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MEDITERRANEAN RAIL FREIGHT CORRIDOR
Spain-France-Italy-Slovenia-Croatia-Hungary

MEDITERRANEAN RFC IMPLEMENTATION PLAN TT 2025/2026

Version control

Evolution Index	Date	Modification / comments	Written by
V2Dec2016	2 December 2016	General Update including the new line Nimes Montpellier	PMO
V09Jan2017	09 January 2017	Executive Board Comments	PMO
V19Jan2017	19 January 2017	Línea Figueras Perpignan S.A. took over the Infrastructure Manager competencies from TP FERRO	PMO
V24Febr2017	24 February 2017	SZ-I contact update	PMO
V08Jan2018	08 January 2018	Yearly update	PMO
V26Jan2018	26 January 2018	New maps	PMO
V11Oct2018	11 October 2018	MED RFC GA approval new member joined	PMO
V4Dec2018	4 December 2018	New maps	PMO
V26Apr2019	26 April 2019	Correction of misspellings	PMO
V18Nov2019	18 November 2019	RFI List of Projects update	PMO
V03Dec2019	3 December 2019	MED RFC GA approval of the yearly updates of technical parameters, bottlenecks in Chapter 2 and list of projects, ERTMS deployment and forecasts for 2025 and 2030 in Chapter 6.	PMO
V5Febr2020	5 February 2020	SZ-I List of Projects update	PMO
V26August2020	26 August 2020	Correction of misspellings	PMO
V08Dec2020	8 December 2020	MED RFC GA approval of the yearly updates in Chapter 2 and in Chapter 6	PMO
V08Dec2020	8 December 2020	MED RFC GA approval of Transport Market Study update in Chapter 3	PMO
V11Jan2021	11 January 2021	MED RFC ExBo approval of Market Analysis Study update in Chapter 3	PMO
V18Jan2021	18 January 2021	Correction of typos in Market Analysis Study update in Chapter 3	PMO

V22Jan2021	22 January 2021	RFI representation update	PMO
V8Febr2021	8 February 2021	Correction of typos in List of Measures in Chapter 4	PMO
V6August2021	6 August 2021	Fundamental update (Chapters 1 4 and 5)	PMO
V22Sept2021	22 Sept 2021	Fundamental update (Chapters 1 4 and 5)	GA
V26Oct2021	26 Oct 2021	Fundamental update (Chapters 1 4 and 5)	ExBo
V27Oct2022	27 Oct 2022	Corridor objectives Chapter 5	ExBo
V01Dec2022	01 Dec 2022	Yearly regular update	GA
V09Jan2023	09 January 2023	New link to the CID Book	PMO
V17Oct2023	17 October 2023	Yearly regular update	GA
V25Oct2023	10 November 2023	ExBo approval of the update	ExBo
V17Dec2024	17 December 2024	ExBo approval of the update	ExBo

Contents

1 INTRODUCTION

The Rail Freight Corridors (RFCs) have been established to strengthen Europe-wide rail freight transport by removing bottlenecks and technical barriers across Countries, especially at the borders. The Improvement of the connections to freight terminals and in between industrial areas, HUBs and the most populated locations is also a fundamental step to boost rail freight traffic and multimodality. The Mediterranean RFC is committed to enhance performance quality and cooperation, coordination, and harmonisation across the rail sector.

A key focus was addressed to respond to the needs for improvements of the cross-border freight traffic, fostering co-operation across borders both at the level of Member States and rail infrastructure managers (based on the rules set in the Framework for Capacity Allocation on the one hand and coordinating the international rail freight capacity on the other hand) with a sufficient involvement of users and terminals in the development of the European rail freight system. Therefore, several governance layers have been put in place to channel and articulate the different needs of the stakeholders and finally to make decisions accordingly.

All these activities shall support the modal shift from road to rail and lead to meet the targets of the transport and environmental policy of the European Union. In order to be competitive with other modes of transport, international and national rail freight services, which have been opened up to competition since 1 January 2007, should be able to benefit from a good quality service in terms of capacity, infrastructure, and traffic management.

Legally, the RFCs are based on the Regulation (EU) 913/2010, which entered into force on 9 November 2010. The date for the establishment of the RFC Mediterranean was set on 10th November 2013.

Since the initial Implementation Plan in 2013 and the major update in 2016 (when Croatia joined), the update is based on the requirements of CID Common Structure developed under the umbrella of RailNetEurope (RNE). Otherwise, the document is updated yearly as regards Chapter 2 "Corridor Description" and Chapter 6 "Investment Plan".

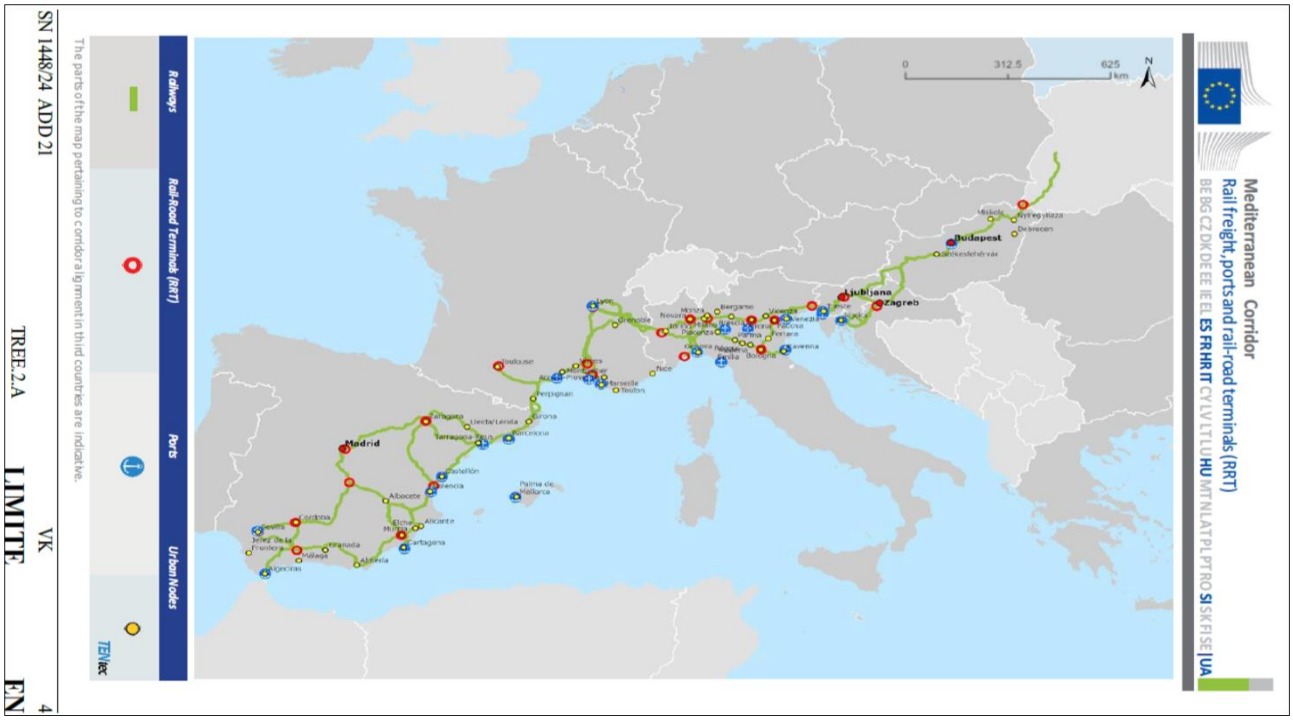
1.1 Regulation (EU) 2024/1679 on Union guidelines for the development of the trans-European transport network, amending Regulation (EU) 2021/1153 and (EU) No 913/2010

With the publication of the revised TEN-T Regulation (EU) 2024/1679 also Regulation (EU) 913/2010 was amended and the 11 RFCs will gradually evolve to the 9 freight corridors in alignment with the European Transport Corridors (ETC).

The European Transport Corridors should help to develop the infrastructure of the trans-European transport network in such a way as to address bottlenecks, enhance cross-border connections and improve efficiency and sustainability, to increase the competitiveness of international rail freight in terms of performance, capacity allocation, harmonisation of procedures and reliability with the aim to support the shift from road to rail and to promote the railway as a sustainable transport system.

Amendments to Regulation (EU) No 913/2010 are available in Article 67, which lays down rules for the organisation, governance and management of international rail corridors for competitive rail freight with a view to developing a European rail network for competitive freight. It sets out rules for the organisation, management and the indicative investment planning of freight corridors.

In Annex III to this Regulation the new alignment is set, including freight railway lines of the of the European Transport Corridors. The freight arm of the Mediterranean ETC is available, here.



1.2 Aim of the Implementation Plan

The Implementation plan is periodically updated, following its first submission to the Executive Board in 2013. It has different purposes:

- First, it is a management tool for the Executive Board (ExBo) and the Management Board (MB) or General Assembly (GA) members, to present the numerous tasks that derive from the operation, also supporting the supervision role of the ExBo set out in Article 8 of the Regulation. In this regard, it is a basic document that shall be regularly updated with the yearly changes and progresses along the corridor. It is a point of reference that also supports the work of the Member IMs/ABs.

- Second, the Implementation Plan aims at presenting in a transparent way to all the stakeholders and potential users the main characteristics of the corridor, the measures taken, and the planned procedures of corridor operation. It is regularly published on the website of Med RFC and CIP.

- Third, the yearly update of the Chapters "Corridor Description" and "Investment Plan" are supporting the customers to understand the infrastructure developments over time.
  The regular update (every 4 years) of the other Chapters, such as "Market Analysis Study", "List of Measures" and "Objectives" and performance of the corridor" shows the strategic developments of the corridor.

- Fourth, the purpose of the Implementation Plan is to keep track of the progresses and achievements generated by the activity of the Mediterranean RFC and check regularly the progress made.

This new version was approved by the Executive Board on the 17 December 2024.

2 Corridor Description

The definition and exact description of lines and terminals contained in this Rail Freight Corridor, according to the definition of freight corridor (Article 2.2.a), has been a task developed by the Management Board in cooperation with the relevant Infrastructure Managers, and involving the Advisory Groups.

All Mediterranean RFC locations included in the Annex II of the Regulation have been adequately incorporated into this Corridor.

The selection of railway lines and terminals is based on current and expected traffic patterns and information provided by the Infrastructure Managers and the results of Transport Market Study. Especially where various alternative options exist, the lines suitability to freight traffic with regard to infrastructure parameters like maximum gradients, permitted train-lengths, axle-loads and loading gauges have been taken into account.

Designated lines, given the important traffic flows that already exist, coincide with those largely used today. Besides, the main lines along the principal route outlined in the Regulation (EU) 913/2010/EU together all the amendments Almeria-Valencia / Algeciras / Madrid-Zaragoza / Barcelona-Marseille-Lyon-Turin-Milano-Verona-Padua / Venice-Trieste / Koper- Ljubljana / Rijeka-Zagreb-Budapest-Zahony ("Mediterranean Corridor"), the Corridor includes diversionary routes frequently used for re-routing trains in case of disturbance on the principal lines and connecting lines, sections linking terminals and freight areas to the main lines.

In some cases, parallel railway lines have been included in order to provide sufficient capacity in this corridor. In addition, lines that may not play an important role for long-haul freight traffic today but may do so in the future are included. All railway lines with dedicated capacity and expected to hold pre-arranged train paths, have been designated to this corridor.

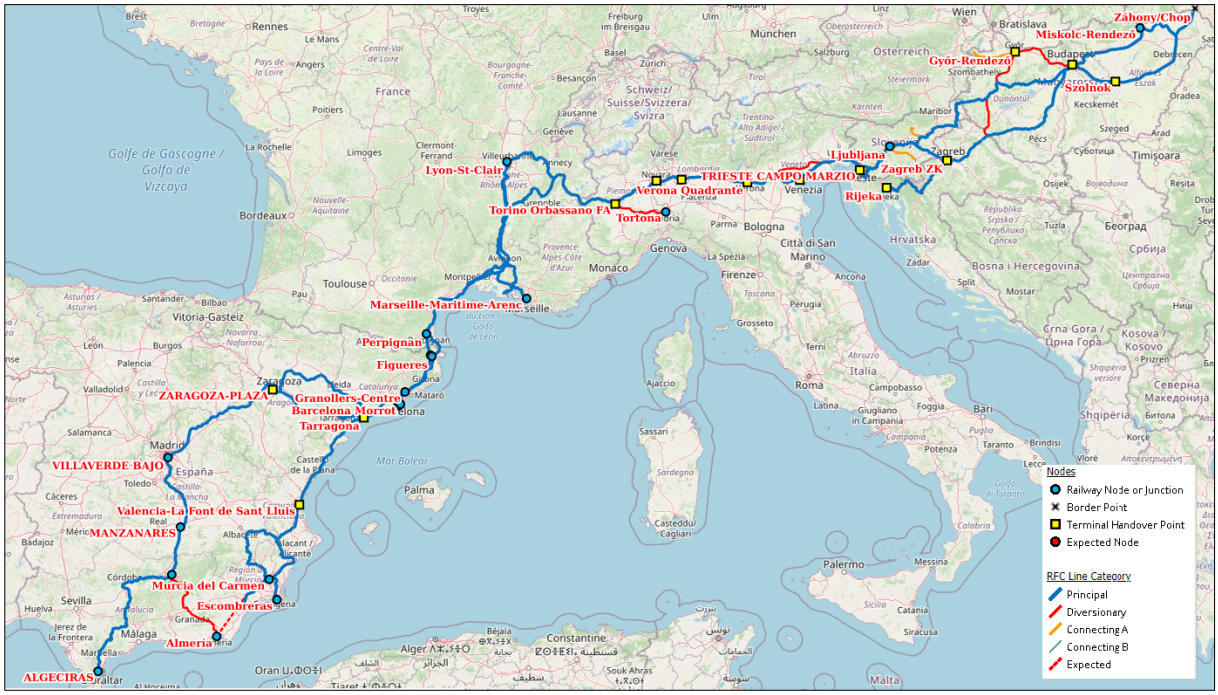
When it comes to terminals, all terminals along designated lines have been designated to the corridor as well, except if a terminal does not have any relevance for the traffic in the corridor. Each Port along the corridor has been considered as a single terminal, even in the case that they hold in their facilities more than one rail intermodal or freight yard. The railway lines of this Corridor connect terminals of relevance to rail freight traffic along the principal route, especially:

- marshalling yards
- major rail-connected freight terminals
- rail - connected intermodal terminals in seaports, airports and inland waterways

According to Article 9.1.a of Regulation 913/2010/EU, railway lines and terminals designated to this Corridor are exactly and unambiguously described in this Implementation Plan, by the maps and detailed tables included in therein. The Implementation Plan provides information on the bottlenecks along the Corridor, as well as an overview over existing traffic patterns (both freight and passenger traffic). The Regulation promotes the harmonization of infrastructure with the specific objectives to remove bottlenecks and to harmonize relevant parameters like train lengths, train gross weights, axle loads and loading gauges. Reference is made to the TEN-T corridor, emphasizing that interoperability is an essential feature of the Rail

Freight Corridors. The characterization of the Corridor included in this chapter of the Implementation Plan is essential to achieve these goals.

2.1 Key Parameters of Corridor Lines



The length of the Mediterranean RFC is over 7 thousand km, according to the table shown below.

