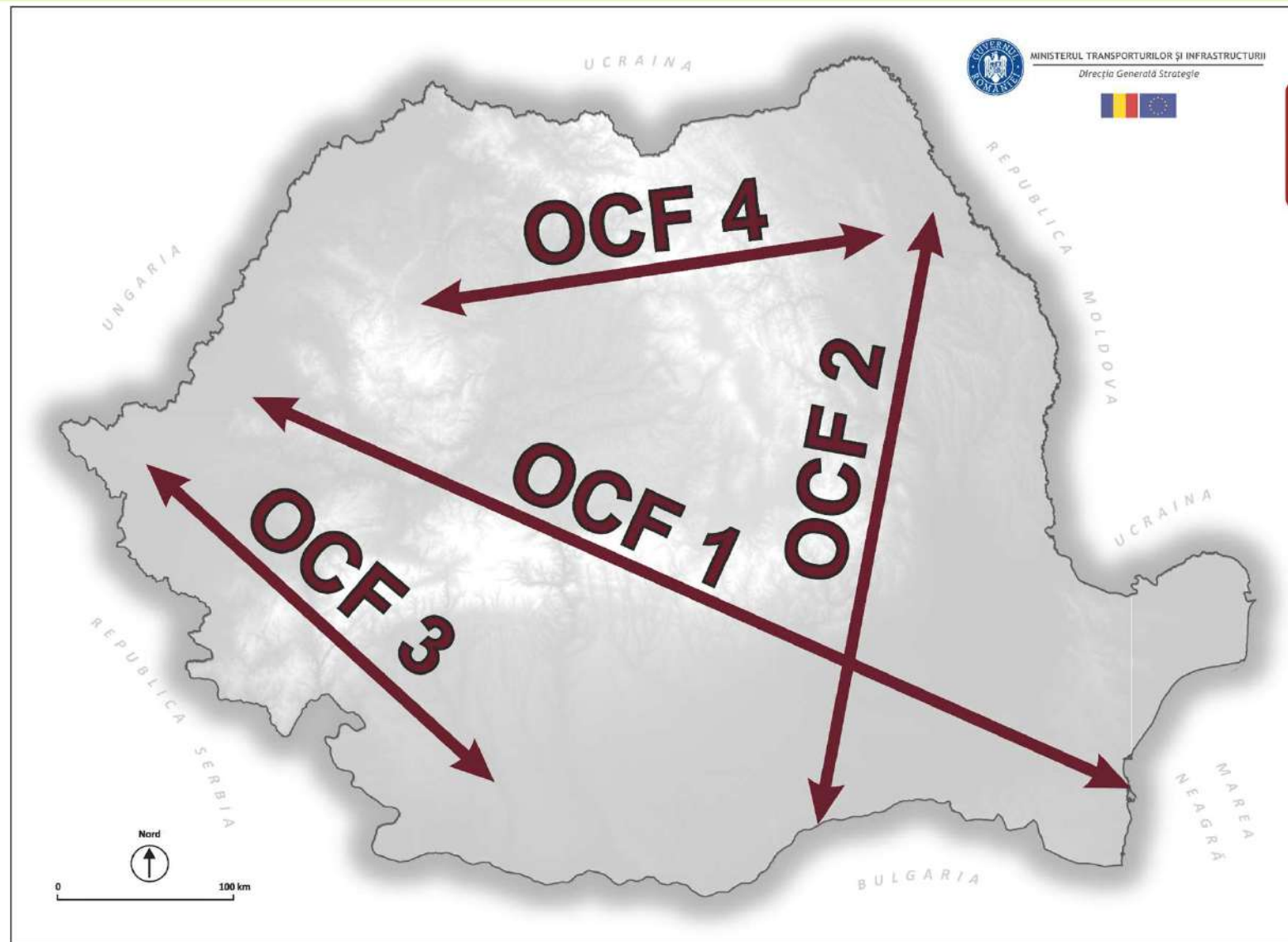
The *three strategic objectives* of the investment plan are:

-  **Achieving the favorable condition** required by the European Commission for the upcoming financial framework;
-  **Updating** the implementation strategy for Romania's General Master Plan of Transport;
-  **Serving as a landmark master contract** for the relevant public policies and for all the institutions engaged in achieving the objectives of the national transport infrastructure.

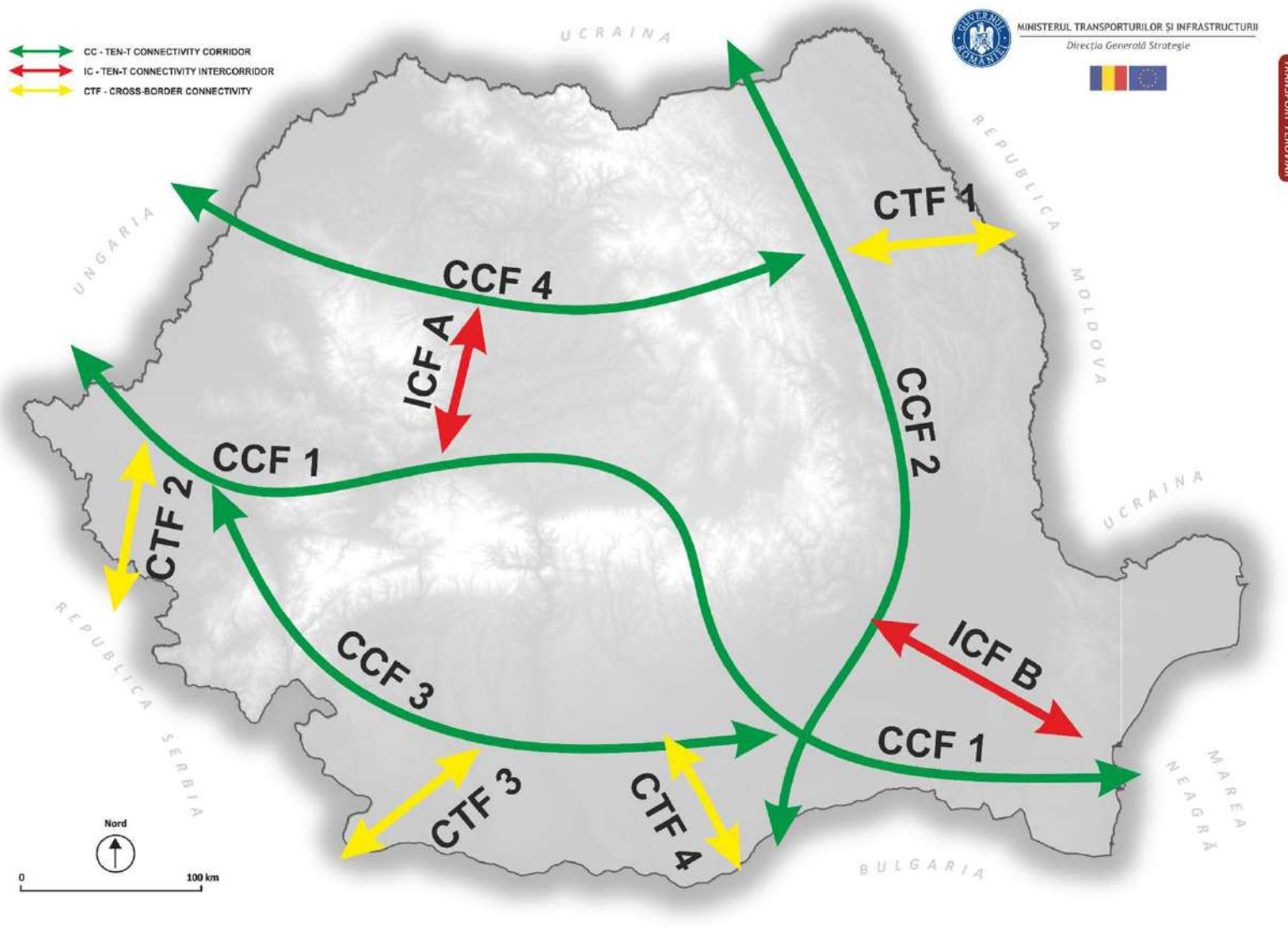


Full-time assistance: European Investment Bank (BEI –PASSA and Jaspers)

General objectives of the railway connectivity



Railway connectivity corridors in Romania



4 connectivity corridors

2 connectivity inter-corridors

4 cross-border corridors



Nr. Crt.	Coridor	RETEA TEN	Denumire proiect	Status	Lungime (km)	Valoare estimata (mil.EUR)	Valoare estimata cu TVA (mil.EUR)	Cost mediu estimat per km	Localități urbane deservite
1	CORIDORUL DE CONECTIVITATE FERROVIARĂ 2 CCF 2 - "Coridorul Feroviar de Sud" Giurgiu - București - Ploiești - Buzău - Focșani - Bacău - Pașcani - Suceava - Vișani	TEN-T CORE	Giurgiu Frontieră - București	P	99.0	577.7	687.4	5.8	Giurgiu, Jilava, București
2			București - Ploiești Triaj	O	56.0				București, Buftea, Ploiești
3			Ploiești Triaj - Focșani	P	143.0	572.0	680.7	4.0	Ploiești, Mizil, Buzău, Rm. Sarat, Focșani
4			Focșani - Roman	P	147.0	588.0	699.7	4.0	Focșani, Mărășești, Adjud, Bacău, Roman
5			Roman - Pașcani	P	41.0	164.0	195.2	4.0	Roman, Pașcani
6			Pașcani - Suceava - Dărmănești	P	71.0	284.0	338.0	4.0	Pașcani, Verești, Dolhasca, Suceava
7			Dărmănești - Vișani Frontieră	P	34.0	57.0	67.8	1.7	Suceava, Dornești
Total coridor					535.0	2242.7	2668.8		
	in operare			0.0				contorizat la Coridorul Feroviar Central	
	in constructie			0.0					
	in proiect			535.0					

		5	CFE 1 - "Coridorul Feroviar Central"			Predeal - Brasov				
Nr. Crt.	Coridor	RETEA TEN	Denumire proiect	Status	Lungime (km)	Valoare estimata (mil.EUR)	Valoare estimata cu TVA (mil.EUR)	Cost mediu estimat per km	Localități urbane deservite	
1	CORIDORUL DE CONECTIVITATE FERROVIARĂ 3 CCF 3 - "Coridorul Feroviar de Sud" București - Roșiori - Craiova - Dr.Tr.Severin - Caransebeș - Lugoj - Timișoara - Arad	- Sim TEN-T CORE	București - Craiova	P	209.0	1254.0	1492.3	6.0	București, Videle, Roșiori, Caracal, Craiova	
2			Craiova - Dr.Tr.Severin - Caransebeș	P	234.0	2110.1	2511.0	9.0	Craiova, Filiași, Strehaia, Dr.Tr.Severin, Orșova, Băile Herculane, Caransebeș	
3			Caransebeș - Timișoara - Arad	P	155.0	1499.9	1784.9	9.7	Caransebeș, Lugoj, Recaș, Timișoara, Arad	
Total coridor					598.0	4864.0	5788.2			
		in operare			0.0					
		in constructie			0.0					
		in proiect			598.0					

in constructie									
Nr. Crt.	Coridor	RETEA TEN	Denumire proiect	Status	Lungime (km)	Valoare estimata (mil.EUR)	Valoare estimata cu TVA (mil.EUR)	Cost mediu estimat per km	Localități urbane deservite
1	CORIDORUL DE CONECTIVITATE FERROVIARĂ 4 CCF 4 - "Coridorul Feroviar de Nord" Suceava - Ilva Mică - Dej - Cluj Napoca - Oradea - Episcopia Bihor	TEN-T CORE	Suceava - Ilva Mică	P	191.0	1807.5	2150.9	9.5	Suceava, Gura Humorului, Clung Moldovenesc, Vatra Dornei, Ilva Mică
2			Ilva Mică - Apahida	P	119.0	714.0	849.7	6.0	Ilva Mică, Năsăud, Beclean, Dej, Gherla, Cluj Napoca
3		TEN-T COMPREHENSIV E	Cluj Napoca - Ep. Bihor Frontieră	P	160.0	1493.4	1777.1	9.3	Cluj Napoca, Huedin, Aleșd, Oradea, Ep. Bihor
Total coridor					470.0	4014.9	4777.7		
	in operare				0.0				
	in constructie				0.0				
	in proiect				470.0				

Nr. Crt.	Coridor	RETEA TEN	Denumire proiect	Status	Lungime (km)	Valoare estimata (mil.EUR)	Valoare estimata cu TVA (mil.EUR)	Cost mediu estimat per km	Localități urbane deservite
1	INTER-CORIDORUL DE CONECTIVITATE FERROVIARĂ A ICF A - Intercoridorul "Ardeal " Teius - Apahida - Cluj Napoca	TEN-T CORE	Teius - Cp. Turzii	P	51.0	306.0	364.1	6.0	Coșlariu, Teius, Aiud, Ocna Mures, Cp. Turzii
2			Cp. Turzii - Cluj Napoca	P	51.0	484.5	576.6	9.5	Cp. Turzii, Apahida, Cluj Napoca
Total coridor					102.0	790.5	940.7		
	in operare				0.0				
	in constructie				0.0				
	in proiect				102.0				

Nr. Crt.	Coridor	RETEA TEN	Denumire proiect	Status	Lungime (km)	Valoare estimata (mil.EUR)	Valoare estimata cu TVA (mil.EUR)	Cost mediu estimat per km	Localități urbane deservite
1	INTER-CORIDORUL DE CONECTIVITATE FERROVIARĂ B ICF B - Intercoridorul "Bărăgan" Buzău - Făurei - Fetești	TEN-T COMPREHENSIV E	Buzău - Făurei	P	40.0	160.0	190.4	4.0	Buzău, Făurei
2			Făurei - Fetești	P	89.0	356.0	423.6	4.0	Făurei, Tândărei, Fetești
Total coridor					129.0	516.0	614.0		
	in operare				0.0		614.0		
	in constructie				0.0				
	in proiect				129.0				

