Implementation Plan

Annex of the CID

2023 timetable year

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1 Introduction

1.1 Legal background

The Commission of the European Union proposed in 2008 the creation of a European rail network for competitive freight, consisting of international corridors. The aim is to achieve reliable and good quality railway freight services to be able to compete with other modes of transport.

The rail transport for goods has been experiencing difficulties in Europe for more than thirty years for a number of reasons: changes in industry, the development of motorways, and new logistic requirements on the part of companies. In order to respond to these difficulties, the Community has launched an active transport policy for the revitalisation of rail transport based on progressively opening up transport services to competition (effective for all freight since 1 January 2007) and developing the interoperability of rail systems.

The Commission's objective to initiate Regulation (EU) 913/2010 of 22 September 2010 concerning a European rail network for competitive freight (hereinafter: Regulation) was to improve the service provided by the infrastructure managers to international freight operators. It was published in the Official Journal of the European Union on 20 October 2010 and entered into force on 9 November 2010.

Through the Regulation the Commission would like to act in the following main areas corresponding to the process of harmonization:

- improving coordination between Infrastructure Managers;
- improving the conditions of access to infrastructure;
- guaranteeing freight trains adequate priority;
- and improving inter-modality along the corridors.

The purpose of the Regulation is to create a competitive European rail network composed of international freight corridors with a high level of performance. It addresses topics such as governance, investment planning, capacity allocation, traffic management and quality of service and introduces the concept of corridor one-stop shop. The schematic overview of the Corridor network is displayed below.

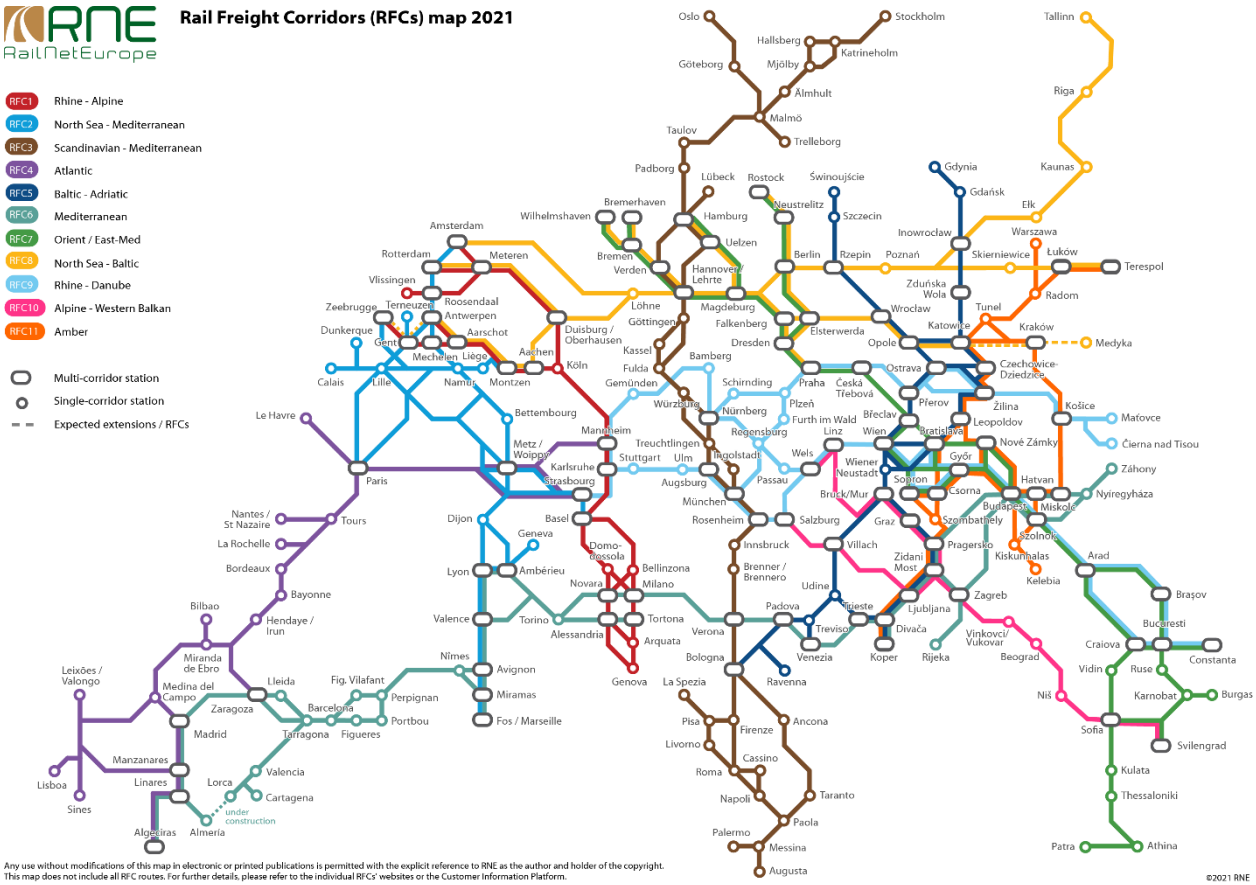

Table 1

The Corridors commit to fulfil their intended role of increasing international rail freight's competitiveness, unlocking the huge growth potential for longer distance freight and promoting rail's key role in a sustainable transport system. The improved marketability of the corridors is key to maintaining and winning over end-customers to the rail solution.

The Regulation requires a governance structure on two levels: an Executive Board (composed of representatives of the authorities of the Member States) and a Management Board (composed of representatives of the Infrastructure Managers (IMs) and Allocation Bodies (ABs)). It also requires the creation of two Advisory Groups (AGs): one consisting of representatives of terminal owners and managers, the other consisting of representatives of Railway Undertakings (RUs).

The corridors shall further designate or set-up a corridor one-stop shop (C-OSS) for allocating certain types of international freight capacity (pre-arranged paths (PaPs) and reserve capacity (RC)) on the Corridor.

A Corridor is a complex project that follows a new set of rules and procedures. For this reason, the Corridor Information Document (CID) was created to guide all clients and interested parties through the working of the Corridor. Together with RailNetEurope, the Corridors have harmonised the structure and most of the texts to allow an easier access to and understanding of this information.

1.2 Aim of the Implementation Plan

The purpose of this document is to create an inventory of the numerous tasks that derive from the establishment and the operation of Orient/East-Med Corridor. Seeing that the Regulation allotted a very limited time period for IMs to create the rail freight corridors, it was necessary to concentrate on the essential steps that need to be taken. In the past few years the member companies of the Management Board tried to define the conditions of operation of the corridor by systematically listing the tasks, analysing the possible procedures, and choosing the most feasible solutions for every single field of activity.

This document summarizes the conclusions reached, and contains the commonly accepted rules applicable along the corridor.

It also serves as a management tool for the MB, a basic document that shall be regularly updated with newly defined solutions, so it will become a point of reference that can continuously support the work of involved companies.

The Implementation Plan aims to present to the Executive Board and to the European Commission the main characteristics of the corridor, the measures taken so far and the planned procedures of corridor operation.

The Implementation Plan is also to be published on the website of RFC OEM, in order to ensure transparency, encourage networking with other corridors and to attract the interest of the potential business partners.

1.3 Aim of RFC OEM Members

Connecting 8 Member States through their nine Infrastructure Managers and one Allocation Body to operate a railway freight corridor is a challenging task. RFC OEM members are fully committed to find solutions to the different operational issues on this 9000 km long corridor lines to become a reliable part of the Single European Railway Area. One of the key challenges of our times is to address the climate change. The European Commission has developed a very comprehensive package and responsibility to this challenge with a new initiative, with the strategy of European Green Deal. It says very ambitious targets, inter alia, to achieve the carbon neutrality by 2050 and a 55% cut in the CO2 emission by 2030.

In order to meet these targets, the transport sector will require major efforts, therefore the Commission issued a clear comprehensive package of measures which are set out in the Sustainable and Smart Mobility Strategy (SSMS). The EU transport strategy focuses on all the aspects that are crucial to develop a strong and competitive rail industry and a green and sustainable transport.

Concerning the railway freight transport the strategy also sets out very ambitious goals, aiming to increase by 50% railway traffic by 2030 and by double it by 2050. It is evident to meet these goals with the current market trends and with all the difficulties we know now due to unexpected COVID-19 pandemic we need to promote rail and the green choice where ever we can. We need rail freight itself to became more competitive vis-à-vis other transport modes, in particular compare road transport.

To improve interoperability, to easy cross border traffic and make the Shift2Rail happen are key elements in the coming years. RFC OEM members therefore set out the following main driving

principles for its operation to be in line with the requirements of the above-mentioned European initiatives:

- to develop the corridor services in harmony with freight market demand,
- to operate the infrastructure cost-effectively on the long run through harmonization of technical and procedural conditions,
- to build on the opinion of business partners to attain their satisfaction,
- to be a worthy part of the European railway network by becoming an essential connection between Central Europe and South-East Europe, and form a link to Asia through the Black Sea and Aegean Sea ports,
- to contribute to increasing the market share of the environmentally most friendly land transport mode, and thereby
- to facilitate the environmentally sustainable development of the European economy and the achievement of a better quality of life for its people.

In order to meet targets described in the SSMS the listed activities and measures below shall be implemented in the concerned Member States in the coming years without, of course, a completeness of all related tasks[1] is necessary to be done:

1. Rehabilitation and modernisation of the infrastructure
   - Continuation of line electrification
   - ERTMS implementation
   - Integration into the high-speed railway network – thereby releasing capacity on conventional lines
   - Extension of the backbone lines

2. Digitalisation in railway transport
   - GSM-R utilization
   - Centralised traffic control
   - Digital dispatching

3. Strengthening intermodality
   - Renewal of ‘last mile’ infrastructure
   - construction of terminals

4. Strengthening the cross-border coordination and cooperation
5. Increasing energy efficiency and reducing the level of pollution

2 Corridor description

According to Regulation (EU) 1316/2013 which is amending the Regulation (EU) 913/2010 the RFC 7 is extended to Germany and renamed to Rail Freight Corridor Orient / East-Med (OEM RFC). Consequently, the German Rail Infrastructure Manager, DB Netz AG joined the Management Board in 2018.

[1] Summary of the list of plans by the individual infrastructure managers regarding the implementation of SSMS provided to the ExBo.

RFC OEM runs in the following 8 countries: Germany, Czech Republic, Slovakia, Austria, Hungary, Romania, Bulgaria and Greece, between the cities of Wilhelmshaven/Bremerhaven/Hamburg/Rostock–Dresden–Praha–Vienna/Bratislava–Budapest–Vidin Tovarna–Sofia–Thessaloniki–Athens–Patras as well as Budapest–Bucharest–Constanta and Sofia–Plovdiv–Svilengrad.

Map of RFC OEM:

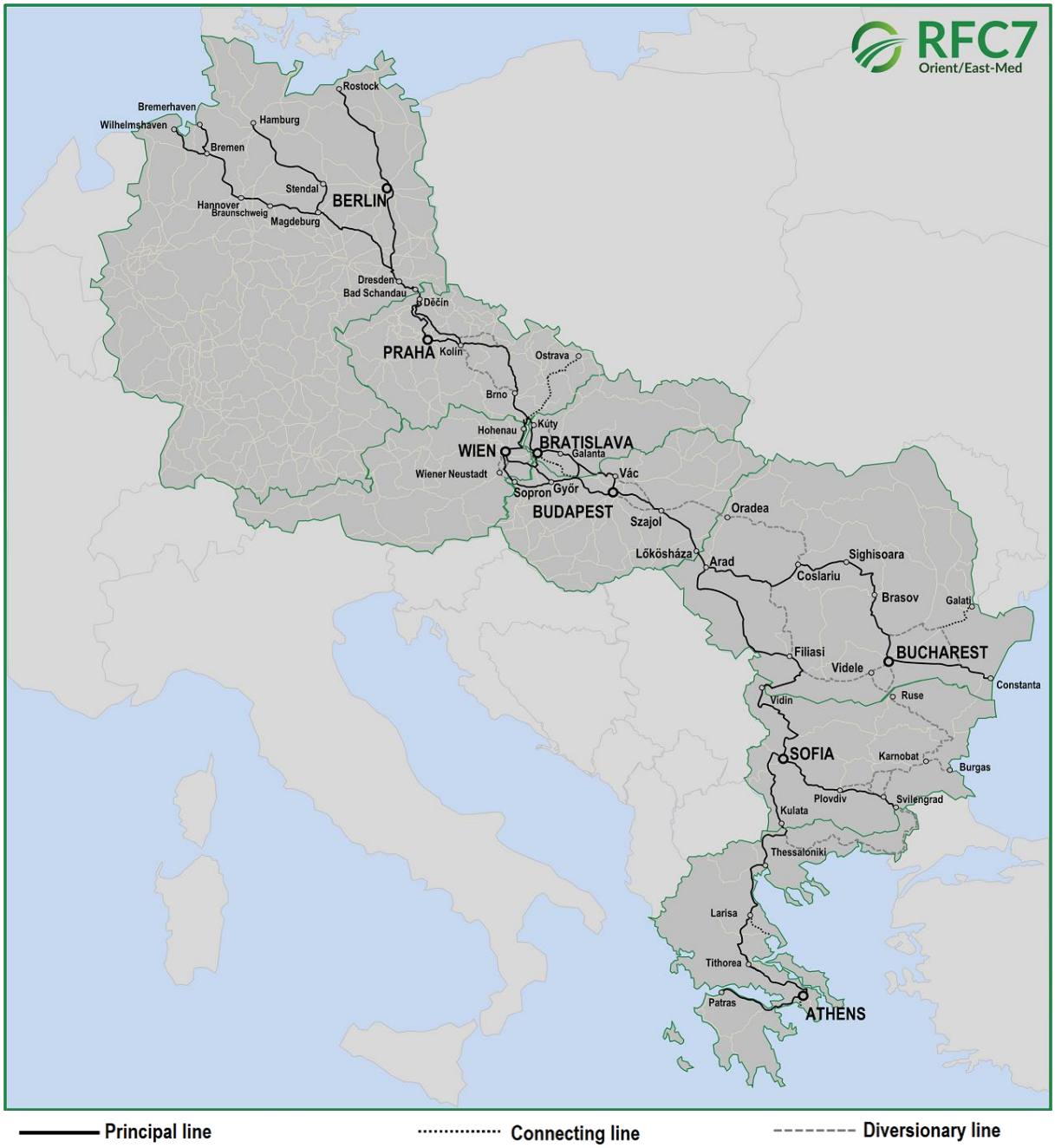

Table 2

The railway lines of the Corridor are divided into:

- **Principal line:** on which PaPs will be offered;

- **Diversionary line:** on which PaPs may temporarily be considered in case of disturbances, e.g. long lasting major construction works on the principal lines;
- **Connecting line:** lines connecting the corridor lines to a terminal (on which PaPs may be offered but without obligation to do so);
- **Expected line:** any of the above-mentioned lines which are either planned in the future or are under construction but not yet completely in service. Expected line can also be an existing line which shall be part of the Corridor in the future.

Complex definition of RFC OEM according to Regulation (EU) 1316/2013:

Country	Character	Line section / Terminal / Marshalling yard	Length of the section
Federal Republic of Germany	Principal lines	Bremerhaven – Bremen	69 km
		Wilhelmshaven – Bremen	105 km
		Bremen – Hannover	126 km
		Bremen – Wunstorf	100 km
		Wunstorf – Magdeburg	166 km
		Hamburg – Stelle	20 km
		Stelle – Uelzen	64 km
		Uelzen – Veerßen	2 km
		Veerßen – Stendal	105 km
		Stendal – Magdeburg	59 km
		Magdeburg – Roßlau	56 km
		Roßlau – Falkenberg	54 km
		Falkenberg – Dresden	76 km
		Rostock – Neusterlitz	121 km
		Neusterlitz – Berlin	119 km
		Berlin – Elsterwerda	143 km
		Elsterwerda – Dresden	56 km
		Dresden – Bad Schandau	40 km
		Bad Schandau – Děčín (DE/CZ)	11 km
	Terminals	Bremerhaven RTB, Bremerhaven NTB, Bremerhaven CTB, Bremerhaven MSC Gate	
		Wilhelmshaven Eurogate, Rail Terminal Wilhelmshaven GmbH	
		NORDFROST Seehafen-Terminal	
		Brake J.MÜLLER BBT	
		Bremen Roland	
		Hannover Nordhafen	
		Rhenus AG	
		Hannover-Leinetor	
		DUSS-Terminal Hannover-Linden	
		Megahub Lehrte	
		Railport Braunschweig	
		Braunschweig Hafen	
		Wolfsburg GVZ	
		Salzgitter GVZ – KLV Terminal	
		Magdeburg Hanse-Terminal	
		Roßlau container terminal	
		Riesa Hafen	
		Railport Hamburg 1	
		Container Terminal Tollerort (CTT)	
		DUSS-Terminal Hamburg-Billwerder	

Country	Character	Line section / Terminal / Marshalling yard	Length of the section
		Eurocargo Container Freight Station and Warehouse GmbH	
		Hamburg Eurokombi	
		EUROGATE Container Terminal Hamburg (CTH)	
		Container Terminal Burchardkai (CTB)	
		Hamburg Altenwerder CTA	
		Hamburg Wallmann	
		Schenken Deutschland AG	
		Hamburg BUSS Hansa Terminal	
		AMB Steinwerder Distribution Center B.V.	
		PCH Packing Center Hamburg GmbH	
		Hamburg Süd-West-Terminal	
		Hamburg O´Swaldkai	
		Rostock Trimodal- RTM	
		Railport Rostock	
		Berlin Weshafen	
		LDZ Elsterwerda	
		Dresden-Friedrichstadt GVZ	
		Alberthafen Dresden-Friedrichstadt	
	Marshalling yards	Maschen	
		Bremen	
		Rostock Seehafen	
		Braunschweig	
		Seelze	
		Seddin	
		Magdeburg	
		Dresden-Friedrichstadt	
Czech Republic	Principal lines	Děčín – Kralupy n.V. – Praha	144 km
		Děčín – Nymburk – Kolín	169 km
		Praha – Poříčany	34 km
		Poříčany – Kolín	24 km
		Kolín – Pardubice	48 km
		Pardubice – Česká Třebová	66 km
		Česká Třebová – Svitavy	17 km
		Svitavy – Brno	74 km
		Brno – Břeclav	60 km
		Břeclav/Hohenau (CZ/AT)	5 km
		Břeclav/Kúty (CZ/SK)	11 km
	Diversionary lines	Velký Osek – Hradec Králové	51 km
		Hradec Králové – Choceň	46 km
		Kolín – Kutná Hora	11 km
		Kutná Hora – Havlíčkův Brod	64 km
		Havlíčkův Brod – Křižanov	57 km
		Křižanov – Brno	64 km
	Terminals	Trimodal Terminal Port Děčín - Loubí	
		Trimodal Terminal Ústí nad Labem	
		Port Mělník	
		Praha Uhříněves	
		Terminál Pardubice	
		Rail Hub Terminal Česká Třebová	
		Brno Horní Heršpice	
		DUSS Terminal Lovosice	