	LENGHT
SPAIN	**3,050**
FRANCE	**1,511**
ITALY	**1,311**
SLOVENIA	**461**
CROATIA	**378**
HUNGARY	**696**
TOTAL	**7,407**

Also, more than 100 terminals have been included in Mediterranean RFC, according to the following distribution:

- Spain: 56 terminals
- France: 26 terminals
- Italy: 12 terminals

- Slovenia: 7 terminals
- Croatia: 8 terminals
- Hungary: 10 terminals

The description of Mediterranean RFC includes a list of:

- all railway lines or sections designated to the Corridor, with precise description of beginning and ending points
- All the terminals designated to the Corridor

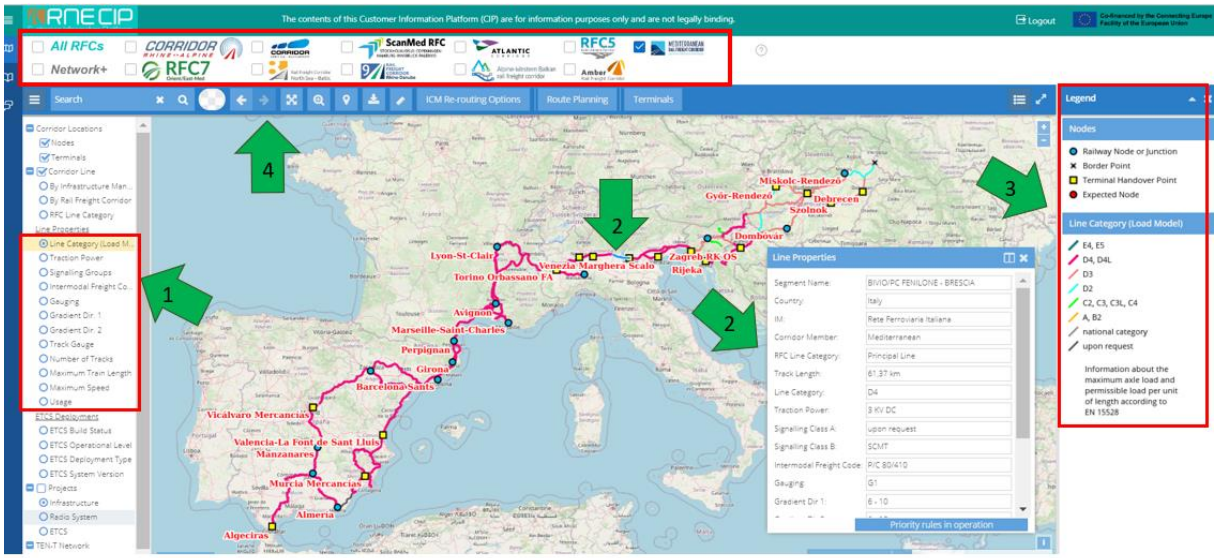
For designated lines, the description comprises a detailed and systematic definition of all infrastructure parameters relevant for rail freight traffic, including:

- Type of line: ETC line
- Section length, in kilometres
- Track gauge: International Standard gauge (1435 mm) or Iberian gauge (1668 mm)
- Number of tracks: Single or double track
- Maximum train length: maximum train length guaranteeing a flawless run along a whole section of the corridor, including traction
- Axle load: maximum loading gauge guaranteeing a flawless run along a whole section of the corridor
- Load per meter: Maximum load per meter guaranteeing a flawless run along a whole section of the corridor
- Train speed: Maximum general speed limit allowed on each line
- Loading gauge: maximum dimension for the freight and passenger vehicles especially in the tunnels
- Power supply: Type of current and voltage for electrified lines (DC 1.500V, DC 3.000V & AC 25.000V)
- Signalling and interlocking systems: Type of signalling systems implemented on each line
- Gradient: Maximum line gradient in both directions of each line of the corridor (Towards NE – Algeciras-Madrid to Záhony and towards SW Záhony to Madrid-Algeciras)

Regulation (EU) 913/2010 – Article 9 (1.a), and also Article 67, 'Article 9 Measures for developing the freight corridor (1.a) of Regulation (EU) 2024/1679 requests a description of the characteristics of the freight corridor. For designated lines, the description comprises a detailed and systematic definition of all infrastructure parameters. Together with the other RFCs, RFC Mediterranean also uses Customer Information Platform (CIP) link to inform about the complete set of line properties:

To find the desired parameters CIP should be visited at: https://cip.rne.eu

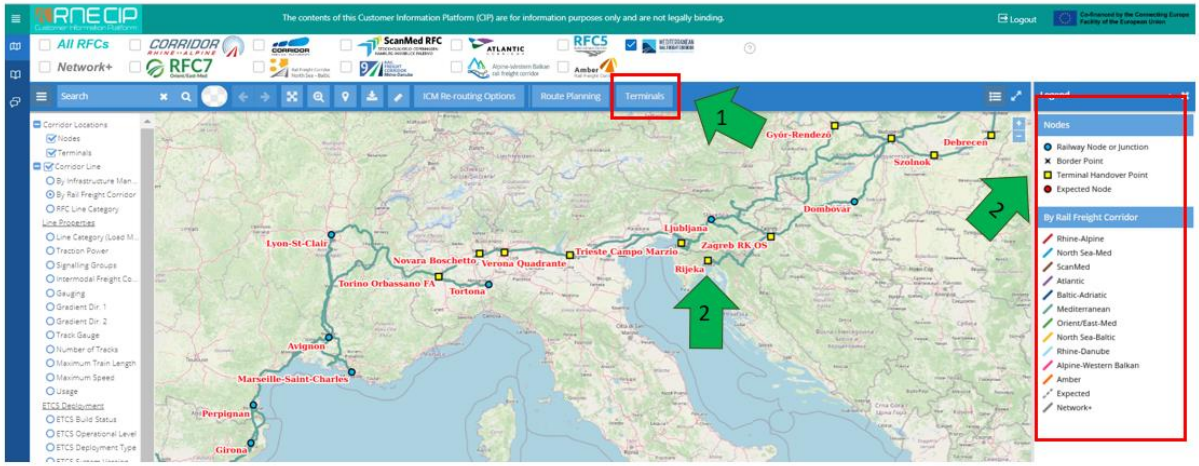
In the Login page the 'RU/Shipper /Operator' button should be clicked, so you will land on the interactive map with the multicorridor view of all the RFCs. In case you just want to check Med RFC, on top of the interactive map "multicorridor view" deselect All RFCs and thick the Med RFC box.



In CIP, the line properties information is given on the map. The user can select the different line properties using the left side tab (1) to see the applicable values for all corridor lines, but also on single line sections by a click on the route (2). On the l right side of the screen there is the legend (3). The Multicorridor view, for selecting the RFCs you are interested in is placed on top of the interactive map (4).

Terminals are defined as those facilities provided along the freight corridor which have been specially arranged to allow either the loading and/or the unloading of goods onto/from freight trains, and the integration of rail services with road, maritime, river and air services, and either the forming or modification of the composition of freight trains; and, where necessary, performing border procedures at borders with European third countries.

Terminals are described in the Corridor Information Document Section 3.



The terminals along the Corridor are also displayed in the interactive map of CIP. The user can visualise the terminals on the map (2) or clicking on the button "Terminals" on top of the screen, can get the list of terminals for the selected Corridor. The Corridor cannot guarantee that the terminals in the CIP are exhaustively displayed and that the information is correct and up to date.

2.1.1 Spain

	SECTION LENGHT	LINE TYPE	TRACK GAUGE		DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION								AXLE LOAD			LOAD PER METRE			TRAIN SPEED			LOADING GAUGE		POWER SUPPLY			SIGNALLING SYSTEM							GRADIENT	
	km	ETC LINE	1435 mm	1668 mm		350 m	450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	20,0 T/axle	21,0 T/axle	22,5 T/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	‰ towards NE	‰ towards SW
ALGECIRAS - CORDOBA	**305**	**X**		**X**	**–**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**											**24**	**23**
ALGECIRAS - GAUCIN	57	X		X	–			X								X			X				X	45/364	GHE16											22	23
GAUCIN - RONDA	49	X		X	–			X								X			X				X	45/364	GHE16				X							22	23
RONDA -BOBADILLA	70	X		X	–			X								X			X				X	45/364	GHE16											24	18
BOBADILLA - MONTILLA	74	X		X	–			X								X			X				X	45/364	GHE16		X		X							17	17
MONTILLA - CORDOBA	55	X		X	–			X								X			X				X	45/364	GHE16		X		X							17	17
BOBADILLA - SEVILLA - CORDOBA	292	X		**X**							X					X							X													
SEVILLA-LOS ROSALES-CÓRDOBA	128	X		X							X					X							X					X								
LORA DEL RÍO- SEVILLA	54	X		X	X						X					X							X					X							4	7
CÓRDOBA - LORA DEL RIO	74	X		X	-						X					X							X					X							19	8
SEVILLA-UTRERA-BOBADILLA	163	X																					X					X								
SEVILLA-UTRERA	27	X		X	X			X								X							X				X	X							5	6
UTRERA-ANTEQUERA	120	X		X	-		X									X							X					BT							18	27
ANTEQUERA-BOBADILLA	16	X	X	X	-									X		X												X						X	18	24
BOBADILLA - GRANADA - MOREDA		X																																		
BOBADILLA- GRANADA		X																																		
GRANADA-MOREDA (INLCUIDO EN GRANADA GUADIX)		X																																		
CORDOBA - MANZANARES	**245**	**X**		**X**												**X**			**X**				**X**	**45/364**	**GHE16**		**X**		**X**							**13**	**16**
PLANA - S VICENTE C	36	X		X	–			X								X			X				X	45/364	GHE16		X		X							8	14
ALMERÍA - MURCIA	**200**	**X**			**-**																															
ALMERIA - LORCA	142	X																																		
LORCA - MURCIA CARGAS	58	X																																		
ALMERIA - MOREDA	**123**	**X**		**X**	**–**		**X**									**X**			**X**				**X**	**45/364**	**GHE16**				**X**							**28**	**22**
ALMERIA - HUENEJAR DÓLAR	78	X		X	–		X									X			X				X	45/364	GHE16		X		X							28	7
HUENAJAR DÓLAR - MOREDA	45	X		X	–		X									X			X				X	45/364	GHE16				X							22	22
MOREDA - LINARES	**117**	**X**		**X**	**–**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**				**X**							**23**	**23**
MOREDA - LINARES	117	X		X	–			X								X			X				X	45/364	GHE16				X							23	23
ESCOMBRERAS - MURCIA	**81**	**X**		**X**	**20%**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**				**X**							**15**	**16**
ESCOMBRERAS - EL REGUERÓN	65	X		X	–			X								X			X				X	45/364	GHE16				X							15	16
EL REGUERÓN - MURCIA CARGAS	16	X		X	X			X								X			X				X	45/364	GHE16				X							4	4
CHINCHILLA - ALBACETE - ALCAZAR DE SAN JUAN	229	X		**X**	**X**				X							X							**X**					**X**								
LA ENCINA-ALBACETE	98	X		X	X									X		X							X					X							7	10
ALBACETE-ALCAZAR DE SAN JUAN	131	X		X	**X**									x		X							X		GA/GC				X							6	6
MURCIA - CHINCHILLA	**158**	**X**		**X**	**–**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**				**X**							**13**	**9**
MURCIA CARGAS - CIEZA	44	X		X	–			X								X			X				X	45/364	GHE16				X							13	7
CIEZA - HELLIN	63	X		X	–			X								X			X				X	45/364	GHE16				X							12	9
HELLIN - CHINCHILLA	51	X		X	–			X								X			X				X	45/364	GHE16				X							13	8
CHINCHILLA - VALENCIA	**181**	**X**		**X**	**98%**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**		**X**		**X**							**13**	**14**
CHINCHILLA - LA ENCINA	79	X		X	X			X								X			X				X	45/364	GHE16		X		X							13	13
LA ENCINA - JATIVA	48	X		X	X			X								X			X				X	45/364	GHE16		X		X							10	14
JATIVA - VALENCIA FSL	54	X		X	94%			X								X			X				X	45/364	GHE16		X		X							7	11
LA ENCINA - ALICANTE	**78**	**X**		**X**	**–**		**X**									**X**			**X**				**X**	**45/364**	**GHE16**		**X**		**X**							**17**	**6**
LA ENCINA - ALICANTE	78	X		X	–		X									X			X				X	45/364	GHE16		X		X							17	6

	SECTION LENGHT	LINE TYPE	TRACK GAUGE		DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION								AXLE LOAD			LOAD PER METRE			TRAIN SPEED			LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM							GRADIENT	
	km	ETC LINE	1435 mm	1668 mm		350 m	450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	20,0 Tn/axle	21,0 Tn/axle	22,5 Tn/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	‰ towards NE	‰ towards SW
ALICANTE - EL REGUERON	**67**	**X**		**X**		**X**										**X**			**X**				**X**	**45/364**	**GHE16**				**X**							**12**	**14**
ALICANTE - EL REGUERON	67	X		X		X										X			X				X	45/364	GHE16				X							12	14
SAGUNTO -TERUEL - ZARAGOZA	**327**	X		**X**	X								X			**X**							**X**						**X**								
SAGUNTO-TERUEL	**138**	X		X	-								X			X							X						X							24	24
TERUEL-ZARAGOZA	**189**	X		X				X								X							X						X							19	20
VALENCIA - CASTELLÓN	**70**	**X**		**X**	**X**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**		**X**		**X**							**11**	**14**
VALENCIA FSL - SAGUNTO	30	X	X	X	X			X								X			X				X	45/364	GHE16		X		X							11	12
SAGUNTO - CASTELLON	40	X	X	X	X			X								X			X				X	45/364	GHE16		X		X							7	14
CASTELLON - BIF. CALAFAT	**145**	**X**		**X**	**X**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**		**X**		**X**							**15**	**14**
CASTELLON - VINAROZ	77	X		X	X			X								X			X				X	45/364	GHE16		X		X							15	14
VINAROZ - ALDEA	38	X		X	X			X								X			X				X	45/364	GHE16		X		X							13	12
ALDEA - BIF. CALAFAT	30	X		X	X			X								X			X				X	45/364	GHE16		X		X							11	12
BIF. CALAFAT - TARRAGONA	**41**	**X**		**X**	**–**			**X**								**X**			**X**				**X**	**45/364**	**GC**		**X**		**X**						**X**	**13**	**12**
TARRAGONA - BARCELONA AREA	**78**	**X**		**X**	**X**		**X**									**X**			**X**				**X**	**45/364**	**GHE16**		**X**		**X**							**14**	**13**
TARRAGONA - S VICENTE C	25	X		X	X		X									X			X				X	45/364	GHE16		X		X							9	6
S VICENTE C - VILLAFRANCA P	24	X		X	X			X								X			X				X	45/364	GHE16		X		X							14	5
VILLAFRANCA P - MARTORELL	25	X		X	X			X								X			X				X	45/364	GHE16		X		X							14	13
MARTORELL - CASTELLBISBAL	4	X		X	X			X								X			X				X	45/364	GHE16		X		X							1	7
BARCELONA AREA	**51**	**X**	**X**	**X**	**X**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**		**X**		**X**							**15**	**15**
CASTELLBISBAL - MOLLET	25	X	X	X	X			X								X			X				X	45/364	GHE16		X		X					X*		15	15
BARCELONA CAN - RUBI	25	X	X	X	X			X								X			X				X	45/364	GHE16		X		X					X*		15	15
BARCELONA AREA - FRENCH BORDER CLASSIC IBERIAN LINE	**150**	**X**			**X**			**X**								**X**			**X**				**X**	**45/364**	**GHE16**		**X**		**X**							**15**	**15**
MOLLET - GRANOLLERS	10	X		X	X			X								X			X				X	45/364	GHE16		X		X							12	0
GRANOLLERS - S CELONI	22	X		X	X			X								X			X				X	45/364	GHE16		X		X							15	14
S CELONI - MAÇANET M	19	X		X	X			X								X			X				X	45/364	GHE16		X		X							6	12
MAÇANET M - GERONA	30	X		X	X			X								X			X				X	45/364	GHE16		X		X							10	10
GERONA - FIGUERAS	41	X	X	X	X			X								X			X				X	45/364	GHE16		X		X							15	15
FIGUERAS - PORTBOU	26	X		X	X			X								X			X				X	45/364	GHE16		X		X							15	15
PORTBOU - CERBERE	2	X		X				X								X			X			X		45/364	GHE16	X	X		X	X						0	8
BARCELONA AREA - INTERNATIONAL SECTION MIXED TRAFFIC HIGH SPEED LINE	**134**	**X**	**X**		**X**								**X**			**X**			**X**				**X**	**45/364**	**GHE16**			**X**	**X**						**X**	**18**	**18**
BARCELONA - MOLLET	20	X	X		X								X			X			X				X	45/364	GHE16			X	X						X	18	18
MOLLET - GERONA	76	X	X		X								X			X			X				X	45/364	GHE16			X	X						X	18	18
GERONA - FIGUERAS VILAFANT	34	X	X		X								X			X			X				X	45/364	GHE16			X	X						X	18	18
FIGUERAS VILAFANT - INTERNATIONAL SECTION	4	X	X		X								X			X			X				X	45/364	GHE16			X	X						X	18	18
INTERNATIONAL SECTION	**44**	**X**	**X**		**X**								**X**			**X**			**X**				**X**	**45/364**	**GHE16**			**X**							**X**	**18**	**18**
FIGUERAS - PERPIGNAN	44	X	X		X								X			X			X				X	45/364	GHE16			X							X	18	18

NOTES:

* In Barcelona-Rubí and Castelbisbal-Mollet sections, ETCS L1 is only available for standard gauge trains.
** Under construction, will meet the TEN-T parameters by 2030.