Nr. Crt.	Coridor	RETEA TEN	Denumire proiect	Status	Lungime (km)	Valoare estimata (mil.EUR)	Valoare estimata cu TVA (mil.EUR)	Cost mediu estimat per km	Localități urbane deservite
1	CORIDORUL FERROVIAR TRANSFRONTALIER 1 CTF 1 - CORIDORUL "Prut" Pașcani - Iași - Ungheni - Frontieră	TEN-T CORE	Pașcani - Iași - Ungheni	P	97.0	388.0	461.7	4.0	Pașcani, Tg. Frumos, Iași
Total coridor					97.0	388.0	461.7		
					0.0		461.7		
					0.0				
					97.0				

Nr. Crt.	Coridor	RETEA TEN	Denumire proiect	Status	Lungime (km)	Valoare estimata (mil.EUR)	Valoare estimata cu TVA (mil.EUR)	Cost mediu estimat per km	Localități urbane deservite
1	CORIDORUL FERROVIAR TRANSFRONTALIER 2 CTF 2 - CORIDORUL "Banat" Timișoara - Stamora Moravița -	TEN-T CORE	Timișoara - Stamora Moravița Fr.	P	56.0	120.0	142.8	2.1	Timișoara, Moravița
Total coridor					56.0	120.0	142.8		
					0.0		142.8		
					0.0				
					56.0				

Nr. Crt.	Coridor	RETEA TEN	Denumire proiect	Status	Lungime (km)	Valoare estimata (mil.EUR)	Valoare estimata cu TVA (mil.EUR)	Cost mediu estimat per km	Localități urbane deservite
1	CORIDORUL FERROVIAR TRANSFRONTALIER 3 CTF 3 - CORIDORUL "Trecea" Craiova - Calafat	TEN-T CORE	Craiova - Calafat	P	107.8	561.3	667.9	5.2	Craiova, Calafat
Total coridor					107.8	561.3	667.9		
					0.0		667.9		
					0.0				
					107.8				

Nr. Crt.	Coridor	RETEA TEN	Denumire proiect	Status	Lungime (km)	Valoare estimata (mil.EUR)	Valoare estimata cu TVA (mil.EUR)	Cost mediu estimat per km	Localități urbane deservite
1	CORIDORUL FERROVIAR TRANSFRONTALIER 4 CTF 4 - CORIDORUL "Muntenia" Videle - Giurgiu	TEN-T CORE	Videle - Giurgiu	P	67.0	113.0	134.5	1.7	Videle, Giurgiu
Total coridor					67.0	113.0	134.5		
					0.0		134.5		
					0.0				
					67.0				



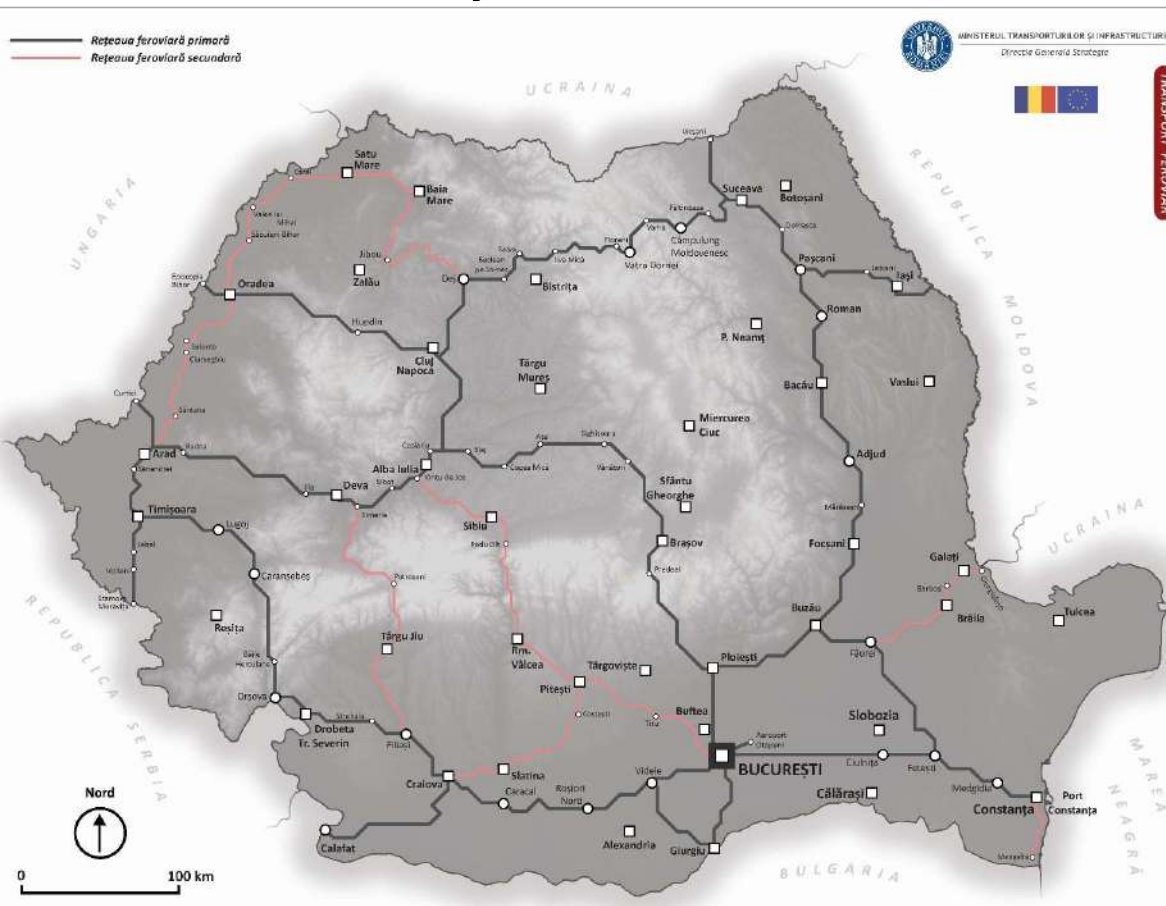
Primary network – railway projects

Nr. Crt.	Proiect rețea primară	Rețea TEN-T	Tip Intervenție	Lungime (km)	Cost estimat (mil.EUR fără TVA)	Cost estimat (mil.EUR cu TVA)	Cost mediu (mil.EUR/ km)
1	Port Constanța - Palas	Core	M+D	180.0	727.4	865.6	4.0
2	Constanța - București	Core	M	0.0	64.8	77.1	n/a
3	Complex feroviar București	Core	M+E+D	600.0	1000.0	1190.0	1.7
4	Predeal - Brașov	Core	M	27.0	630.0	749.7	23.3
5	Brașov - Sighișoara	Core	C	112.6	1535.0	1826.7	13.6
6	Simeria - Gurasada - km.614	Core	C	141.2	1888.0	2246.7	13.4
7	Giurgiu Frontieră - București	Core	M+E	99.0	577.7	687.4	5.8
8	Ploiești Triaj - Focșani	Core	M	143.0	572.0	680.7	4.0
9	Focșani - Roman	Core	M	147.0	588.0	699.7	4.0
10	Roman - Pașcani	Core	M	41.0	164.0	195.2	4.0
11	Pașcani - Suceava - Dărmănești	Core	M	71.0	284.0	338.0	4.0
12	Dărmănești - Vicșani Frontieră	Core	M+E	34.0	57.0	67.8	1.7
13	București - Craiova	Core	M	209.0	1254.0	1492.3	6.0
14	Craiova - Dr.Tr.Severin - Caransebeș	Core	M+D partial	234.0	2110.1	2511.0	9.0
15	Caransebeș - Timișoara - Arad	Core	M+D	155.0	1499.9	1784.9	9.7
16	Suceava - Ilva Mică	Core	M	191.0	1807.5	2150.9	9.5
17	Ilva Mică - Apahida	Core	M	119.0	714.0	849.7	6.0
18	Cluj Napoca - Ep. Bihor Frontieră	Comprehensive	M+E	160.0	1493.4	1777.1	9.3
19	Teiuș - Cp. Turzii	Core	M	51.0	306.0	364.1	6.0
20	Cp. Turzii - Apahida (Cluj Napoca)	Core	M	51.0	484.5	576.6	9.5
21	Buzău - Făurei	Comprehensive	R	40.0	160.0	190.4	4.0
22	Făurei - Fetești	Comprehensive	R	89.0	356.0	423.6	4.0
23	Pașcani - Iași - Ungheni	Core	M+E partial	97.0	388.0	461.7	4.0
24	Timișoara - Stamora Moravița Fr.	Core	M+E	56.0	120.0	142.8	2.1
25	Craiova - Calafat	Core	M+E	107.8	561.3	667.9	5.2
26	Videle - Giurgiu	Comprehensive	R+E	67.0	113.0	134.5	1.7
Total				3222.6	19455.5	23152.1	



RAILWAY SECTOR – Defining the network

Primary network – **3265 km** of railways (580.5 km modernized)



The primary railway network connects all the developing regions and Romania's most important economic and social centers

The primary and secondary railway networks overlap the TEN-T European transport corridors located in Romania

The secondary railway network consists of railways that have an economic value especially for the freight transport



Primary network – base scenario

Nr. Crt.	Proiecte din scenariul de referință	Rețea TEN-T	Tip Intervenție	Lungime (km)	Cost estimat (mil.EUR fără TVA)	Cost estimat (mil.EUR cu TVA)	Cost mediu (mil.EUR/km)
1	Constanța - București	Core	M	0.0	64.8	77.1	n/a
2	Brașov - Sighișoara	Core	C	112.6	1535.0	1826.7	13.6
3	Simeria - Gurasada - km.614	Core	C	141.2	1888.0	2246.7	13.4
4	Cluj Napoca - Ep. Bihor Frontieră	Comprehensive	M+E	160.0	1493.4	1777.1	9.3
5	Caransebeș - Timișoara - Arad	Core	M+D	155.0	1499.9	1784.9	9.7
6	Videle - Giurgiu	Comprehensive	R+E	67.0	113.0	134.5	1.7
1	Constanța - Mangalia	Propunere Comp.	R+E+D parțial	43.0	123.0	146.4	2.9
Total				678.8	6717.1	7993.3	

Nr. Crt.	Proiect rețea primară (proiecte prioritizate)	Rețea TEN-T	Tip Intervenție	Lungime (km)	Cost estimat (mil.EUR fără TVA)	Cost estimat (mil.EUR cu TVA)	Cost mediu (mil.EUR/km)
1	Port Constanța - Palas	Core	M+D	180.0	727.4	865.6	4.0
2	Complex feroviar București	Core	M+E+D	600.0	1000.0	1190.0	1.7
3	Predeal - Brașov	Core	M	27.0	630.0	749.7	23.3
4	Giurgiu Frontieră - București	Core	M+E	99.0	577.7	687.4	5.8
5	Ploiești Triaj - Focșani	Core	M	143.0	572.0	680.7	4.0
6	Focșani - Roman	Core	M	147.0	588.0	699.7	4.0
7	Roman - Pașcani	Core	M	41.0	164.0	195.2	4.0
8	Pașcani - Suceava - Dărmănești	Core	M	71.0	284.0	338.0	4.0
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10	București - Craiova	Core	M	209.0	1254.0	1492.3	6.0
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13	Ilva Mică - Apahida	Core	M	119.0	714.0	849.7	6.0
14	Teiuș - Cp. Turzii	Core	M	51.0	306.0	364.1	6.0
15	Cp. Turzii - Cluj Napoca	Core	M	51.0	484.5	576.6	9.5
16	Buzău - Făurei	Comprehensive	R	40.0	160.0	190.4	4.0
17	Făurei - Fetești	Comprehensive	R	89.0	356.0	423.6	4.0
18	Pașcani - Iași - Ungheni	Core	M+E parțial	97.0	388.0	461.7	4.0
19	Timișoara - Stamora Moravița Fr.	Core	M+E	56.0	120.0	142.8	2.1
20	Craiova - Calafat	Core	M+E	107.8	561.3	667.9	5.2
Total				2586.8	12861.4	15305.1	

Primary network – prioritized projects

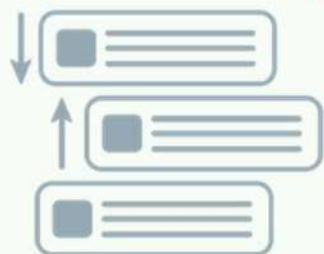


Projects located on the secondary railway network

Nr. Crt.	Proiect rețea secundară	Rețea TEN-T	Tip Intervenție	Lungime (km)	Cost estimat (mil.EUR fără TVA)	Cost estimat (mil.EUR cu TVA)	Cost mediu (mil.EUR/ km)
1	Arad - Oradea	Comprehensive	R	121.0	217.6	258.9	1.8
2	Oradea - Satu Mare - Baia Mare - Dej	Comprehensive	R	326.0	567.8	675.7	1.7
3	Făurei - Brăila - Galați	Comprehensive	R	91.0	364.0	433.2	4.0
4	București - Pitești - Sibiu - Vințu de Jos	Comprehensive	R	340.0	1048.0	1247.1	3.1
5	Filiași - Tg.Jiu - Petroșani - Simeria	Comprehensive	R	208.0	853.3	1015.4	4.1
6	Pitești - Slatina - Craiova	Altă rețea	R	142.0	227.2	270.4	1.6
Total				1228.0	3277.9	3900.7	