Country	Character	Line section / Terminal / Marshalling yard	Length of the section
	Marshalling yards	Kolín seř. nádraží	
		Praha - Libeň	
		Pardubice	
		Česká Třebová	
		Brno Maloměřice	
		Břeclav přednádraží	
		Havlíčkův Brod	
Austria	Principal lines	Břeclav/Hohenau (CZ/AT)	13 km
		Hohenau - Gänserndorf	34 km
		Gänserndorf - Wien Zvbf	37 km
		Wien Zvbf - Nickelsdorf	59 km
		Nickelsdorf/Hegyeshalom (AT/HU)	3 km
	Diversionary lines	Wien Zvbf – Achau - Ebenfurth	35 km
		Ebenfurth -Wulkaprodersdorf	16 km
		Wulkaprodersdorf/Sopron (AT/HU)	11 km
		Ebenfurth – Wiener Neustadt	13 km
		Gänserndorf – Marchegg	18 km
		Marchegg/Devínska Nová Ves (AT/HU)	2 km
		Parndorf – Kittsee	20 km
		Kittsee/Bratislava Petržalka (AT/SK)	3 km
		Gramatneusiedl – Wampersdorf	14 km
		Wien Zvbf – Wiener Neustadt via Baden	55 km
		Wiener Neustadt – Sopron via Loipersbach-Schattendorf	26 km
		Schattendorf/Sopron (AT/HU)	8 km
	Connecting line	Wien Zvbf – Wien Freudenau – Wien Nordwestbahnhof	13 km
	Terminals	Wien Freudenau Hafen	
		Wien Süd	
		Wien Inzersdorf (planned)	
	Marshalling yard	Wien Zentralverschiebebahnhof	
Slovakia	Principal lines	Břeclav/Kúty (CZ/SK)	18 km
		Kúty – Devinska N.Ves	51 km
		Devínska N.Ves – Bratislava hl.st.	13 km
		Bratislava hl.st. – Rusovce	28 km
		Rusovce/Rajka (SK/HU)	4 km
		Bratislava hl.st.– Nové Zámky	91 km
		Nové Zámky – Komárno	29 km
		Komárno/Komárom (SK/HU)	5 km
		Nové Zámky – Štúrovo	44 km
		Štúrovo/Szob (SK/HU)	14 km
	Diversionary lines	Marchegg/Devínska Nová Ves (AT/SK)	6 km
		Kittsee/Bratislava Petržalka (AT/SK)	2 km
		Kúty – Trnava	69 km
		Trnava – Bratislava východ	41 km
		Trnava – Galanta	27 km
	Connecting lines	Bratislava hl.st. –Dunajská Streda	50 km
		Dunajská Streda – Komarno št.hr.	54 km
	Terminals	Bratislava UNS – Rail Cargo Operator CSKD s.r.o	
		Bratislava UNS – Slovenská plavba a prístavy a.s.	
		Sládkovičovo – Lörinz	
		Štúrovo – Business park Štúrovo	

Country	Character	Line section / Terminal / Marshalling yard	Length of the section
		Dunajská Streda – Metrans	
	Marshalling yards	Bratislava východ	
		Nové Zámky	
		Štúrovo	
Hungary	Principal lines	Rusovce/Rajka (SK/HU)	2 km
		Nickelsdorf/Hegyeshalom (AT/HU)	5 km
		Rajka - Hegyeshalom	13 km
		Hegyeshalom – Tata	106 km
		Tata – Biatorbágy	51 km
		Biatorbágy – Kelenföld	17 km
		Kelenföld – Ferencváros	6 km
		Komárno/Komárom (SK/HU)	4 km
		Kőbánya felső – Rákos	3 km
		Rákos – Újszász	76 km
		Újszász – Szolnok	17 km
		Szolnok – Szajol	10 km
		Szajol – Gyoma	50 km
		Gyoma – Murony	26 km
		Murony – Lőkösháza	45 km
		Lőkösháza/Curtici (HU/RO)	3 km
		Štúrovo /Szob (SK/HU)	1 km
		Szob – Rákospalota-Újpest	55 km
		Rákospalota-Újpest – Angyalföld elágazás	3 km
		Angyalföldi elágazás – Rákos elágazás	6 km
		Rákos elágazás – Kőbánya felső	2 km
		Kőbánya felső – Ferencváros	5 km
		Baumgarten/Sopron (AT/HU)	5 km
		Sopron – Pinnye	17 km
		Pinnye – Fertőszentmiklós	7 km
		Fertőszentmiklós – Petőháza	3 km
		Petőháza – Győr	57 km
	Diversionary lines	Loipersbach/Sopron (AT/HU)	8 km
		Ferencváros – Kőbánya-Kispest	5 km
		Kőbánya-Kispest – Vecsés	10 km
		Vecsés – Albertirsa	33 km
		Albertirsa – Szolnok	46 km
		Szajol – Püspökladány	67 km
		Püspökladány – Biharkeresztes	50 km
		Biharkeresztes/Episcopia Bihor (HU/RO)	6 km
		Vác – Vácrátót	9 km
		Vácrátót – Galgamácsa	15 km
		Galgamácsa – Aszód	9 km
		Aszód – Hatvan	18 km
		Hatvan – Újszász	52 km
	Connecting lines	Ferencváros – Soroksári út	2 km
		Soroksári út – Soroksár	7 km
		Soroksár – Soroksár-Terminál	3 km
	Terminals	Terminal GYSEV Sopron	
		Győr ÁTI Depo	
		Railport Győr	
		Győr-Gönyű port	
		Törökbálint DEPO	
		Metrans Terminal Budapest	

Country	Character	Line section / Terminal / Marshalling yard	Length of the section
		Budapest Szabadkikötő (port)	
		BILK Kombiterminál	
		Szolnok Indust. Park and Logistics Service Center	
		BI-KA Logistcs Center Szolnok	
Romania	Principal lines	Lőkösháza/Curtici (HU/RO)	10 km
		Curtici – Arad	18 km
		Arad – Simeria	158 km
		Simeria – Coslariu	69 km
		Coslariu – Sighişoara	96 km
		Sighişoara – Braşov	128 km
		Braşov – Predeal	26 km
		Predeal – Brazi	89 km
		Brazi – Bucureşti	51 km
		Bucureşti – Feteşti	140 km
		Feteşti – Constanţa	79 km
		Arad – Timişoara	57 km
		Timişoara – Orșova	187 km
		Orsova – Filiaşi	102 km
		Filiaşi – Craiova	36 km
		Craiova – Calafat	108 km
		Golenți /Vidin (RO/BG)	4 km
	Diversionary lines	Biharkeresztes/Episcopia Bihor (HU/RO)	7 km
		Episcopia Bihor – Coslariu	264 km
		Simeria – Gura Motru	204 km
		Craiova – Bucureşti	208 km
		Ploiești Triaj – Buzău – Făurei – Fetești	204 km
		Videle – Giurgiu	65 km
		Bucureşti – Giurgiu	91 km
		Giurgiu/Ruse (RO/BG)	6 km
	Connecting line	Făurei – Galați	92 km
	Terminals	Railport Arad	
		Terminal Oradea	
		Terminal Cluj Napoca	
		Terminal Turda	
		Semenic (Timişoara Sud)	
		Allianso Terminal Ploiești	
		Terminal Bucureşti Sud	
		Tibbett Logistics	
		UMEX Terminal Constanța	
		APM Terminal Constanța	
		DP World Constanța	
		SOCEP Terminal Constanța	
	Marshalling Yards	Chitila	
		Brașov	
		Bucureşti	
		Ploiești	
		Craiova	
		Simeria	
Bulgaria	Principal lines	Golenți/Vidin Tovarna (RO/BG)	13 km
		Vidin Tovarna - Sofia	223 km
		Sofia - Kulata	223 km
		Kulata/Promachonas (BG/GR)	1 km
		Sofia – Plovdiv – Dimitrovgrad – Svilengrad	255 km

Country	Character	Line section / Terminal / Marshalling yard	Length of the section
	Diversionary lines	Ruse Razpredelitelna – Sindel – Karnobat – Nova Zagora – Simeonovgrad – Svilengrad/Ormenio (BG/GR)	445 km
		Karnobat - Burgas Port	57 km
		Nova Zagora – Stara Zagora – Dimitrovgrad	79 km
		Plovdiv – Skutare – Belozem – Mihailovo – Kaloyanovetz – Stara Zagora	127 km
	Terminal	Plovdiv Intermodal Terminal	
		Port Complex Ruse	
		Sofia - Yana	
	Marshalling Yards	Voluyak	
		Iskar	
		Plovdiv Razpredelitelna	
		Sindel Razpredelitelna	
		Ruse Razpredelitelna	
Greece		Pireus (ikonio port) – Thriassio Freight Center	27 km
		Thriassio Freight Center – SKA (SKA= operation center)	16 km
		SKA – Inoi	53 km
		Inoi – Thiva	29 km
		Thiva – Tithorea	65 km
		Tithorea – Lianokladi	54 km
		Lianokladi – Domokos	52 km
		Domokos – Palaiofarsalos	15 km
		Palaiofarsalos –Mesourlo– Larisa	42 km
		Larisa – Evangelismos	26 km
		Evangelismos – Leptokaria	37 km
		Leptokaria – Katerini	22 km
		Katerini – Plati	45 km
		Plati-Sindos – Thessaloniki (rail way yard)	38 km
		Thessaloniki (rail way yard) – Mouries	72 km
		Mouries – Strimonas	52 km
		Strimonas – Promachonas	13 km
		Kulata/Promachonas (BG/GR)	1 km
	Diversionary lines	Svilengrad – Alexandroupolis	182 km
		Alexandroupolis – Strimonas	310 km
	Connecting lines	Larissa – Volos Port	62 km
		Thessaloniki (rail way yard)–Thessaloniki Port	1 km
		SKA – Ag. Ioannis	14 km
	Terminals	Piraeus Container Terminal	
		Volos Port	
		Thessaloniki Port	
		Alexandroupolis Port	
		Thriasio Logistic Center	
	Marshalling yards	Strimonas	
		Thessaloniki Triage	
		Sindos	
		Larissa	
		Mezourlos	
		Lianokladi	
		Inoi	
		Central Station of Alexandroupolis	

Table 3

Orient/East-Med Corridor has connections with the following other RFCs:

- in Břeclav and in Ústí nad Orlicí with RFC North Sea-Baltic and in the cities Praha and Česká Třebová with RFC Czech-Slovak
- in Bratislava/Vienna with RFC Baltic-Adriatic
- in Budapest with RFC Mediterranean
- on Sopron – Győr – Komárom – Nové Zámky / Budapest and Hegyeshalom – Rajka – Bratislava – Nové Zámky; Budapest – Szob – Štúrovo – Nové Zámky railway lines with RFC Amber
- on Praha – Kolín – Pardubice – Česká Třebová; Wien – Parndorf – Nickelsdorf/Hegyeshalom, Wien – Ebenfurth – Baumgarten/Sopron, Rajka – Hegyeshalom, Hegyeshalom – Győr – Budapest, Budapest – Újszász – Szolnok – Lőkösháza/Curtici, Curtici – Arad – Simeria – Coșlariu – Sighișoara – Brașov – București, Arad – Timisoara – Caransebeș – Filiași – Craiova and București – Fetești – Constanța railway lines with RFC Rhine-Danube.

The Common line sections of RFC OEM are described in the Transport Market Study.

On the overlapping sections RFC OEM has established a well-functioning collaborative model with the involved RFC corridors, description of these procedures (e.g. providing data and information) should be found in the document “C-OSS Operational Rules”, as Annex 7. to Implementation Plan.

RFC OEM was set up on the routes of other corridor conceptions defined earlier and serve as the base for integration and harmonisation into one complex corridor network among the EU Member States in the future. These were:

- TEN-T priority axis 22, which runs from Nürnberg and Dresden to Constanta and Athens (common line from Prague to Constanta and Athens),
- ERTMS E which runs from Dresden to Constanta (common line from Prague to Constanta).

We believe that the overlap with preceding railway corridor concepts facilitates the development of the freight corridor, partly thanks to the existing cooperation in their framework, partly due to the fact that EU co-funding is mostly allocated to line sections that form part of an international axis and therefore can have major European added value.

The parameters of lines and terminals described in the Implementation Plan of Orient/East-Med Corridor can change over time due to infrastructure investments along the corridor.

Possible requests or comments received from the Advisory Groups or Applicants of RFC OEM, together with results of the Customer Satisfaction Surveys, will be taken into account by MB member companies when making decisions about necessary developments or alterations, too.

The circle of countries and companies (and thus of line sections and terminals) belonging to Orient/East-Med Corridor may also change later due to European Commission incentives or because of changing needs of the transport market.

2.1 Key parameters of corridor lines

The detailed description of Rail Freight Corridor OEM is found in the Transport Market Study that forms part of this Implementation Plan. It contains a precise definition of beginning and ending

points and all terminals designated to the Corridor. Furthermore, a more detailed description of the corridor lines can be found in the chapter 3.4.2 and also brief visual summaries in chapter 6.1.

You can find in the TMS the systematic collection of all infrastructure parameters, a detailed description of available capacity and bottlenecks along the Corridor, as well as an overview of existing traffic patterns.

Line characteristics are described with: type of line (principal, diversionary or connecting), section overlapping with other corridor, length of section (in km), number of tracks, electric traction, maximum length of train (in meter), line category regarding axle load, max weight/axle for extraordinary shipments, max slope, profile (P/C), loading gauge, max speed (km/h), ERTMS equipment, and services (intermodal terminals/keeper, marshalling yards/keeper, other service facilities e.g. refuelling, Ro-La, scale) on the line section.

Furthermore Chapter 6. gives a brief overview of the RFC OEM infrastructure within the different member states. More detailed information is available in the RFC OEM Interactive Map available on the RFC OEM website: https://www.rfc7.eu/ and via RNE CIP https://cip.rne.eu.

2.2 Corridor Terminals

As railway lines and terminals together specify the Corridor, terminals are also described in the TMS and later continuously updated in Section 3 of CID. All terminals along designated lines have been determined as part of the corridor as well, except if a terminal does not have any relevance for the traffic in the corridor. The marshalling yards, major rail-connected freight terminals, rail-connected intermodal terminals in seaports, airports and inland waterways belong to the terminals presented in the TMS.

2.3 Bottlenecks

Both the TMS and the Investment Plan of the Implementation Plan contain information about the main infrastructural and capacity bottlenecks identified along the corridor as well. Most limiting factors are:

- Non-electrified sections
- Lower axle load than 22,5 t
- Clearance gauge smaller than GC
- Maximum speed lower than 100 km/h line speed
- No possibility of operation of 740 m long trains
- sections with inadequate capacity for freight trains

The continuous cooperation with the Orient/East-Med CNC platform supports to increase, adapt and regularly monitor investments for the removal of infrastructure related bottlenecks along the corridor. Recommendations in this regard are listed in chapter 3.11.

2.4 RFC governance

In accordance with Article 8 of the Regulation, the governance structure of the Corridor assembles the following entities:

- Executive Board (ExBo): composed of the representatives of the Ministries of Transport along the Corridor,

- Management Board (MB): composed of representatives of the IMs and (where applicable) ABs along the Corridor which are responsible for the implementation and operation of the Corridor within their home organisations,
- Advisory Groups of RUs (RAG): composed of RUs interested in the use of the Corridor,
- Advisory Group of Terminal Operators (TAG): composed of managers and owners of the terminals of the Corridor including, where necessary, sea and inland waterway ports.

Eight EU member states are involved in RFC OEM as the picture below shows. The Management Board has even more members, as in Hungary there are two infrastructure managers registered and therefore a capacity allocation office is also concerned. Both the EB and the MB takes its decisions based on a mutual consent. These two bodies were established by a signature of a memorandum of understanding among the parties, signed already in 2011. According to Regulation (EU) 1316/2013 which has amended the Regulation (EU) 913/2010 the RFC OEM is extended to Germany. Therefore, a new EB including Germany has been established by signing a MoU replacing the one from 2011 on 5 December 2017. The extension of the Management Board was done on 19 June 2018, when the Memorandum of Understanding including DB Netz AG has been entered into force.

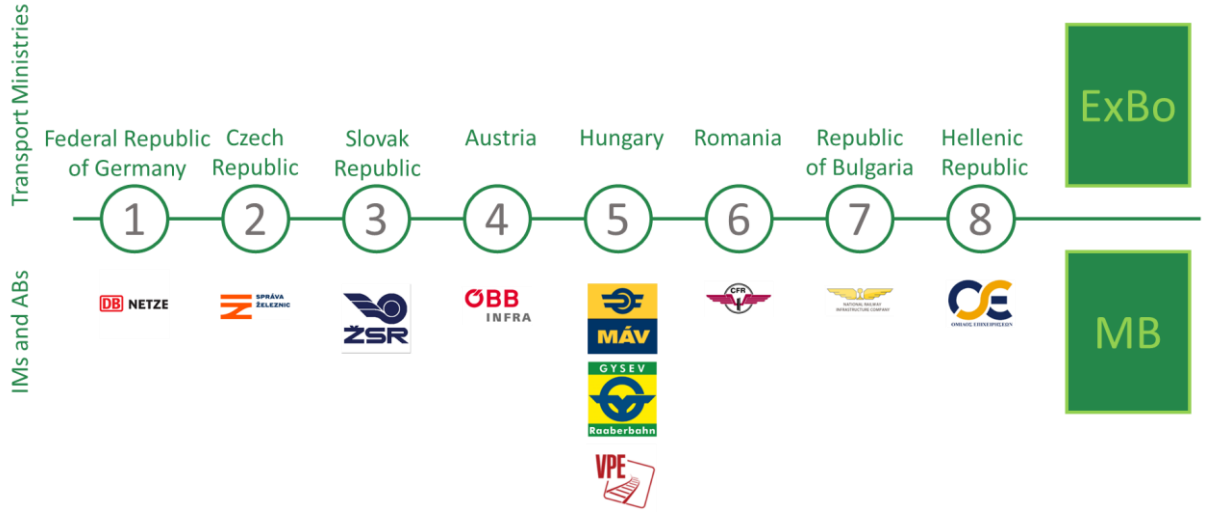

Table 4

Advisory Groups

The voice of customers is taken into account via the Terminal and the Railway Undertaking Advisory Groups (TAG and RAG). In these groups participation is on a voluntary basis. Advisory Groups (AGs) members have a dedicated area in the RFC OEM website, where all materials on consultation are available, including the Consultation Rules, which is a public document. Registered members also got information via e-mail.