2.1.2 France

	SECTION LENGHT	LINE TYPE	TRACK GAUGE		DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION							AXLE LOAD			LOAD PER METRE			TRAIN SPEED				LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM								GRADIENT	
	km	ETC LINE	1435 mm	1668 mm		350 m	450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	20,0 T/axle	21,0 T/axle	22,5 T/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	‰ towards NE	‰ towards SW
PORTBOU - PERPIGNAN	**43**	**X**	**X**										**X**			**X**			**X**					**45/364**	**45/364**	**X**				**X**							
PORTBOU - CERBERE	2	X	X*	X*	–*		X								X			X			X				GB	GB	X*	X*		X*	X*						5.0	10.0
CERBERE -COLLIOURE	14	X	X		X								X		X			X				X			GB	BB	X				X						11.0	15.0
COLLIOURE - PERPIGNAN	27	X	X		X								X		X			X					X		GB1	GB1	X				X						5.0	5.0
INTERNATIONAL SECTION - PERPIGNAN	**5**	**X**	**X**		**X**								**X**		**X**			**X**					**X**		**GB1**	**GB1**	**X****		**X****		**X**						**0.0**	**10.0**
PERPIGNAN - MONTPELLIER	**158**	**X**	**X**		**X**								**X**		**X**			**X**						**X**	**GB1**	**GB1**	**X**				**X**						**5.0**	**5.0**
PERPIGNAN - GRUISSAN	51	X	X		X								X		X			X					X		GB1	GB1	X				X						5.0	5.0
GRUISSAN - NARBONNE	10	X	X		X								X		X			X					X		GB1	GB1	X				X						5.0	5.0
NARBONNE - MONTPELLIER	97	X	X		X								X		X			X						X	GB1	GB1	X				X						5.0	5.0
NARBONNE - TOULOUSE	147	X	X		X								X		X			X						X	GB/GB1	GB/GB1	X				X							
MONTPELLIER - NÎMES OC'VIA HIGH SPEED	**80**	**X**	**X**		**X**								**X**		**X**			**X**						**X**	**PC70/400**	**PC70/400**			**X**		**X**					**X**	**12.5**	**12.5**
MONTPELLIER - AVIGNON	**142**	**X**	**X**		**X**								**X**		**X**			**X**							**GB1**	**GB1**	**X**				**X**							
MONTPELLIER - NÎMES	50	X	X		X								X		X			X						X	GB1	GB1	X				X						4.0	4.0
A) NÎMES - VILLENEUVE-LES-AVIGNON (VIA REMOULINS)	38	X	X		X								X		X			X					X		GB1	GB1	X				X						5.0	10.0
VILLENEUVE - LES-AVIGNON - AVIGNON	5	X	X		X								X		X			X			X				GB1	GB1	X				X							
B) NÎMES - TARASCON	27	X	X		X								X		X			X						X	GB1	GB1	X				X						6.0	7.0
TARASCON - AVIGNON	22	X	X		X								X		X			X					X		GB1	GB1	X				X						8.0	8.0
AVIGNON - LYON	**283**	**X**	**X**		**X**								**X**		**X**			**X**							**GB1**	**GB1**	**X**				**X**							
A) VILLENEUVE - LES-AVIGNON - PONT ST ESPRIT	44	X	X		X								X		X			X						X	GB1	GB1	X				X						5.0	6.0
PONT ST ESPRIT - PEYRAUD	127	X	X		X								X		X			X						X	GB1	GB1	X				X						5.0	6.0
PEYRAUD - GIVORS	44	X	X		X								X		X			X					X		GB1	GB1	X				X						10.0	5.0
GIVORS - CHASSE SUR RHÔNE	3	X	X		X								X		X			X			X				GB1	GB1	X				X						7.0	5.0
B) AVIGNON - LIVRON	107	X	X		X								X		X			X					X		GB1	GB1	X				X						5.0	5.0
LIVRON - VALENCE	17	X	X		X								X		X			X					X		GB1	GB1	X				X						5.0	5.0
VALENCE - CHASSE SUR RHÔNE	85	X	X		X								X		X			X					X		GB1	GB1	X				X						5.0	5.0
CHASSE SUR RHÔNE - LYON PART DIEU	25	X	X		X								X		X			X						X	GB1	GB1	X				X						12.0	11.0
LYON PART DIEU - VENISSIEUX	4	X	X		X								X		X			X					X		GB1	GB1	X				X						8.0	5.0
VALENCE - MONTMELIAN	**152**	**X**	**X**		**X**								**X**		**X**			**X**							**GB1**	**GB1**			**X**		**X**						**5.0**	**5.0**
VALENCE - MOIRANS	80	X	X		X								X		X			X							GB1	GB1			X		X						5.0	5.0
MOIRANS - GRENOBLE	18	X	X		X								X		X			X							GB	GB			X		X						5.0	5.0
GRENOBLE - MONTMELIAN	54	X	X		X								X		X			X							GB1	GB1			X		X						5.0	5.0
LYON PART DIEU - BOURGOIN-JALLEIU - CHAMBERY	**107**	**X**	**X**		**-**								**X**		**X**			**X**							**GA**	**GA**			**X**		**X**							
LYON PART DIEU - VENISSIEUX - BOURGOIN-JALLEIU	43	X	X		**X**								X		X			X							GB1	GB1			X		X							
BOURGOIN-JALLEIU - CHAMBERY	64	X	X		-								X		X			X							GA	GA			X		X							

	SECTION LENGHT	LINE TYPE	TRACK GAUGE		DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION								AXLE LOAD			LOAD PER METRE			TRAIN SPEED			LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM						GRADIENT	
	km	ETC LINE	1435 mm	1668 mm		350 m	450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	20.0 T/axle	21.0 T/axle	22.5 T/axle	6,4 T/m	7.2 T/m	8.0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	‰ towards NE	‰ towards SW
LYON - MODANE	**231**	**X**	**X**		**X**									**X**			**X**			**X**					**GB1**	**GB1**	**X**			**X**								
LYON PART DIEU - AMBÉRIEU	46	X	X		X									X			X			X				X	GB	GB	X			X						8.0	10.0
AMBÉRIEU - CULOZ	50	X	X		X									X			X			X			X		GB1	GB1	X			X						12.0	12.0
CULOZ - CHAMBERY	36	X	X		X									X			X			X				X	GB1	GB1	X			X						10.0	10.0
CHAMBERY - ST PIERRE D'ALBIGNY	48	X	X		X									X			X			X				X	GB1	GB1	X			X						10.0	10.0
ST PIERRE D'ALBIGNY - ST. JEAN DE MAURIENNE	23	X	X		X									X			X			X			X		GB1	GB1	X			X						6.0	18.0
ST. JEAN DE MAURIENNE - MODANE	28	X	X		X									X			X			X			X		GB1	GB1	X			X						30.0	30.0
MARSEILLE - MIRAMAS	**52**	**X**	**X**		**X**									**X**			**X**			**X**					**GB**	**GB**				**X**								
MARSEILLE ST CHARLES - L'ESTAQUE	10	X	X		X									X			X			X			X		GB	GB	X			X						5.0	5.0
L'ESTAQUE - MIRAMAS PAR ROGNAC	42	X	X		X									X			X			X				X	GB	GB	X			X						5.0	5.0
LAVALDUC - MIRAMAS	16	X	X		X									X			X			X					GB	GB	X			X						10.0	5.0
LAVALDUC - FOS-VIGUERAT	12	X	X		X									X			X			X					G1/GB	G1/GB	X			X						10.0	5.0
MIRAMAS - AVIGNON	**111**	**X**	**X**		**X**									**X**			**X**			**X**					**GB1**	**GB1**	**X**			**X**								
A) MIRAMAS - AVIGNON (PAR CAVAILLON)	65	X	X		X									X			X			X				X	GB1	GB1	X			X						8.0	8.0
B) MIRAMAS - TARASCON	46	X	X		X									X			X			X			X		GB1	GB1	X			X						11.0	11.0

* Portbou-Cerbere section is formed by one track for each gauge. The broad gauge one (ASFA, DC 3 KV) is managed by ADIF and the standard gauge one (KVB, CD 1'5 KV) is managed by SNCF RÉSEAU

2.1.3 Italy

		SECTION LENGHT	LINE TYPE	MAX. TRAIN LENGHT INCL. TRACTION							AXLE LOAD		LOAD PER METRE			TRAIN SPEED			LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM								GRADIENT	
		km	ETC LINE	450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	20,0 T/axle	21,0 T/axle	22,5 T/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BEM	BCA	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	‰ towards NE	‰ towards SW
ITALY	**MODANE-TORINO**	**102**	X			X1							X		X			X				45/364			X					X	X				30	28
	MODANE-CONFINE FRANCESE	4	X			X1							X		X			X				45/364			X					X	X				1	28
	CONFINE FRANCESE-TORINO	98	X			X1							X		X					X		45/364			X					X	X				30	28
	TORINO-NOVARA	**99**	X				X2						X		X						X	80/410			X					X	X				12	15
	NOVARA-ALESSANDRIA-TORTONA-GENOVA	**147**	X				X						X					X				22/341			X						X				35	11
	NOVARA - ALESSANDRIA	65	X				X3						X		X						X	45/3644			X						X				6	7
	ALESSANDRIA - TORTONA	22					X						X		X			X				45/364			X				X		X				4	6
	TORTONA - GENOVA	60	X				X						X		X			X				22/341			X						X				35	11
	NOVARA-MILANO	**45**	X				X						X		X						X	80/410			X					X	X				7	6
	MILANO-VOGHERA-TORTONA	**76**	X				X						X		X						X	45/364			X						X				8	10
	MILANO-VOGHERA	60	X				X						X		X						X	45/364			X						X				8	10
	VOGHERA-TORTONA	16	X				X						X		X						X	45/364			X						X				6	6
	TORINO-ALESSANDRIA-TORTONA	**112**					X						X		X			X				32/351			X						X				12	6
	TORINO-ALESSANDRIA	90							X5.1				X		X						X5.2	32/351			X					X	X				12	5
	ALESSANDRIA-TORTONA	22					X						X		X			X				45/364			X				X		X				4	6
	MILANO-VERONA	**148**	X						X6				X		X						X7	80/410			X					X	X				10	12
	MILANO-PARMA-BOLOGNA	**200**	X						X				X		X						X	45/364			X						X				8	8
	MILANO-PARMA	119	X						X				X		X						X	45/364			X						X				8	5
	PARMA-BOLOGNA	81	X						X				X		X						X	45/364			X						X				8	8
	VERONA-VICENZA	52	X						X				X		X						X8	80/410			X					X	X				9	5
	PADOVA-FERRARA-BOLOGNA	**110**	X						X				X		X						X	45/364			X						X				11	11
	PADOVA-FERRARA	76	X						X				X		X						X	45/364			X						X				11	11
	FERRARA-BOLOGNA	34	X						X9				X		X						X10	80/410			X						X				10	10
	BOLOGNA-RAVENNA (via FAENZA)	**52**			X11								X		X						X12	80/351			X						X				11	11
	VICENZA-PORTOGRUARO (by Cittadella)	**113**				X							X		X					X		80/410			X					X	X				7	6
	VICENZA-CASTELFRANCO V.	36				X							X		X					X		80/410			X					X	X				7	6
	CASTELFRANCO V.-TREVISO	25					X						X		X					X		80/410			X					X	X				4	1
	TREVISO-PORTOGRUARO	53					X						X		X						X	80/410			X					X	X				4	5
	PADOVA-BIVIO D'AURISINA	**131**	X				X						X		X			X				80/410			X					X	X				8	13
	PADOVA-VENEZIA	29	X						X13				X		X			X				80/410			X					X	X				6	7
	VENEZIA-PORTOGRUARO	59	X				X						X		X						X	80/410			X				X		X				7	8
	PORTOGRUARO-BIVIO D'AURISINA	43	X					X					X		X					X		80/410			X				X		X				8	13
	BIVIO D'AURISINA-VILLA OPICINA	**15**	X					X					X		X			X				80/410			X			X			X				0	15
	BIVIO D'AURISINA-TRIESTE	**14**	X					X					X		X			X				80/410			X					X	X				14	6

1 the maximum train length could be up 600 m after verification of RFI
2 the maximum train length could be up 615 m after verification of RFI
3 the maximum train length could be up 575 m after verification of RFI, otherwise is 525
4 P/80 NOVARA - MORTARA
5.1 the maximum train length is 750 m in the section Torino S.Paolo - Trofarello with some limitazions
5.2 Limitations to 60 Km/h in Torino Smistamento Nord
6 the maximum train length is 750 m in the section Pioltello - Treviglio - Brescia with some limitations
7 the speed is 140 km/h with some limitations
8 speed limitations to 90 Km/h in DEV. ESTREMO VR - VERONA PORTA VESCOVO
9 with some limitations
10 speed limitation to 60 km/h in S.GIORGIO DI PIANO - INTERPORTO
11 the maximum train length could be up 575 m after verification of RFI
12 speed limitations to 60 Km/h in NODO DI BOLOGNA
13 with some limitations

2.1.4 Slovenia

		SECTION LENGHT	LINE TYPE		TRACK GAUGE		DOUBLE TRACK		MAX. TRAIN LENGHT INCL. TRACTION						AXLE LOAD			LOAD PER METRE			TRAIN SPEED			LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM								GRADIENT	
		km	ETC LINE		1435 mm				450 m	500 m	525 m	570 m	597 m	600 m	650 m	750 m	20,0 T/axle	21,0 T/axle	22,5 T/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	BEM	BCA	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	‰ towards NE	‰ towards SW
SLOVENIA	**VILLA OPICINA (BORDER) - DIVACA**	**12**	X	X		X								X				X		X		X				99/429			X							X		X	10	0
	VILLA OPICINA (BORDER) - SEZANA	3	X	X		X								X				X		X		X				99/429			X							X		X	10	0
	SEZANA - DIVACA	**8**	X	X		X								X				X		X		X				99/429			X							X		X	8	0
	KOPER - DIVACA	**48**	X	X		-					X							X		X		X				90/410			X							X		X	25	20
	DIVACA - LJUBLJANA	**105**	X	X		X								X				X		X		X				82/412			X							X		X	8	12
	LJUBLJANA - HODOS	**246**	X	X		56%						X						X		X			X			80/401			X							X		X	10	11
	LJUBLJANA - ZIDANI MOST	64	X	X		X						X						X		X			X			99/429			X							X		X	1	3
	ZIDANI MOST - PRAGERSKO	73	X	X		X							X			X		X			X			X		90/410			X							X		X	9	9
	PRAGERSKO - HODOS	109	X	X		-								X				X			X			X		80/401			X							X		X	10	11
	ZIDANI MOST - DOBOVA	**50**	X	X		X						X						X		X			X			99/429			X							X		X	1	4

2.1.5 Croatia

		SECTION LENGHT	LINE TYPE		TRACK GAUGE	DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION									AXLE LOAD				LOAD PER METRE			TRAIN SPEED			INTERMODAL LOADING GAUGE	LOADING GAUGE		POWER SUPPLY			SIGNALING SYSTEM										GRADIENT / (INCLINE)	
		km	ETC LINE		1435 mm		200 m	380 m	450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	18,0 T/axle	20,0 T/axle	21,0 T/axle	22,5 T/axle	25 T/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Lines	Tunnels	DC 1500 V	DC 3000 V	AC 25000 V	ASFA	KVB	KVB	BCA	BACC	SCMT	PZB	EVM	ETCS L1	ETCS L2	APS	ID	O	‰ towards NE	‰ towards SW
CROATIA	**Rijeka - Zagreb RK**	**241,579**																																									
	Rijeka - Sušak-Pećine	2,962	X	X				X										X					X				52/368	GB			X						X							26	0
	Rijeka Brajdica - Sušak Pećine	2,923	X	X					X									X					X				52/368	GB			X						X							21	-
	Sušak Pećine - Škrljevo	9,012	X	X				X										X					X				52/368	GB			X						X							26	-
	Bakar - Škrljevo	11,715	X	X				X										X					X				52/368	GB			X						X							26	0
	Škrljevo - Lokve	40,362	X	X				X										X					X				52/368	GB			X						X							26	17
	Lokve - Moravice	37,691	X	X				X										X					X				52/368	GB			X						X							3	18
	Moravice - Ogulin	29,749	X	X								X						X					X				52/368	GB			X						X							3	8
	Ogulin - Karlovac	56,033	X	X						X								X					X				80/410	GB			X						X							5	8
	Karlovac - Zagreb RK	**51,132**	X	X						X								X					X				80/410	GB			X						X							7	8
	Zagreb RK - Koprivnica - St. Bor.	101,380																																								
	Zagreb RK -Sesvete	**11,981**	X	X	X						X							X					X			X	80/410	GC			X						X							6	5
	Sesvete - Dugo Selo	**10,156**	X	X	X						X							X					X			X	80/410	GC			X						X							1	5
	Dugo Selo - Koprivnica	65,839	X	X	X					X					X					X		X				X	80/410	GC			X								X					11*	6*
	Koprivnica - Botovo - St. Bor.	13,404	X	X	X					X					X					X		X				X	80/410	GC			X								X					3	4
	St. Bor. Savski Marof - Zagreb RK	35,335																																								
	St. Bor. - Savski Marof	5,095	X	X	X								X					X					X			X	80/410	GC			X						X							0	3
	Savski Marof - Zaprešić	**6,552**	X	X	X							X						X					X			X	80/410	GC			X						X							0	1
	Zaprešić - Zagreb Zap. Kolodvor	**13,003**	X	X	X					X								X					X				80/410	GB			X						X							3	3
	Zagreb Zap. Kolodvor - Zagreb RK	**10,685**	X	X	X*****					X								X					X		X		80/410	GB			X						X							3	4

APS - automatic block system
ID - inter station dependence
O - other safety devices
* line section Križevci-Koprivnica
***** double track: section km 485+264 - km 486+674