Criteria for projects ranking and prioritization

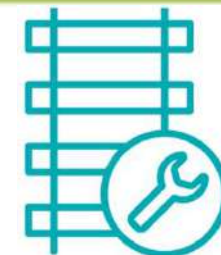
5 prioritization criteria based on scientific and independent research:



1. Economic efficiency (35%) – based on the project's economic performance (ERIR);
2. Decrease in carbon emissions (20%) – based on the project's contribution to the national target of reducing the carbon emissions;
3. Strategic connectivity (25%) – depending if it belongs to the primary/secondary national network, TEN-T or to other networks;
4. Dual use of the infrastructure (15%) – based on the importance for the military mobility on the Romanian territory;
5. Project's maturity (5%) – based on the project's stage of readiness



Practical proposals

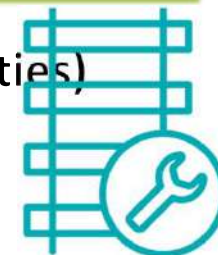


1. Modernizing and fitting locomotives with ERTMS devices
2. Working trains – efficient solution for modernizing railway corridors
 - a) 75 km/year – modernization or 300 km/year - renovation
 - b) EUR 180 mil. 2 trains under MIOP + EUR 1.9 mld. for materials and workforce under TOP
3. Rolling-stock procurement :
 - a) units equipped with electric traction for long-distance transport – EMU (InterRegio/Intercity)–**37 units**
 - b) units equipped with electric traction for short-distance transport – EMU (Regio/suburban train)–**62 units**
 - c) 12 H-EMU purchased trains (hydrogen, 3+1 units) and their corresponding charging stations with hydrogen;
 - d) 20 electric purchased trains (EMU) – RE-IR type electric unit (6 units train with more than 300 seats each);
 - e) 16 new electric 4-axle locomotives equipped with ERTMS/ETCS systems, capable of reaching the 160 km /h speed and hauling up to 16 passenger wagons;



Practical proposals

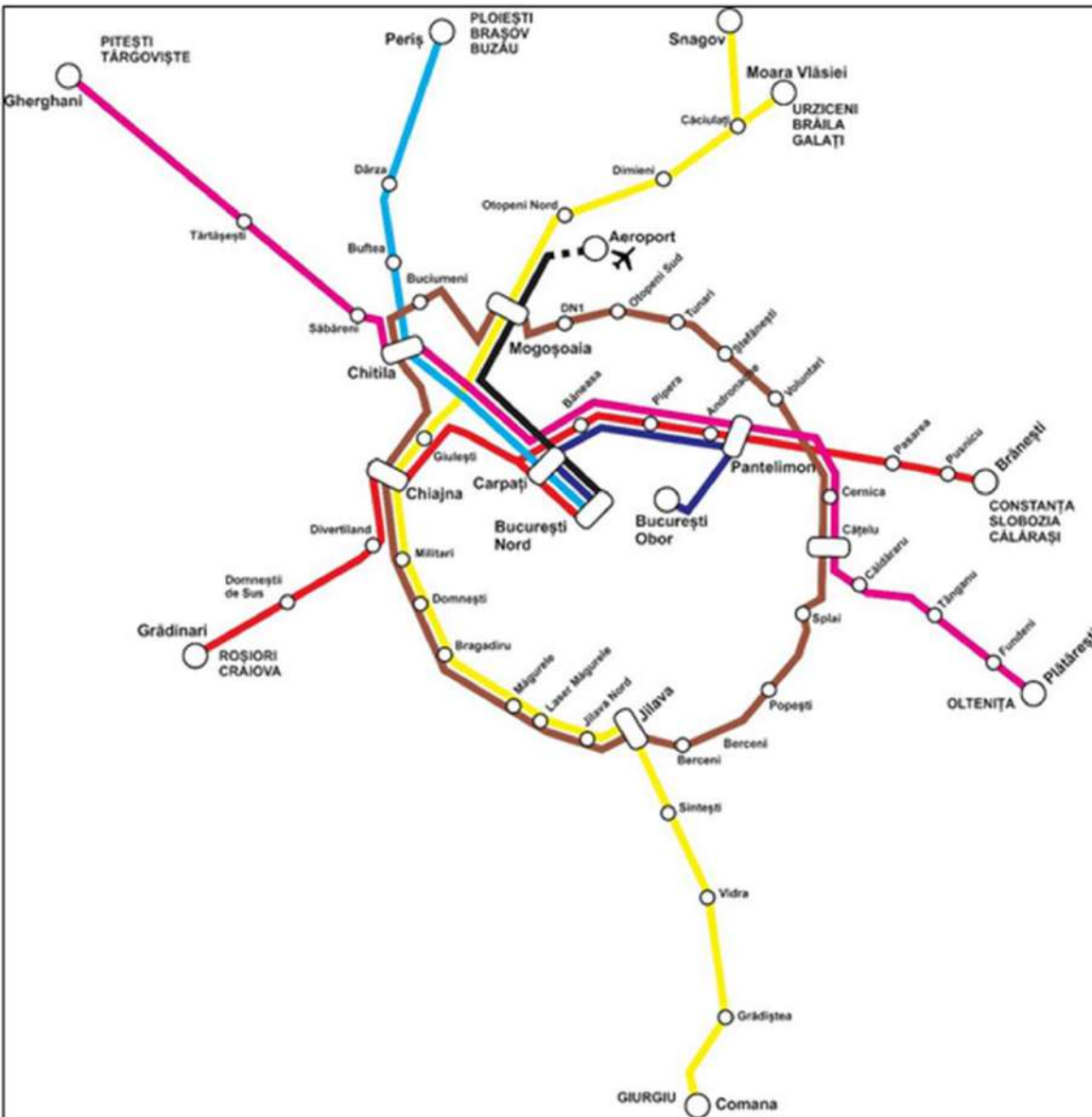
4. **Suburban trains** (Bucharest, Cluj-Napoca, Timișoara, Iași , Brașov, Constanța + other cities)
5. Modernization of the North Railway Station
6. Development of the “SmartTransit” concept
7. Achieving a feasibility study for the construction of a high speed rail Constanța - Bucharest - Budapest (HSR);
8. Works for upgrading the speed to more than 160 km/h on the modernized corridors;
9. Study regarding the implementing solutions for the railway project Vâlcele - Rm. Vâlcea;
10. Modernization of railway stations;
11. Modernization of bridges, footbridges and tunnels;
12. Elements of railway safety.





Suburban trains

- Bucharest S1 suburban train line (electrified doubled railway line):
Grădinari (P&R) – Domnești – Chiajna (P&R) – Giulești – București Nord (P&R) – Pajura – Băneasa (P&R) – Pipera – Petricani (P&R) – Andronache – Voluntari (P&R) – Pantelimon – Brănești (P&R)



RAILWAY SECTOR – High-priority projects

20 new railway projects - **2590 km** an estimated cost of **EUR 15 mld.**

Modernized railway lines

2800 km

+ 2500 km

580 km

EUR 15 mld.

current

2030

Railway top priorities:

-  Finalizing the railway corridor between *Constanța Port and Curtici* (electrified doubled railway line)
 -  Modernizing railway corridors *to Moldova*
 -  Modernization program and procurement of *new trains* for passenger
Implementing *traffic management solutions* for upgrading safety and transport capacity, ERTMS type
 -  Railway *electrification* program (Constanța – Mangalia, Bucharest – Giurgiu, Cluj Napoca – Oradea, Craiova - Calafat)
 -  *Modernization* program for *stations, bridges and tunnels*
 -  Implementing ‘*suburban train*’ – *projects for Bucharest, Cluj Napoca, Brașov, Iași, Timișoara, Sibiu areas*
- Shift 2 Rail (freight and passenger)



SUBWAY – Development strategy

5 new subway lines in Bucharest and Cluj Napoca (87 km-91 metro stations)

Extension of the subway network

-  Extending the M4 line – *Gara de Nord – Gara Progresu sector* (10.6 km – 14 metro stations)
-  Extending the M5 line – *Eroilor – Universitate sector and Universitate - Pantelimon sector* (11.5 km – 12 metro stations)
-  Construction of the M6 line – *Gara de Nord - 1 Mai – Otopeni Airport sector* (14 km – 12 metro stations)
-  Line 7 – *Voluntari – Bragadiru sector* (26 km – 27 metro stations and 2 depots).
-  Line 8 – *Sud Crângași – Dristor 2 semi-ring* (19 km – 18 metro stations)
-  Construction of the M1CJ line – *Gilău – Florești – Cluj Napoca* (20 km – 19 metro stations /depots).

Extension of the subway lines

-  extension *M2 Pipera – Petricani*, extension *M2 Berceni – Centura Sud*, extension *M3 Păcii - Centura de Vest*, extension *M4 Străulești – Mogoșoaia*.

NAVAL SECTOR – Development strategy

Primary network – **14** ports (13 inland and 1 maritime)

Nordic route Europe - Asia



Primary Objective:

Romania's positioning on the main freight route *between Europe and Asia*, by highly capitalizing the potential of the **Constanța Port** – the main deep-water maritime port in The Black Sea and its connection to the rest of the Europe through **multimodal corridor TEN-T Rhine – Danube** (consisting of inland waterways, railways and highway network)

NAVAL SECTOR – Development strategy



5 strategic objectives for the development



Providing **minimum depth** for navigation on Danube



Developing and modernizing **waterway canals**



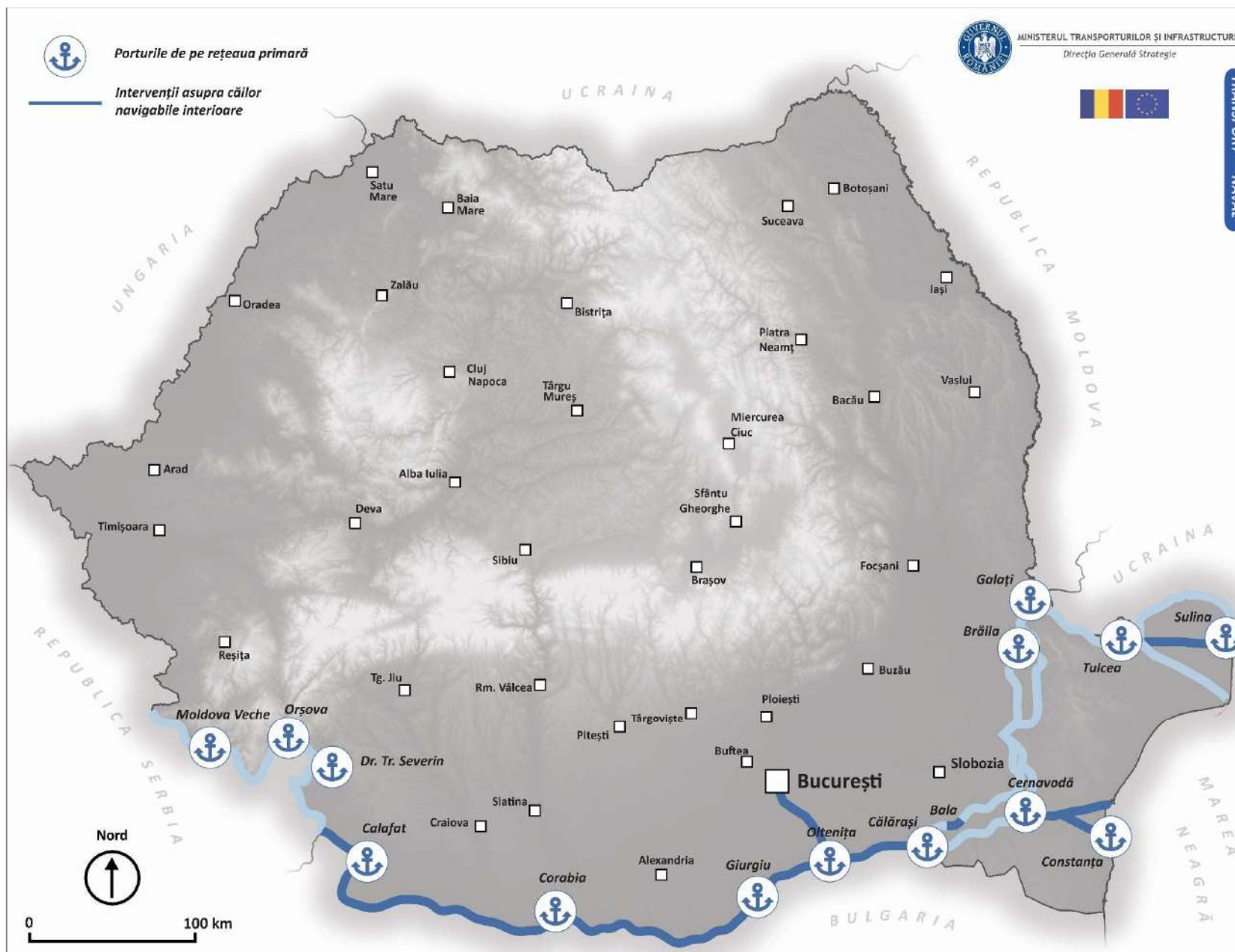
Developing and modernizing **Constanța Port** for achieving new freight transport flux and increasing its competitiveness



Establishing a Romanian primary network of **inland ports** and targeting the investments for its development



Promoting **inland waterways** transport.