Sixteen Advisory Group meetings have been organized so far:

- 30th October 2012, Kick-off meeting in Budapest
- 30th April 2013 in Budapest
- 14th October 2013 at WienCont Terminal in Vienna
- 2nd April 2014 in Sopron
- 14th October 2014 in Bratislava
- 28th April 2015 in Praha
- 21st October 2015 in Budapest
- 24th May 2016 in Budapest
- 24th November 2016 in Bucharest
- 9th May 2017 in Athens
- 10th October 2017 in Budapest (BILK Terminal)
- 13th June 2018 in Praha
- 13th November 2018 in Bonn
- 25th June 2019 in Athens
- 15th October 2019 in Budapest
- 6th October 2020 in Budapest (online)
- 14th April 2021 online

Representative of RFC OEM RAG is Rail Cargo Hungaria.

Representative of RFC OEM TAG is WienCont Container Terminal GmbH.

The main role of the representatives is to coordinate the position of the group. The group's opinion has to contain both majority and minority opinions.

The RFC OEM Secretariat communicates on behalf of the MB with the AGs, it spreads material for consultation to every company registered as AG member, and receives feedback from the Leaders of the two AGs, which contains the opinion of all AG members.

The flow of information is illustrated below.

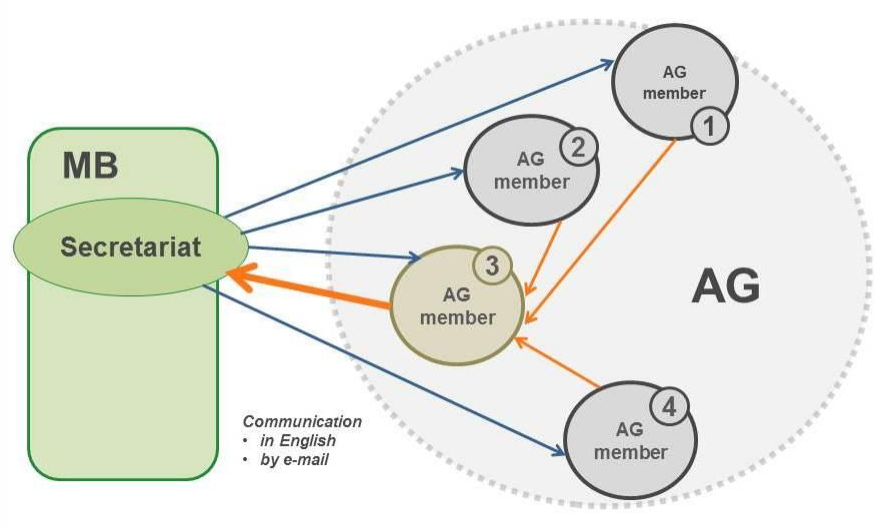

Table 5

The timing and content of consultation with AGs is decided by MB based on the progress of work and the new topics arising in the coming period.

The Letters of Intent signed by initial AG members and the Rules of AG Consultation are enclosed as Annexes 3 and 4 of the Implementation Plan.

As a general procedure the spokesperson collects suggestions beforehand from AG members, and he summarises the RUs' needs and expectations regarding our corridor services. The Secretariat together with MB Chair, MB members and the C-OSS manager evaluate the received valuable input and indicate further steps to solve the short-,medium-, and long-term goals.

Regular joint meetings with AG groups and the Executive Board ensure also a direct communication between the stakeholders. In these occasions members of the AG groups can be familiar with the medium- and long-term plans concerning the investments or with other strategical goals defined by the concerned ministries of transports. The AG spokesperson has also invitation to the Executive Board meetings to dedicated agenda-points.

The RFC OEM organisation

The Corridor organisation is based on a cooperation agreement between the IMs and (where applicable) ABs along the Corridor.

For the execution of the common tasks the partners / the Management Board have decided to build up the following structure:

The Management Board acts in the form of cooperation, apart from the Memorandum of Understanding which set up officially this body, the rules of cooperation are laid down in the document called Internal Rules of Procedure.

The tasks of the Management Board are coordinated by a Secretariat, carried out by the Hungarian member MÁV.

The Management Board has analysed the conditions of possibly forming an EEIG for the purpose of corridor management, then decided to choose the representative operational management model, to operate a Secretariat, which is a cost-effective model and provides the appropriate

administrative support to ensure that the tasks of the MB are properly coordinated and carried out.

In 2011 the MB decided that MÁV Co. shall fulfil the tasks of the Secretariat. Taking into account that RFC OEM Secretariat's activity is a common interest of every Party, its cost is covered jointly by the MB member (IMs and AB). The Secretariat is located in Budapest.

To fulfil the tasks described in Article 13 of the Regulation a Corridor One-Stop Shop

(C-OSS) was established as a single point of contact for requesting and receiving answers regarding infrastructure capacity for freight trains crossing at least one border along the Corridor.

The Corridor One-Stop Shop (C-OSS), is carried out by VPE, the Hungarian Rail Capacity Allocation Office, applying the representative C-OSS model of RNE (acting as an IM on behalf of all IMs).

In order to facilitate the work regarding the implementation of the Corridor, several permanent and/or temporary Working Groups consisting of experts on specific fields delegated by the IMs/ABs were formed.

In order to facilitate the work regarding the implementation of the Corridor, several permanent and/or temporary Working Groups consisting of experts on specific fields delegated by the IMs/ABs were formed.

Marketing WG	Transport Market Study, Satisfaction Survey, performance objectives and monitoring, definition of Pre-arranged Paths and reserve capacity, Non-RU Applicants.
Traffic Management WG	Harmonisation of traffic management in case of disturbance, working out solutions and procedures for improving the punctuality and reducing the waiting times during the train run. Effective communication between TCCs. In the framework of **TPM Coordination** working together with the concerned RUs in order to increase the train performance of RFC OEM. Active participation in data quality and train linking.
One-Stop Shop WG	C-OSS operation rules, Corridor Information Document, definition of Pre-arranged Paths and reserve capacity, coordination of capacity-allocation btw C-OSS & IMs & Terminals & Applicants.
Infrastructure Development WG	Investment Plan, inventory of projects and financial resources, harmonization of investments along the corridor.
Interoperability and ERTMS WG	Accelerating the establishment of better interoperability along the corridor and enhancing ERTMS deployment, ensure consistency with ERTMS E corridor.
TCR WG	Coordination of planned temporary capacity restrictions along the corridor.

Table 6

RNE supports the Corridor by providing harmonised process guidelines for all Corridors and specific, harmonised IT solutions/tools.

The organisation of the Corridor is also described in detail in the Implementation Plan (CID Book 5).

A visualisation of the structure of the Corridor organisation can be seen here:

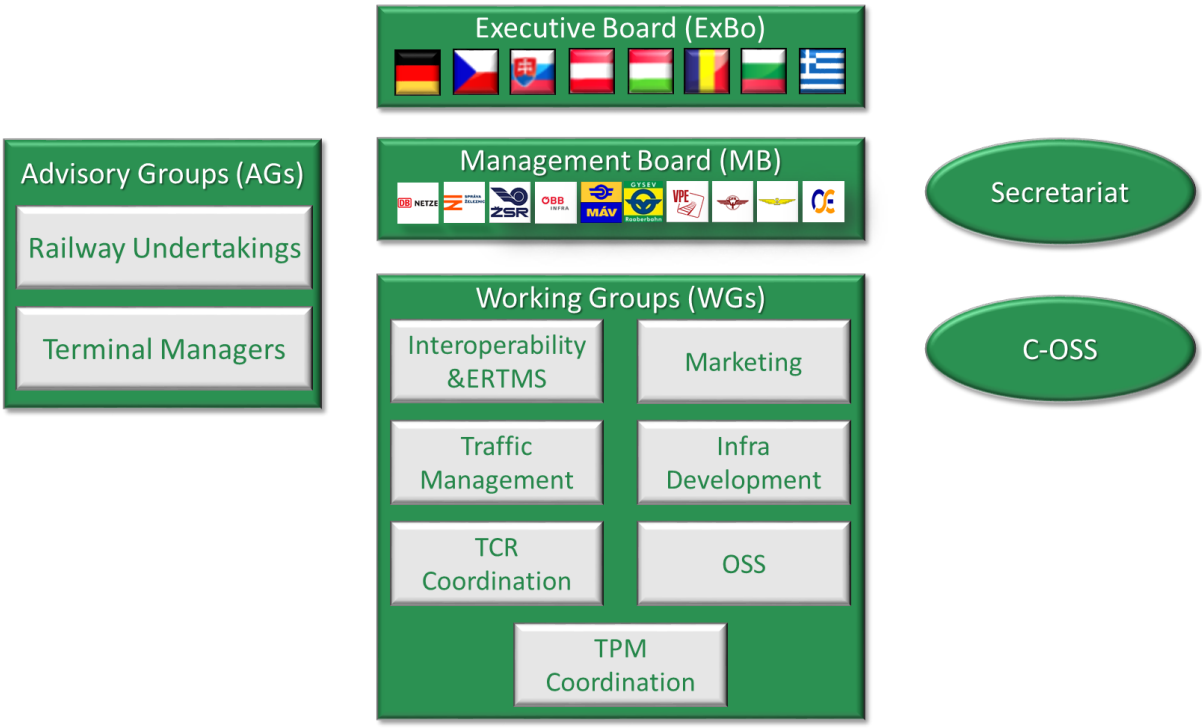

Table 7

2.5 EU level cooperation

2.5.1 Cooperation environment

The entry into force of Regulation 913/2010/EU created the legal framework for the development of rail freight corridors. The on-going work, the implementation of the requirements highlights more and more issues of common interest to several corridors and the need for harmonisation of rules and processes between corridors. It implies a need for effective coordination between the different Rail Freight Corridors, the National Ministries and Regulatory Bodies. Therefore, the European Commission is facilitating this coordination in the following ways:

Twice a year the Commission organises a joint meeting of representatives of all Member States, Regulatory Bodies and Infrastructure Managers participating in a Rail Freight Corridor, the forum is called **Single European Railway Area Committee (hereinafter: SERAC) RFC WG meeting**. These meetings are ideal occasions to tackle legal, operational and other specific issues to be addressed jointly by all concerned Member States, Regulatory Bodies and IM-s, and/or common difficulties with the practical implementation of the Regulation. The coordinator of the event is the European Commission, DG-Move.

The evaluation of the implementation of the Regulation 913/2010/EU has been launched in 2018 by the European Commission. Several questionnaires, tailor-made interviews, consultations and position papers were delivered in this process. RFC OEM contributed in all possible aspects this comprehensive work and is going to be a supportive and constructive partner in the revision procedure which will start according to the plans in the second half of 2022.

A new initiative was launched in 2018 by DG-Move C, Unit C4. (Rail Safety and Interoperability) to harmonize procedures at cross border points and eliminate hampering operational issues. The **Issue Logbook** was set up and 3 main priorities were selected. The goal of the Issue Logbook is

to make concrete progress on the selected bottlenecks, as *braking rules, technical wagon checks at border station, train composition and ETA* (Estimated Time of Arrival).. Due to the complexity of these issues the Commission intends to use its influence to engage all relevant actors in the process (particularly those not represented in the RFC governance structure). ERA is fully committed to support the work with their expertise.

ERA and DG-Move is in charge of the overall coordination of the priority No.2. and RFC OEM was kindly asked to continue its successful work on border crossing issues and train composition under this priority, in close cooperation with ERA. Based on the achieved results and experiences the Commission intends to gradually increase the geographical scope of this priority (involvement of RFC4, RFC5 and RFC6).

The first main step was to overview the existing national rules on train composition/tests and checks that cause the problems and delays at border crossings with the aim to reduce or remove, if it is possible, the unnecessary requirements. The European Commission is monitoring regularly the progress of the 3 priorities therefore Issues Logbook Plenary Session is going to be organised regularly.

RFC OEM together with ERA set up an Action Plan in March 2019. The two main pillars of the actions are based on revision of national safety rules and on planning a possible pilot-project, which will allow to the concerned RUs using ATTI in their SMS to bypass full technical checks at cross border point and checks every 350 km in the Romanian territory.

As a tangible result of the common effort of concerned stakeholders the issue ‘Train composition – Buffer wagons’ has been completed through measures undertaken in Bulgaria, Hungary and Romania. The elimination of this bottleneck will positively influence the transit time at border crossings for freight trains which shall have also positive influence on the overall commercial speed.

In 2020 the European Commission ordered a Cost Benefit Analysis of the operational bottlenecks listed in the Issues-logbook. The external consulting, Panteia, HACON, Railistics and TIS in close cooperation with RFC OEM analysed and examined the cost impact of the operational bottlenecks of Priority package No.2.

The summary of this evaluation was communicated in November 2021 at Issues-logbook Plenary virtual session and as a first conclusion in financial terms solving 12 issues from the issues-logbook from an EU perspective is estimated as representing an economic impact varying between 342 MEUR and 675 MEUR. From this economic evaluation can be seen that examined factors has significant cost for all related stakeholders, for IMs, for RUs, for End-users as well. The main goal is now to continue the elimination of these operational bottlenecks. **The coordinators** of the DG-MOVE also participate frequently in the Executive and **joint Executive/Management Board meetings** of the individual corridors to ensure that the specific issues of these corridors can be addressed in an appropriate way.

The RFC OEM Executive Board based on point IV.2/a of the OEM Ministerial declaration signed in Rotterdam on 24 June 2016 organise regularly a high-level RFC-CNC meeting dedicated to the strategic issues of the corridor. These occasions can serve as good follow-up to overview the results achieved and next steps to be implemented regarding the reduction the waiting time at border crossing points along the corridor.

Mr Matthieu Grosch the European Coordinator of CNC OEM expressed his gratitude for the progress done by the stakeholders so far. He reckoned that success in transport needs cooperation. In his opinion, success in corridor activities would be the best argument to convince decision-makers on EU level about having a strong Connecting Europe Facility in the next

Multiannual Financial Framework. The coordinator pointed out that clear cooperation is needed between CNC and RFC corridors and RFC OEM / OEM CNC is a good example also in this regard to other corridors. Moreover, the cooperation is needed among all corridors to build a reliable network. The European CNC Coordinator encouraged the stakeholders to continue looking for individual solutions, as results proved that one size does not fit to all, and sometime even law investments can have high returns.

On the basis of the Ministerial Declaration 12 Task Forces were established on RFC OEM one for each border crossing point of the corridor to figure out feasible solutions for eliminating operational and administrative difficulties hampering the smooth transit on the border crossing points. On the basis of the analysis and evaluation two different groups of factors were identified as influencing the waiting time at borders:

- necessary waiting time (time for necessary technical processes to be performed, operational protocol),
- unnecessary waiting time (related to the IM, RU and other stakeholders' activities).

Efforts and work are focused on the second group; Task Forces elaborated solutions for decreasing the unnecessary waiting time at border crossings points and these are listed in their Action Plans. The main goal is to reduce the waiting time at border crossings to 2 hours in average.

The Management Board, the Secretariat and the concerned Working Groups keep close contact with **RNE**. The common operational guidelines provided by RNE contribute to a harmonised development of the corridors, even if they are not endorsed by the Commission and thus have no legal status.

RNE intends to involve RFCs in the elaboration of the solutions to RFC-related issues therefore representatives of all corridors are participating in these demanding works in order to harmonise the processes among the 11 RFCs. The work run in different project working groups.

RNE General Assembly on 3 September 2014 had approved the proposal to involve the RFCs in its organisation structure as associated members. Consequently, all RFCs (one representative of each RFC) are invited to participate at RNE General Assembles.

In order to establish a network among the 11 rail freight corridors an informal platform of RFCs was created in 2014. These informal meetings called **RFC-Network** is organised 4 times per year, and the chairmanship is based on the rotation principle. RFC OEM had this chairmanship role he latest time between April and July.

All representatives of RFC MBs can suggest some topics for the discussion where the exchange of views and experiences would be useful to reach common understanding in different operational rules. These regular meetings are important occasions to find out common approach and solutions for relevant questions and problems concerning the operation of the rail freight corridors.

Another forum has been established on the basis of bottom-up initiative. The so-called **C-OSS Community**, community of C-OSS managers of the 11 operating RFCs meet regularly and deals with the following topics:

- International Coordination in TTR
- Reporting on capacity to RFC Network and SERAC
- Promoting new concepts for capacity offer on RFCs
- Organizing RNE-RFC PCS trainings
- Capacity needs survey – collecting capacity wishes from the customers

- PaP Catalogue
- CID
- RNE RFC KPIs
- RFC developments in PCS
- Representing RFCs and C-OSS in the following working groups:
  - RFC Network
  - Sector Statement Group
  - RNE TCR WG
  - RNE Sales & Timetabling WG
  - RNE Capacity Management Advisory Group
  - PCS Change Control Board, Test Group, User Group
  - RFC KPI WG
  - TTR Core Team
  - Customer Information Platform

UIC has also launched a project for the efficient coordination of rail freight corridors, called **ECCO**. There is a regular dialogue between ECCO and RFCs. Representatives meet 1 - 2 times per year, establishing a constructive exchange of views and information concerning the RFC ongoing issues.

RFC OEM plays important role in the different platforms, its opinion, practices and experiences gained in the Central-Eastern Europe region can force the cooperation among RFCs and wider the network approach concept.

2.5.2 Cross-corridor cooperation

RFC OEM is in close cooperation with North Sea - Baltic, Amber and Rhine-Danube corridors in aspect of capacity management on the overlapping sections. The description of the concerned procedures is placed in the C-OSS Operational Rules, which is an annex to the CID. Above of the common capacity management this cross-corridor cooperation is entitled to look for other fields of cooperation as for example in the International Contingency Management (ICM) or in identifying joint development projects in the framework of upcoming Program Support Action.

Having regard the massive overlap section between RFC OEM and RFC RHD a closer collaboration shall be established within common interest.

2.6 RFC OEM website

The webpage of RFC OEM was initially launched for operation in November 2013. It underwent major revamp in 2020, including design, back-end framework and code, with the new site going online on 1 January 2021.

It uses three domains on the addresses www.rfc7.eu, www.rfc7.com, www.corridor7.eu, and (all of them links to www.rfc7.eu). In its role described in chapter 2.5.1 RNE has registered a set of domains for all eleven rail freight corridors based on a single labelling scheme. The domain of RFC OEM in this set is www.rfc-orient-eastmed.eu, which is forwarding users to the homepage.

This platform was planned to be used to facilitate access to information concerning the use of the main infrastructure and available services on the freight corridor in order to have a comprehensive, transparent and user-friendly solution how to find data and information for the customers and visitors all kind of levels. Therefore, the Management Board decided to use the website for two main purposes: on the one hand for communication among Executive Board,

Management Board, Working Groups or Advisory Groups members, and on the other hand for sharing information with business partners interested in using the corridor. In accordance with that aim a browser-independent, multi-layer solution was developed with password access to specialised contents and with editable menu, submenu and textual content. The duty of the Management Board is to regularly update the content, publish documents, to develop the structure according to the incoming customer needs.