2.1.6 Hungary

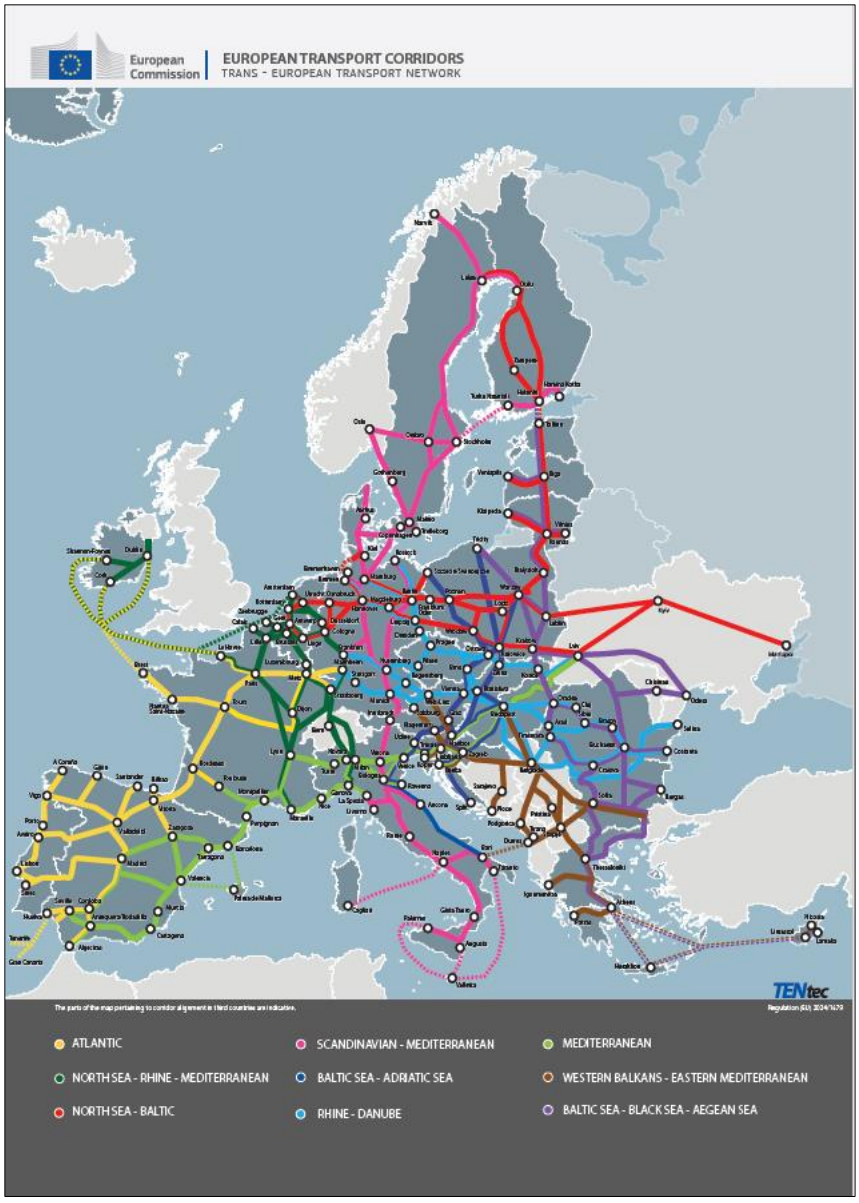
	SECTION LENGHT	LINE TYPE	TRACK GAUGE	DOUBLE TRACK	MAX. TRAIN LENGHT INCL. TRACTION				AXLE LOAD***			LOAD PER METRE			TRAIN SPEED			LOADING GAUGE**/***	POWER SUPPLY			SIGNALING SYSTEM								GRADIENT	
	km	ETC LINE	1435 mm		450 m	500 m	550 m	575 m	600 m	625 m	650 m	750 m	20,0 T/axle	21,0 T/axle	22,5 T/axle	6,4 T/m	7,2 T/m	8,0 T/m	v ≤ 75 km/h	75 < v ≤ 90 km/h	90 < v ≤ 100 km/h	v > 100 km/h	UIC Guideline	Tunnels	DC 1500 V	DC 3000 V	Diesel	AC 25000 V	ASFA	KVB	BEM	BACA	BACC	SGMT	PZB	EVM	ETCS L1	ETCS L2	APS	ID	O	‰ towards NE	‰ towards SW
HODOS - ZALALÖVŐ	**21**	**X**	**X**	**-**							**X**				**X**		**X**					**X**	**70/400**					**X**									**X**			**12.0**	**12.0**
ZALALÖVŐ - BOBA	**81**	**X**	**X**	**-**							**X**				**X**		**X**					**X**	**70/400**					**X**									**X**			**10.8**	**10.9**
BOBA - SZÉKESFEHÉRVÁR	**115**	**X**	**X**	**-**					**X**						**X**		**X**					**X**	**70/400**					**X**							**X**						**11.0**	**10.6**
SZÉKESFEHÉRVÁR - BUDAPEST	**67**	**X**	**X**	**X**								**X**			**X**		**X**					**X**	**70/400**					**X**							**X**		**X**				**7.0**	**7.2**
NYÍREGYHÁZA - TUZSÉR	**58**	**X**	**X**	**X**								**X**			**X**	**X**						**X**	**70/400**					**X**							**X**						**3.0**	**3.3**
TUZSÉR - ZÁHONY	**8**	**X**	**X**	**-**								**X**			**X**	**X**						**X**	**70/400**					**X**												**X**	**1.6**	**0.9**
BUDAPEST - MISKOLC	**176**	**X**	**X**	**X**								**X**			**X**		**X**					**X**	**70/400**					**X**							**X**						**6.8**	**8.0**
MISKOLC - NYÍREGYHÁZA*	**88**	**X**	**X**	Partly								**X**			**X**	**X**						**X**	**70/400**					**X**							**X**						**3.2**	**5.0**
GYÉKÉNYES - MURAKERESZTÚR	16		X	-					X						X	X			X				70/400					X							X						4.0	5.0
MURAKERESZTÚR - NAGYKANIZSA	13		X	-					X						X	X			X				70/400					X							X						4.9	1.7
NAGYKANIZSA - ZALASZENTIVÁN	53		X	-					X						X	X			X				70/400				X													X	1.7	6.2

*Between Mezőzombor - Nyíregyháza (45 km) only single track
** In line with the decision of the ExBo on 20 April 2018
*** With permission as special consignment
**** Applied value can be different in certain cases according to NS
*****ETCS L2 is in operation between Százhalombatta - Érd
APS - automatic block system
ID - inter station dependence
O - other safety devices

Connections with Other European Transport Corridors

MED ETC has connections with all other ETCs in Europe and some of their sections are overlapping (1, 2, 4, 5, 6).

1. ATLANTIC ETC in Spain
2. NORTH SEA-RHINE-MEDITERRANEAN ETC in France and Italy
3. SCANDINAVIAN-MEDITERRANEAN ETC in Italy
4. BALTIC SEA-ADRIATIC SEA ETC in Italy, Slovenia, Croatia and Hungary
5. WESTERN BALKANS-EASTERN MEDITERRANEAN ETC in Italy, Slovenia, Croatia and Hungary
6. RHINE-DANUBE ETC in Hungary and Ukraine
7. BALTIC SEA-BLACK SEA-AEGEAN SEA ETC in Hungary
8. NORTH SEA-BALTIC ETC in Ukraine



2.2 Corridor Terminals

Freight terminals, inland ports, maritime ports and airports connect transport modes in order to allow multi-modal transport of goods. Where freight terminal means a structure equipped for transhipment between at least two transport modes and for temporary storage of freight such as seaports, inland ports, airports and (dry ports) rail-road terminals. Freight terminals for the transhipment of goods within the rail mode and between rail and other transport modes are one of the components of railway transport infrastructure. The technical equipment associated with railway lines includes electrification systems, equipment for the loading and unloading of cargo in stations, logistic platforms and freight terminals. It includes any facility necessary to ensure the safe, secure and efficient operation of vehicles.

Terminal requirements relate to the anticipated scale and nature of the freight and the operations involved in accessing sidings and handling the transfer of the cargo. This can split between the rail-side operations and the road/water/air-side operations.
In general, a terminal need being:

- alongside an existing railway line
- alongside a major highway route
- just on the bank of sea bay or bank of an inland waterway
- on flat terrain, level with the railway line
- near to the origin/destination of freight
- distant from residential areas
- next to developable land for expansion

For intermodal terminals additional requirements are:

- room to store containers
- hard standing
- space for crane/stacker movements
- at least 3 running lines together with reception sidings
- space for road vehicles' movements

The railway lines, and where appropriate rail ferry lines of a RFC, connect a terminal of relevance to rail freight traffic along the route to:

- marshalling yards
- major rail-connected freight terminals
- rail-connected intermodal terminals in seaports and along inland waterways

A list of the terminals designated to the corridor has been worked out, agreed upon and regularly updated. The designation is based on national assessment and evaluation (to be updated according to Transport Market Study and consultation with the Terminal Advisory Group). All nodes indicated in the Annex of Regulation 913/2010/EU are connected.

The list of terminals is available in CID Book Section 3 Terminal Description at a link:
https://www.medrfc.eu/wp-content/uploads/2025/01/med-rfc-cid-tt2026.pdf

2.3 Bottlenecks and congested infrastructure

Our RFC carried out a Capacity Study in 2014. For common understanding the same definition of bottlenecks as per set in (5) of Definitions Article 3 of Regulation (EU) No 2024/1679 was used. Bottleneck means a physical, technical, functional, operational or administrative barrier which leads to a system break, including systematic congestion or standstill, affecting the continuity of traffic for long-distance or cross-border flows.

All the analysis, assessments and classifications were made upon definition above. The key technical parameters, infrastructure requirements set in Articles 15-18 of Regulation (EU) No 2024/1679, were considered obligatory and common part of the future elements of the transport infrastructure for both passengers and freight transport capacity.

- full electrification of the line tracks and sidings;
- at least 22,5 t axle load;
- 100 km/h line speed;
- freight trains with a length of 740 m;
- full deployment of ERTMS;
- track gauge for railway lines 1.435 mm;

Identification of bottlenecks

Identification and classification of bottlenecks as a process is deriving from 2 different channels, with respect to the different kinds of traffic (freight and passenger). As a step to make a prioritization of the bottlenecks and stakeholder needs, the outcome of the classification is depending on the internal procedures of the IMs. Basically, 3 levels of priority can be set: top, medium and low priority.

- The identification is based on the experiences and findings by the traffic management professionals of the IMs, as a part of their everyday job. Realising the constraints generated especially during the peak periods.
- Another channel of identification is based on the stakeholders' consultation, both on national and RFC level (TAG/RAG events). Of course, these channels are mainly dealing with problems of the freight RUs.

Removal of bottlenecks

This Implementation Plan provides a description of the main bottlenecks identified along the corridor, integrating information given by Infrastructure Managers. This analysis can help Member States, Infrastructure Managers and other stakeholders to prioritize key infrastructural and capacity projects, which possibly constitute bottleneck removal actions.

Improvements in performance and infrastructure parameters, the effects on the corridor are available together with the identical bottleneck description.

Development and implementation of these projects are critical to increase rail services and improve performance of rail freight sector. In the case of bottlenecks removal, there are further details available in the Chapter 6 on Investment Plans, in the section Benefits of the projects (Chapter 6.2 List of projects) defined country by country.

2.3.1 Spain

Track gauge

As the Iberian gauge in most of the Spanish sections of Mediterranean RFC, penalizes rail transportation competitiveness. It is remarkable the effort carrying out to overcome this situation along the Mediterranean RFC coastline, in a process on which current passengers and freight traffic is living together with the works.

One of the key works currently in progress is the change of the track gauge, from Iberian to UIC, along the stretch between Castellón and Vandellós (Tarragona), which means the first case of a conventional section on which no further Iberian gauge will be available. The first phase of the preparatory works started in 2023, and the second phase -the actual gauge change- is planned for the second half of 2026 so as its finalization would be aligned with all the ongoing actions for UIC implementation with third rail in the coastline of the Corridor. Also, in coordination with the improvement of TEN-T parameters for freight traffic of the Sagunto – Teruel line, which once the Castellón – Vandellós will be ready for UIC, may be used as a diversionary route for Iberian gauge.

Maximum train length

Today is possible to set paths for 750 m train length between Barcelona Can Tunis terminal and Perpignan, through the UIC gauge High Speed Line. South to Barcelona, existing limitations to 750 m train length, are foreseen to be solved alongside with the UIC implementation towards Tarragona and Valencia, in the coming years, which would improve rail transportation competitiveness.

Lack of capacity for international Rail Transport

During 2024 discussions promoted by Med RFC on capacity and traffic coming scenarios (highlighting the specific session organized the 3rd of June 2024), apart from the fact that HSL must address freight + passenger traffic, it seems that capacity and traffic management inside the different Terminals and Ports, including their respective connections with the main line, are key to be assessed and aligned with the expected comprehensive management and performance of the Corridor.

In that referred scope, Spanish IMs in charge of the HSL showed during 2024, they are open to study concrete proposals form the RUs if they come with the project to use night paths, during week labour days, along the HSL connecting Perpignan and Barcelona. If the case this demand is going to come, then, to reach interesting timetables for the market will depend also in the availability of resources by RUs and Terminals to make shunting and load-unload operations during the night. When this demand would eventually show up, a start-up "re-action" from the Rail system, should come in order to provide an efficient answer to the market. . But finally, up to the date, it seems IMs, RUs and Terminals/Ports are not offering to the market a comprehensive approach for night opening. This is a field of interest in order to identify potential operational bottleneck removal actions, linked in the background with business and probably labour conditions.

Regarding the management of the capacity allocation by the IMs to the RUs, the market asked in 2023 the three concerned IMs in the FR-ES border to move forward "framework agreements" in the line Barcelona – Perpignan at least, which would bring to the Rail operators and customers a certain period ahead with a steady picture for the business. But by the moment, during 2024 we haven´t note, apparent steps on this way.

An important element gathered during 2024 from the stakeholder's consultation, in relation with the new Rail system needs along the Corridor if traffics is going to increase, is the relatively poor number of tracks to park train compositions for no-short stages, such in the origin or destination of the international transport services, as in some handing over intermediate stations along the international route. This is in Spain a potential short-term operational bottleneck to be evaluated alongside the Corridor. In the case of Barcelona Can Tunis terminal is a constraint today.

Also, during the referred session of the 3rd of June, it was identified an infrastructure issue that the designed UIC implementation through the third rail tracks between Barcelona and Tarragona, is going to bring. It is a short stretch around 1 km of single track with UIC gauge, at the station of Sant Vicenç de Calders. It is an apparently small point, but which from the traffic management point of view in case of disruption in that station by any fault, could become an operational bottleneck.

Access to Ports and Terminals and Other Rail Facilities

The access to ports and terminals will be adopted to UIC Gauge in parallel with the installation of UIC Gauge along the corridor. As one of main operational bottlenecks to boost the traffic through the HSL to the French Border, it is the improvement of the current UIC gauge access to the Port of Barcelona: first steps of the administrative process by the Spanish Ministry once the approval in June 2023 of the so-called "Proyecto Básico". During 2024, the Design contract has been awarded, with an execution time of 48 months. Once this phase will finish, more detail conditions will be known on the further Construction phase.

In between Barcelona and the French border, a new freight terminal with UIC gauge, La Llagosta, is expected to enter in its first phase of operation by mid-2025, under a concession regime exploited by international transport operator Hupac.

Towards the south of Barcelona, UIC gauge is being laid out by mean of third rail on the existing tracks. During 2024 works aimed to pass through Castellbisbal node in UIC gauge has been finished, even the proper connection with SEAT factory is forecasted for second half of 2025. Coming works impacting Rail traffic are going to be addressed during 2025 in order to reach Tarragona Port and industrial manufacturers around, in 2026.

In the other bound, considering the increasing traffic in the multimodal connections of the Mediterranean Ports with the North of Africa, which are demanding Rail capacity inland, the Algeciras and Seville lines are object of different actions to improve not only capacity but infrastructure performance and reliability. Works and significant Temporary Capacity Restrictions are forecasted in 2025 and 2026 between Algeciras and Zaragoza with the aim to prepare the infrastructure in running semi-trailers on the wagons, the so-called Rolling Motorways.

Even in a less visible layer of the Rail system, exchanges with the stakeholders is bringing up that Maintenance Facilities for Rolling Stock in UIC gauge (locos, wagons, passengers units), are going to be an impacting operational bottleneck element. To count with the Classic FR-ES Cross-border section terminals in PortBou and in Cerbère, as a potential complex on which Maintenance Facilities in UIC could be suitable to be developed, is being put on the table of Med RFC as an input, that could be a possible solution for is "hidden" bottleneck of UIC Maintenance Facilities lack.

Temporary Capacity Restrictions Impact

As the relevant impact of infrastructure works on traffic around the Spanish part of Corridor, in other countries too, RUs are insisting and explaining the economic damage in their respective business and the envisaged difficulties in getting back the lost customers. Discussion on the Rail political sphere is happening in relation with the possibility or not to provide aids to the affected operators by these scenarios. From the Corridor perspective, and based on the stakeholders' consultation, the impact on RUs in terms of extra cost can be identified as a current key operational bottleneck, notwithstanding the IMs can coordinate themselves to offer international alternative Rail routes. Rail Network configuration is not always addressing enough efficient alternatives for allowing the RUs business to continue.

Congested infrastructure

As per the provision of Directive 2012/34/EU Congested infrastructure means an element, a section of infrastructure for which demand for infrastructure capacity cannot be fully satisfied during certain periods even after coordination of the different requests for capacity. In these cases, after a thorough capacity analysis a Capacity-enhancement plan are required to draft by the infrastructure manager, to include a measure or series of measures with a calendar for their implementation which aim to alleviate the capacity constraints which led to the declaration of an element of infrastructure as congested infrastructure.

There is no infrastructure declared congested on the network of Mediterranean RFC. But in any case, in the interviews made with main RUs operating in Spain, a common outcome is that Terminals availability and capacity is the more key element in the Rail chain.

2.3.2 France

New line Montpellier-Perpignan

This new line will be the chain to join the Spanish high-speed section Barcelona-Figueres and its link with Perpignan with the new bypass between Nîmes and Montpellier and the lines to Lyon, will be effective in several phases:

- a first phase between Montpellier and the east of Béziers - this phase corresponds to the sections of the rail network currently the busiest. It is planned to be in operation in 2034
- subsequent phases between Béziers and Perpignan. It is planned to be in operation in 2044.

The mixed use of the line freight/passengers, which will allow avoiding the saturation of the current axe and holding the increase of trucks traffic in the French motorway A9. It will also allow capacity and speed increases in the rail corridor.

Rail link Lyon - Turin

The project to link Lyon, Chambéry and Turin includes the creation of a 140 km line. A real alternative to the road, this new route will facilitate exchanges and travel for all train users. It will be a tremendous driving force for local economic development and will also be an open door to Europe. It is expected to be commissioned by 2030.