FINANCING STRATEGY

3 financing sources available:



- State budget – overall contribution or co-financing
- Non-refundable external funds – MIOP, CEF, RRF
- Refundable funds – IFI loans or PPP funds

FINANCING STRATEGY



Financing requirement



**EUR 72.77
mld.**



<u>ROAD</u>	EUR 34.19 mld.	- EUR 28.25 mld. – primary network - EUR 5.45 mld. – secondary network - EUR 0.49 mld. – road safety
<u>RAIL</u>	EUR 20.63 mld.	- EUR 16.36 mld. – primary network - EUR 3.27 mld. – secondary network - EUR 1.00 mld. – rolling-stock
<u>SUBWAY</u>	EUR 10.7 mld.	- EUR 9.20 mld. – Bucharest - EUR 1.50 mld. – Cluj Napoca
<u>WATER</u>	EUR 4.46 mld.	- EUR 1.08 mld. – Danube and inland waterways - EUR 1.33 mld. – maritime ports - EUR 2.05 mld. – inland ports
<u>AIR</u>	EUR 2.79 mld.	- EUR 1.84 mld. – primary network - EUR 0.85 mld. – secondary network - EUR 0.10 mld. – tertiary network

FINANCING STRATEGY



Financing requirement



**EUR 72.4
mld.**



2014-2020 ALLOCATION (MIOP, CEF): EUR 5.36 mld.

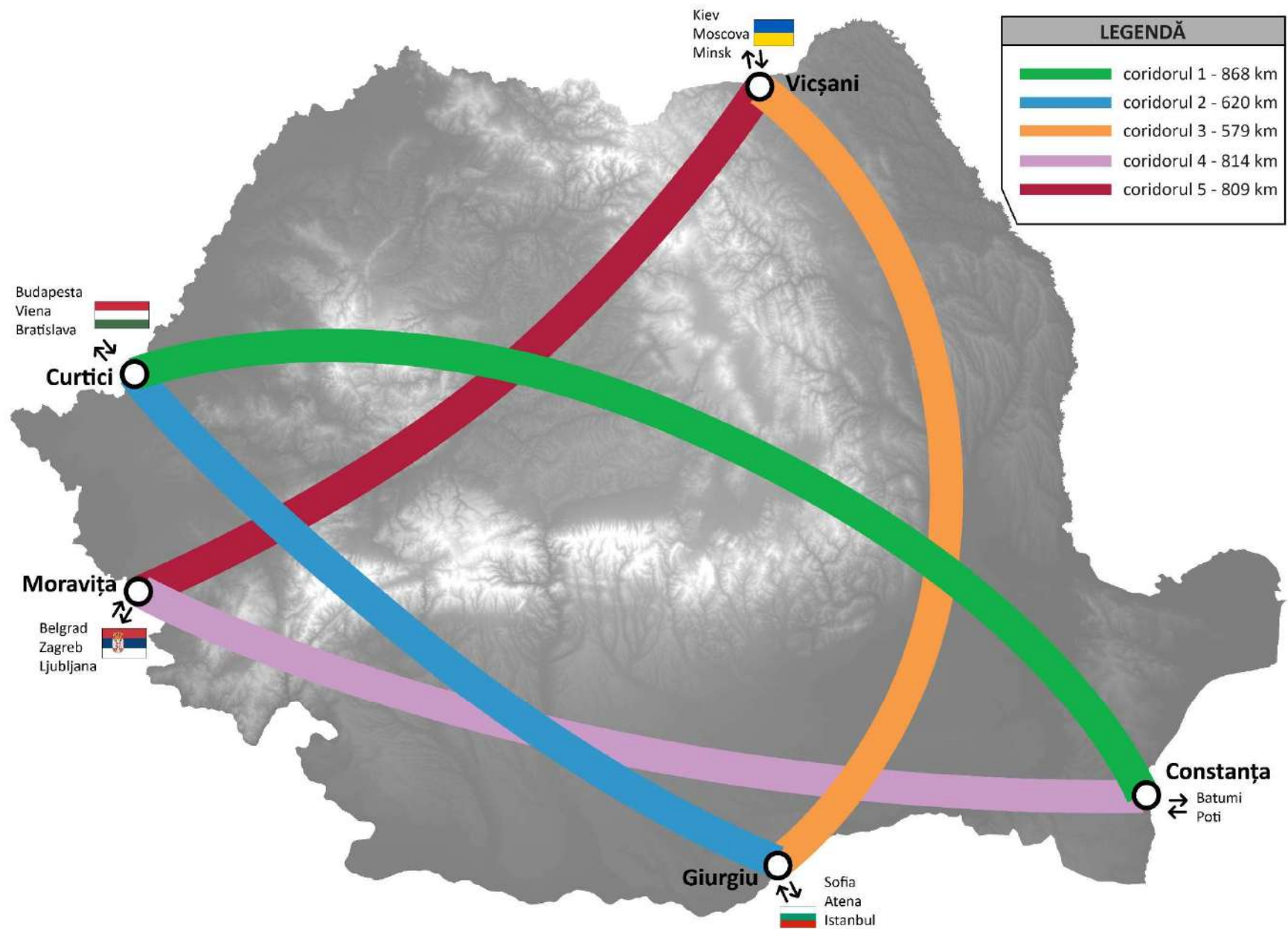
2021-2027 ESTIMATED ALLOCATION (TOP, CEF): EUR 5.44 mld.

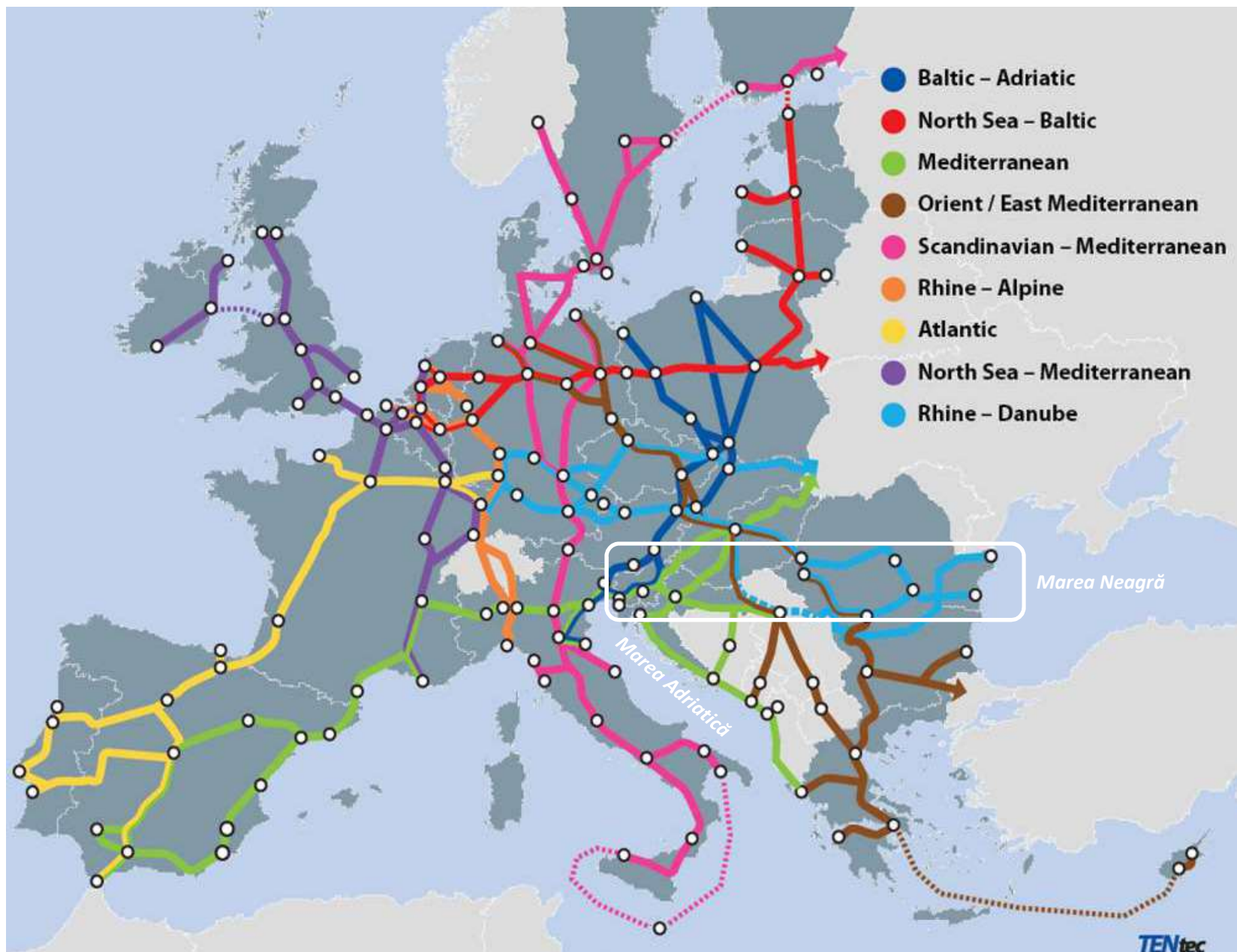
ESTIMATED ALLOCATION RRF: EUR 7.62 mld.

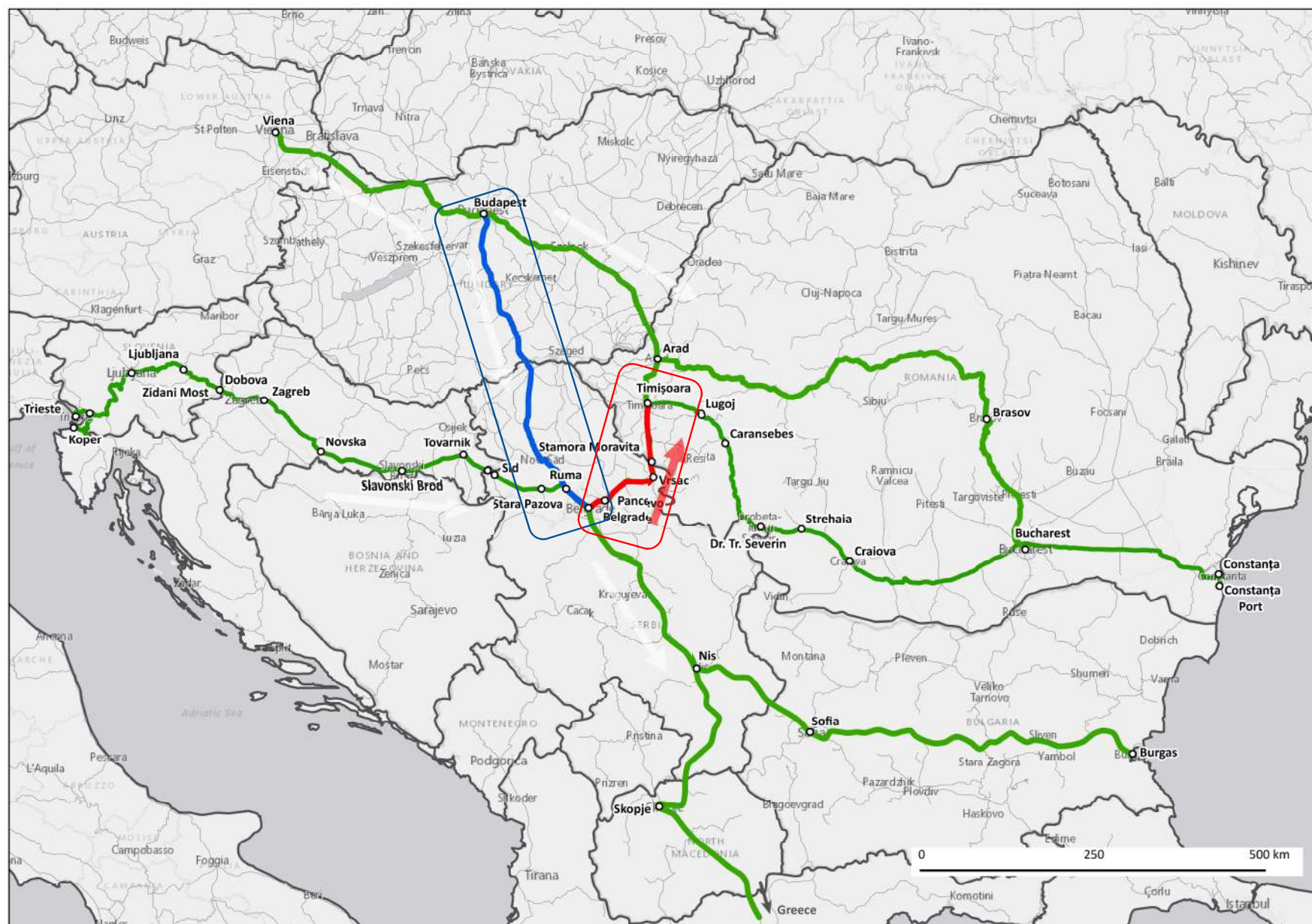
TOTAL EUROPEAN FUNDS 2021-2027: EUR 13.06 mld.

STATE BUDGET: 2% of the GDP for the upcoming 10 years ~ EUR 50 mld.

EXTERNAL LOANS / PPP: EUR 0.5 mld.