During the determination of website elements, we concentrated on the usability of the website (with the harmony of high-level information, interactivity and design). The strategy was to develop a specific, measurable, attainable, realistic and time-based (smart) tool with:

- user-centric guideline, which means to ensure the quickest and easiest way to show the information from all corridors;
- ensure prompt content, which means that the professionals of the corridors have own „administration flat" what they have to update;
- user friendly services as easy way to reach and manage the services;
- user friendly design.

For the public, the website is offering users the annual reports, documents of the advisory group meetings, relevant legislative and administrative acts, results of the satisfaction surveys and train performance reports for download. It also comprises information about the capacity offer and conditions of use (Corridor Information Document). Regular news and meetings notices complete the contents

2.7 Customer Information Platform, CIP

The Customer Information Platform (CIP) is an interactive, Internet-based information tool. By means of a Graphical User Interface, CIP provides precise information on the routing, terminals, specific track properties and infrastructure investment projects, as well as ICM lines and their re-routing options of the participating Rail Freight Corridors (RFCs). At the request of several RFCs, RNE took over the ownership, hosting and maintenance of the CIP from the Corridor Rhine-Alpine (RFC 1), thereby enabling it to evolve into a multi-corridor tool providing harmonised information and communication processes.

RFC OEM has joined the CIP Development Group in August 2018, and the Corridor has been published on the CIP Website on 4th December 2018. The application can be reached via RFC OEM website too.

RNE shall further develop the CIP according to the decisions of the CIP Change Control Board (CCB) and following the approval, if necessary, of the RNE General Assembly. To find a common view which new functions shall be developed in CIP and to ensure that these new functions would fit into RNE's portfolio of IT tools, in June 2020 CIP CCB agreed on the updated CIP Strategy.

2.7.1 Summary of CIP developments 2020-2022

a) Extending the geographical scope of CIP

While since the previous meeting CCB meeting in June there has not been a major addition to the extent of the geographical coverage of CIP, due to the still outstanding completion of ICM lines and their re-routing options along RFCs Alpine-Western Balkan and Rhine-Danube, the portion of the network of several IMs mapped in CIP shall further increase by the end of 2021.

In line with the request of CCB from the previous meeting, the attached report on the actual potion of IMs' entire network already mapped in CIP has been extended in order to cover all IMs involved in at least 1 RFC mapped in CIP (as the previous version of the overview covered just the IMs with at least 2 RFCs mapped in CIP).

Likewise in line with the CCB's decision from the previous meeting, the map theme 'By Infrastructure Manager' has been made available in the public CIP map. Ahead of the publication of this map theme, the formerly randomly selected colour codes of individual IMs were adjusted to better match the colours used in the logos of these IMs. Due to a lack of contrast with the colour codes of their neighbouring IMs, in case of 'DB Netz', 'ÖBB-Infrastruktur' and 'Železnice SR', the colours of the logos had to be further adjusted (an overview of formerly considered and finally implemented colour codes can be found attached).

b) Converting additional line properties into standard ones and introduction of a new additional line property 'Track Gauge'

The additional lines properties 'Number of Tracks', 'Maximum Train Length', 'Maximum Speed' and 'Usage' have been converted into standard ones in terms of their management on internal users' back-end as well as in terms of their display in CIPs' front-end and finally enabled for a public display as of 3rd September 2021. By the time of their public display, the data collection for these line properties has been mostly completed with some local issues still to be addressed with the RFCs concerned (mainly North Sea-Mediterranean and North Sea-Baltic).

In addition to the above, the additional line property 'Track Gauge' has been implemented in CIP's database, on internal users' back-end and public display in CIPs' front-end. This quick implementation was feasible due to the actual values applicable for this new line property being already known for most of the countries / IMs represented in CIP and the remaining ones (mainly in Spain) being provided to CIP on a short notice.

c) Update on the Digital Infrastructure Information System (Big Data 2.0)

The attached update on the actual state of play of the Digital Infrastructure Information System (Big Data 2.0) project will be presented.

2.7.2 CIP budget preview for the years 2021 and 2022

CIP Budget Planning for 2021	RFC7 OEM Costs
Implementation of CIP normal package	€0,00
Yearly maintenance 2021 1st semester (11 RFCs)	€4 486,36
Yearly maintenance 2021 2nd semester (11 RFCs)	€4 486,36
CIP Developments 2021 (pre-planned amount)	€16 027,28
5th Financial reserve for smaller developments	€2 000,00
Enhanced display of ICM re-routing options (tbd)	€1 077,31
Remaining sum 2021 (e.g. display of priority rules)	€12 949,97
Grand Total 2021 as pre-planned	***€25 000,00***
EU funding up to 50% of eligible cost via RNE	***€15 909,09***

CIP Budget Preview for 2022	RFC7 OEM Costs
Yearly maintenance 2022 1st semester (11 RFCs)	€4 486,36
Yearly maintenance 2022 2nd semester (11 RFCs)	€4 486,36
CIP Developments 2022 (pre-planned amount)	€16 027,28
6th Financial reserve for smaller developments (tbd)	€2 000,00
Remaining sum 2022 (e.g. display of PaPs & TCRs, extension to entire network, etc.)	€14 027,28
Grand Total 2021 as pre-planned	***€25 000,00***
EU funding up to 50% of eligible cost via RNE	***€15 909,09***
To be confirmed and approved by CCB	
Estimated amounts pre-planned for 2021 and 2022	
EU funding indication for 2021 and 2022	

2.7.3 Summary of 2020 CIP Customer Satisfaction Survey

CIP 2020 Customer Satisfaction Survey

View | Edit | Track | Webform | Outline | Results | Revisions | Clone | Archive This | Devel

Submissions | Analysis | Table | Download | Clear

This page shows analysis of submitted data, such as the number of submissions per component value, calculations, and averages. Additional components may be added under the "Add analysis components" fieldset.

Importance of CIP for your business

	EXTREMELY IMPORTANT	VERY IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	NOT AT ALL IMPORTANT
How important is CIP for your business	8	16	10	8	0

Frequency of CIP usage

	DAILY	WEEKLY	MONTHLY	ONCE IN A WHILE	NEVER
How often do you use CIP?	9	13	8	12	0

How well were we able to meet your expectations in the following areas?

	VERY GOOD	GOOD	ACCEPTABLE	POOR	VERY POOR
CIP Performance	12	16	13	1	0
CIP Usability	6	18	12	5	0
CIP response to your needs	3	21	11	4	2
Quality of the CIP documentation	7	23	9	2	0
Satisfaction with RNE CIP team support resolution	11	14	10	1	0

3 Market Analysis Study

3.1 Introductory remarks

In 2013, the first version of the Transport Market Study (TMS) was prepared with the coordination of the Marketing Working Group of the RFC OEM, with the support of internal human resources of ŽSR's railway research institute VVÚŽ, and all relevant other working groups of RFC OEM.

In order to allow the Management Board of RFC OEM to develop the corridor in line with market and customer needs and complying with the legal obligation for a periodical update, the Management Board of RFC OEM decided in 2016 to carry out an update of the TMS. This decision was also triggered by the entry into force of the EU Regulation 1316/2013 ("CEF-Regulation") and in particular its Annex II according to which the amendments of the Principal Route of RFC Orient/East-Med (former referred to as „RFC7" but due to the CEF-Regulation the RFCs has to be called on their names, therefore the abbreviation „RFC OEM" is used in all updated documents) has to be carried out which means the extension to Germany (Bremerhaven/Wilhelmshaven/Rostock/Hamburg) and further extensions in the South Eastern parts of the corridor (Burgas/Svilengrad concerning the Bulgarian and until Patras concerning the Greek part of the RFC). According to the CEF Regulation the extensions laid down in its Annex II shall be included at latest 10 November 2018 in the case of RFC OEM. These inclusions shall be based on market studies and take into consideration the aspect of existing passenger and freight transport in line with Article 14(3) of the Regulation 913/2010.

It is important to highlight that the update was also expected to provide the Management Board with a valuable knowledge and feedback to its efforts and tactical and strategical decisions to tackle current challenges and to develop the corridor in line with market needs and customer expectations, allowing it to identify and exploit new development potentials.

Following the decision of the Management Board ("MB"), the update procedure was pursued by the cooperation of VVÚŽ again and by the relevant working groups of RFC OEM using the "Terms of Reference for update of the Transport Market Study of RFC OEM" as guidelines whereby all the relevant tasks were laid down which were necessary to be carried out for the update. The Terms of Reference was approved by the MB on 2nd June 2016 in Athens.

It is important to note that during the update procedure the results of Satisfaction Surveys of 2015 and 2016 were reflected upon highlighting the bottlenecks which still need to be worked upon. Consideration of experiences of the operational RFC has crucial importance because these serve with an input inter alia to define the type and the amount of capacity required on the corridor.

The relevant actions defined within the frame of the "Action Programme" (document attached to the Orient/East-Med (OEM) Ministerial Declaration signed by the representatives of the relevant Ministries of the OEM Member States on 21st June 2016 in Rotterdam) were also strongly considered during the working procedures because the Action Programme define a set of bottlenecks to work upon which are in certain aspects elaborated within the current TMS update (for example the identification of bottlenecks stemming from the lack of implementation of the minimum TEN-T infrastructure requirements).

According to the RFC-Regulation, the main aim of the Transport Market Study should be to provide input for the Management Board in order to be able to identify the necessary lines - principal or diversionary - to be designated to the RFC and support the infrastructure managers and allocation body concerned to be able to define the number and quantity of necessary Pre-arranged Paths to the respective lines. In the case of the extension to Germany these tasks have been carried out as well as in the case of further extensions to South Eastern Europe (Burgas/Svilengrad and Patras).

The TMS update procedure examined the rail capacity requesting behaviour of the customers along the respective Member States of RFC OEM and accommodated the further alignments and designation of further lines which have been requested for addition or modification by the customers, evidently preceded by a prior approval of the Executive and the Management Boards. A proper revision of the lines designated to the RFC OEM was accomplished.

The first version of the TMS elaborated in 2013 served as a basis for the update.

In this context, the update of the TMS in particular focused onto the following tasks:

- Update of information in the current TMS: update of data accuracy and information of infrastructure parameters
- Extensions of RFC OEM to Germany and further extensions as requested by the Annex II of the CEF-Regulation
- Analysis of the Connectivity to Turkey
- Assessment of the lines designated to the RFC OEM
- Compliance with TEN-T minimum infrastructure requirements
- Bottleneck analysis
- SWOT-analysis and success factors
- Analysis of capacity offer
- Last-mile infrastructure along the corridor

Taken into consideration the deadline set in the Annex II of the CEF Regulation the update of the TMS had to follow a strict time schedule - defined by the Marketing WG - according to which a final draft study was delivered by June 2017 and then sent to consultation to the Railway – and Terminal Advisory Groups by the Secretariat. The input received from the aforementioned groups were analysed with utmost care by the Marketing WG and then incorporated accordingly to the final draft study. Then both the Executive and the Management Boards received the draft study and the summary document “Essential Elements of the Transport Market Study” for review. The comments of the MB were taken into account by the Marketing WG and incorporated into the relevant text, paying attention to the consistency of the documents. The MB approved the final draft study as well as the summary document on 27 October 2017 and mandated the Leader of the Marketing WG for using the approved documents as basis for making further modifications in case demanded by the Executive Board. The comments from the Executive Board were also duly incorporated and taken into account. The final approval by both Boards was accomplished in December 2017.

The complete version of the Transport Market Study forms part as Annex 5 of the Implementation Plan.

The following summary aims to demonstrate the main focus points of the TMS-update process and its results. As previously mentioned, VVÚŽ, the Railway Research Institute of the Slovak Railways cooperated in the elaboration the document to the Marketing WG following the structure already provided in the Implementation Plan. The document was delivered by September 2017 by VVÚŽ and was carefully revised by the Marketing WG and the Management Board prior to its submission for review to the Executive Board whose comments then were as far as possible taken into account.

3.2 Objectives of the Transport Market Study

Rail Freight Corridor RFC OEM (prior to the amendments of Regulation No 1316/2013 it was named “RFC Orient”) has been established based on Regulation No 913/2010 of the European Parliament and the Council of 22 September 2010 concerning a European rail network for competitive freight transport (hereinafter referred to as the “RFC-Regulation”) and it was put into operation on 8 November 2013 shortly before the deadline set out in the aforementioned Regulation. The duty of the Management Board is to carry out and periodically update a Transport Market Study (hereinafter referred to as “TMS”) in accordance with Article 9(3) of the RFC-Regulation. The RFC-Regulation was amended by adoption of Regulation No 1316/2013 of the European Parliament and the Council of 11 December 2013 establishing the Connecting Europe Facility (hereinafter referred to as the “CEF-Regulation”).

The objective of the update of the TMS was – besides complying with the legal requirement for periodical update of the TMS – to allow the Management Board to take decisions on the dedicated capacity to be provided on the corridor and on any measures aiming at developing the corridor in line with customer expectations and market needs.

In order to do this, the update of TMS took into account relevant developments in RFC OEM, feedback from customers using the corridor including results of Satisfaction Surveys as well as changes in the market and legal environment since the elaboration of the previous TMS.

The TMS of RFC OEM was updated with the necessary extensions to Germany, in Bulgaria and in Greece together with the actualisation of the data content of the previous study. The update was carried out taking into account the requirements of the CEF-Regulation; the changes regarding the principal and diversionary lines which have been approved by both the Management and Executive Boards have been included as well as the relevance of the transport flows between Turkey and the RFC OEM were examined. The aforementioned extensions required by the CEF-Regulation are as follows:

- extension to Germany (Wilhelmshaven/Bremerhaven/Hamburg/Rostock),
- extension in Bulgaria (Burgas/Svilengrad),
- extension in Greece (Patras).

Furthermore, as part of its transport and infrastructure policy the European Commission has adopted a Trans-European Network for Transport (TEN-T) with the Core Network Corridors as the key governance structure for implementation. The Core Network Corridors are geographically largely aligned with the Rail Freight Corridors; the Rail Freight Corridors form the rail freight backbone of the Core Network Corridors.

In order to support the European railway network as regards freight transport and to improve the interoperability and harmonisation of procedures, some technical and operational initiatives have been launched. These are, for example:

- the development of interoperability through the technical specifications for interoperability (TSIs) in particular relating to Traffic Operation and Management (OPE TSI) and TSI relating to Telematic Applications for Freight Services (TAF TSI). Of course, further TSIs such as those relating to infrastructure, vehicles, etc. are also of vital importance for the improvement of interoperability.
- the activities of RNE, an organization connecting 34 infrastructure managers and allocation bodies across Europe. The main objective is to enable easy and quick access to information regarding the European railway infrastructure regarding international railway traffic and to improve the quality and effectiveness of cross-border rail transport entailing the development of harmonised international business processes.

3.3 Methodology of Work and Methods of Investigation

3.3.1 Materials used in TMS elaboration

The complete elaboration of all TMS tasks required the analysis and processing of various technical, transport, capacity and economic indicators. A wide range of sources, including public sources such as official European and national statistics, statistics and documents published by international organisations (e.g. IMO, OECD, World Bank), EU legislation, standards, etc. as well as documents from the Rail Freight Corridors and the participating railway infrastructure managers and the Core Network Corridors were used. This information was completed by data

and material obtained from questionnaires to railway infrastructure managers and railway undertakings and from reviewing relevant literature.

The statistical and analytical data required for elaborating the individual parts of TMS, with which it will be possible to determine the strategic objectives of RFC OEM, are shown in the table below:

Statistical and analytical indicators monitored in TMS

Technical parameters	Standard length of train, maximum length of train, class of line, signalling equipment, electrification system, loading gauge, average speed of train, speed limits, slopes/ gradients
Transport performances	Development of transport performances on corridor lines Development of transport performances on all lines of member state
Macroeconomic indicators	GDP development and prognosis in Member States Share of individual economic sectors in GDP in %
Microeconomic indicators	Level of infrastructure charges by train types Transit time
Modal Split	Development of modal split between individual modes of transport
International transport	Transport and traffic performances in international transport
Capacity analysis	Development of total transport capacity utilization Development of transport capacity utilization of individual corridor lines Waiting times and reasons of delays are monitored separately from this study by the Train Performance Management Working Group
Other indicators	Investment, technical and technological measures, proposal of extension of lines and terminals, etc.
Corridor indicators	Corridor benefits

Table 8

3.3.2 Methods used in TMS elaboration

The TMS partial objectives have been worked out using and combining various scientific qualitative and quantitative methods, including literature analysis, statistical analyses, comparative analysis, SWOT-analysis, prognostic methods, benchmarking and brainstorming.

3.4 Characteristics of RFC OEM, current situation

3.4.1 RFC OEM basic structure

For the European rail freight corridors, bodies have been established which through their activities ensure the proper functioning of the corridor, meeting the main and partial objectives of corridor establishment and responding to the challenges of effective daily operation and the provision of the best possible solution to customer needs.

RFC OEM route according to Regulation of the European Parliament and Council (EU) No. 1316/2013 on the establishment of the Connecting Europe Facility:

– București – Constanța;

Bremerhaven (*)/Wilhelmshaven (*)/Rostock (*)/Hamburg (*) — Praha – Vienna/Bratislava – Budapest; – Vidin – Sofia – Burgas (*)/Svilengrad (*) (Bulgarian-Turkish border)/ Promachonas – Thessaloniki – Athína – Patras (*)

Member States: Federal Republic of Germany, Czech Republic, Slovak Republic, Republic of Austria, Hungary, Romania, Republic of Bulgaria, Hellenic Republic.

Date of putting RFC OEM into operation: 08.11.2013

Seat of Corridor-One Stop Shop (C-OSS): Budapest

3.4.2 Analysis of capacity and bottlenecks

The analysis of the capacity of the lines included in the rail freight corridor OEM revealed that:

- most of the capacity of the lines and line sections is used in the range of 50 - 89 %,
- within the corridor, there are lines with insufficient capacity which may adversely affect the qualitative indicators of rail freight transport,
- within the corridor, there are approximately 40 % lines and line sections with a utilized capacity below 50 %, these lines may be effectively used in case of higher capacity demands, or as diversionary transport routes.

In case of high demand on infrastructure manager services it is possible to use those lines efficiently, the capacity of which is utilized below 50 % with a minimal impact on the quality of rail system operation. A high increase in transport performances could lead, without taking mitigating measures, to the overloading of some lines and line sections, such as Hamburg – Stendal, Wilhelmshaven – Hannover – Magdeburg, Dresden – Bad Schandau, sections of the Praha – Česká Třebová line and the line north of Přerov, the Bratislava node and sections of the Arad – Sighisoara line (all the mentioned sections have a track capacity use >90%). The situation can be solved by upgrading or building of new railway infrastructure and/or by changing of the transport organization and signalling systems and/or re-routing of trains. However, such measures may require high investment costs, so it is necessary for Member States and infrastructure managers to be prepared to allocate the funding in order to increase the capacity of the lines and line sections concerned.