This major project will be carried out in two phases:

- phase 1: the work will start on the Lyon-Chambéry axis. The works will consist of a 78 km mixed line for passengers and freight between Lyon and Avressieux (entry into Savoy) via the Dullin l'Epine tunnel
- phase 2: the works include the construction of the first part of the freight route between Avressieux and Saint-Jean-de-Maurienne. The route will pass through the Chartreuse, Belledonne and Glandon tunnels and will allow the passage of the large gauge rail motorway. Of the 62 km of new line created, 53 km will pass through these tunnels. A viaduct will be built to cross the A41 and Isère rivers

The objectives of this project are numerous: by facilitating the extension of the high-speed network, this new line will allow an increase in TGV frequencies and the introduction of high-speed TER services. Faster journeys will thus facilitate the movement and exchange of travellers across the Alps. Specifically, for freight, it will be a concrete and sustainable alternative to road transport. This new route will guarantee an efficient link for companies using freight transport. They will also benefit from a wider choice of services available: rail motorway, conventional freight, or combined freight. They will also be able to take advantage of a new direct route between the Lyon railway junction and Italy

The Lyon railway junction

This junction is:

- on the Northern Europe - Mediterranean axis and on 2 European freight corridors (RFC Mediterranean and RFC North Sea – Med)
- at the heart of national and international high-speed links
- on a territory of 7.9 million inhabitants in Auvergne-Rhône-Alpes with a strong demographic growth

Located at the convergence of 15 European, national and regional railway lines, the Lyon railway junction is extremely busy, and its infrastructures are at the limit of capacity. This is why a short and medium-term mobilization plan has been put in place with the objective of restoring the system's robustness by acting on all components: operations and standards, equipment, regeneration of installations and investment works. This plan was approved by ministerial decision on 2 June 2015.

Congested infrastructure

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There is no infrastructure declared congested on the network of Mediterranean RFC.

2.3.3 Italy

New High-Speed Line Milano - Venezia

The main works for quadrupling of the Treviglio-Brescia line, as first functional phase of the new High Speed line Milano-Verona, has been completed in 2016.

Works for section Brescia - Verona - Vicenza have already started.
The high-speed line between Milano and Venezia will enhance capacity to the Mediterranean Corridor both for freight and passenger trains. It will guarantee a system of four tracks with separation for trains with different speed and it will increase the quality and the punctuality of the traffic. This is particularly relevant in the Verona Node where there will be separate routes for long distance trains, regional trains and freight trains.

Also, it will be a reduction of long-distance trains travelling times between Milano and Venezia.
The new line will have the following technical characteristics:

Brescia – Verona

- Maximum speed 300 km/h;
- Maximum gradient 12 0/00;
- Signalling: ERTMS level 2;

Verona – Vicenza (First Phase)

- Maximum speed 250 km/h;
- Maximum gradient 12 0/00;
- Signalling: ERTMS level 2;

Milano Node upgrading (Milano Lambrate, Porta Garibaldi, Monza, Rho)

The node of Milan is characterized by a high promiscuity of rail traffic due to overlapping of metropolitan, regional, long distance and freight traffic. Such a state of promiscuity, combined with a high volume of traffic, actually prevents the increase of regional traffic of the Milan area and undermines the freight transport development.

Within the framework of the Torino – Padova project, many actions are provided related to the node of Milan, which actually consist of a new traffic management control centre, and between Milano Greco and Monza, a new interlocking system equipped with shorter sections. These interventions will allow a rationalization of traffic management and an increase in the capacity offered by the existing infrastructure.
With the increase of rail traffic witnessed in recent times along the main lines, stations of old conception as Milano Lambrate have become bottlenecks, either for passenger or freight traffic. One of the initiatives considered a priority to strengthen the capacity of Milan Lambrate node regards the specialization of lines by traffic type. A new project has been drafted to separate passenger from freight traffic by limiting as much as possible interference.

Upgrading of Venezia-Trieste (speeding up of existing line)

The upgrading of Venezia – Trieste existing line is one of the most important projects in the Northeast area of Italy. The main goal of the project is to reduce the travel time between Venezia and Trieste and to contribute to the increasing of capacity between Venezia Mestre and Monfalcone up to 10 trains per hour per direction. The upgrading will remove also the actual speed limitation for train with axle load of 22,5 t and also improve the layout of some station (750 m track length).

The number of block section will be increased with the installation of the new signalling system. These will allow also increase in both capacity and speed. The actual signalling system permits maximum speed of 160 km/h.

The project will be developed according to the following construction phases:

1. New Signalling System (2025)
2. Removal Level crossing (2025/2027)
3. Route variants between Mestre and Ronchi (2030)
4. New Line between Ronchi and Aurisina (2031)

The project is partially funded (only phase 1).

Congested infrastructure

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There is no infrastructure declared congested on the network of Mediterranean RFC.

2.3.4 Slovenia

Lack of capacity in lines

The rising volume of traffic, with simultaneously increasing demands in terms of quality and quantity, requires a unique, harmonized and generally valid understanding to be developed as regards available railway-infrastructure capacity. According to UIC Leaflet 406 single-track is considered as 100% utilized if the percentage of capacity utilization approaches to 85%. For double tracks with mixed traffic is this percentage 75%.

Slovenia has temporarily limited capacities on the following line sections:

- Divača-Koper, single track line (capacity of the line is 94 trains/24h), capacity consumption is 102 %, - in July 2018 the section was declared as congested
- Ljubljana-Divača, double track line (capacity of the line is 153 trains/24h), capacity consumption is 83 %.

At some railway stations in Slovenian part of MED RFC, has been also elaborated lack of the capacities. Railway nodes with the lack of the capacities:

- Ljubljana railway node (due to the peak hours for passenger trains, short station tracks),
- Zidani Most railway node (due to the peak hours for passenger trains, lack of tracks and short tracks).

Some measures to increase the capacities and eliminate the bottlenecks at the critical railway sections and nodes have already been started:

- Divača-Koper, the second, new track of the total length of 27.1km is under construction. All main structures i.e. the tunnels and viaducts have been completed. The new section will be put into operation as a single track in 2026, enabling between Divača and Koper two single track lines will be available for utilisation.
- Ljubljana-Divača: the upgrading of the existing two track line started in 2021. The section between Ljubljana and Brezovica has been completed and put into operation. Currently, the works are in progress between Brezovica and Borovnica and on several other sites. The construction works along the whole line are to be finished by 2027.
- Ljubljana railway node: upgrading of the Ljubljana central station has started with the first phase comprising of the new Dunajska overpass construction, which is expected to be put into operation in 2025. For the second phase of the works on the main passenger station, the contract has been signed with the completion of works foreseen by the end of 2026.
- Zidani Most railway node: installation of the new signalling system and the construction of 9 overpasses in total, to eliminate the bottleneck is in progress.

Axle loads and train weight limits

Category D3 (Load per unit length 7,2 t/m and axle load 22,5 t) is considered as normal category for the Slovenia's rail lines for international transit traffic. The goal targeted by development projects is to ensure the axle load D4 (8,0 t/m and 22,5 t) on entire Mediterranean RFC sections in Slovenia.

Train length

Maximum permitted length of freight trains in Slovenia is 740 meters (with traction included). On particular lines permitted length is extra restricted because of short station tracks.

Now there are restrictions on the following lines:

- Sežana border – Ljubljana maximum permitted length of the train 600 m.
- Divača – Koper t. 525 m.
- Pragersko – Ormož – Hodoš border 600 m.
- Dobova border – Zidani Most - 570 m;
- Zidani Most – Ljubljana - 570 m;

Our goal is to increase the length on all lines of Mediterranean RFC to 740m.

Tunnel Restrictions

The tunnel restrictions, with regard to the special dimensions of particular wagons in a train in a combined transport are considered with the codification of lines. Now we have on section Gornje Ležeče – Pivka because of tunnel restriction codification for combined transport reduced on profile P/C 82/412.

Congested infrastructure

As per the provision of Directive 2012/34/EU Congested infrastructure means an element, a section of infrastructure for which demand for infrastructure capacity cannot be fully satisfied during certain periods even after coordination of the different requests for capacity. In these cases, after a thorough capacity analysis a Capacity-enhancement plan are required to draft by the infrastructure manager, to include a measure or series of measures with a calendar for their implementation which aim to alleviate the capacity constraints which led to the declaration of an element of infrastructure as congested infrastructure.

There is no infrastructure declared congested on the network of Mediterranean RFC.

2.3.5 Croatia

Considering the current traffic volume there is no real bottlenecks on the line, but of course there are some obstacles in existing infrastructure characteristics that could cause bottlenecks in the future if the traffic volume will significantly increase.

Section line Rijeka – Skrad

On the section line Rijeka – Lokve due to the very unfavourable relief features of the line there are huge inclines / declines and thus great ruling line resistance up to 29 daN/t. Consequently, the train mass is limited and there is a need for two traction locomotives or a stronger one. In addition to this, till the Skrad station, tracks for the reception and dispatching of trains at the railway stations are less than 500 meters long. This of course limits the traffic flow and the line capacity as a whole. Given the existing configuration, as a possible solution arises the construction of a new railway line to bypass the hills, so-called "lowland line", which is in preparation. The EIA for the new railway line Skradnik-Krasica-Tijani is in the procedure.

Section line Zagreb RK – Karlovac

In order to enhance the competitiveness of corridor line from the port of Rijeka to Central Europe and further, there is a plan to build the second track on the line section Hrvatski Leskovac – Karlovac in the time horizon 2022 – 2027. With much more favourable characteristics of the future railway infrastructure, the requirements for the corridor traffic will be met as well as increase in line capacity according to European standards.

Section line Dugo Selo – Koprivnica – St. Border

In order to enhance the competitiveness of corridor line from the port of Rijeka to Central Europe and further, there is a plan to build the second track on the line section Dugo Selo - Koprivnica – State border – (Hungary) in the time horizon 2016 – 2026. With much more favourable characteristics of the future railway infrastructure, the requirements for the corridor traffic will be met as well as increase in line capacity according to European standards.

Section line Karlovac-Oštarije

In order to enhance the competitiveness of corridor line from the port of Rijeka to Central Europe and further, there is a plan to build new double railway line on the section Skradnik-Karlovac in the time horizon eventually by the year 2033.

Congested infrastructure

As per the provision of Directive 2012/34/EU Congested infrastructure means an element, a section of infrastructure for which demand for infrastructure capacity cannot be fully satisfied during certain periods even after coordination of the different requests for capacity. In these cases, after a thorough capacity analysis a Capacity-enhancement plan are required to draft by the infrastructure manager, to include a measure or series of measures with a calendar for their implementation which aim to alleviate the capacity constraints which led to the declaration of an element of infrastructure as congested infrastructure.

There is no infrastructure declared congested on the network of Mediterranean RFC, in Croatia.

2.3.6 Hungary

In case of MÁV, the bottlenecks were identified mainly on the basis of the Detailed Feasibility Study on the subject. The same Study identified the interventions needed to eliminate bottlenecks. Other sources of data are feedback from customers and conclusions drawn from the results of traffic management statistics.

Budapest southern ring railway (Kelenföld-Ferencváros section)

The main bottleneck of the Hungarian section of the RFC is the Danube crossing in Budapest, which is the only high-capacity Danube railway bridge in Hungary. The previous double track bridge was replaced by three single track bridges in 2022 to increase capacity by 50%. In order to utilize the new bridge span, the Kelenföld – Ferencváros section of the line need to be upgraded to 3 tracks, partially 4 to tracks. The construction works were started in 2024 is expected to be completed by the end of 2028.

Budapest – Miskolc line section

The complex reconstruction on the Budapest-Ferencváros – Kőbánya Felső – Miskolc RFC corridor line between Rákos and Hatvan stations has been finished. Axle load was increased to 22,5t and new electronic interlocking and ETCS L2 was installed in the upgraded section. However, the Ferencváros – Kőbánya Felső – Rákos section continues to be a gap in the ETCS L2 availability.

Székesfehérvár – Boba line section

Between Boba and Ukk, the available slots for freight trains are very limited and the number of passenger trains are periodically and slightly increasing, while the line is a single-track line. The GSM-R radio system is

in operation. The renewal of the line (including partial superstructure replacement, interlocking update on 2 stations, 225 kN) is under preparation from EIB loan. However, the planned works are not going to resolve the 600m maximum train length.

Zalaszentiván–Nagykanizsa line section

The only section without electrification in the Hungarian part of the RFC (although a diversionary route) continues to be a bottleneck in the north-south traffic. The design speed of the section is 100/80 km/h, but speed restrictions apply. Maximum train length is 600m. No GSM-R or ETCS installed. Reconstruction project to TEN-T parameters (750 m, ETCS) is in preparation phase, expected to finish in ~2030.

Congested infrastructure

As per the provision of Directive 2012/34/EU Congested infrastructure means an element, a section of infrastructure for which demand for infrastructure capacity cannot be fully satisfied during certain periods even after coordination of the different requests for capacity. In these cases, after a thorough capacity analysis a Capacity-enhancement plan are required to draft by the infrastructure manager, to include a measure or series of measures with a calendar for their implementation which aim to alleviate the capacity constraints which led to the declaration of an element of infrastructure as congested infrastructure.

There is no infrastructure declared congested on the network of Mediterranean RFC.

2.4 RFC Governance

Article 8 of the Regulation (EU) 913/2010 (re-confirmed in Article 8, point 35 of Regulation (EU) No 2024/1679) defines three levels in the governance structure:

The Executive Board (EB): shall be composed of representatives of the authorities of the Member States concerned. The body is responsible for defining the general objectives of the freight corridor, supervising and taking the necessary measures for improvement of the project. The participation of each Member State is obligatory.

The Management Board (MB): For each freight corridor, the Infrastructure Managers concerned and, where relevant the Allocation Bodies as referred, shall establish a Management Board responsible for taking all operative measures for the implementation of the regulation. The participation of each IM and AB is obligatory.

The MB makes its decisions based on a mutual consent. The MB was established by the signature of a Memorandum of Understanding among the parties, signed already in April 2012. Effective 1st of January 2014 the Management Board took the form of a EEIG (European Economic Interest Grouping). As a consequence, the role of the Management Board was taken over by the **General Assembly of EEIG Mediterranean RFC (hereafter: GA).** On the 7th of July 2016 HZI joined the EEIG and AZP left the EEIG. The EEIG was also renamed EEIG for Mediterranean RFC. On 11th October Oc' Via from France joined the EEIG.

A **Permanent Management Office (hereafter PMO)** was set up in Milan (Italy) to support the implementation of the Mediterranean RFC and to ensure the functioning of the EEIG. The migration of Corridor D EEIG towards Mediterranean RFC EEIG was implemented in early 2014. The PMO is led by the Managing Director and was composed of two other fulltime dedicated people in the start-up phase: one Infrastructure Adviser (who is also the EEIG Deputy Director) and one OSS leader. The corridor one-stop-shop is applying the dedicated C-OSS model of RNE from the 1st of July 2013.

Six EU Member States (Spain, France, Italy, Slovenia, Croatia and Hungary) are now involved in Mediterranean RFC. The Management Board has 9 members: 8 Infrastructure Managers and 1 Allocation Body.

8 Infrastructure Managers and 1 Allocation Body

Advisory Groups (AGs): The MB set up Advisory Groups made up of:

Railway Undertakings interested in the use of the corridor.

Managers and Owners of the Terminals of the freight corridor including, where necessary, sea and inland waterway ports. These AGs may issue an opinion on any proposal by the MB, which has direct consequences for them. They may also issue their own-initiative opinions. The MB shall take any of these opinions into account.

The voice of customers is taken into account via the Terminal Managers and the Railway Undertakings Advisory Groups. Participation to AGs is on a voluntary basis. Advisory Groups members have a dedicated area in the Mediterranean RFC website, where all the materials under consultation are available. To join the Advisory Groups please contact the Permanent Management Office (PMO) and/or the representatives of the Advisory Group. One representative for each Advisory Group has been nominated to coordinate the position of the group. The Advisory Groups' opinion has to contain both majority and minority opinions. The organizational structure of the Corridor is included in the Internal Regulations of EEIG Mediterranean RFC.

The managers of the EEIG are appointed by the General Assembly with a mandate for 3 years. The acting managers mandate will be expiring on the 31st of May 2022.

Managing Director - **EEIG Manager**: Mr. Raffaele Zurlo.
Deputy Managing Director - **EEIG Manager**: Mr. Istvan Pakozdi.
Manager - EEIG Manager: Mrs. Nikolina Ostrman.

The General Assembly of Mediterranean RFC acts as Management Board. The General Assembly of Mediterranean RFC meets regularly, at least twice a year at the headquarters of the EEIG (Milano – via Ernesto Breda 28). The Chairman of the General Assembly is Mr. Manuel Besteiro. The EEIG managers are usually appointed for three years' renewable period unless otherwise decided by the General Assembly of the EEIG. The Managers are tasked with ensuring that operational and technical tasks incumbent upon the EEIG are duly accomplished**,** in accordance with the relevant provisions of the Regulation (EU) 913/2010, with the decisions and guidelines of the General Assembly and with the opinions and decisions of the Executive Board. The President of the EEIG coordinates the activity of the Managers and ensure the respect of the Act of Incorporation, of the internal Rules and of the Regulation 913/2010. He is not dedicated full time to the EEIG; he has an institutional role and is entitled to represent the EEIG in international events and before the European Commission, RNE and other European Institutions. As far as these functions are concerned, he can be replaced by the PMO Managing Director. He supervises the external relations of the EEIG, in cooperation with the Chairman of the GA and with the other two Managers, ensuring consistency of different information flows concerning the EEIG (website, publications, press release, leaflets, etc.). As far as these functions are concerned, he can be replaced by the PMO Managing Director

Coordination Group

Member	Representative
Administrador de Infraestructuras Ferroviarias (ADIF)	Manuel Besteiro
Línea Figueras Perpignan S.A. (LFP)	Petros Papaghiannakis
Société Nationale des Chemins de fer Français Réseau (SNCF Réseau)	Claire Hamoniau
Oc'Via	Kévin Kuba
Rete Ferroviaria Italiana (RFI)	Laura Fortunato
Slovenske Železnice-Infrastruktura d. o. o. (SŽ-I)	Miran Pirnar
HŽ Infrastruktura d.o.o. (HŽI)	Ivana Zanki
MÁV Pályaműködetetési Zrt. (MÁV)	
KTI – Hungarian Rail Capacity Allocation Office	Dóra Varga

The Coordination Group was set up in order to support the Management Board members and the Permanent Management Office. In particular, the Coordination Group carries out the following activities:

- ensures a high-level general follow-up and coordination of the activities defined by the GA of the EEIG, in cooperation with the Managing Director of the PMO, with the Working Groups and with the Chairman of the GA
- contributes to prepare decisions of the GA and to their implementation
- advises and supports the PMO
- ensures an efficient communication flow between the EEIG (GA, Managers, PMO, Working Groups) and the internal structures of the EEIG Members, acting as contact point between national and corridor level

The Coordination Group organises at list two live meetings per year and videoconference meetings when needed.