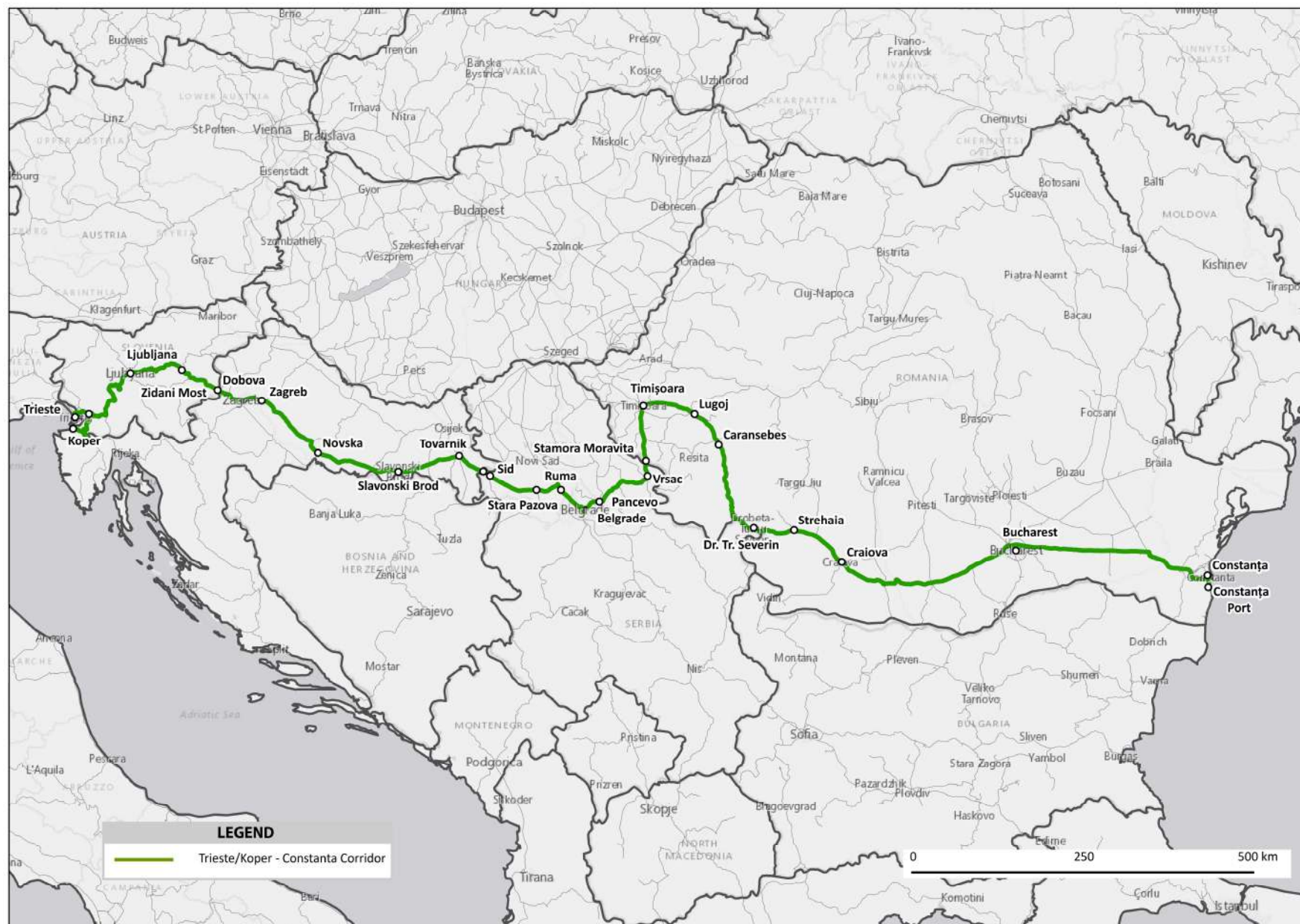


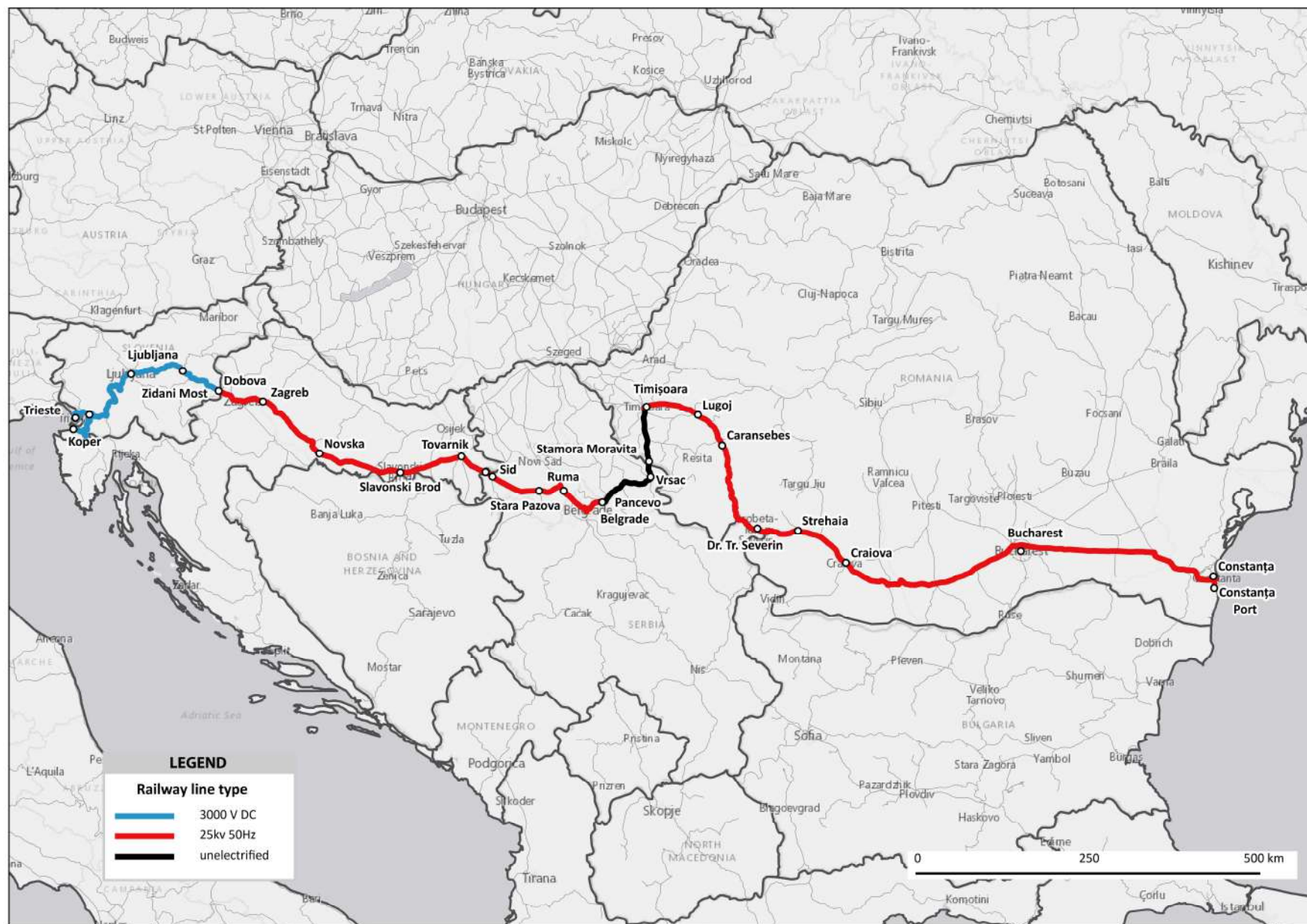


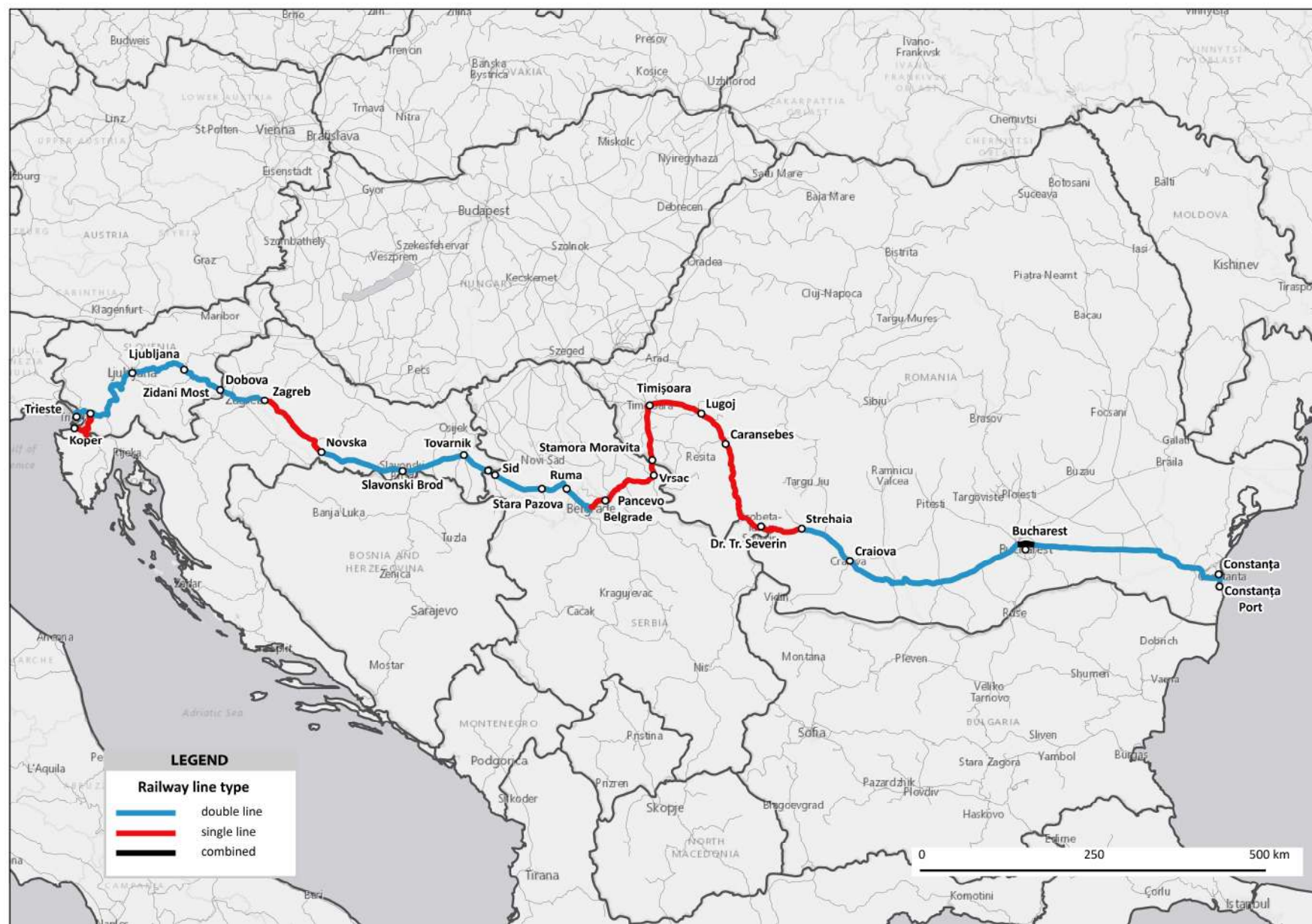
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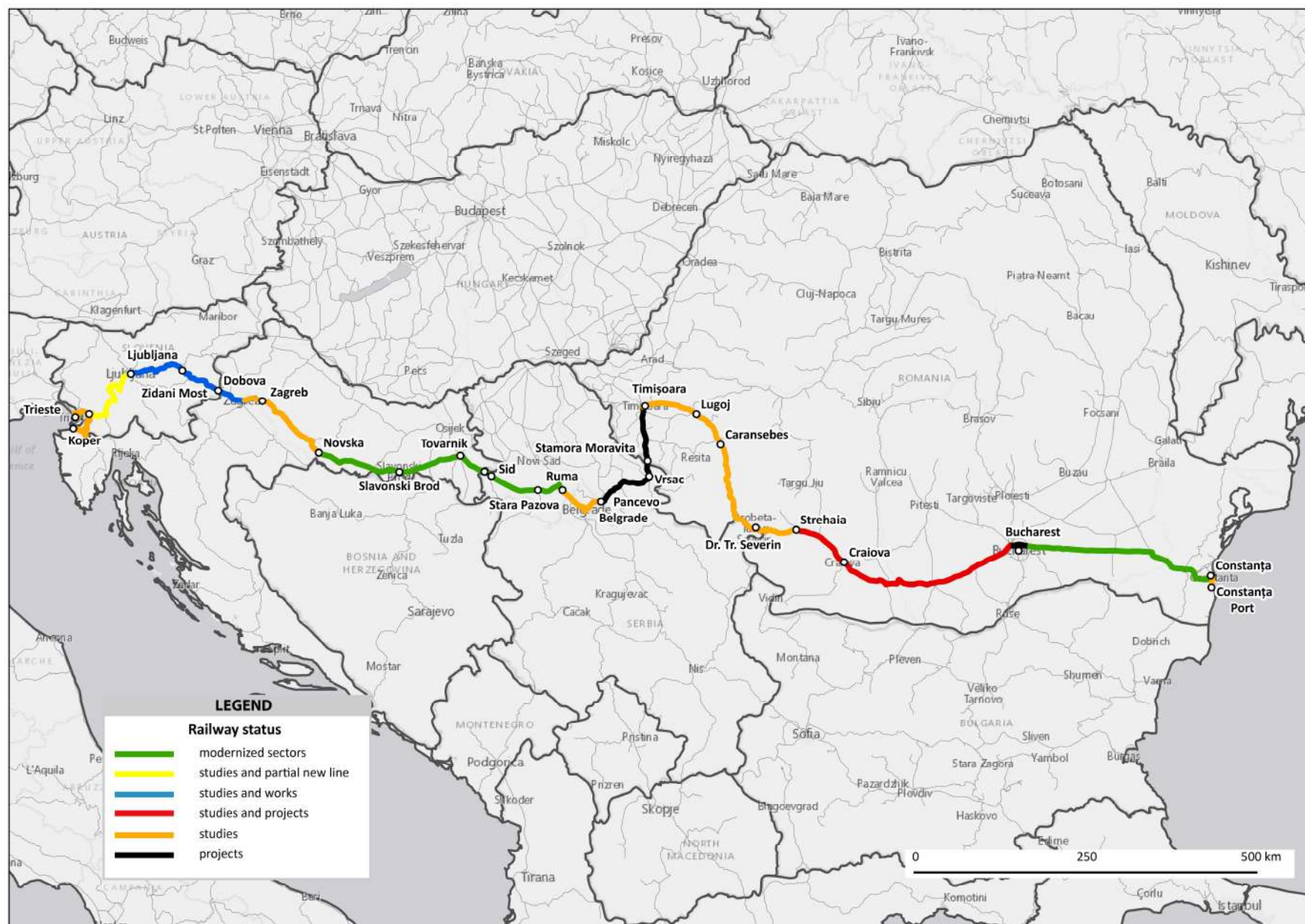
Tara	Sector feroviar	Electrificata	simpla/dubla	clasa de viteza (km/h)	Modernizat	TEN-T
Slovenia 	Trieste - Villa Opicina - Divaca	3000 V DC	dubla	70 - 100	studies	B-A/Mediterranean
	Koper - Presnita - Divaca	3000 V DC	simpla	<70	studies and works	B-A/Mediterranean
	Divaca - Ljubljana	3000 V DC	dubla	70 - 100	studies and partial new line	Mediterranean
	Ljubljana - Zidani Most	3000 V DC	dubla	70 - 100	studies and works	Mediterranean
	Zidani Most - Dobova	3000 V DC	dubla	70 - 100	studies and works	Mediterranean
Croatia 	Dobova - Zagreb	25kv 50Hz	dubla	>100	studies and works	Mediterranean
	Zagreb - Dugo Selo	25kv 50Hz	dubla	<70	studies	Mediterranean
	Dugo Selo - Novska	25kv 50Hz	simpla	<70	studies	Mediterranean
	Slavonski Brod - Vinkovici	25kv 50Hz	dubla	>100	modernized	Mediterranean
	Vinkovici - Tovarnik	25kv 50Hz	dubla	>100	modernized	Mediterranean
Serbia 	Tovarnik - Sid	25kv 50Hz	dubla	>100	modernized	Mediterranean
	Sid - Ruma	25kv 50Hz	dubla	70 - 100	modernized	Mediterranean
	Ruma - Stara Pazova	25kv 50Hz	dubla	>100	modernized	Mediterranean
	Stara Pazova - Belgrad	25kv 50Hz	dubla	70 - 100	studies	Mediterranean
	Belgrad - Pancevo	25kv 50Hz	simpla	70 - 100	studies	<i>conectivitate</i>
	Pancevo - Vrsac	neelectrificata	simpla	<70	project	<i>conectivitate</i>
	Vrsac - Stamora Moravita	neelectrificata	simpla	70 - 100	project	<i>conectivitate</i>
Romania 	Stamora Moravita - Timisoara	neelectrificata	simpla	70 - 100	project	<i>conectivitate</i>
	Timisoara - Lugoj	25kv 50Hz	simpla	<70	studies	Orient East Med / RD
	Lugoj - Caransebes	25kv 50Hz	simpla	70 - 100	studies	Orient East Med / RD
	Caransebes - Dr. Tr. Severin - Strehaia	25kv 50Hz	simpla	70 - 100	studies	Orient East Med / RD
	Strehaia - Craiova - Bucuresti	25kv 50Hz	dubla	>100	studies and project	Orient East Med / RD
	CF Centura Nord Bucuresti	25kv 50Hz	combinat	<70	project	Rhine - Danube
	Bucuresti - Constanta	25kv 50Hz	dubla	>100	modernized	Rhine - Danube
	Constanta - Port	25kv 50Hz	dubla	<70	studies	Rhine - Danube