The analysis of bottlenecks on the railway infrastructure of OEM corridor showed no decrease compared to the analysis of bottlenecks carried out in 2013. However, this situation can currently be assessed as stable, although an increase in bottlenecks is expected due to the growth of transport performances, the lack of capacity, low level of modernization of railway infrastructure and limited resources allocated to the removal of bottlenecks. In case the bottlenecks are not gradually removed, there is a risk of reducing the required quality of railway infrastructure services, thus rail transport services will not be competitive. The infrastructure managers and Member States must therefore pay sufficient attention to the form of measures and investments in the gradual removal of bottlenecks which represent a restriction of reliable, safe, continuous and competitive transport infrastructure.

3.5 Economic and transport analysis of RFC OEM

On the basis of the collected and evaluated statistical economic, transport and traffic data in the OEM corridor countries, it is possible to conclude the following:

- GDP growth in individual countries,
- positive economic development, increase in living standards,

- higher movement of population,
- higher demand for transport services,
- requirements for higher level of transport services, e.g. reliability, shorter transport time,
- pressure to modernize the lines,
- pressure to remove bottlenecks of railway infrastructure,
- demand for ecological transport – need for electrification of lines,
- increase in transport performances of the rail system,
- shift of transport performances from road to rail,
- higher performances of international rail transport,
- promotion of intermodal transport,
- need to improve the quality of intermodal transport services,
- fair and non-discriminatory allocation of railway infrastructure capacity,
- increase in rail investment,
- need for harmonisation of charges.

Based on these conclusions, there are the following opportunities and possibilities to meet the objectives of the OEM corridor:

- making maximum use of EU and national funding opportunities for rail investments and ensuring effective and timely absorption of available funding,
- improving planning of infrastructure works and including incentives in tendering of works for minimised impact on traffic operations,
- focusing financial resources on removal of bottlenecks,
- electrification of lines – leading to more efficient train operations and lower social costs of transport,
- market-oriented capacity and capacity products and efficient management of provision and allocation of railway infrastructure capacity,
- huge market potential for modal shift if today's existing problems and shortcomings of the corridor can be solved,
- upgrading of railway infrastructure of the corridor to higher standards with regard to parameters relevant for freight traffic, such as train length, axle and meter load, speed; swift implementation of TEN-T infrastructure minimum requirements or higher on continuous line sections,
- effectively addressing border crossing issues,
- harmonisation of operational rules,
- harmonisation of charges within the countries of the corridor on a competitive level,
- effective provision of information.

Routing itself and the state of the development of the corridor countries create several possibilities to meet its basic objectives. The analyses carried out have shown sufficient potential to maintain and increase the importance of the corridor within the European transport infrastructure. As an increase in the demand for international rail freight services is expected, it is necessary to continuously improve the quality of railway infrastructure and the services of the OEM corridor.

3.6 Prognosis of Transport Performance Development

Transport performances on railway infrastructure are the most important data indicating the demand for rail services. Several aspects affecting infrastructure, quality of services and external costs result from transport performances. It is necessary to know the development of transport performances in order to form the objectives and the subsequent strategy of the OEM corridor. The development of transport performances is assumed on the basis of the prognosis that includes three scenarios for the OEM corridor: realistic, optimistic and pessimistic.

Bases for prognosis:

1. Model used for prognosis: AAA algorithm with exponential alignment. AAA algorithm is a software capable for making prognosis based on the provided data.
2. Confidence interval: 95 %.
3. Time span of prognosis: 2018 – 2025 (8 years).
4. Examined indicator: transport performances in rail passenger and freight traffic.
5. Input data: Transport performance (train km, gross ton km) made on the lines of individual infrastructure managers - statistical data of infrastructure managers
6. Presentation of results: in tabular form for each scenario separately.

Based on the prognosis, the following main conclusions can be stated:

- increase in the performances of international rail freight transport by about 3-4% per year, mainly due to higher quality of services provided, flexibility, reliability and economic development,
- increase in rail passenger transport performances, affected primarily by economic development and an increase in the quality of services,
- resulting savings in social costs,
- increase in transport performances on lines included in the OEM corridor, in particular on the principal line sections following the implementation of the projects aiming at improving the infrastructure standards,
- higher quality of communication and information technologies required in particular on the cross-border sections having longer waiting times for freight trains than 2 hours,
- higher reliability of rail system following the achievement of TEN-T minimum infrastructure requirements and elimination of hindering factors for seamless interoperability, including cross-border sections whereby the target of 2 hours' waiting time is desired to be achieved as per the Action Programme of 2016,
- it is necessary to put some pressure on the harmonisation of charges for rail and road in order to achieve the desired modal shift to rail.

3.7 Analysis of the Connectivity of RFC OEM to Turkey

The analysis of goods import to the EU from Turkey demonstrated an increase in the goods value which is primarily due to the economic growth of EU countries which becomes evident by the increased demand of consumers and EU countries for higher-value goods produced in Turkey. The progressive increase of goods import to the EU from Turkey in million € was recorded also in RFC OEM Member States. The highest value of goods is exported to the Federal Republic of Germany and the least to the Slovak Republic.

In terms of goods volumes (tons), the analysis showed a more mixed picture. During the period 2002 to 2015 there was a decrease in goods import to RFC OEM Member States from Turkey. The most tons of goods were directed at the Federal Republic of Germany and the least at the Slovak Republic. The different trend in goods import to RFC OEM Member States from Turkey is due to the import of goods with higher value and lower weights.

The analysis of goods import to Turkey from EU countries carried out an increase in goods import in mill. €. For the whole monitored period the goods in the highest value in total were imported in 2015. The value increase of goods import to Turkey was recorded from RFC OEM Member States, too. The analysis of goods import to Turkey in thousands tons carried out a significant decrease in 2015 compared to 2002. The analysis of goods import to Turkey in thousands tons from RFC OEM Member States showed a decrease. Most of the goods were imported to Turkey from the Federal Republic of Germany and the Republic of Bulgaria. The least of goods were

imported to Turkey from the Slovak Republic. The different trend in goods import from RFC OEM Member States to Turkey is due to the import of goods with higher added value and with lower weights.

Based on the analysis of imports and exports of goods between Turkey and the RFC OEM Member States, we can conclude:

- increasing the added value of imported and exported goods between Turkey and the EU countries,
- decreasing the transport performances of freight transport between Turkey and the EU countries,
- Demand for fast, reliable and safe international transport, in particular on the route between Turkey and the Federal Republic of Germany.

Based on the analytical findings we can conclude the following concerning the connectivity of Turkey with RFC OEM:

- Turkey upgrades and electrifies its railway network and plans further transport infrastructure development in the future,
- high transport potential has been identified in Turkey,
- achieved high share of freight transport by road,
- low share of transport performances of rail freight,
- potential for rail freight is not used,
- perspective of growth of transport performances in international rail transport,
- the cross-border connection between Turkey and Bulgaria is a single-track,
- the lines included in RFC OEM, which connect the railway infrastructure with the Turkish railway infrastructure, are currently not electrified, however electrification of the line from Plovdiv to the Bulgarian border station Svilengrad is ongoing.

Main findings

On the basis of the research of the problems in question we can state that the connection of the RFC OEM railway infrastructure to the Turkish railway infrastructure may bring several benefits for the Member States, society, transport, customers, railway undertakings and the RFC OEM itself. Therefore, the improvement of the cross-border railway infrastructure is highly recommended.

In order to achieve the benefits we propose to take the following measures and procedures:

- to examine the possibility of introducing regular freight trains of combined transport system RO – LA (technological, technical and economic evaluation),
- to electrify railway infrastructure belonging to RFC OEM relevant for traffic form and to Turkey. On Bulgarian territory NRIC is working on the electrification of the section between Plovdiv and Svilengrad.
- to ensure integration of information systems,
- integration of signalling systems,
- to adapt the railway infrastructure to at least 740 m train length.

3.8 Transport Potential between RFC OEM and Third Countries

An important aspect of the development and transport importance of the OEM corridor is the generation and attraction of new traffic flows. New transport opportunities need to be exploited also from countries outside the corridor and EU Member States. A significant potential regarding

new transport flows was demonstrated from/to Turkey. Based on the attraction of new transport flows, an analysis of transport potential of the countries of Central Asia and Caucasus region, so-called third countries belonging to TRACECA (Transport Corridor Europe – Caucasus - Asia) corridor, was carried out. The TRACECA corridor includes: Azerbaijan, Bulgaria – OEM member, Georgia, Iran, Kazakhstan, Kyrgyzstan, Moldova, Romania – OEM member, Tajikistan, Turkey – separate chapter, Ukraine and Uzbekistan.

Based on the analysis of import and export of goods between EU countries and the countries of Central Asia and Caucasus region it is possible to conclude and assume:

- goods of the highest value were imported into EU countries from Azerbaijan, Iran and Ukraine,
- goods from other countries were exported in lower values not relevant for rail freight,
- the largest amount of goods was imported into EU countries from Azerbaijan, Iran, Kazakhstan and Ukraine,
- negligible amount of goods, which does not create significant rail transport opportunities, was imported into EU countries from other countries,
- import of goods into EU countries from the countries concerned has an overall upward trend and such trend can be expected in the future, based on GDP development in the countries concerned,
- import of goods into the countries concerned from the EU has an overall downward trend,
- approximately one third of the imported and exported goods between these countries and EU countries were made between the countries included in the OEM corridor,
- rail freight relevant transport potential for the RFC OEM can primarily be expected with Iran and Kazakhstan,
- other countries do not currently export and import a significant amount of goods that would significantly increase the demand for rail freight services.

New transport opportunities that would be suitable for transport by rail can be expected from and/or to Kazakhstan and Iran. As far as the transport flows are concerned, directional inequality may cause challenges. An important aspect for the growth and development of the OEM corridor in the long term could become, in particular, the transit through the countries of Central Asia and the Caucasus region to EU countries via OEM corridor railway infrastructure from China and India. This creates opportunities for international cooperation and the subsequent provision of comprehensive transport services through, in particular, intermodal transport. The “Iron Silk Road”-initiative could become of particular interest for RFC OEM, since the RFC OEM is serving those ports and border crossing points in South-Eastern Europe which are natural entry points for traffic along the Iron Silk Road.

Apart from the potential provided by third countries, following the completion of the infrastructure works concerning the railway connection between Athens and Patras, the sea links between the port of Patras and the ports of the Ionian Sea and the Adriatic Sea are expected to significantly enhance the intermodal efficiency of the Corridor, providing a considerable boost to its flows.

3.9 Strategical Review of RFC OEM based on SWOT Analysis

Based on the SWOT analysis, it is necessary to take the following measures for the RFC OEM into account:

- segmentation of services and customers,
- agreements and contracts with carriers,
- increase the awareness to the corridor’s services and products,

- improve planning and management of infrastructure works with the aim to reduce impact on traffic,
- promote improvement of infrastructure standard in order to allow more efficient train operations (leading to increased competitiveness of rail transport), in particular train length,
- develop and implement mitigating measures to avoid disruption of train services at border crossings for too long times,
- harmonisation of operational procedures and elimination of unnecessary rules (for example harmonise the number of buffer wagons), taking into account the Action Programme of 2016.

3.10 Strategical Map of the RFC OEM (proposed by VVÚŽ)

In order to fulfil the basic objectives of the OEM corridor it is necessary to set out the strategic steps for their fulfilment. One of the appropriate methods for creating strategic processes is the Balanced Score Card. Balanced Score Card is a complex strategic method that looks at the subject surveyed through four perspectives and their mutual relationships. It is an assessment from financial-, customer-, process-, learning- and growth perspective. The Balanced Score Card methodology is based on the vision and strategy of the object surveyed and on that basis for each perspective the mission and strategic objectives, to which certain metrics and their target values are assigned, will be determined. All perspectives are logically connected and linked and this method, therefore, provides a complex view of the object surveyed and its performance. The detailed strategic map can be found in Chapter 13, Figure 21 of the TMS.

According to the proposed strategical map the RFC OEM main visions are:

- being a competent and highly appreciated partner and service provider to rail freight undertakings, shippers, cooperation partners and stakeholders,
- maintaining a strong position in the outstanding performances such as C-OSS services and further development of RFC product according to market demand,
- continuously improving on indicators where customer satisfaction is not yet satisfying,
- growth of rail freight performances,
- strengthening the position of rail freight within the EU, development of cross- border rail interoperability in order to shift more long-distance traffic to rail, thus, to contribute to reach the goals laid down in the White Book for Transport of the European Commission,
- progressive reduction of social costs of transport such as reduction of CO2 emission with the shifting of more and more traffic to rail,
- expand cooperation with rail carriers and individual rail infrastructure managers through increased range of services.

According to the proposed strategical map the RFC OEM mission consists particularly of:

- providing smooth, reliable and high-quality services for rail freight undertakings, terminals and end customers,
- increasing awareness and facilitating the use of RFC OEM’s services through progressive deployment of customer-friendly IT-tools such as PCS system of RNE,
- developing effective procedures in removing bottlenecks (infrastructural, administrative or else),
- stability of rail system status and tradition by minimizing impact of works on traffic operations and ensuring a good state of infrastructure maintenance,
- good responsiveness to customer requirements at the highest levels,

- maintaining a good cooperation with the Core Network Corridor Coordinator of the CNC OEM in order to be able to effectively contribute to the development and modernization of railway infrastructure with regard to the specific needs of rail freight,
- facilitation of intermodal transport (RO-LA and Unaccompanied Combined Traffic),
- promoting rail as an environmentally friendly mode of transport among prospective shippers and political decision-makers,
- continuously contributing to the development of the rail system within the EU and the network of EU Rail Freight Corridors.

3.11 Conclusions and Recommendations

The international rail freight corridor OEM was established in 2013 in order to ensure coordination between the Parties concerned, more effective transport management by introducing the concept of the one-stop shop, fulfilment of the requirements of the RFC-Regulation, and to boost some increase in transport performances as well as to improve transport continuity across the Member States concerned aiming at a sufficient prioritization of rail freight. Based on the analyses carried out, marketing survey, comparison of modal split and other important qualitative and quantitative transport indicators, we can state that even if there are lots of challenges the RFC OEM seems to be on the right track. This conclusion can precisely be backed by the results of the User Satisfaction Survey of 2016 which are inter alia the improvement in the field of traffic management issues, overall communication procedures between the customers and the operative management of the corridor and last but not least the results of the Train Performance Management showed growing tendency in comparison with that of the survey of 2015. It is important to stress that these results stem from customers who actually use the corridor's services. The real strengths of the corridor proved to be in the field of path allocation and the services provided by the C-OSS. Customers highly valued the customer orientation, newsletters, business know-how and availability of the C-OSS Manager and welcomed the Flex-PaP concept in general.

Thanks to the corridor's route alignment, geographical position and developing economic indicators, a definitive growing tendency regarding traffic potentials between the Member States of the RFC OEM as well as new transport opportunities between Turkey, Kazakhstan, Iran and China can be forecasted. In order to better serve this progress, RFC OEM's operative management developed new initiatives aiming at the improvement of the corridor's offer which were welcomed by our customers. One good example could be that for the first time in 2016, the path-construction process was preceded by a new, service-oriented initiative offered by the C-OSS Manager, inviting all potential applicants into a preliminary consultation in order to improve the quality of PaPs for timetable 2017 and Reserve Capacity for timetable 2016 by collecting their needs. As a result, the PaP-catalogue of 2016 offered to our Customers 13.9 million path-kilometers (km*running days) of high-quality paths for international traffic. Regarding the annual requests for international paths 14% of the available corridor capacity, i.e. 1.92 million path kilometers, was pre-allocated which was a major increase compared to the 9% in 2015. Furthermore, it is worth to mention that the total requested running days were 1662 with an average 138,5 per request. The longest requested PaP distance was 1643.9 km with an average of 1010 km per request. These numbers show us a clear interest in utilizing corridor-capacity mainly by the long-distance traffic between Germany and Turkey. When it comes to the assessment of the need for Reserve Capacity, there had been 8.2 million path-kilometers provided to serve the interim needs of RFC OEM customers, out of which 1.38 million requested and allocated through the C-OSS, which showed also an increase compared to the timetable year of 2015. Following strong request from the market, the C-OSS started to examine the feasibility to significantly lower the deadlines for requesting reserve capacity before the running day of the train (results are expected to 2017/2018).

The accession of Germany scheduled to 2018 will contribute to the further growth and development of the corridor. Furthermore, following the completion of the infrastructure works concerning the railway connection between Athens and Patras, the sea links between the port of Patras and the ports of the Ionian Sea and the Adriatic Sea are expected to significantly enhance the intermodal efficiency of the corridor, providing a considerable boost to its flows.

Due to its strategical importance, the RFC OEM could have further potentials for extension, but any future modification in its current alignment needs to be underpinned by significant increase in demand for international rail freight services.

Based on the comprehensive results of the TMS for RFC OEM, the following measures for ensuring further development and fulfilling the strategic objectives resulting from the corridor's mission and vision are recommended:

	Recommendation	Recommended responsible
1	Examination of the possibility to adapt priority rules to the needs of rail freight transport.	Infrastructure Managers of RFC OEM (IMs)
2	Increase the number and the quality of train paths for the international rail freight transport.	Corridor-One Stop Shop office (C-OSS), IMs
3	Regularly evaluate the satisfaction of Railway Undertakings (RUs) and other users of the whole railway network in order to ensure and promote quality rail services.	European Commission (EC), RFC OEM, IMs
4	Proceed towards the creation of a European-wide harmonised regime for infrastructure charges.	EC, IMs
5	Internalization of negative external costs in transport sector.	EC, European Parliament (EP), European Council, Member States (MSs)
6	Increase, adapt and regularly monitor investments for the removal of bottlenecks along the corridor.	MSs, EC, IMs, TEN-T Core Network Corridor (CNC)
7	Increase, adapt and monitor investments in modernization of basic and connecting transport infrastructure including last-mile within the corridor.	EC, CNC, IMs
8	Coordinate the investment plan regarding the transport infrastructure of the corridor.	EC, CNC, MSs (national investment plans), IMs
9	Ensure proper and effective maintenance of railway infrastructure of the corridor.	IMs
10	Ensure proper and effective traffic management rules and stable and reliable coordination process for temporary capacity restrictions (TCRs) along the corridor.	IMs, C-OSS, RUs
11	Actively cooperate with other RFCs	MSs, IMs, RFC Network, RNE-RFC High-Level meeting
12	Extend the network of local and regional intermodal terminals that can provide high-quality and competitive intermodal transport services.	EC, MSs
13	Permanent and effective cooperation with intermodal transport operators, Railway Undertakings and Authorized Applicants.	Intermodal Terminals, Terminal Advisory Group of RFC OEM (TAG), RUs, Railway Advisory Group of RFC OEM (RAG)
14	Continuously improve the quality of market surveys and overall communication between the RFC bodies (as defined by the RFC-Regulation) in order to succeed problem solving.	RFC OEM Executive Board (EB), Management Board (MB), RAG, TAG, RFC OEM Working Groups (WGs); EC, CNC Coordinator and Consultants for CNC OEM

Table 9

These recommendations are based on the results of the TMS, the empirical knowledge of IM's experts working with the corridor, OEM corridor staff, railway undertakings, marketing research and customer satisfaction surveys. The recommendations aim at the achievement of a modal increase for international freight services to rail and the improvement of long-distance cross-border rail services. Well-set and customer-oriented services will contribute to a higher demand for rail freight services, effective modal split, savings in negative external costs of transport and sustainable development. This will contribute to fulfil the vision and mission of the OEM corridor as well as to the achievement of the main goals adopted by the European Commission in its White Book on Transport of 2011 towards a competitive and resource efficient transport system. These recommendations should be considered as the challenges for further improvement of the OEM corridor, although several of them cannot be directly implemented through the OEM corridor alone but with the cooperation and involvement of all respective stakeholders.