Advisory Groups

The kick-off meeting for the setting up of the Advisory Groups of Mediterranean RFC was held in Budapest on 30th November 2012. The preparation of this meeting was based on a wide involvement of the stakeholders interested in the use of Mediterranean RFC, according to the principles of transparency and equality.

The following Advisory Groups meeting were organised so far by Mediterranean RFC:

Year	Event	Venue	Date
2012	TAG-RAG	Budapest (HU)	30/11/2012
2013	TAG-RAG	Barcelona (ES)	18/04/2013
2013	TAG-RAG	Marseille (FR)	29/10/2013
2014	TAG-RAG	Milano (IT)	12/03/2014
2014	TAG-RAG	Koper (SI)	30/10/2014
2015	TAG-RAG	Madrid (ES)	23/04/2015
2015	TAG-RAG	Budapest (HU)	19/11/2015
2016	TAG-RAG	Montpellier (FR)	26/05/2016
2017	TAG-RAG	Milano (IT)	26/01/2017
2017	TAG-RAG	Ljubljana (SI)	14/11/2017
2018	TAG-RAG	Valencia (ES)	31/05/2018
2018	TAG-RAG	Budapest (HU)	28/11/218

2019	TAG-RAG	Marseille (FR)	27/02/2019
2019	TAG-RAG	Rijeka (HR)	26/09/2019
2020	TAG-RAG	On-line event	24/09/2020
2021	TAG-RAG	On-line event	10/02/2021
2021	TAG-RAG	On-line event	14/09/2021
2022	TAG-RAG	On-line event	16/03/2022
2022	TAG-RAG	On-line event	24/11/2022
2023	TAG-RAG	On-line event	25/05/2023
2023	TAG-RAG	Seville (ES)	23/11/2023
2024	TAG-RAG	On-line event	12/03/2025
2024	TAG-RAG	Budapest (HU)	07/11/2024

Mediterranean RFC organizes two TAG-RAG meetings per year, which alternatively take place on **the eastern or on the western** part of the Corridor.

Starting from the 6th Mediterranean RFC TAG-RAG meeting, the Management decided to introduce a new role within the context of the Advisory Groups: a **representative for each Advisory Group** in order to make the consultation process more effective and more useful for RUs and TMs. The representatives will encourage coordination within each Advisory Group and also towards other external institutions.

The Advisory Groups meeting are organised in order to establish a regular dialogue of the freight corridor management with its stakeholders. The consultation mechanism is mainly based on electronic tools (e-mail and website), on national contact points for operators (in order to facilitate communication and information) and on specific questionnaires to be used for collecting remarks and suggestions from Advisory Groups. This approach responds to the following aims:

- smooth, flexible and transparent communication flow between Management Board and Advisory Groups
- cost-effective system (2 meetings per year)
- wide-ranging involvement of Railway Undertakings and Terminals
- involvement of owners / operators potentially interested to join Advisory Groups, through publication of documents on the corridor website (invitation, presentations, minutes of meeting, etc.)
- efficient collection of opinions raised by railway operators
- direct contacts at local level (the use of national language can be very important for small operators mainly on technical matters)

In order to facilitate communication with local operators a national contact point is made available for each country concerned by the corridor, in charge of collecting the interests of participation at national level:

Member	Country	Contact name	E-mail	Telephone
ADIF	Spain	Manuel Besteiro	mbesteiro@adif.es	+34 913007772
LFP	ES/FR	Petros Papaghiannakis	ppapaghiannakis@lfpperthus.com	+34 972678800
SNCF Réseau	France	Claire Hamoniau	claire.hamoniau@reseau.sncf.fr	+33(0)153943325
Oc'Via	France	Kévin Kuba	k.kuba@ocvia.fr	+33 4 3448 00 61
RFI	Italy	Laura Fortunato	l.fortunato@rfi.it	+39 313 8088234
SŽ-I	Slovenia	Jošt Rotar	jost.rotar@slo-zeleznice.si	+386 129 12 317
HŽI	Croatia	Ivana Zanki	ivana.zanki@hzinfra.hr	+385 1 378 3358
MÁV INFRA	Hungary	Zoltán Nagy	nagy11z@mav.hu	+36 15113799

For consultation of applicants likely to use the corridor (art. 10 of Regulation 913/2010), the first draft of the Implementation Plan is submitted to the Advisory Groups of Mediterranean RFC taking place in spring. All RUs and terminal owners/managers which cannot attend physical meetings but are interested in the use of Mediterranean RFC and/or in the activity of the Advisory Groups may be involved by means of public information on https://www.medrfc.eu/ and direct contact with national contact persons. Moreover, the intention is to invite all the operators to each meeting so that new membership may always be possible. The composition of the Advisory Group is thus open and flexible, membership is not fixed, allowing newcomers the possibility to join the activity at any time, as recommended by Regulation 913/2010 and by the Handbook ("New membership should always be possible, and the composition of the Advisory Groups should be revised from time to time to allow an adjustment of the representation." - Handbook, point 3.4.1)

In order to ensure efficiency to physical meetings, attendance may depend on the number of requests ("Since any operator can claim to be interested in the use of the corridor, the number of possible participating in the Advisory Groups could be too high. Operators of different sizes and with different business models should be represented" - Handbook, point 3.4.1-3.4.2). According to a decision of the Executive Board of Mediterranean RFC, terminal owners/managers not giving the information requested by the Management Board will not be accepted into the Advisory Groups and their terminals can be excluded from the corridor.

Permanent Management Office

A Permanent Management Office (hereafter PMO) for Mediterranean RFC was set up in Milan (Italy) in a RFI fenced area during summer 2013 for daily corridor operations, leaded by the Italian partner RFI, to support the implementation of the Mediterranean RFC and to ensure the functioning of the EEIG. The selection of staff was made by the Management Board on 9th April 2013 among the candidates promoted by the Members, on the basis of specific evaluation criteria. The PMO is composed of 3 full time personnel: one Managing Director from RFI (Italy), one Deputy Director-Infrastructure Manager from MÁV (Hungary) and one OSS leader from SNCF Réseau. Each Member is responsible for the contractual relationship with its candidates selected for the PMO; terms and conditions of employment for PMO staff will be defined through specific agreements between the EEIG Mediterranean RFC and the Member promoting the candidate. In late 2014, the EEIG GA decided to hire a fulltime Office Assistant to support the work of the PMO and at the beginning of 2017 a part time Project Manager.

The **internationality** of the team is considered as a **key** requirement to ensure a fair balance of representation among the partners and a corridor-oriented perspective overcoming national views.

Managing Director – Raffaele ZURLO

The PMO is led by the Managing Director, who is a full-time manager dedicated to the EEIG and Mediterranean Corridor RFC. He is the head of the PMO and the main coordinator of all corridor related activities. He is responsible for the correct implementation of all tasks and obligations ensuing from the Regulation. The objectives and mission of the Managing Director are defined by the General Assembly of the EEIG.

Deputy Director / Infrastructure Advisor – Istvan PAKOZDI

He is a full-time manager dedicated to the EEIG and Mediterranean RFC. As Infrastructure Advisor, he also has the responsibility to constantly update and collect the technical parameters of the corridor, control and draft the geographical description of the network and complete the CID.

C-OSS Leader – Stephane DASTOT

The OSS leader has the role to be the **single contact point** for applicants to request and receive rail infrastructure capacity for freight trains (Pre-Arranged Paths and Reserve Capacity) crossing at least one border along the corridor. The OSS leader handles communication process between IMs, ABs and other C-OSSs and Terminals linked to the corridor. The objectives and mission of the OSS leader are defined in the Internal Regulations of Mediterranean RFC. His tasks are set in the Directive 2001/14/EC and Regulation (EU) 913/2010.

Project Manager – Jose Antonio Grau Gregorio

According to the decision of the General Assembly of Mediterranean RFC one Project Manager joined the PMO September of 2024. Under the monitoring of the Managing Director, he is responsible for different projects concerning the corridor developments and more generally she supports the PMO staff. Among others he is responsible, under the supervision of the Managing Director, preparation and coordination of the reporting procedure for the Connecting Europe Facility funding.

Administrative Assistant – Pamela CHIARAPPA

According to the decision of the General Assembly of Mediterranean RFC one Administrative Assistant joined the PMO. Under the monitoring of the Managing director, she is responsible for the administrative management of the EEIG and she supports the PMO staff in all the operational and administrative issues.

Working Groups

The Working Groups were set up in 2013 and their tasks are described in the Internal Regulations of Mediterranean RFC EEIG, these working groups are composed of experts appointed by the Members of the EEIG. The staff of the Permanent Management Office coordinate them. They assist the PMO and the Coordination Group in their work.
Currently there are seven Working Groups:

Infrastructure WG

This Working Group is in charge of the following tasks:

- review and update the Investment Plan along the corridor
- identify the bottlenecks along the corridor
- follow, with the Infrastructure Advisor of the PMO, the Capacity Study and the TMS
- update the infrastructure parameters (lines and terminals) constituting the Mediterranean Corridor
- interoperability

- analyse the outcomes of the Transport Market Study in order to improve the quality of the corridor

Traffic Management WG (TM WG)/Train Performance Management WG (TPM WG)

The Infrastructure Advisor leads these Working Group. The WG is in charge of the following tasks:

- Harmonization of national approaches in order to set up corridor model for traffic management
- Harmonization of national approaches in order to set up corridor model for traffic performance management
- cooperate in drafting the CID
- define the Priority rules
- draft the performance management report
- propose the corridor objectives.

Capacity & TCR WG

It assists the C-OSS in the coordination of the path requests and in the construction of the PaPs (Pre-arranged Paths). Moreover, it is in charge of the following tasks:

- promote compatibility between the Performance Schemes along the corridor
- propose the corridor objectives
- cooperate in drafting the CID
- promote coordination of works along the corridor aiming to minimize traffic disruptions

Financial WG

The WG is in charge of the following tasks:

- prepare the budget
- analyse the balance sheet
- prepare the General Assembly members for the approval of the budget and the balance sheet

According to the future needs, the above-mentioned Working Groups may be modified or substituted by others. New Working Groups may also be set up when needed in order to deal with further issues that may arise.

3 Market Analysis Study

3.1 Background

Regulation (EU) 2024/1679 'Article 9 Measures for developing the freight corridor, point 3. defines that the management board shall carry out and periodically update a Transport Market Study relating to the observed and expected changes in the traffic on the freight corridor. In 2024 the version of 2020 has been updated.

Mediterranean RFC TMS UPDATE in 2024 results within the 2024 joint TMS update of the existing 11 RFCs belonging to the European Rail Network for competitive freight.

Over the past decade, RFCs elaborated first TMSs and, in most cases, TMS updates. However, these studies were carried out without a common approach or a shared methodological framework. To support the RFCs in achieving compliance with the above requirement in a coordinated and harmonised manner, the Management Boards of the 11 RFCs decided to execute a Joint TMS Update under the coordination of RailNetEurope (RNE). The main findings and results of the 2024 TMS Update for the RFC MED are summarised in the recent TMS update.

3.2 The complete Transport Market Study 2024

The complete TMS is available at: https://www.medrfc.eu/wp-content/uploads/2021/11/2024-transport-market-study.pdf

4 List of Measures

Since the corridor has already been implemented, the subchapters 4.1 – 4.6 are not applicable for updates. The state of play and further developments regarding concrete measures and procedures is included in Section 4 of the CID.

4.1 Coordination of Planned Temporary Capacity Restrictions

4.1.1 Background

Independent Temporary Capacity Restrictions Working Group (TCRs WG) was established to focus on the 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 MED taking into account the related RNE guidelines as well. Some specificities will remain in the RFC MED 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.

Additionally, the European Union recognised the need for common rules to enhance the competitiveness of the railways, thus, the revised Annex VII (recast in 2017) of the Directive 2012/34/EU obliges the IMs to involve known and potential applicants, main operators of service facilities, terminals and other IMs affected by a TCR already at an early stage.

The harmonised implementation of the legislation is also a clear business demand, therefore, the elaboration of the currently applicable "Guidelines for Coordination / Publication of Planned Temporary Capacity Restrictions for the European Railway Network" version 3.0 (known as TCR Guidelines) became essential. The document "Procedures for Temporary Capacity Restriction Management" (hereafter TCR Handbook, approved by the RNE General Assembly on 7 December 2021) defines how to handle each step of the TCR management process both to ensure smooth and reliable TCR planning, coordination and publishing according to the deadlines set in Annex VII of the Directive 2012/34/EU.

The Handbook has been designed also to cover RFC processes and thus replace all previous RNE/RFC guidelines covering this subject, such as "Guidelines for Coordination / Publication of Planned Temporary Capacity Restrictions for the European Railway Network" version 3.0.

So, the Handbook is considered to be a 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

The TCR WG is coordinated by C-OSS Leader, and it assists the C-OSS in the coordination of works. The TCR Coordinator facilitates and stimulates, when necessary, coordination of TCRs, together with the members by:

- promoting and coordinating of works along the corridor aiming at minimizing traffic disruptions
- enhancing the necessity for IMs to harmonise TCRs for customers
- steering the coordination process according the RNE Handbook
- ensuring the process of measure and quality evaluation of TCRs Coordination and Publication
- following the output of bilateral meetings taking place along the corridor
- developing 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
- supporting the development of a TCR coordination and planning process to improve rail freight traffic
- cooperating with C-OSS to improve the quality of train path allocation
- triggering additional harmonisation of TCRs, when necessary
- ensuring common publication of TCRs twice a year on Mediterranean website
- ensuring the link between RNE TCR group and all IMs of the corridor and especially in following the development of RNE TCR Tool

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

The TCR WG enforces to start bilateral or trilateral coordination in those cases, where this is appropriate by the RNE rules. Good coordination of TCR can positively influence the service level and quality on RFC MED. 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 Coordination and Publication of planned Temporary Capacity Restrictions

In line with Article 12 of the Regulation, the Management Board of the freight corridor shall coordinate and ensure in one place the publication of planned Temporary Capacity Restrictions (TCRs) that could impact the capacity on each Rail Freight Corridor. TCRs are necessary to keep the infrastructure and its equipment in operational condition and to allow changes to the infrastructure necessary to cover market needs. According to the current legal framework (see 4.4.2), in case of international traffic, these capacity restrictions have to be coordinated by IMs among neighbouring countries.

All information on the coordination of planned temporary capacity restrictions can be found in Section 4, Chapter 4.4 of the CID.

4.2 Corridor One Stop Shop

According to Article 13 of the Regulation, the GA of the Corridor has established a C-OSS. The tasks of the C-OSS are conducted in a non-discriminatory way, and it maintains confidentiality regarding applicants.

C-OSS Leader coordinates the C-OSS WG, and it assists the C-OSS in the coordination of the path requests and in the construction of the PaPs (Pre-arranged Paths). Moreover, it is in charge of the following tasks:

- Analysis of current traffics and possible developments
- Coordination of Pap offers before each publication (annual and Reserve Capacity)
- Analysis, definition and follow up of new products and projects along the Corridor (Short Term products, Timetable Redesign, feasibility studies...)
- Providing National figures enabling the assessment of the corridor activity in comparison with the whole traffic and contributing to KPI calculations

- Proposing corridor objectives regarding Corridor's products
- Review and Update Corridor Information Document Section 4

All information on the Corridor One Stop Shop can be found in Corridor Information Document Section 4, Chapter 4.2.

4.3 Capacity Allocation Principles

The decision on the allocation of PaPs and RC on the Rail Freight Corridor is taken by the C-OSS on behalf of the IMs/ABs concerned. As regards feeder and/or outflow paths, the allocation decision is made by the relevant IMs/ABs and communicated to the applicant by the C-OSS. Consistent path construction containing the feeder and/or outflow sections and the corridor-related path section has to be ensured.

All information on capacity allocation can be found in Section 4, Chapter 4.3 of the CID.

4.4 Applicants

In the context of a Rail Freight Corridor, an applicant means a railway undertaking or an international grouping of railway undertakings or other persons or legal entities, such as competent authorities under Regulation (EC) No. 1370/2007 and shippers, freight forwarders and combined transport operators, with a commercial interest in procuring infrastructure capacity for rail freight.

Applicants shall accept the general terms and conditions of the Rail Freight Corridor in PCS before placing their requests.

All information on applicants can be found in Section 4, Chapter 4.3.2 of the Corridor Information Document.

4.5 Traffic Management

In line with Article 16 of Regulation, the GA 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 and 2021, RFC MED Traffic Management could maintain the smooth train run on the whole Corridor among 6 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.

All information on traffic management can be found in Section 4, Chapter 4.5 of the CID.

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 4.5.3 of CID Book.

All information on traffic management in the event of disturbance can be found in Section 4, Chapter 4.5.3 of the CID, including the International Contingency Management.

4.6.1 International Contingency Management (ICM)

As the consequence of the Rastatt incident, DB and RFC RA 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).

In the ICM Handbook there is a detailed description about solutions to support the concerned dispatchers in case of big incidents. RNE, as the honest broker, will continuously update this document, which is the basic document for RFCs in Europe. All related information is registered in a digital archive, in CMS. The IM members of RFC MED TPM Coordination provided the data to set up the rerouting overview and operational scenario. The GA of RFC MED approves the document year after year, which is available on the corridor website. The Excel file consists of all the parameters of the available alternative routes if there is a disruption with a forecasted impact on the affected section of more than three calendar days or a disruption with high impact on international traffic.