CURTICI



STAMORA MORAVITA



Cross-border benefits

- The Curtici railway station is a **common MAV / CFR cross-border station**, modernized to European standards;
- **It is a high-security area**; the average time spent on border for the police control in order to prevent illegal trafficking (immigrants) is less than 1 hour;
- The CFR grants to the RUs the **following facilities / reductions of the track access charges** for the utilization of the infrastructure on the basis of conventions signed between the CFR and the RUs:
 - 33% in the case of full international trains that are transiting CFR's network;
 - 33% for complete trains in intermodal traffic.

Digital Benefits

- CFR manages **IT systems used at European level** by RailNetEurope organization in order to facilitate international traffic on the European railway infrastructure, such as: **Pathfinder** – IT system, **EICIS** (European Infrastructure Charging Information System), **EUROPTIRAIL** – IT system, **TIS** (Train Information System) - IT system
- CFR SA manages the **IMComm IT application for the interactive programming of the international trains'** traffic between CFR and MAV.

ROMANIA SMART RAILWAY TRANSIT CONCEPT (BEOGRAD AND BUDAPEST CAN BE BLACK SEA DRY PORTS)



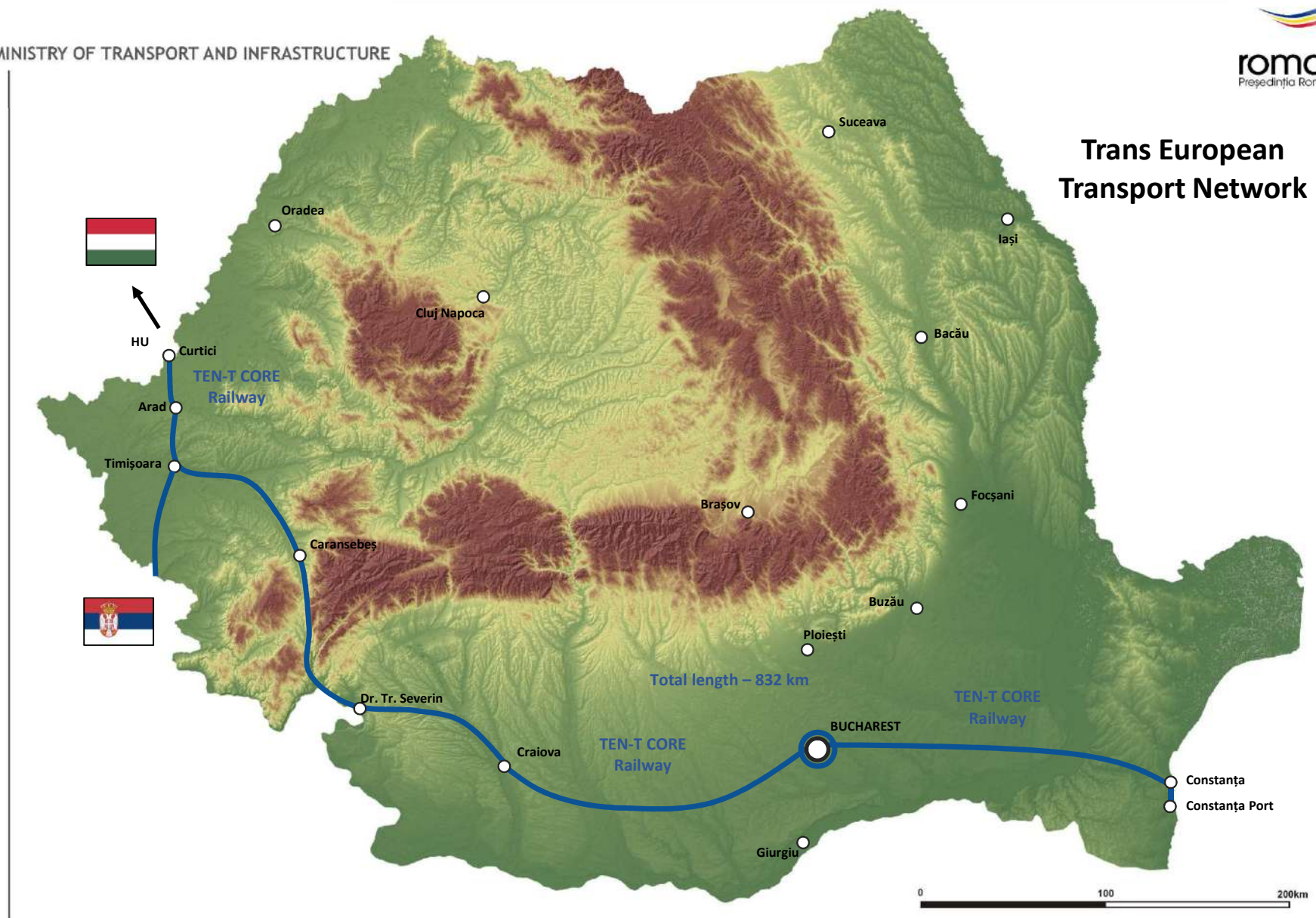


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Trans European Transport Network