4 List of measures

4.1 Coordination of Temporary Capacity Restrictions

4.1.1 Background

Independent Temporary Capacity Restrictions working group (TCRs WG) was established in mid of 2016 by the Management Board. The aim of the decision was to split the Traffic management working group and create independent working group deeply focused on tasks connected with capacity restrictions planning, coordinating and publishing.

TCRs WG meets 2 times per year. All WG members confirm the purpose to improve the TCRs planning and coordinating process along on RFC OEM taking into account the related RNE guidelines as well. Some specificities will remain in the RFC OEM information procedure of TCRs which were requested by our business clients during the TAG/RAG meetings.

4.1.2 Legal framework

TCRs WG processes are based especially on Article 12 "Coordination of works" of the European Regulation No 913/2010 giving the responsibility for TCRs coordination and publication to RFC Management Board:

"The management board shall coordinate and ensure the publication in one place, in an appropriate manner and timeframe, of their schedule for carrying out all the works on the infrastructure and its equipment that would restrict available capacity on the freight corridor."

Taking in account this article RNE developed Guidelines for Coordination / Publication of Temporary Capacity Restriction (version 2.0) which is the main legal basis for TCRs WG activities. TCRs WG members fully respect these Guidelines and follow them for securing proper environment for coordination of TCRs.

4.1.3 Tasks of the TCRs WG

TCRs WG takes care about following tasks:

- Steers the coordination process according the RNE Guidelines.
- Ensures the publication of planned TCRs for customers.

- Ensures the process of measure and quality evaluation of TCRs Coordination and Publication.
- Cooperates with C-OSS to improve the quality of train path allocation.
- Develops the environment for publication of unplanned (not within the scope of RNE TCR guideline) and extraordinary capacity restrictions to avoid train delays and other undesirable circumstances.
- Supports the development of a TCR coordination and planning process to improve rail freight traffic.

On the basis of the regular up-date of the information on TCRs the first conclusion is that there are a lot of works, which will be executed by the IMs in the coming years on corridor lines. The MB will monitor the situation and will make efforts to harmonize the coordination of the works according to the RNE guidelines.

The TCR WG enforces to start bilateral or trilateral coordination in those cases, where this is appropriate by the RNE guidelines. Good coordination of TCR can positively influence the service level and quality on RFC OEM. TCR is an important topic for the business partners, publication and coordination on time can facilitate the related procedures for all concerned partners.

4.1.4 TCRs Coordination and publication process

Process for coordination and publication of TCRs is described in Chapter 4 of CID book 4.

4.2 Corridor OSS

The tasks of the C-OSS, legal background and related documentation are described in Annex VII – C-OSS Operational Rules.

4.3 Capacity allocation principles

The current measures are described in Book 4.

4.4 Applicants

The current measures are described in Book 4.

4.5 Traffic Management

In line with Article 16 of Regulation, the management board of the freight corridor has put in place procedures for coordinating traffic management along the freight corridor.

Traffic Management is the prerogative of the national IMs and is subject to national operational rules. The goal of Traffic Management is to guarantee the safety of train traffic and achieve high quality performance. Daily traffic shall operate as close as possible to the planning.

Having regard the impact of the COVID-19 in 2020, RFC OEM Traffic Management could maintain the smooth train run on the whole Corridor among 8 member states. Thanks to the close cooperation of the stakeholders the unexpected challenges of the pandemic helped us to strengthen the reliable usage of the corridor lines.

In case of disturbances, IMs work together with the RUs concerned and neighbouring IMs in order to limit the impact as far as possible, to provide possible alternative routes for the traffic and to reduce the negative impact occurred on the network. Detailed description is under sub-chapter 4.6.

National IMs coordinate international traffic with neighbouring countries on a bilateral level. In this manner they ensure that all traffic on the network is managed in the most optimal way.

Detailed rules and procedures are described in Section 4. Chapter 5 of CID Book.

4.6 Traffic Management in the Event of Disturbance

The goal of traffic management in case of disturbance is to ensure the safety of train traffic, while aiming to quickly restore the normal situation and/or minimise the impact of the disruption. The overall aim should be to minimise the overall network recovery time.

In order to reach the above-mentioned goals, traffic management in case of disturbance needs an efficient communication flow between all involved parties and a good degree of predictability, obtained by applying predefined operational scenarios at the border.

Since 2021 communication between stakeholders in case of international disruptions is also supported by RNE TIS Incident Management tool. The communication procedure and the available tools are described in Section 4. Chapter 5 of CID Book.

4.6.1 International Contingency Management Planning (ICM)

As the consequence of the Rastatt incident, DB and RFC1 early 2018 made an initiative to set up a Handbook for proper handling of international disturbances in duration of longer than 72 hours. After concluding the key elements and conclusions of the Rastatt incident a working document was elaborated which initiative was also supported by the sector and by the European Commission (DG-Move).

Incidents on the railway infrastructure always have an effect on rail operations. The responsible infrastructure manager handles most incidents at regional or national level. If trains on networks of neighbouring infrastructure managers are affected, the traffic management of neighbouring infrastructure managers are informed directly and involved in the incident management process. This process is a daily practice between the infrastructure managers in Europe.

If a large incident with significant international impact occurs, the international coordination of incident management needs a high attention at infrastructure managers, allocation bodies and Applicants, if applicable under the supervision of governments and local authorities. Other stakeholders such as shippers, regulatory bodies, ports, terminals and media need to be informed about the status of the international disruption.

The main goal of the ICM handbook is to describe standards that allow continuation of freight and passenger traffic flows, within the framework of national rules, and its impact on traffic flows for all relevant stakeholders across Europe. Rail Freight Corridors act as facilitators with respect to the disruption management and the communication process.

The ICM handbook defines the necessary cooperation in case of significant international disruptions and describes:

- How to recognise and when to declare an internationally relevant disruption;
- The preparatory processes for international business continuity management;
- The roles needed for the international cooperation;
- Pre-defined procedures and best practices;
- Data gathering for reliable re-routing statistics, KPIs;
- Legal framework.

All essential information on handling of ICM cases relevant for Applicants shall be described in the Network Statement (NS) in accordance with the requirements for publication of the NS as defined in Article 27 of Directive 2012/34/EU and can be complemented by a link to this handbook.

4.7 Quality Evaluation

Quality of service on the freight corridor is a comparable indicator (set of indicators) to those of the other modes of transport. Service quality is evaluated as a performance. Performance is measured with Performance Indicators. These indicators are the tools to monitor the performance of a service provider. What regards the international rail freight services the obligation is based on the provisions of Article 19 of the Regulation.

4.7.1 Performance monitoring report

The measurement of performance of rail freight transportation on RFC OEM lines is first of all an obligation stemming from the Article 19 (2) of Regulation (EU) 913/2010, on the other hand it contributes to the development of RFC OEM services, as well.

RailNetEurope with the cooperation of Rail Freight Corridors elaborated the Guidelines for Key Performance Indicators of Rail Freight Corridors. It provides recommendations for using a set of KPIs commonly applicable to all RFCs. Related information can be found on the flowing link: http://www.rne.eu/rail-freight-corridors/downloads-documents/

A. On RFC OEM the following common KPIs are measured:

- Capacity management: measuring the performance of RFC OEM in constructing, allocating and selling the capacity of RFC OEM (in line with Articles 13 and 14 of the Regulation), monitored in terms of:
  - Volume of offered capacity (PaPs and RC)
  - Volume of requested capacity (PaPs and RC)
  - Number of requests (PaPs and RC)
  - Volume of pre-booked capacity (PaPs)
  - Number of conflicts (PaPs)
  - Average planned speed of PaPs

The KPIs included in this area inter alia contains the KPIs listed in the Annex 3 of the Framework for Capacity Allocation on the Orient/East-Med Rail Freight Corridor.

- The KPIs of Operations, which measure the performance of the traffic running along RFC OEM monitored in terms of punctuality, volume of traffic and delay reasons:
  - Punctuality at origin

  - Punctuality at destination
  - Number of RFC trains
  - Train kilometres of RFC trains along the RFC
  - Dwell times in border sections (planned and actual)
  - Overall number of trains on the RFC

- The KPIs of Market development, which measure the capability of the RFC OEM in meeting the market demands are monitored in terms of:
  - Number of trains crossing a border along the RFC
  - Train kilometres of trains crossing a border along the RFC
  - Number of trains per border
  - Train kilometres of trains per border
  - Ratio of the capacity allocated by C-OSS and the total allocated capacity

In order to use the same quality of data and to reduce the overall efforts of the RFCs and RNE, mainly the same IT tools are used for the calculation of the commonly applicable KPIs. In case the data can be provided by PCS or TIS, then the data processing tool is OBI. If the necessary data are not available in RNE IT tools, the RFCs collect the data (e.g. via their IMs from the IMs' IT tools) and do the calculation individually. The calculation formulas of common KPIs can be found in the Guidelines for Key Performance Indicators of Rail Freight Corridors.

The results of the Capacity management, Operation and Market development KPIs shall be published in the Annual Report of RFC OEM.

B. RFC OEM specific indicators which were approved by the Management Board

Response time to questions of customers related to the information function of C-OSS shall be: as soon as possible, but maximum within 5 working days.

The following indicators of quality should be monitored:

- Response time of C-OSS to questions of customers
- Total transport time of corridor trains
- Dwelling time in border stations

The Management Board plans to increase allocated pre-arranged paths and reserve capacity by min. 2% annually.

For the purposes of the next TMS studies, all kind of corridor flows will be monitored, i.e. not only trains with capacity allocated from PaPs, but also from tailor-made paths, catalogue paths and ad-hoc paths.

The following indicators of performance shall be monitored:

- Number of corridor trains per month
- Number of the border crossing allocated/used path corridor trains
- Length of path

The process for monitoring performance is described in RNE Guidelines for Punctuality targets.

Performance will be monitored by national systems at the first stage, then by TIS later on.

Next performance indicators which should be monitored for TMS purposes:

- Number of trains on corridor with capacity allocated by national OSS
- Tonnes
- Gross tonnes km
- Train km

4.7.2 User Satisfaction Survey

See Chapter 5.3.

4.8 Corridor Information Document

The CID applies the RNE CID Common Texts and Structure so that all applicants can access similar documents for different corridors and in principle – as in the case of the national NSs – get the same information in the same place in each one.

The CID consists of the following sections:

- **Section 1: Generalities**
- **Section 2: Network Statement Excerpts**
- **Section 3: Terminal Description**
- **Section 4: Procedures for Capacity and Traffic Management**
- **Annexes (Implementation Plan, Transport Market Study etc.)**

The CID is published for each timetable year on the 2nd Monday of January of the previous timetable year.

The CID is published on the corridor's website and in RNE NCI (Network and Corridor Information – a single platform for all NSs and CIDs).

All Books of the CID can be updated when necessary according to:

- changes in the rules and deadlines of the capacity allocation process,
- changes in the railway infrastructure of the member states,
- changes in services provided by the involved IMs/ABs,
- changes in charges set by the member states,
- etc.

5 Objectives and performance of the corridor

5.1 Train Performance Management (TPM)

The TPM Coordination is a permanent working body in the framework of Traffic Management Working Group set up by MB in order to establish a framework for the coordination and communication of TPM issues among RUs, Terminals and IMs on RFC OEM. In this group all stakeholders work closely together in order to make the railway business more attractive and competitive.

The aim of TPM Coordination is to erase gaps in the processes during the train run, to improve punctuality across borders and handover points and as a result to increase the commercial speed and continuous common improving the quality of data provision and monitoring. Detailed information about this activity can be found in Section 4. Chapter 6 of Corridor Information Document.

5.2 Annual reports

Referring to the Article 19. of the Regulation 913/2010/EU the Management Board shall monitor the performance of rail services on the freight corridor and shall publish concerned activities every year. Annual reports can be found in the Documents section of the RFC OEM webpage https://www.rfc7.eu/annualreports and are also available in CIP.

5.3 User Satisfaction Survey

To know our customers' opinion is a fundamental interest of Rail Freight Corridors (RFCs) for further development. With this in mind Regulation (EU) No 913/2010 also requires RFCs to conduct a user satisfaction survey on yearly basis and publish the main results.

For conducting research RNE created a common platform, of which Orient/East-Med Corridor (RFC OEM) has been a member since formation (2014). During the RFC Network February, 2020 the elaboration of a new system had arisen. Main orientations: shortening and doing in house manner (without external company). The new survey was elaborated by RNE Network Assistant and RFC representatives in User Satisfaction WG, based on majority decisions.

The new research launched in 2020. The target population did not change: the users of corridor lines (both having and not having corridor capacity). Online interviews were conducted with the help of research tool Survio.

There are some questions in connection with the efficiency of the new method, which is being answered by the practice, but positive development, that all RFCs have joined the new research, also messaging that the European Rail Freight Corridors form one network, and this common surface provides us a European framework.

More explanatory notes and facts can be found in the RFC OEM own summaries about the results of user satisfaction survey. (See the Documents tab of the RFC OEM webpage https://www.rfc7.eu/satisfactionsurvey).

6 Investment Plan

6.1 Capacity Management Plan

In 2019 DG-Move initiated to collect market-based rail infrastructure development requests. This initiative was submitted to the rail freight corridors by a letter signed by Ms Elisabeth Werner, Director DG-MOVE C because EC was seeking for a pragmatic approach for involving the opinion of the railway undertakings. They wish to start from the investment plan of the rail freight corridors, focus on bottlenecks and cross-border connections.

Proposals for infrastructure needs from the market perspective listed have been consulted first with railway undertakings at national level, then the input was gathered by the RFC OEM Advisory Groups' members. According to their interpretation RFC OEM Management Board collected „bottom-up" proposals which could be considered as valuable input to strengthen a closer cooperation between RFCs and CNCs in field of infrastructure development. In this consultancy period the railway undertakings were looking for cost-effective solutions when addressing the investment needs. They had four parameters in focus: train length (740 m), axle load (225 kN), transit time by country, and electrification.

This market driven investment list with a complex presentation was presented at last OEM CNC Forum meeting held in November 2019 in Brussels and the whole document was handed over to Executive Board and to representatives of EC. The evaluation of the proposals are ongoing and will be taken into consideration in the future e.g. in setting up the new version of the OEM CNC Work Plan or other additional investments' proposals.

On the basis of the investment plan the corridor governance is monitoring regularly the implementation of corridor related reconstructions, rehabilitations and investments. The main driving force of these investments is to remove bottlenecks. The capacity management is strongly linked to the improvement of several infrastructure parameters as are listed in regulation 1315/2013/EU.

The Investment Plan is updated regularly by the RFC OEM Infrastructure Working group and is published as an Annex to Book 5.

In 2019 the update was made and it was incorporated into CIP. To avoid the duplication the new data are available at this digital platform. For more information please, visit the RNE web-page.

The Chapter below includes brief visual overview of the RFC OEM infrastructure within member states. More detailed information is available in CIP.

Parameter	**Length in km**		
Number of tracks	**Principal Lines**	**Diversionary Lines**	**Connecting Lines**
3	33	0	0
2	4365	1105	249
1	1646	1713	164
Total	**6045**	**2818**	**663,7**
Traction	**Principal Lines**	**Diversionary Lines**	**Connecting Lines**
25 kV AC / 50 Hz	3294	1732	59
15 kV AC / 16,7 Hz	1574	97	0
3 kV DC	479	11	192
Non-electrified	698	978	162

Axle load	Principal Lines	Diversionary Lines	Connecting Lines
C2	129	86	0
C3	1474	1047	4
C4	440	496	109
D2	14	0	0
D3	70	5	9
D4	3918	1184	292

Table 10

Federal Republic of Germany

On the territory of Federal Republic of Germany, the extension of RFC OEM lines directed at Wilhelmshaven/ Bremerhaven/ Hamburg/ Rostock–Dresden–Bad Schandau–Děčín (CZ) is under consideration and will be implemented in 2018. The routing of RFC OEM in the Federal Republic of Germany in graphical form is shown in Table 11.

Table 11: Graphical representation of RFC OEM routing under consideration on DB network (Source: József Ádám Balogh, C-OSS manager)

The graphical representation of the German principal lines in Table 11 show the connection of German ports of the North Sea and Baltic Sea via the cross border in Bad Schandau with the existing RFC OEM railway infrastructure. Such connection creates more favourable conditions especially for intermodal transport. Furthermore, with the extension to Germany RFC OEM will have a connecting point with the RFC Scandinavian-Mediterranean in Hamburg and RFC OEM will have long overlapping sections with RFC North Sea - Baltic.

Czech Republic

RFC OEM principal line in the Czech Republic is routed through the transport nodes Praha – Kolín – Česká Třebová – Brno/Břeclav – Hohenau (AT)/Břeclav – Lanžhot – Kúty (SK). Extension to the Federal Republic of Germany is directed at Praha/ Kolín – Ústí nad Labem – Děčín – Bad Schandau (DE). Diversionary lines are routed through Kolín – Kutná Hora – Havlíčkův Brod – Křižanov and Velký Osek – Choceň. The connecting line from PKP infrastructure to SZCZ is routed through Břeclav – Ostrava and border crossings Bohumín-Vrbice – Chalupki (PL) and Petrovice u Karviné – Zebrydowice (PL). Graphical routing of RFC OEM lines in the Czech Republic is shown in Table 12.