The available rerouting overview is considered as the first step and it could be developed in the future. If the costumers need more information for such cases, the TPM Coordination is the responsible body on RFC MED to discuss the proposals and working out a solution to provide it. The efficiency of the rerouting overview rises since the existing plans of RUs are partly incorporated into the document, which is being continuously reviewed and updated. RFC MED takes this ICM as a living document and each year the TPM group revise the data and the content of the rerouting scenarios. These useful re-routing scenarios have already been applied in operation.

In May 2020, the revision of the ICM Handbook was started by collecting input. Six task forces were working intensively to prepare the new proposal, integrating the experiences gained during real interruptions and fine-tuning the ICM processes and procedures to facilitate their implementation. This significant step forward has been reached by applying the new rule for mandatory usage of the TIS Incident Management Tool which promises a more effective contingency management Europe wide. The primary focus of the project team was the handling of freight trains in case of contingencies; however, the handbook can also be applied for passenger trains. The process was optimised by making some parts optional to simplify implementation and make it more effective. Besides the mentioned changes, new capacity and path coordination procedures

were added and updated to better allocate capacity based on a consensual agreement and following the RNE Path Alteration process. The new allocation principles based on the RU's share during the last 30 days prior to interruption were prepared as the distribution-key of last resort. The IMs are not bound to apply these allocation principles if a better and acceptable result can be reached without them.

This Handbook complements the national incident management of the individual European infrastructure managers and the requirements of the OPE TSI (Commission Regulation 2019/773 on the technical specification for interoperability relating to the operation and traffic management subsystem of the rail system) and other regulations referring to incident management as defined in this document.

The revised ICM Handbook was approved by the General Assembly of RNE on 19 May 2021, effective from January 2022. The capacity allocation related procedures will be effective from timetable period 2024, as these procedures must be first published in the Network Statements.

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

RFC Mediterranean publishes its Annual Report on its website. The report is based on the RNE Guidelines on the Key Performance Indicators of the Rail Freight Corridors:

https://rne.eu/wp-content/uploads/Guidelines_KPIs_of_RFCs_V5.0.pdf

It provides recommendations for using a set of KPIs commonly applicable to all RFCs.

More information on KPIs and objectives can be found in chapter 5 of the Implementation Plan.

5 Objectives and performance of the corridor

5.1 Objectives of the Corridor

The objectives of Mediterranean RFC are in line with the Sustainable and Smart Mobility Strategy of the European Commission. Free movement of goods across the (internal) borders is a fundamental and basic aim of a Single European Rail Market, as a part of a Single European Transport Area. Improving connectivity and access to the internal market for all regions of the Med RFC catchment area is a pivotal intention based on an efficient and interconnected multimodal transport system, for freight, together with supporting the idea to increase the rail freight traffic by 50% by 2030.

For Boosting rail freight, Mediterranean RFC will:
- strengthen the cross-border coordination among the stakeholders
- perform a better overall management of the rail freight corridor for the benefit of the customers
- support to bridge the missing links to multimodal terminals and establish an end-to-end approach

Selected objectives have been defined, expressed as KPIs with target values and deadlines.

Capacity Objectives

- Annual growth of 5% of the Volume of Offered Capacity
- Annual growth of 5% of the Volume of Requested Capacity
- Maintain a stable ratio of the Capacity Allocated by the C-OSS and the Total Allocated Capacity, as number of trains per border (7 BCPs)

Punctuality Objective

- Achieve 50% punctuality at destination (RFC Exit) with max. delay ≤ 30 minutes, by December 2026

Additionally, in Article 19 Operational priorities Regulation (EU) 2024/1679 defined to ensure by 31 December 2030 on the European Transport Corridors:
- 25 minutes of dwelling time, when crossing an internal border
- 75% punctuality at final destination with max. delay ≤ 30 minutes, when crossing an internal border
- On the freight transport lines, of the core network
  - In case of double track lines, at least two train paths per hour and direction can be allocated to freight trains with a length of at least 740 m (including the locomotive or locomotives)
  - on single track lines, at least one train path per two hours and direction can be allocated to freight trains with a length of at least 740 m (including the locomotive or locomotives)

5.2 Performance of the corridor

The performance of the corridor is monitored with different KPIs, which are harmonised (commonly applicable) with all Rail Freight Corridors, based on the RNE Guidelines on the Key Performance Indicators of the Rail Freight Corridors:
https://rne.eu/wp-content/uploads/RFC6-April-2024.pdf

The KPIs are monitoring different aspects of RFC performance:

- Capacity Management KPIs
- Operations KPIs
- Market Development KPIs

Capacity management KPIs monitor the performance of the Mediterranean RFC in constructing, allocating and selling the capacity of the Corridor, in terms of:

- Volume of offered capacity (PaPs)
- Volume of requested capacity (PaPs)
- Volume of requests (PaPs)
- Number of conflicts (PaPs)
- Volume of pre-booked capacity (PaPs)
- Volume of offered capacity (RC)
- Volume of requested capacity (RC)
- Volume of requests (RC)
- Average planned speed of PaPs

Operations KPIs monitor the performance of the traffic running along Mediterranean RFC in terms of punctuality and volume of traffic:

- Punctuality at origin
- Punctuality at destination
- Overall number of trains on the RFC

Market development KPIs monitor the capability of the Mediterranean RFC in meeting the market demands in terms of:

- Overall number of trains per border
- Ratio of the capacity allocated by the C-OSS and the total allocated Capacity

Publication of the results
The results of the performance monitoring (KPIs) together with the Performance Report (under Article 19.2 of the Freight Regulation) are published once a year:

- on the web site of Mediterranean RFC, at: https://www.medrfc.eu/wp-content/uploads/2024/06/annual_report_mrfc_2023.pdf
- Transparent, harmonised sharing of KPIs is one of the requirements of the sector towards the RFCs under Priority 9 of the Rotterdam Sector Statement. Therefore, the RFCs also make available on RNE's website a joint and harmonised overview of the figures of their commonly applicable KPIs. Under the below link, the figures are summarised both per RFC showing the evolution of their performance over the years and per year displaying an overview of the commonly applicable KPIs of all RFCs for the year concerned at: https://rne.eu/wp-content/uploads/RFC6-April-2024.pdf

The harmonised KPIs are also available in Annex 2.

- Besides, the RFCs publish KPIs figures on an annual basis via the Customer Information Platform (CIP) at: https://cip.rne.eu/apex/f?p=212:65::::::

Train Performance Management (TPM)

The TPM activity is coordinated by a Train Performance Management Working Group set up in order to establish a permanent body for the coordination and exchange of TPM issues among RUs, Terminals and IMs on Med RFC. Detailed information about this activity can be found in Section 4, Chapter 4.6 of Corridor Information Document (CID).

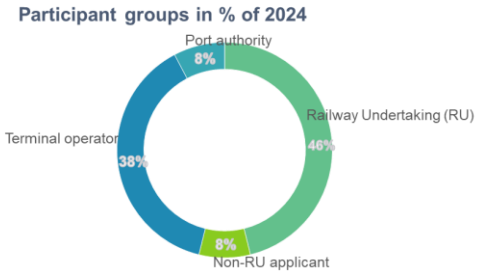
5.3 User Satisfaction Survey

In line with art 19.3 of the Regulation 913/2010 a User Satisfaction Survey shall be conducted annually to assess the satisfaction of the users with the Rail Freight Corridor services and products. The results of the survey shall be published once a year. The Rail Freight Corridor Network, in cooperation with RailNetEurope (RNE) developed in 2020 a new common survey using an online platform, which makes it easier for the users to give their feedback.

In 2024, all the Rail Freight Corridors operating in Europe (11) participated in the survey, so that the users operating on different corridors, are addressed by a single common questionnaire, avoiding survey duplication, and achieving comparable results.

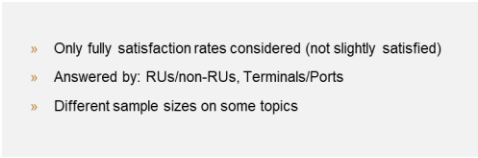
For the USS 2024, the Mediterranean RFC invited 23 users, either applicants of Rail freight corridor capacity or Terminals/Port authorities interested by the corridor activities. Overall, 13 evaluations have been received, the same, as previous year. The response rate for 2024 is 57%.

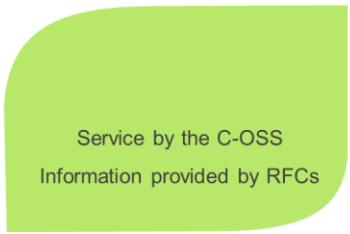
Participants' groups for 2024:

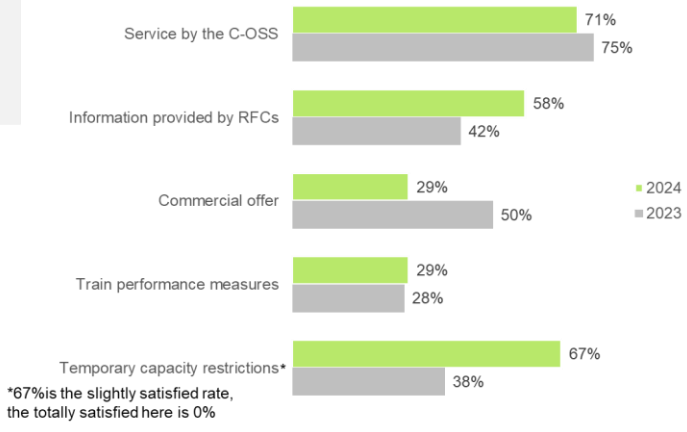


Overall **Customer Satisfaction** 2024:

Most satisfying activities 2024:







The results are normally commented during Advisory Group meetings, and they are publicly available on different platforms:

- website at: https://www.medrfc.eu/wp-content/uploads/2024/11/rfc_uss_2024_report-v2-medrfc.pdf
- CIP at: https://cip.rne.eu/apex/download_my_file?in_document_id=13840

6 Investment Plan

This Investment Plan is an updated version of the genuine one, agreed in early 2013. Now, as Mediterranean RFC was extended to Croatia (effective 10th November 2016), it includes that of HŽI.
The description of the plan is split by nature of projects.

Nature of the projects:

- Renewal of tracks
- The renewal of signalling system
- The renewal of tunnel, bridge etc.
- The electrification
- The creation of siding, passing tracks, extra tracks
- The creation of a new structure (line, bridge, tunnel, leapfrog)
- Adjustment of the gauge
- The enhancement in signalling (especially ERTMS that will constitute a specific issue)
- The track enhancement
- The level crossings
- The noise reduction
- Other projects

This nature of projects has been split according to the following categories: renewal, enhancement and development. Renewal of projects includes the renewal of tracks, signalling system, tunnels, bridges and other elements. Enhancement investments consider projects related with the adjustment of gauges, the track enhancement, noise reduction, level crossings etc. Finally, in the development projects are included all new lines projected, electrification, creation of sidings, passing tracks or new structures.

Benefits of the projects

Each project may have one or several benefits amongst these main benefits:

- Bottleneck relief in order to make the infrastructure more available
- Safety/security
- Environment in order to comply with national laws but also to make the projects more acceptable
- Higher speed to increase competitiveness, especially regarding the road transportation
- Interoperability to also increase competitiveness
- Punctuality improvement, as provided by the surveys made for the TMS. It is one of the key points
- Maintenance of performance: especially the renewal of tracks is essential to maintain the performance. If not, the performance will become worst

6.1 Capacity Management Plan

The Capacity Management Plan includes the management of capacity for freight trains, considering improvements of technical parameters, axle load, permitted train lengths, etc.

Capacity Management in the overlapping sections

The Capacity management plan has been drafted taking into account the **overlapping sections** as identified in chapter 2.2. of this document. The Corridor members checked the coherence of the information included in capacity plan with the same information provided for other corridors sharing the same overlapping sections.

- (OS-Atlantic ETC) Algeciras – Madrid
- (OS-North Sea — Rhine — Mediterranean ETC) Marseille – Lyon
- (OS-Baltic Sea — Adriatic Sea ETC) Trieste/Koper – Ljubljana – Pragersko – Hodoš – Zalaszentiván – Budapest
- (OS-Baltic Sea — Adriatic Sea ETC) Rijeka – Zagreb – Gyékényes – Zalaszentiván – Budapest
- (OS-Western Balkans — Eastern Mediterranean ETC) Trieste/Koper – Ljubljana – Zidani Most – Zagreb

Capacity Management Plan 2030


TRAIN LENGTH 2030:
750 m
650 m
625 m
600 m
597 m
575 m
570 m
525 m
550 m
500 m
450 m
360 m
350 m
N/A
RFC 1 PRINCIPAL ROUTE
FRANCE
SPAIN
SLOVENIA
HUNGARY
CROATIA
ITALY
Paris
Lyon
Marseille
Barcelona
Madrid
Zaragoza
Valencia
Milano
Torino
Venezia
Trieste
Ljubljana
Zagreb
Budapest
Roma
MEDITERRANEAN
RAIL FREIGHT CORRIDOR
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AXLE LOAD 2030:
22,5 T/axle
21,0 T/axle
20,0 T/axle
N/A
RFC 1 PRINCIPAL ROUTE
FRANCE
SPAIN
SLOVENIA
HUNGARY
CROATIA
ITALY
Paris
Lyon
Marseille
Barcelona
Madrid
Zaragoza
Valencia
Milano
Torino
Venezia
Trieste
Ljubljana
Zagreb
Budapest
Roma
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6.2 List of Projects

The list of projects includes all Projects foreseen for development of infrastructure along Mediterranean RFC together with its financial requirements and resources.

List of projects in the overlapping sections

The list of projects has been drafted taking into account the **overlapping sections** (where it is relevant) as identified in chapter 2.2. of this document. The Corridor members checked the coherence of the information included in the list of projects with the same information provided for other corridors sharing the same overlapping sections. The projects in the Overlapping sections are identified with this symbol under the country's symbol: OS-N (Number of Corridor having the section in common).

Spain

List of projects											
N°	**Country**	**Region (if required)**	**Railway section**	**Nature of Projects**		**Benefits for RFC 6**	**Start date of the works**	**End date of the works**	**Actual step (% Completion)**	**Estimation of the costs in M€**	
1	Spain		Tarragona - Castellon	UIC gauge acces to Castellón Port on Mediterranean Corridor	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2020	December 2027	(30%)	250 M€	
2	Spain		Castellon - Valencia	New line, double track UIC gauge in Mediterranean Corridor	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	APROX 2029	APROX Beyond 2032	Planned	1.170,00	Only for passengers
3	Spain		Castellon - Valencia	Valencia Node railway connection. Pass-through station, north access by-pass tunnel and completion of the south access tunnel	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2023 for South Access	APROX 2028 for South Access Beyond 2032 for the other projects	Planned. Works on going only new south access tunnel	2.694,00	A new railway station is included
4	Spain		Almería - Huéneja - Dólar Almería - Granada	Almeria connection upgrade to UIC standard gauge	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	APROX 2027	Beyond 2031	Bidding for design phase	949 M€	
5	Spain		La Encina - Alicante	La Encina - Alicante: Adaptation to TEN-T requirements 750 m) plus standard gauge	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	12/2024	2028	Planned (Finished design phase) Bidding for works	182	
6	Spain		Murcia Cargas - Almería	Murcia Cargas - Almería: New line compliant with TEN-T requirements	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	2027 at the end of Lorca tunnel & station	68% (only infrastructure works)	3,800	

N°	Country	Region (if required)	Railway section	Nature of Projects		Benefits for RFC 6	Start date of the works	End date of the works	Actual step (% Completion)	Estimation of the costs in M€	
7	Spain		Valencia - La Encina Node	Valencia - La Encina Node: Adaptation to TEN-T requirements (750 m) plus standard gauge	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	2026 with ERTMS nº2	88%	1,550	Total cost, infra included
8	Spain		Bif Calafat -Tarragona	Compound by two projects: Bif Calafat - Vilaseca Node (new line compliant with TEN-T requirements) Vilaseca Node – Tarragona (implementation of third Rail on existing line to allow UIC gauge)	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	2026 with ASFA	Bif Calafat - Vilaseca Node (already in service with Iberian gauge) Vilaseca Node – Tarragona (third Rail works still ongoing)	659,00	Bif Calafat – Tarragona will shift to UIC according to the comprehensive UIC implementation between Castellbisbal and Castellón (actions 9, 10 & 11)
9	Spain		Castellbisbal- Vilaseca	Implementation of UIC gauge on Mediterranean Corridor. Section Castellbisbal- Nudo Vilaseca	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	11/2013	2026 (only with ASFA, with ERTMS nº2 will be further)	82% (ERTMS not included)	620	ERTMS works are not included
10	Spain		Castellón – Sagunt - Valencia (Ford factory, Ports and Fuente San Luis terminal)	Castellón - Valencia - Almussafes: Adaptation to TEN-T requirements (750 m) plus standard gauge	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	12/2025 (only with ASFA, with ERTMS nº2 will be further)	85%	448	ERTMS works are not included
11	Spain		Bif Calafat - Castellón	Calafat node - Castellón: Adaptation to TEN-T requirements (750 m) plus standard gauge	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	2027	20%	350	These works mean any more Iberian gauge in this stretch. So, they must be strongly coordinated with the ones between Castellón and Valencia.