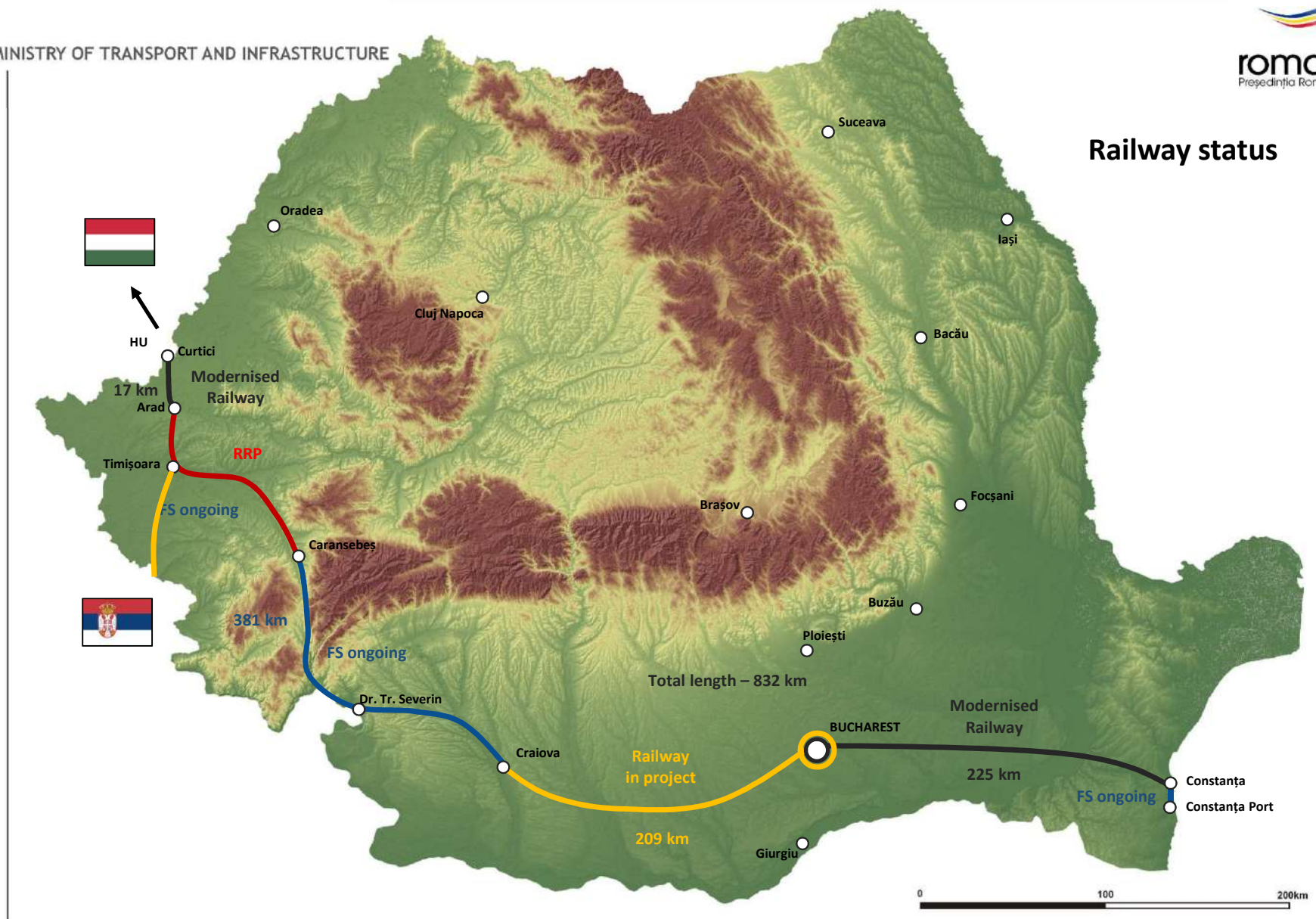


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Railway status



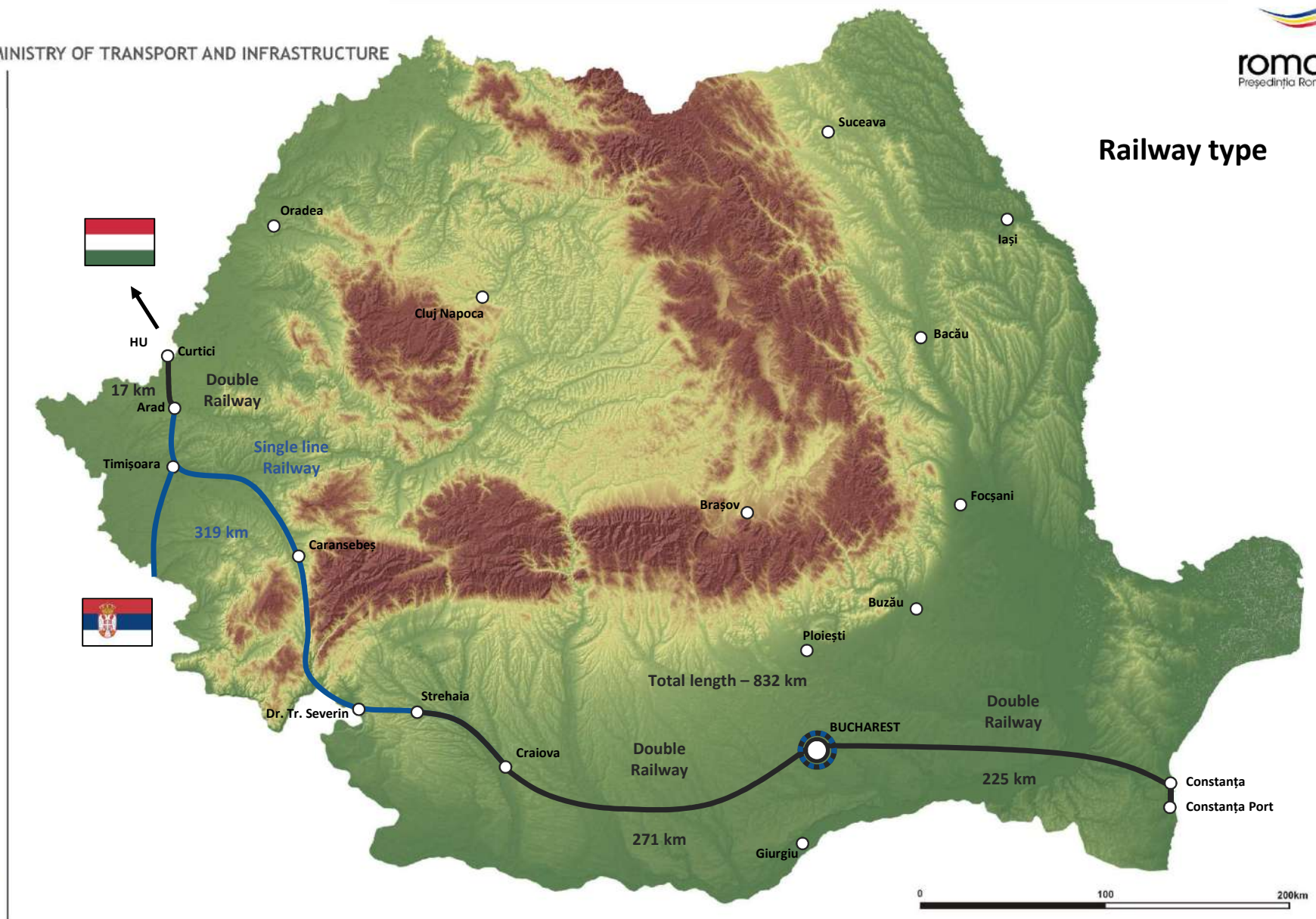


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Railway type



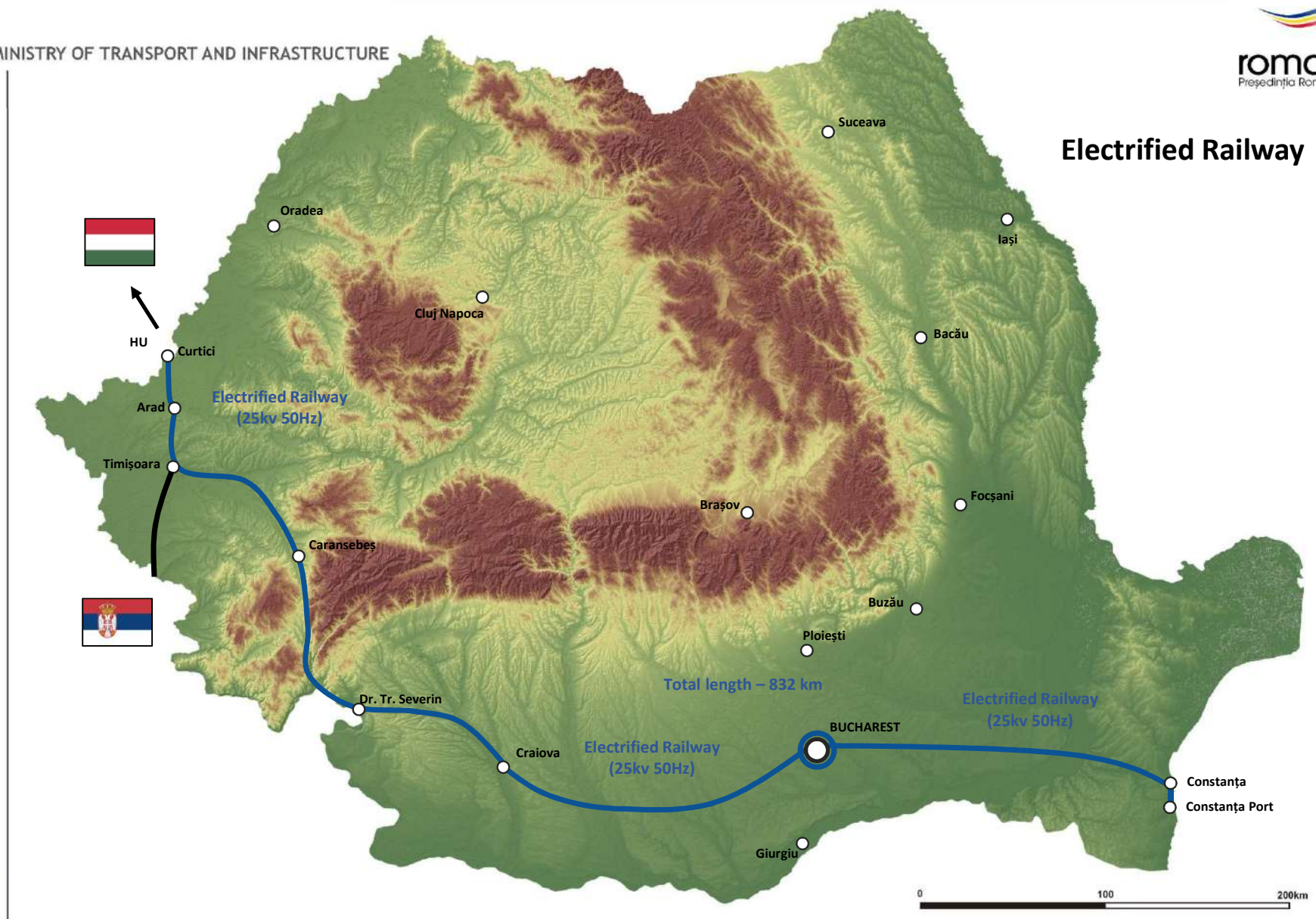


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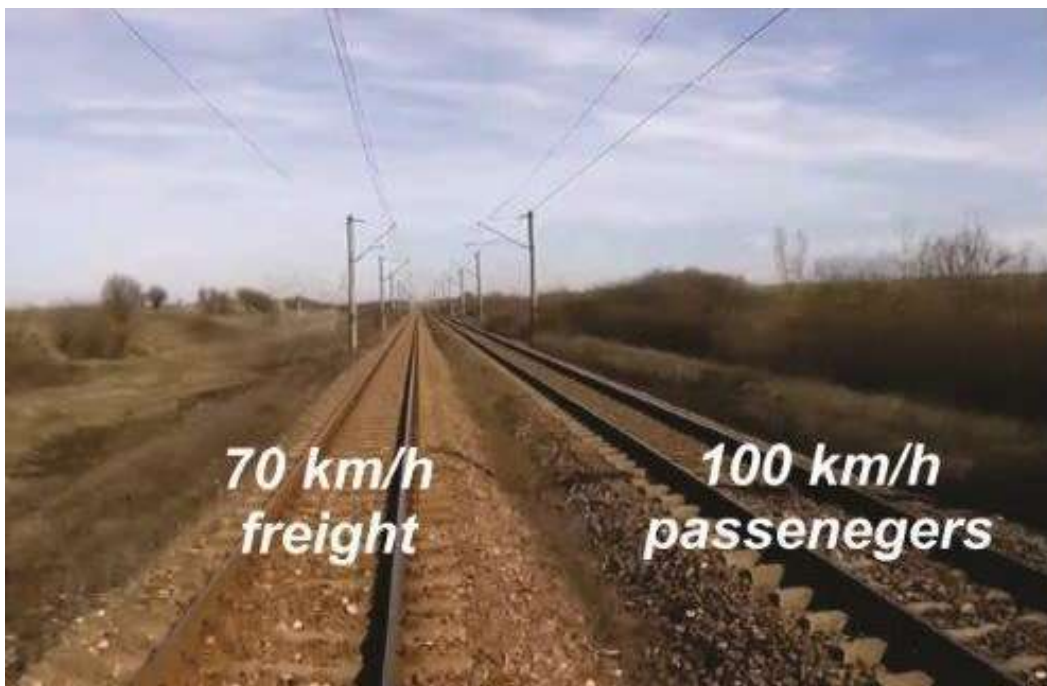
Electrified Railway





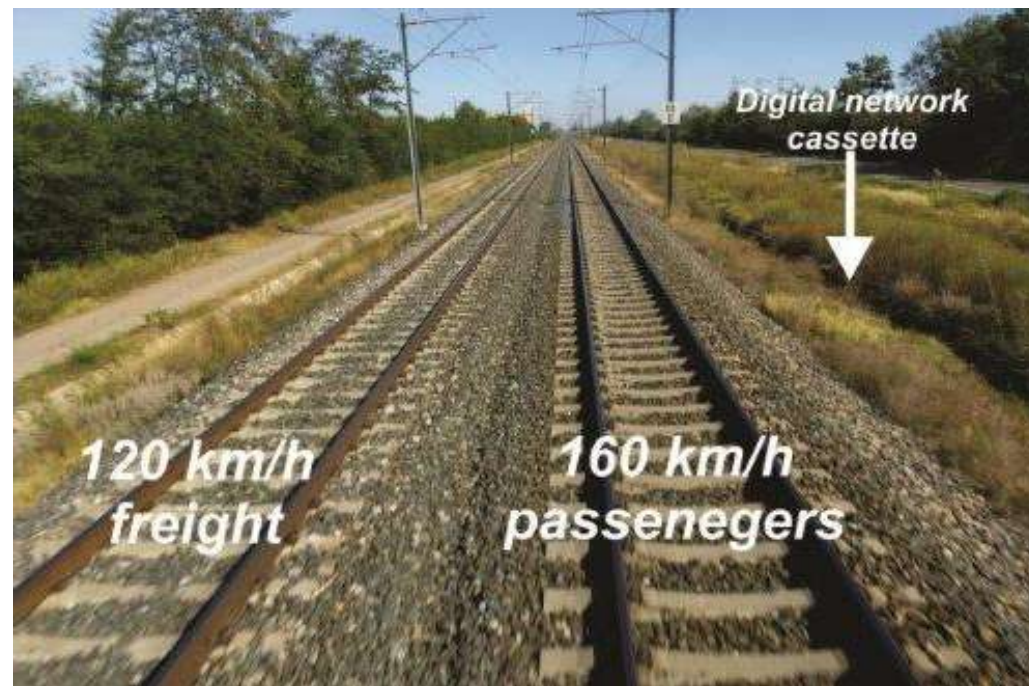
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Unmodernized railway (Craiova – Bucharest)



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Modernized railway (Bucharest - Constanta)





Economical sustainable railway corridor

Increasing the
rail speed

Increasing
axle load

Increasing the
railway capacity

Now:

- 70 km/h for freight trains
- 100 km/h for passengers trains
- Speed restrictions

In future:

- up to 22.5 tons

In future:

- more freight trains
- more passengers trains
- ERTMS

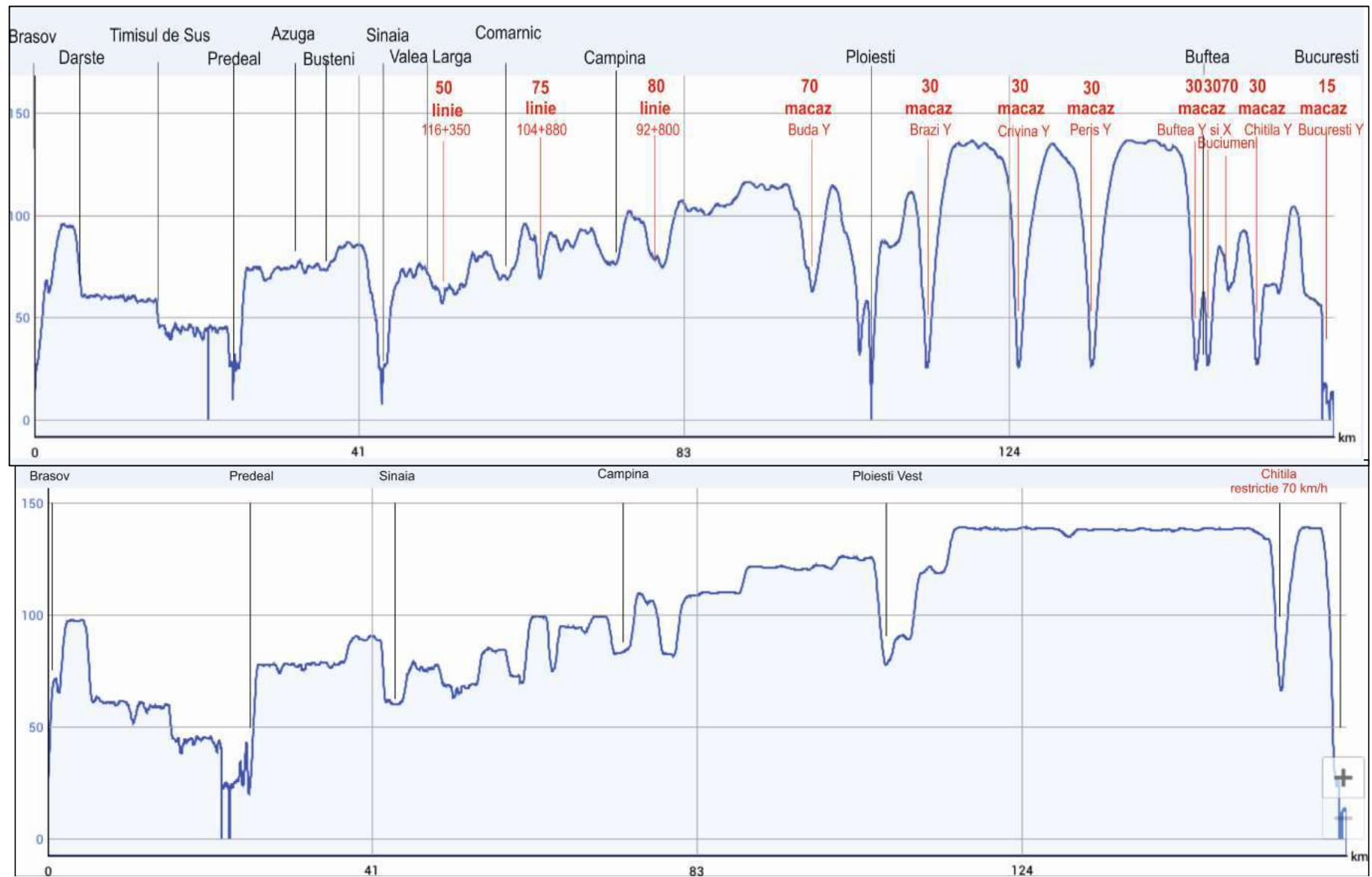
In future:

- 120 km/h for freight trains
- 160 km/h for passengers trains

Removing speed restrictions along railway transport corridors (quick-wins projects)



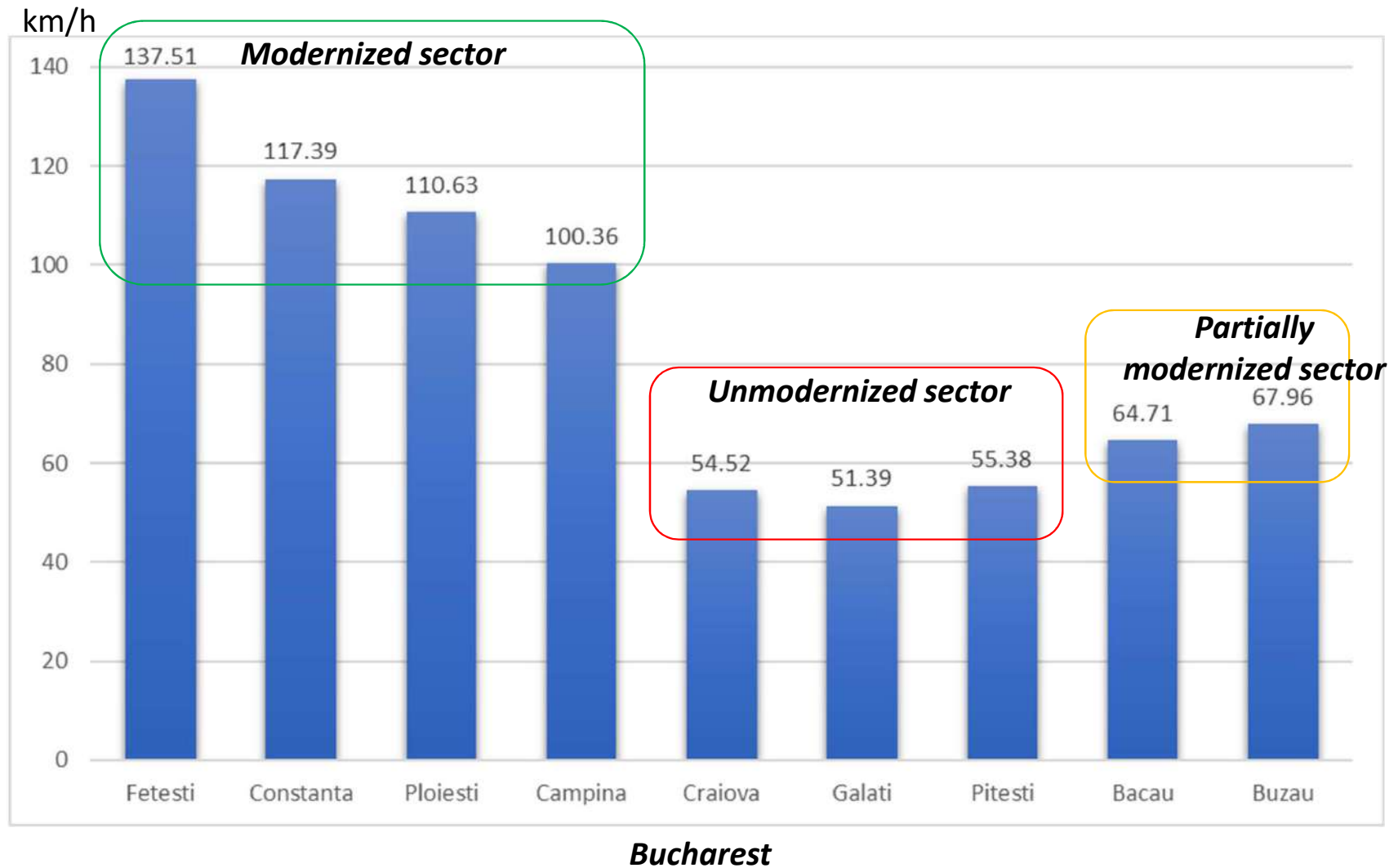
The results of removing the speed restrictions



Massive investment in the development and modernization of railway infrastructure



The results of the renovation

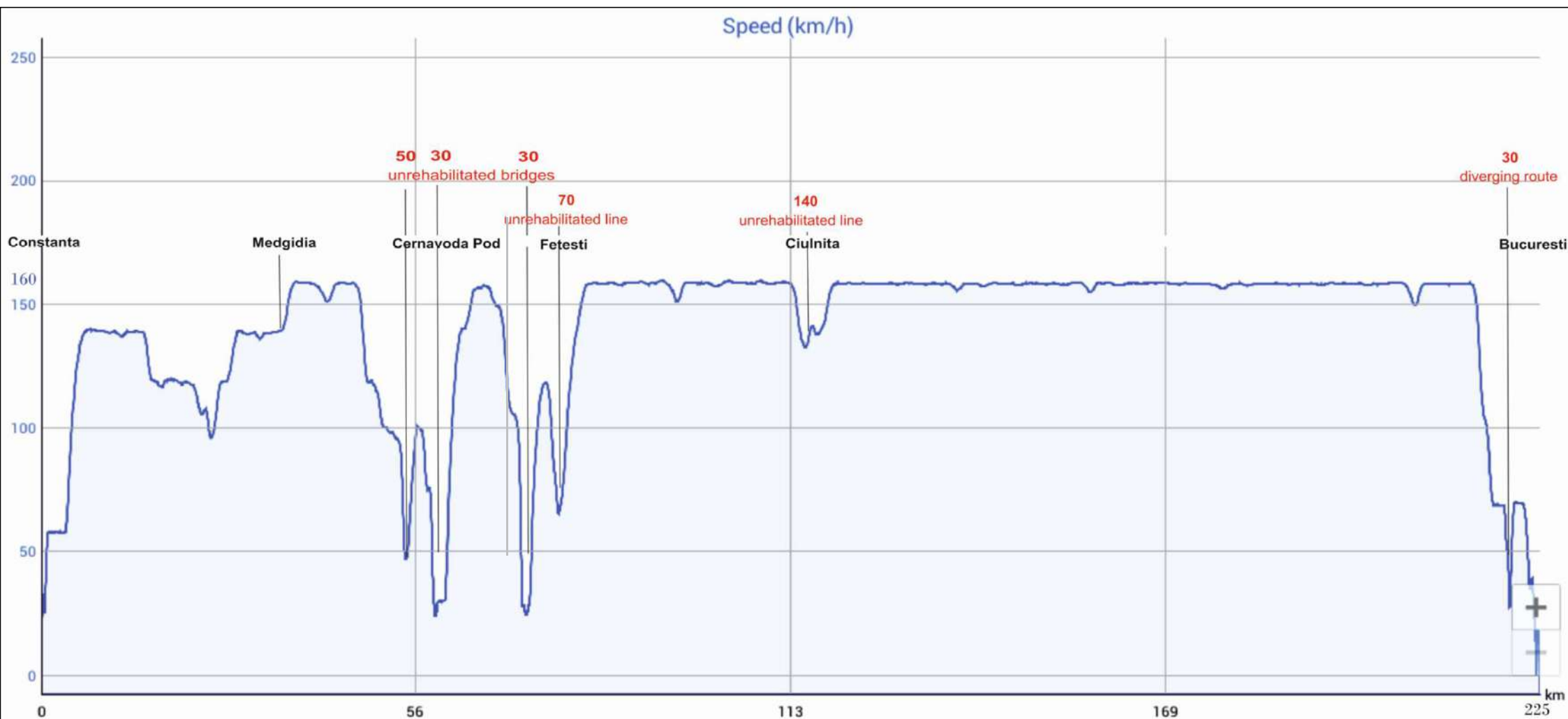




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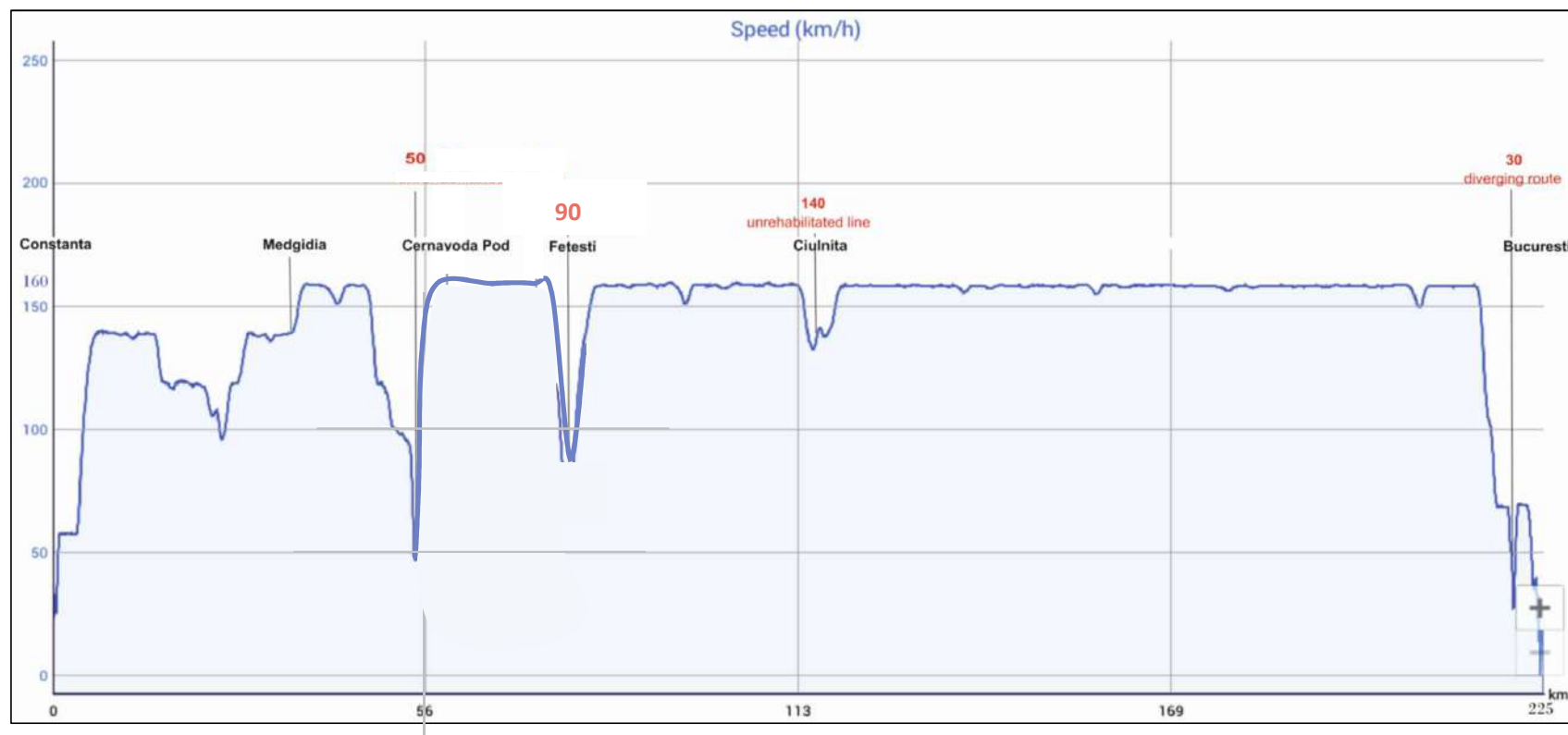




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RO-LA EXPERIMENT



INTEROPERABILITY



• credit: artinescu.razvan

INTEROPERABILITY



• credit: Cosmin.Stefan

INTEROPERABILITY



• credit: Rácz János

INTEROPERABILITY



credit: Halász Péter



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Thank you for your attention!





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THANK YOU!