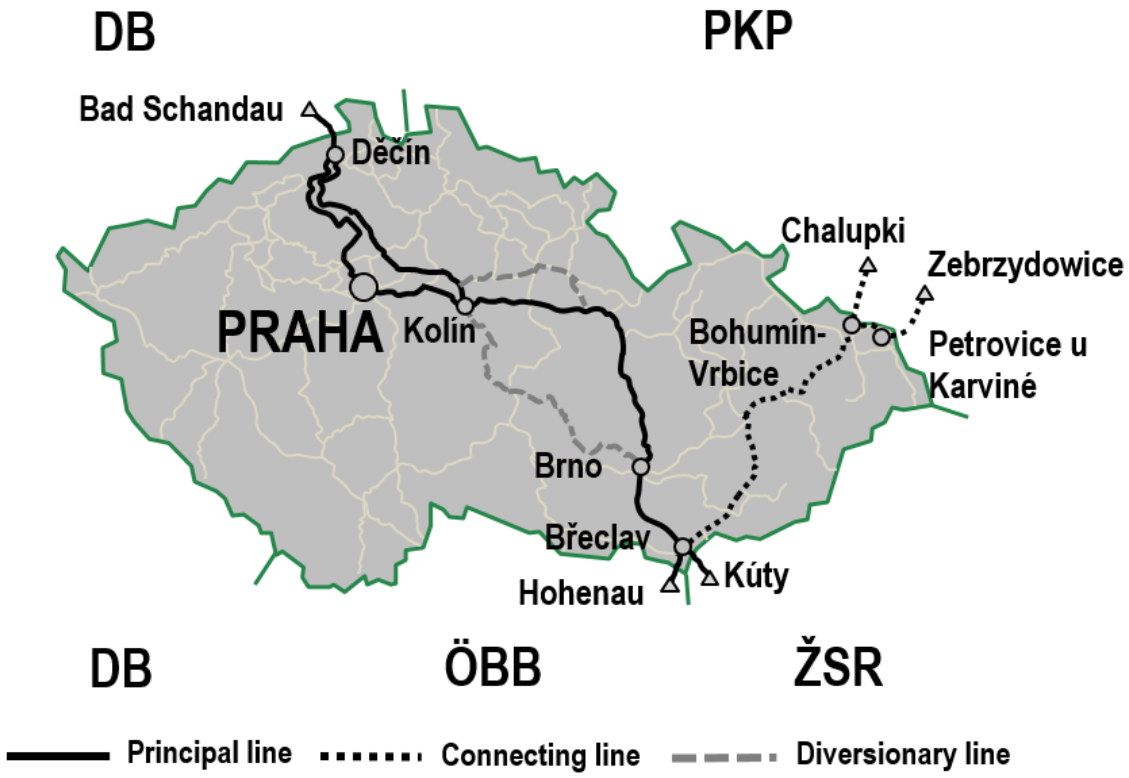

Table 12: Graphical representation of RFC OEM routes on SZCZ network (Source: József Ádám Balogh, C-OSS manager)

RFC OEM corridor is connected to RFC 5 corridor in the cities Břeclav and Ústí nad Orlicí (the Czech Republic) while the connecting line of RFC OEM is part of RFC 5. At the same time, RFC OEM in the capital Praha and Česká Třebová is connected to RFC 9. RFC OEM corridor is also overlapping with RFC North Sea - Baltic on the lines from the German-Czech border to Děčín, Praha and Kolín. Connection of several rail freight corridors in the Czech Republic creates favourable conditions for cooperation between particular corridors as well as transport and technological effectiveness for railway undertakings.

Austria

On ÖBB network, RFC OEM principal line passes through border crossing stations Břeclav (CZ) – Hohenau to the capital of Austria – Vienna and continues to Hungary through the border crossing Nickelsdorf – Hegyeshalom (HU). Diversionary lines are redirected from the principal line in the railway station Gänserndorf to the border crossing Marchegg – Devínska Nová Ves (SK) and from the railway station Parndorf to the border crossing Kittsee – Bratislava Petržalka (SK).

Another principal line is the line from Vienna via Ebenfurth to Sopron (HU). Following negotiations in April 2017, the Management Board took the decision to change the state of the Vienna-Ebenfurth-Sopron line from a "diversionary line" to a "principal line". From Ebenfurt to Vienna, The Potterdorfer (Ebenfurth – Wampersdorf – Vienna Inzersdorf Terminal – Wien Zentralverschiebenahnhof) is routed.

Another alternative route is from Vienna via Wiener Neustadt to Sopron. At the same time, RFC OEM in Austria (in Vienna) is connected to RFC 5. The graphical routing of RFC OEM lines in Austria is shown in Table 13.

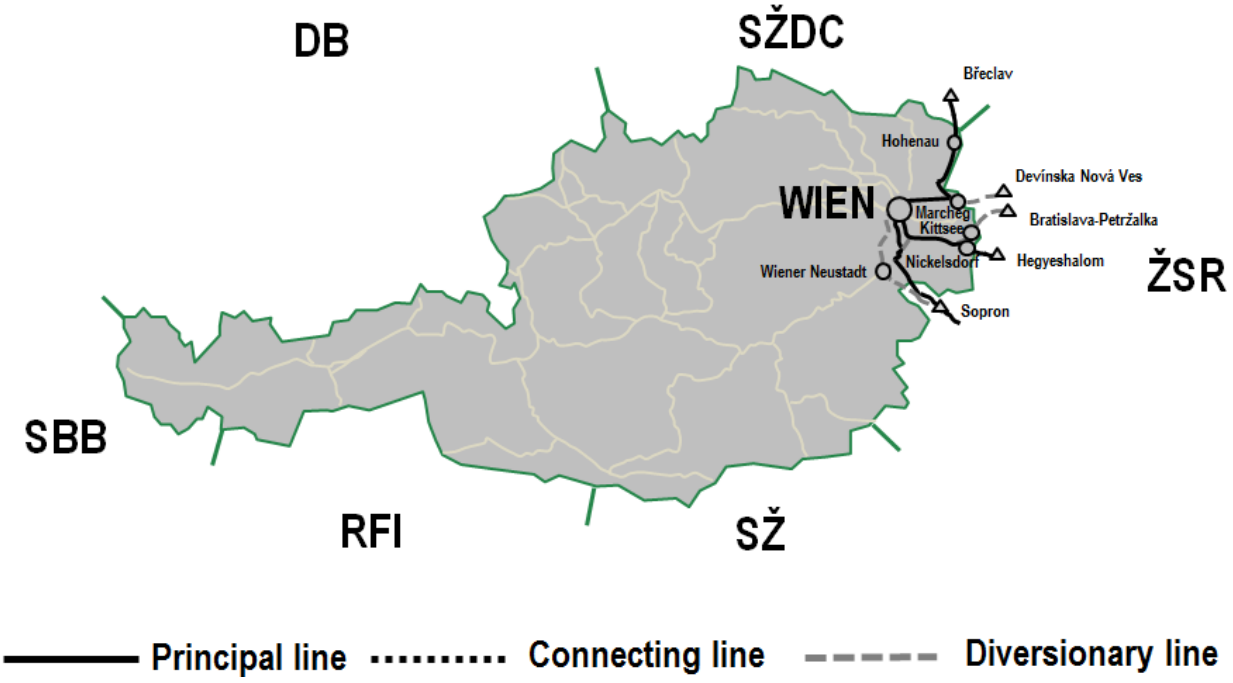

Table 13: Graphical representation of RFC OEM routes on ÖBB network (Source: József Ádám Balogh, C-OSS manager)

Slovak Republic

The principal line on ŽSR network runs from the Czech Republic (Lanžhot (CZ) – Kúty) to Hungary through Bratislava in three branches. This includes the following lines:

- Bratislava – Rusovce – Rajka (HU),
- Bratislava – Nové Zámky – Komárno – Komárom (HU),
- Bratislava – Nové Zámky – Štúrovo – Szob (HU).

The first diversionary line included in RFC OEM on ŽSR network is routed Lanžhot (CZ) – Kúty – Trnava towards Bratislava and Galanta with a connection to the principal line. Another

diversionary line is the connection of the border stations to the principal line. This includes the border crossings Marchegg (AT) – Devínska Nová Ves and Kittsee (AT) – Bratislava Petržalka. The line Bratislava – Komárno through Dunajská Streda is classified as a connecting line on ŽSR network. At the same time, RFC OEM in the Slovak Republic, in its capital Bratislava, is connected to RFC 5. The graphical routing of RFC OEM lines in the Slovak Republic is shown in Table 14.

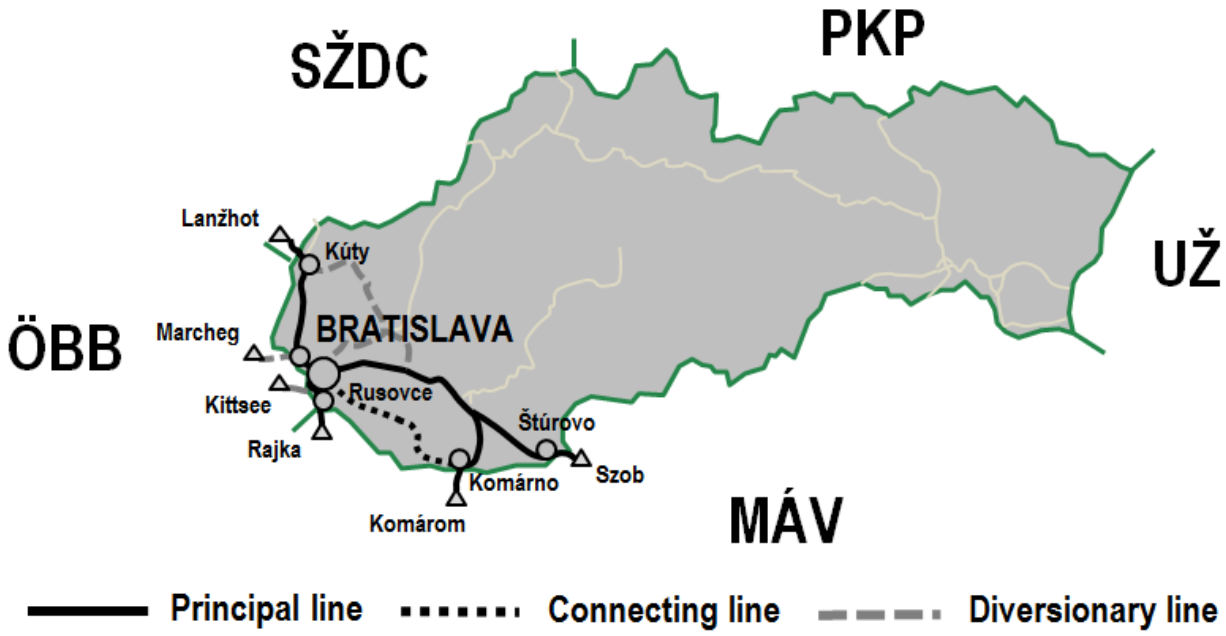

Table 14: Graphical representation of RFC OEM routes on ŽSR network
(Source: József Ádám Balogh, C-OSS manager)

Hungary

The principal line on MÁV network is routed from ÖBB network (border crossing Nickelsdorf/ Hegyeshalom) and is connected to the second principal line in the city of Győr leading from the city of Sopron (from the Sopron terminal). This principal line from Sopron continuous on GYSEV / Raaberbahn infrastructure on Austrian territory (the border crossing: Baumgarten) to Ebenfurth. Infrastructure owned by GYSEV / Raaberbahn ends in the middle of the Neufeld an der Leitha bridge (operating up to Ebenfurth), from here further up towards Vienna, ÖBB is the competent Infrastructure Manager. Routing of principal line from the territory of the Slovak Republic:

- Rusovce (SK) – Rajka – Hegyeshalom – Győr – Komárom – Budapest,
- Komárno (SK) – Komárom – Budapest,
- Štúrovo (SK) – Szob – Vác – Budapest.

The Rajka – Hegyeshalom, Sopron – Győr infrastructure sections are managed by GYSEV, following that, MÁV is the competent infrastructure manager towards Lőkösháza.

The subsequent routing of the principal line is in continuation Budapest–/Újszász–/Cegléd–Szolnok–Lőkösháza–Curtici (CFR). Connection of the line from ÖBB network to the border crossing station Sopron then continues as principal line in the direction of Győr–Komárom–Budapest. Diversionary lines included in RFC OEM on MÁV railway network are:

- Vác–Újszász,
- Budapest–Cegléd–Szolnok,
- Szajol–Biharkeresztes–Oradea (CFR).

RFC OEM is simultaneously connected to RFC 6 in the Hungarian capital Budapest. The graphical routing of RFC OEM routes in Hungary is shown in Table 15, where GYSEV´s rail lines are coloured in yellow. The remaining tracks are managed by MÁV.

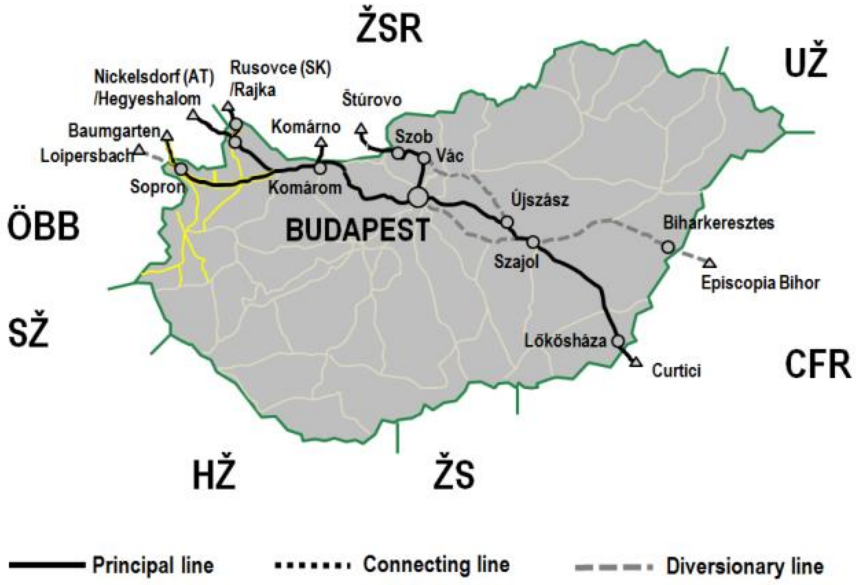

Table 15: Graphical representation of RFC OEM routes on MÁV and GYSEV network (Source: József Ádám Balogh, C-OSS manager)

Romania

The principal line from Hungary through border crossing Lőkösháza (MÁV) – Curtici continues to the station Arad and then divides into two branches:

- Arad – Simeria – Coşlariu – Braşov – Bucharest – Constanţa,
- Arad – Orşova – Craiova – Calafat – Vidin (NRIC).

Connection of these two branches is provided by the routes Simeria – Filiaşi and Craiova – Videle – Bucharest. Border crossing lying on the diversionary line Giurgiu – Ruse (NRIC) is connected from the diversionary line through Videle railway station and from the principal line through Bucharest railway station. The diversionary line from MÁV network from border point Biharkeresztes (MÁV) – Oradea connects to the principal line in Coşlariu railway station. Graphical routing of RFC OEM routes in Romania is shown in Table 16.

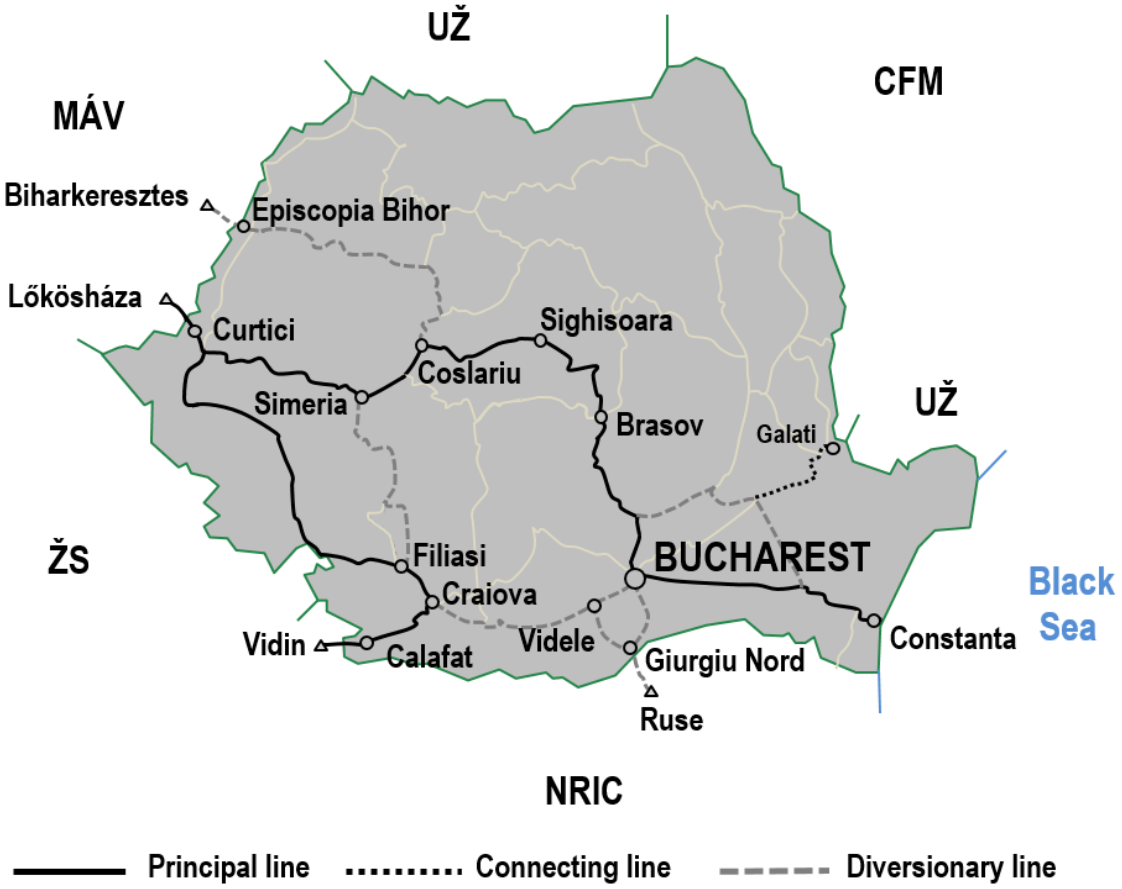

Table 16: Graphical representation of RFC OEM routes on CFR network (Source: József Ádám Balogh, C-OSS manager)

Republic of Bulgaria

The principal line on the territory of Bulgaria passes through its capital Sofia from Romania to Greece in the direction: Golenti (RO) – Vidin Tovarna – Mezdra – Sofia – Kulata – Promachonas (GR). Following the meeting of the Management Board on June 2 2016, the originally diversionary line was reclassified to the principal line in the direction Sofia – Plovdiv – Svilengrad. The diversionary line is led through the border crossing Giurgiu (CFR) – Ruse Razpredelitelna – Karnobat /Burgas – Nova Zagora – Stara Zagora and Svilengrad – Ormenio (GR) and connection with the principal line in three points in Simeonovgrad, Dimitrovgrad and Plovdiv railway stations. The connection of RFC OEM to Turkey is possible through the border crossing Svilengrad (BG) – Kapikule (TR) and then to the Turkish railway network. The map of RFC OEM routes in the Republic of Bulgaria is shown in Table 17.

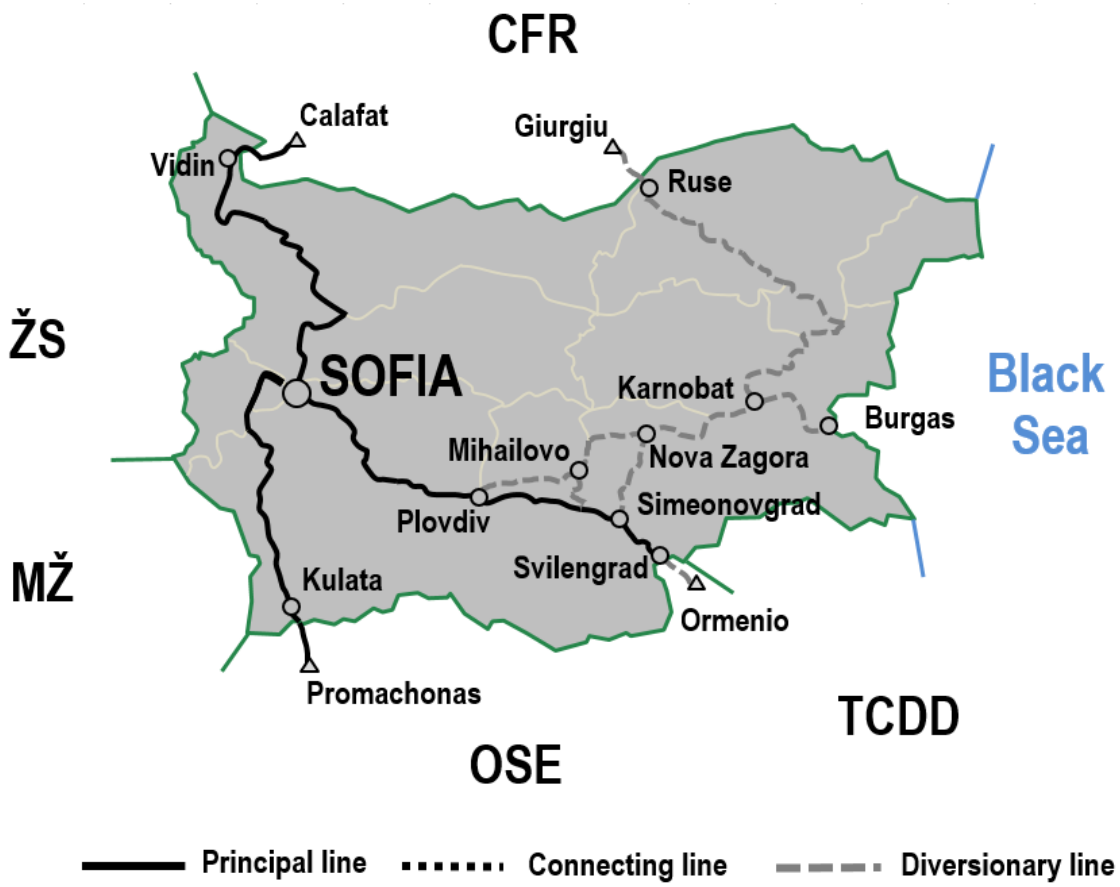

Table 17: Graphical representation (map) of RFC OEM routes along NRIC network (Source: József Ádám Balogh, C-OSS manager)

Hellenic Republic (Greece)

The principal line on the territory of the Hellenic Republic starts off the border crossing Kulata (NRIC) – Promachonas and continues to the capital of the Hellenic Republic – Athens with connecting line to Piraeus. Another connecting line in continuation from the principal line is in Larissa railway station to Volos railway station. The diversionary lines are continuation of the principal line in the direction Svilengrad (NRIC) – Ormenio – Alexandroupolis – Serres.

The connection of RFC OEM with the Republic of Turkey is possible through Pithio (GR) railway station and Demirköprüin Turkish border crossing station and then to Turkish railway network. Graphical routing of RFC OEM routes in Greece is shown in Table 18.

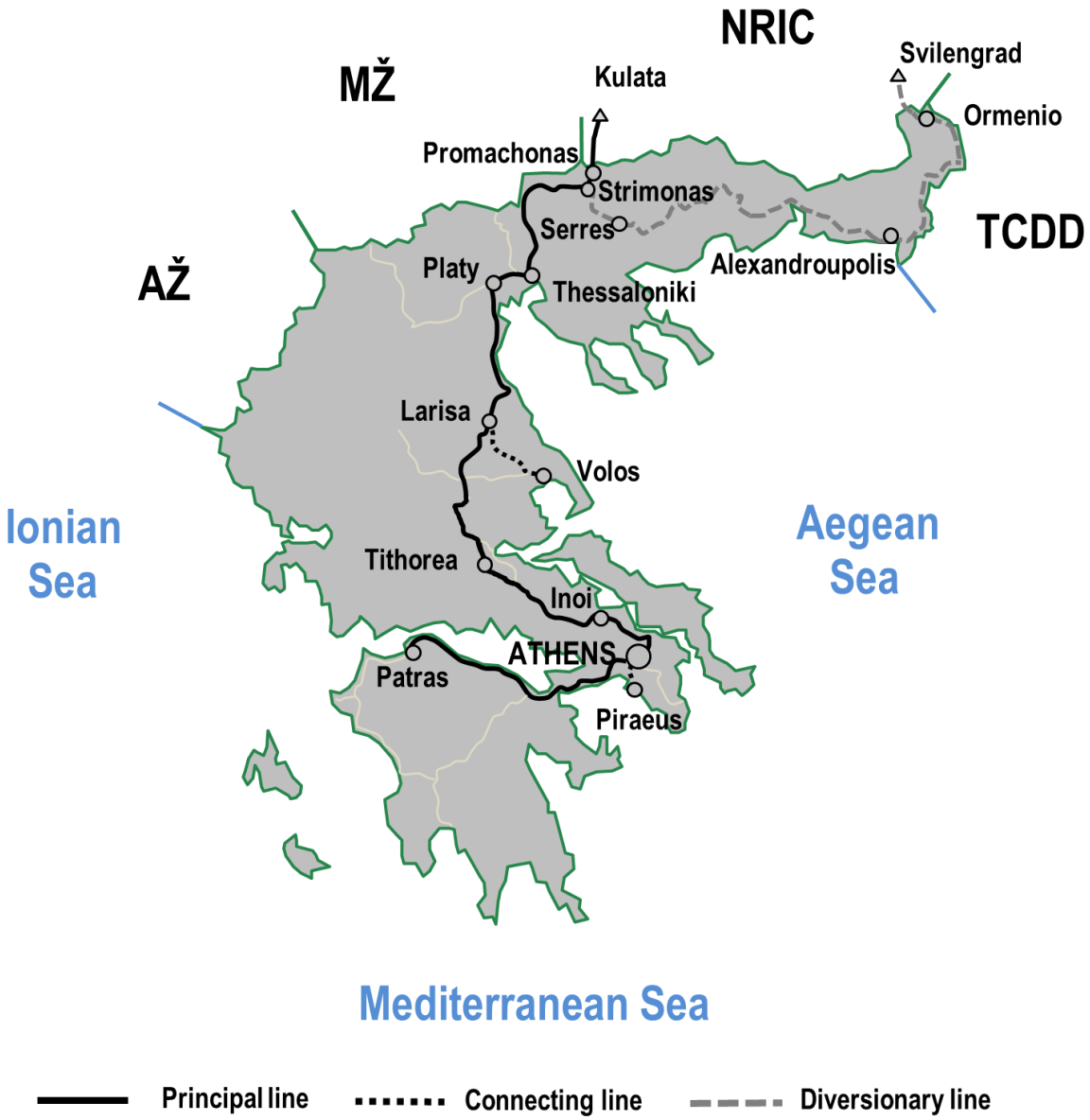

Table 18: Graphical representation of RFC OEM routes on OSE network (Source: József Ádám Balogh, C-OSS manager)

6.2 List of Investment Projects

The Investment Plan is without prejudice to the competence of the Member States regarding infrastructure planning and financing. Also, this is without prejudice to any financial commitment of a Member State.

In accordance with Article 11 of the Regulation the Management Board of RFC Orient/East-Med considers investment planning along the corridor as a very important matter. Therefore, the Management Board with the assistance of the Infrastructure Development Working Group has drawn up the Investment Plan of the involved 8 countries along the freight corridor.

The complete Investment Plan forms Annex 7 of the Implementation Plan. The periodically update is done according to the legal requirements deriving from the regulation. The Secretariat will make an update information via RFC OEM website and via CIP concerning the actual situation of the investment project list. The format and the necessary/useful data were consulted with AGs.

6.3 ERTMS Deployment Plan

The RFC OEM, defined in accordance with the Regulation, is overlapping with ETCS Corridor E that was defined by the TSI CCS CR (2009/561/ES) and enlarged by the south branch via Bulgaria to Greece.

In the establishing process of the RFC OEM was agreed that the ETCS Corridor E project structures will be included in the organization structure of the RFC OEM. In this process the ETCS Corridor E Management Committee was transformed to the Interoperability & ERTMS Working group of the RFC OEM organization structure and the new companies that represent the south branch of the RFC OEM were joined into the WG.

The basis of the information provided in the following chapters are the national implementation plans according to EU Regulation 2016/919 (TSI CCS) respectively the Commission implementing regulation (EU) 2017/6 on the European Rail Traffic Management System European deployment plan.

The aim of the European Rail Traffic Management System (ERTMS) European deployment plan is to ensure that vehicles equipped with ERTMS can gradually have access to an increasing number of lines, ports, terminals and marshalling yards without needing Class B systems in addition to ERTMS.

Thus, member states shall develop a national plan for the implementation of this TSI, considering the coherence of the entire rail system of the European Union taking into account the economic viability of the rail system. This plan shall include all new, renewed and upgraded lines, in particular a detailed timeline for equipping those lines with ETCS and decommissioning of Class B systems.

6.3.1 Interoperability & ERTMS Working Group

- is a supporting instrument for the Governance structure of the Rail Freight Corridor, it prepares data and documents for making decisions and realizes these decisions;
- has as basic task to implement the ETCS project plan and to coordinate all other activities in this domain so as to improve the quality of the RFC;
- is in charge of creating the organizational, technical and operational conditions so that ETCS on the RFC can be entirely operational on the whole stretch in time and for this reason it has to set up Expert teams and ad hoc groups if necessary;
- ensures that the RUs are involved in the project and their requirements are considered in the implementation plans.

Activities and coordination issues of the Interoperability & ERTMS WG

- Since the beginning of the ETCS Corridor E project more bilateral technical consultations have taken place between SZDC and ZSSK Cargo, MÁV, CFR, ZSR
- 2010 - creation of “Technical Requirements for Technical Requirements for Development of ERTMS/ETCS L2 on the Czech part of Corridor E” (TR)

- 2011 - discussion of the TR with all ETCS Corridor E members and EUG, the consolidated version is put at the disposal of all corridor members
- The representatives of the ERTMS Deployment WG participated in the meeting of the Traffic Management WG held in Prague on 28th August 2012. The main discussed task was the necessity for close cooperation and good communication between both WG.
- On 16th and 17th October 2012 there was a common meeting of the Czech representatives of the ERTMS Deployment WG and the ERA ERTMS Operational Feedback WP in Prague. The main discussed task was the possible harmonisation of the ETCS Operational rules and information on technical solutions used in the Czech Republic.
- On 23rd November 2012 a bilateral meeting was organized between the ÖBB and the SZCZ and their ETCS suppliers so as to start the cooperation for the technical solution of the interconnection of both ETCS L2 systems in the cross-border section CZ – AT.
- Dates of further meetings are under discussion the workflow is managed via e-mail correspondence.

6.3.2 Description of ETCS implementation on the RFC OEM

The ETCS data were updated in 2019 and it was incorporated into CIP digital platform.

DE – DB Netz
At first the eastern branch of the German corridor part (Rostock – Berlin – Dresden) will be equipped with ETCS Baseline SRS 3.4.0. From Rostock Seehafen to Kavelstorf (14 km) ETCS L2 is being planned. From Kavelstorf to Nassenheide (in the north of Berlin) (168 km) ETCS L2 is under construction. The track from Nassenheide (about the eastern circle of Berlin) to Blankenfelde (in the south of Berlin) (83 km) is being planes with ETCS L1/2. On the line Blankefelde – Dresden (156 km) ETCS L2 is under construction. Two further connecting tracks from Großenhain to Priestewitz (7 km) and in Radebeul (2 km) are being planned. For Dresden – Bad Schandau - Grenze DE/CZ the implementation of ETCS is – with regard to the EDP - foreseen after 2023.

CZ - SZCZ
The ETCS L2 trackside v. 2.3.0d on the Czech corridor south branch from the state border SK/AT – Břeclav – ČeskáTřebová – Kolín (277 km) is under construction. The completion of this section is set for the end of 2018.[2]

The ETCS L2 trackside v. 2.3.0d on the Czech corridor north branch from the state border DE – DolníŽleb – Děčín hl.n. – Kralupy nad Vltavou (112km) is scheduled to be completed in 2023.

The ETCS L2 trackside v. 2.3.0d on the Czech corridor middle branch from Kralupy nad Vltavou – Praha Libeň – Kolín (110km) is scheduled to be completed in 2020.

The ETCS L2 trackside v. 2.3.0d on the Czech corridor Brno – H.Brod – Kolín (alternative line) (195 km) is out of time scope in the moment.

The ETCS L2 trackside v. 2.3.0d on the Czech corridor Kolín – Lysá n.L. – Ústí n. L. Střekov – Děčín-(DE) (connecting line) (160 km) is out of time scope in the moment.

[2] In operation.

GSM-R for Voice and Data transmittal is already in operation on the whole Czech part of the corridor.

AT – ÖBB
The ETCS L2 trackside v. 2.3.0d on the Austrian corridor part from the state border CZ (Břeclav) – Vienna (78 km) is in operation.

The upgrades from ETCS L1 trackside v. 2.2.2 to ETCS L2 trackside v. 2.3.0d on the Austrian corridor part from Vienna - Border HU (Hegyeshalom) (68 km) is expected to be completed in 2022.

GSM-R for Voice and Data transmittal is already in operation on the whole Austrian part of the corridor.

SK – ŽSR
The main path of the Slovak corridor part in the sections border CZ (Breclav) - Kuty - Devinska N. Ves (58 km) and Devinska N. Ves - Junction Bratislava Rusovce – (HU Rajka) (63 km) is prepared to be equipped by ETCS L2 v. 2.3.0d. The preparatory documentation for these projects is under elaboration. The realization is expected in 2018 – 2020.

The equipment of the paths Bratislava -– Nove Zamky – Sturovo – (HU Szob) (143km) and Nove Zamky - Komárno – (HU) (33km) with ETCS L2 trackside v. 2.3.0d is out of time scope in the moment. GSM-R is partly in operation (see table).

HU – MÁV
The section state border AT – Hegyeshalom – Budapest (198 km) is already equipped by ETCS L1 v. 2.2.2 and in operation. An upgrade to ETCS L2 (at least 2.3.0d) is planned after 2022.

The section Budapest – Szajol – Lőkösháza – Békéscsaba (196 km) is prepared to be equipped by ETCS L2 v. 2.3.0d by 2018.

The section Békéscsaba – Lőkösháza - (RO Curtici) (29km) is equipped with ETCS L1 v. 2.3.0d.

Budapest (Bp.-Kelenföld -– Bp. Ferencváros) – the intention is to equip this part of the junction Budapest by ETCS L2 v. 2.3.0d by 2022.

HU – GYSEV
The section Border SK – Hegyeshalom (GYSEV) is already equipped by ETCS L1 v. 2.3.0d and in operation.

RO – CFR
For the section Predeal – Bucharest Băneasa (151,6 km) ETCS L2 v.2.3.0d is installed only on section Brazi -– Chitila and for remaining distance feasibility study is in preparation for the installation of ETCS L1 with GSM-R or ETCS L2, planned to be completed in 2022.

The section Lőkösháza – Predeal (510 km) will be equipped by ETCS L2 with minimum v. 2.3.0d step by step, the construction was started in 2012. The whole section will come into operation by 2020-2022.

The equipment of the section Bucuresti Băneasa – Constanta (217,4 km) with ETCS L1 v 2.3.0d without GSM-R, is currently under construction (mostly part of equipment’s was already installed on the field, no certification and authorization for putting in operation yet) and is in preparation a feasibility study for implementing GSM-R, planned to be completed in 2022-2024.

BG – NRIC
On the section Plovdiv – Dimitrovgrad the ETCS L1 v. 2.3.0d is already installed and tested. ETCS L1 v. 2.3.0d is installed and tested along the section Dimitrovgrad – Svilengrad – Turkish/Greek borders (83 km).

The ETCS L1 v. 2.3.0d was installed and tested on the section Septemvri – Plovdiv (53 km). The operation will start -by 2018.

EL – OSE
ETCS L1 v. 2.3.0d is under construction on the section Thriasio – Ikonio (20 km), the commercial operation will start by 2020.

ETCS L1 v. 2.3.0d is under construction also on the section SKA – Promachonas (541 km), the commercial operation will start by 2020.

Summary-Outlook

This overview shows that the migration process to the ETCS trackside on the main path of the RFC OEM lines has started. There are already some sections operating with ETCS Level 1 (e.g. (AT) – Hegyeshalom – Budapest; Border SK – Hegyeshalom (GYSEV)) or Level 2 (e.g. CZ Breclav-Vienna). The main parts of the corridor are expected to be equipped with ETCS between 2020 and 2022. There is a very good chance to operate under ETCS supervision on more cross-border sections between neighbour member states by 2020 -2024.

The aim is to bring the ETCS deployment in a routine process for decreasing development works and on side testing by the exchange of experiences and the reuse of proved solutions. Then this can accelerate the deployment process and decrease the investment costs.

Detailed Information on the implementation of ETCS and GSM-R is shown in separate Annex (8).

6.4 Reference to Union Contribution

RFC OEM has received funding from the European Union from 2018 onwards for its operation as well as for the implementation of certain projects by the infrastructure managers and allocation body.

On 29 June 2018 the Grant Agreement No INEA/CEF/TRAN/M2016/PSARFC07 entered into force. The aim of the Union Contribution is the improvement of the services of the Orient / East-Med Rail Freight Corridor. The action was set to run for 36 months from 01/01/2018 until 31/12/2020, but was subsequently extended until 30/09/2021 with a view on the hindering effects of the COVID-19 pandemic. The grant for the action shall be of a maximum of EUR 1 090 090.

The coordinator of the implementation is MÁV Co. acting as the Secretariat of RFC OEM. Four main activities were set:

1. Removing barriers;
2. IT tools development;
3. Governance and Project management;
4. RFCs network and communication

The Action aimed to improve both the internal and external services of the RFC OEM. It included activities regarding certain Issues log priorities, language education, establishing of interfaces

between national and European capacity allocation systems, as well as IT-systems for the management of TCRs and for online visualisation of CID data.