N°	Country	Region (if required)	Railway section	Nature of Projects		Benefits for RFC 6	Start date of the works	End date of the works	Actual step (% Completion)	Estimation of the costs in M€	
12	Spain		El Reguerón - Cartagena/Escombreras	El Reguerón - Cartagena/Escombreras Adaptation to TEN-T requirements (750 m, electrification) plus standard gauge	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	Beyond 2030	5%	540	
13	Spain		Madrid - Zaragoza - Barcelona - Portbou	Madrid - Zaragoza - Barcelona - Portbou (IB): Enlargement of train length to 750 m and upgrade of the line	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	06/2024	12/2030	0%	50,00	Works on going since a few months
14	Spain		Vicálvaro - San Fernando	Vicálvaro - San Fernando. Creation of sidings and extra tracks	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	12/2030	25%	40,00	
15	Spain		La Llagosta (Barcelona)	Implementation of intermodality and UIC gauge in La Llagosta Terminal and connection to the corridor.	Multimodal	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	12/2022	October 2025 in service (phase 1)	35%	86	
16	Spain		Murcia El Carmen - Murcia Cargas	Murcia El Carmen - Murcia Cargas: Adaptation to TEN-T requirements (electrification) plus standard gauge	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	December 2025	75%	158,80	It belongs to Nonduermas Sangonera section
17	Spain		Barcelona Can Tunis Terminal	Developing and upgrading freight rail-road terminal in Barcelona Can Tunis Terminal	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2/2024	2025	1st phase completed. Pending on 2nd to lay out UIC gauge on six tracks	18	

N°	Country	Region (if required)	Railway section	Nature of Projects		Benefits for RFC 6	Start date of the works	End date of the works	Actual step (% Completion)	Estimation of the costs in M€	
17bis	Spain		Barcelona Port	New UIC access connecting directly Port to the main line	Rail/Multimodal	Commercial Facility at Irún in tender process. Together with dual gauge axle by wagon keepers, is going to lead forward the commercial put on march of the service.	6/2023 (Basic Design approved)	2030 (to be confirmed in the upcoming design phase)		800 (including road access)	04/2024 detailed Design awarded
18	Spain		ERTMS deployment on sections of the Mediterranean RFC in Spain	ERTMS deployment on sections of the Mediterranean corridor in Spain	Rail ERTMS	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	Phase 1 December 2021 Phase 2 December 2030	25%	84.17 M€. 350.08 M€.	
19	Spain		Alicante - Port of Alicante branch (San Gabriel) - San Isidro:	Alicante - Port of Alicante branch (San Gabriel) - San Isidro: Adaptation to TEN-T requirements (750 m, electrification) plus standard gauge	Rail	Bottleneck relief Interoperability Capacity improvement Punctuality improvement	Not yet started	2031 (not included Torrellano bypass)	0%	566,00	It is considered as Torrellano new branch
20	Spain (OS-ATL)		Madrid-Alcázar-Algeciras	Conventional rail line Madrid-Alcázar-Córdoba-Algeciras. Implementation of ERTMS	Rail ERTMS	Bottleneck relief Interoperability Capacity improvement Punctuality improvement					Plans to be confirmed by NIP publication by ES Ministry
21	Spain (OS-ATL)		Madrid-Alcázar-Algeciras	Algeciras-Bobadilla. Conventional rail line. Interoperable side-tracks to allow train length 750m		Bottleneck relief Interoperability Capacity improvement Punctuality improvement	05/2015	2026	40%		
22	Spain (OS-ATL)		Bobadilla -Algeciras	Bobadilla – Algeciras. Conventional rail line. Electrification 25KV AC		Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2024	To be confirmed	Planned		It is in design and environmental impact administrative process.

N°	Country	Region (if required)	Railway section	Nature of Projects		Benefits for RFC 6	Start date of the works	End date of the works	Actual step (% Completion)	Estimation of the costs in M€	
23	Spain (OS-ATL)		Algeciras – San Roque	Upgrading of the existing Bahia de Algeciras Port - San Roque RRT railway line (Implementation of Double track)		Bottleneck relief Interoperability Capacity improvement Punctuality improvement	01/2015	12/2030	Planned		
24	Spain (OS-ATL)		Innovative technology for Automatic Standard/Iberian gauge changing system on tracks and freight wagons	Automatic Standard/Iberian gauge changing system on tracks		Bottleneck relief Interoperability Capacity improvement Punctuality improvement	2024	To be confirmed	Commercial Facility at Irún awarded. Together with dual gauge axle by wagon keepers, is going to lead forward the commercial put on March of the service.	4.63	Pilot facility operating already at Córdoba.

France

The project list is available at: https://www.sncf-reseau.com/fr/les-principaux-projets-et-chantiers

Italy

List of projects														
N°	**Country**	**Region (if required)**	**Railway section**	**Nature of Projects**	**Benefits for RFC 6**	**Start date of the works**	**End date of the works**	**Actual step**	**Estimation of the costs in M€**	**Financial Status**	**Funder 2**	**Funder 3**	**Funder 4**	**Comments**
1	ITALY		Vicenza - Padova (HS)	Infrastructure and technological development	Capacity		2031-12	Project Phase	1.500,00 €	Planned	State			New HS section (26 km), the intersection with the existing line will be realised through two interconnections in Vicenza and Padova. Resolution of physical bottleneck
2	ITALY		Verona QE RRT	Infrastructure	Train length		2027-12	Preliminary Study	154,00 €	Study / To be decided	State	CEF		Construction of a new terminal with 750 m long tracks
3	ITALY		Milano Smistamento RRT	Infrastructure and signalling	Capacity		2025 -12	Work Phase	117,00 €	Secured	State			Terminal upgrading, including: signalling, demolition, and new tracks to optimize the connection with the new "Alptransit" intermodal terminal. The new terminal will be built in the Milano Smistamento area. The project aims to increase the terminal's capabilities and handle trains up to 740 m in length.
4	ITALY		Venice Node	Infrastructure	Capacity		2031 -12	Project Phase	180,00 €	Planned	State	Region		Upgrade of the "Linea dei Bivi" in order to support freight traffic flows. Passing through Venice node and resolve physical interferences and bottlenecks

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Financial Status	Funder 2	Funder 3	Funder 4	Comments
5	ITALY		Torino-Alessandria	Infrastructure	Train Length (Second Phase)		2031-12	Project Phase	28,00 €	Planned	State			Asti station layout upgrading to allow circulation of up to 740 m long trains
6	ITALY		Brescia freight station	Infrastructure	Capacity/train length		2027-12	Work Phase	82,00 €	Secured	State			Upgrading of the Freight Station of Brescia, modification of the layout of the station allowing the circulation of trains with length of 740 m (First Phase 31/12/2025)
7	ITALY		Verona Porta Nuova	Infrastructure and technological development	Capacity		2027-12	Work Phase	137,00 €	Secured	State			Technological and infrastructural upgrading of the Verona Porta Nuova Station. The planned interventions in Verona Porta Nuova station, both infrastructural and technological, allow an increase in the overall capacity of the Node, intermodal integration and an improvement of the railway circulation's management of railway circulation. The project is necessary to the new high speed line Brescia – Verona.

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Financial Status	Funder 2	Funder 3	Funder 4	Comments
8	ITALY		Cervignano RRT	Infrastructure	Capacity/Train Lenght		2023-12	Work Phase	6,35 €	Secured	State			Improvement of the railway connections to the Cervignano Core RRT (First Phase)
9	ITALY		Verona - Vicenza Junction (HS)	Infrastructure and technological development	Capacity		2030-12	Work Phase	3.810,00 €	Planned	State			New HS line between Verona and Vicenza Junction. Verona – Vicenza Junction: over 2026 (secured). Verona Est phase: over 2028
10	ITALY		NOVARA - MILANO: MILANO - BRESCIA- VERONA -VICENZA - PADOVA - VENEZIA; VICENZA - TREVISO - PORTOGURARO - VILLA OPICINA/TRIESTE	ETCS	Interoperability		2025-12	Work Phase	116,00 €	Secured	State	CEF		ERTMS implementation Mediterranean Corridor - first phase. NOVARA - MILANO: MILANO - BRESCIA- VERONA - VICENZA - PADOVA - VENEZIA; VICENZA - TREVISO - PORTOGURARO - VILLA OPICINA/TRIESTE
11	ITALY		Brescia - Verona new line	Infrastructure and technological development	Capacity		2026-12	Work Phase	3.947,00 €	Planned	State			New HS line between Brescia and Verona
12	ITALY		Torino Node. New line Turin-Lyon: Turin's Belt Line	Infrastructure	Capacity/Train Lenght		2033-10	Project Phase	1.700,15 €	Planned	State	CEF		Turin's Belt line and connection to Lyon-Torino line priority works section Avigliana-Orbassano and Orbassano rail yard (1^ phase). Upgrade to 740 m train length and gauge P/C 80 Gauge for Avigliana - Orbassano

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Financial Status	Funder 2	Funder 3	Funder 4	Comments
13	ITALY		Padova Node	Infrastructure	Capacity		2035-12	Project Phase	783,00 €	Planned	State			New Layout of Padova Node
14	ITALY		Attraversamento Vicenza (HS)	Infrastructure and technological development	Capacity		2032-12	Work Phase	2.180,00 €	Secured	State			New HS section (26 km), the intersection with the existing line will be realised through two interconnections in Vicenza and Padova. Resolution of physical bottleneck
15	ITALY		Bussoleno - Avigliana technological upgrade	Infrastructure and technological enhancement	Capacity/train length/Gauge Upgrading/Interoperability		2030-12	Work Phase	241,00 €	Planned	State	CEF		Infrastructural upgrading of th existing conventional line (Bussoleno-Avigliana)
16	ITALY		Novara node	Infrastructure and technological enhancement	Capacity/train length		2028-12	Project Phase	190,50 €	Planned	State			Phase 1a) Railroad Terminal Upgrading including a new terminal connection with the railway line of the Novara node to guarantee no interchange in the Novara C.le station; upgrade of the intermodal terminal for "Rolling Highway" (Ro-La).
17	ITALY		Novara node	Infrastructure and technological enhancement	Capacity/train length		2026-12	Project Phase	13,50 €	Secured	State			Upgrading of 3 tracks for train length of 740 m
18	ITALY		Torino - Alessandria	Infrastructure	Gauge Upgrading		2028-12	Project Phase	62,00 €	Planned	State			Torino - Alessandria loading gauge upgrade to P/C 80

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Financial Status	Funder 2	Funder 3	Funder 4	Comments
19	ITALY		Torino-Padova (conventional line)	Infrastructure / technological development	Capacity/train length		2025-06	Work Phase	901,00 €	Planned	State	Region	CEF	Technologic and infrastructural upgrading of the conventional line and some stations between Turin and Padova. The planned interventions are necessary to improve the overall quality of the service. The new electronic interlocking and control allow a better performance related to the circulation management.
20	ITALY		Venice-Trieste (conventional line)	Infrastructure	Capacity		2031-06	Project Phase	1.800,00 €	Planned	State	Region	CEF	Upgrading of Venezia-Trieste – Phase 1 and 2 consists of a technological upgrading and elimination of the actual speed limitations due to the axial load. Phases 3 and 4 include two new alignments between Venezia Mestre and Ronchi and Ronchi and Autisina. The existing level crossing will be removed in Phase 3. Phase 1 and 2 - Scenario from 2025. Phase 3 - Scenario 2030 (variant between Mestre and Ronchi). Phase 4 - Scenario 2031 (Variant Ronchi-Aurisina)

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Financial Status	Funder 2	Funder 3	Funder 4	Comments
21	ITALY		ALL CORRIDOR SECTIONS	Infrastructure	Train length		2030-12	Work Phase	52,90 €	Planned	State			Allowing circulation without special permission of trains up to 740 m long on the CNC lines (Lines: Torino - Trieste/Villa Opicina and alternative routes). Torino - Milano Verona - Padova - Venezia Venezia - Trieste Bologna - Padova Milano - Piacenza - Bologna Genova - Ventimiglia The project also includes the upgrading to 750 m-long tracks of the Bologna Interporto transfer station.
22	ITALY		Torino-Modane, Torino-Novara; Milano-Piacenza;Monfalcone-Trieste;Padova-Venezia (project phase)	ETCS	Interoperability		2030-12	Project Phase	237,00 €	Planned	State			Technological Upgrade prepatory for ERTMS on some Mediterranean Corridor Sections except for those sections where are already projects for infrastructural and technological upgrading: Torino - Modane; Torino - Novara; Milano - Piacenza; Monfalcone - Trieste; Padova - Venezia

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Financial Status	Funder 2	Funder 3	Funder 4	Comments
23	ITALY		Torino - Alessandria	Infrastructure and technological enhancement	Increasing Speed and Train Length (First Phase)		2027-12	Work Phase	175,00 €	Planned	State			The project aims to increase speed between Torino and Alessandria (Genova) with Technologic upgrade + Command system control upgrading and control + upgrading to 740 m. for some stations (first phase)
24	ITALY		Torino node	Infrastructure	Capacity		2026-12	Work Phase	100,00 €	Planned	State			Technological upgrading of Torino Node
25	ITALY		Torino node	Infrastructure	Capacity		2028-12	Work Phase	116,00 €	Secured	State			New rail connection between Torino Porta Nuova and Torino Porta Susa.
26	ITALY		Torino node	Infrastructure	Capacity		2026-12	Project Phase	50,00 €	Planned	State			Preliminary upgrading works of the Torino Orbassano terminal and layout changes in Torino Lingotto
27	ITALY		Trieste-Divača	Infrastructure and technological enhancement	Capacity		2026-12	Work Phase	70,11 €	Planned	State	CEF		Upgrading of the railway line Trieste-Divača
28	ITALY		Venezia Port	Infrastructure and technological enhancement	Capacity		2030-12	Project Phase	21,70 €	Planned	State			The project includes the upgrading of the station of Venezia Marghera Scalo with the construction of new tracks for running trains with length of 740 m

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Financial Status	Funder 2	Funder 3	Funder 4	Comments
29	ITALY		TORINO - MODANE; NODO DI TORINO; TORINO - NOVARA; BOLOGNA - PADOVA; NODO DI BOLOGNA; BOLOGNA - RAVENNA; VENEZIA – PORTOGRUARO	ETCS	Interoperability		2030-12	Project Phase	137,00 €	Planned	State			ERTMS IMPLEMENTATION-MEDITERRANEAN CORRIDOR - COMPLETION PHASE - TORINO - MODANE; NODO DI TORINO; TORINO - NOVARA; BOLOGNA - PADOVA; NODO DI BOLOGNA; BOLOGNA - RAVENNA; VENEZIA – PORTOGRUARO

Slovenia

List of projects													
N°	**Country**	**Region (if required)**	**Railway section**	**Nature of Projects**	**Benefits for RFC 6**	**Start date of the works**	**End date of the works**	**Actual step**	**Estimation of the costs in M€**	**Funder 1**	**Funder 2**	**Funder 3**	**Funder 4**	**Comments**
1	SLOVENIA (OS-BA)		Ljubljana - Divača	Modernisation, upgrade of railway infrastructure (more energy for traction, signalling, longer station tracks, required speed). to meet the required TEN-T standards regarding interoperability.	Capacity increase & upgrade	2020	2030	in process	500					
2	SLOVENIA (OS-BA)		Divača - Sežana	Upgrading of existing structure, signalling safety devices (Automatic Block Signalling) and catenary system.	Capacity increase & upgrade	2021	2027	Not yet started	110					
3	SLOVENIA (OS-BA)		Divača – Koper	Construction of the second track Divača – Koper. An additional track on other route (shorter track) but not parallel, creation of new structure (line, tunnel, bridge, leapfrog) - 2TDK	Capacity increase	2017	2026	in process	1,200					
4	SLOVENIA (OS-BA) (OS-AWB)		Zidani Most - Ljubljana	Modernisation, upgrade of railway infrastructure, Signalling, longer station tracks,	Capacity increase & upgrade	2019	2027	In process	230					

N°	Country	Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder 1	Funder 2	Funder 3	Funder 4	Comments
5	SLOVENIA (OS-AWB)		Dobova – Zidani Most	Modernisation, upgrade of railway infrastructure, Signalling, longer station tracks,	Capacity increase & upgrade	2019	2027	In process	210					
6	SLOVENIA (OS-BA) (OS-AWB)		Ljubljana	Bypass route around Ljubljana	Bottleneck removal	2022	2050	Not yet started	??					
7	SLOVENIA (OS-BA) (OS-AWB)		Ljubljana	Modernisation, upgrade of railway station Ljubljana Lack of capacity, longer station tracks, signalling… Emonika	Capacity increase & upgrade	2018	2026	In process	200					
8	SLOVENIA (OS-BA) (OS-AWB)		Zidani Most-Ljubljana (up to and including station Laze)	Introduction of traffic remote control in RS (first phase)	Upgrading SV	2021	2025	design phase	137					

Croatia

List of projects														
N°	**Country**	**Region (if required)**	**Railway section**	**Nature of Projects**	**Benefits for RFC 6**	**Start date of the works**	**End date of the works**	**Actual step**	**Estimation of the costs in M€**	**Funder 1**	**Funder 2**	**Funder 3**	**Funder 4**	**Comments**
1	CROATIA (OS-BA)		Dugo Selo – Križevci	Upgrade of existing and construction of second track	Bottleneck relief	2016	2026	Works in progress	198	EU	State			
2	CROATIA (OS-BA)		Križevci – Koprivnica – State Border	Upgrade of existing and Construction of second track	Bottleneck relief	2020	2026	Works in progress	321	EU	State	EIB		
3	CROATIA (OS-BA) (OS-AWB)		Zagreb ZK – Zagreb GK	Reconstruction, renewal of tracks	Bottleneck relief	2023	2025	Works in progress	27	EU	State			
4	CROATIA (OS-BA)		Hrvatski Leskovac – Karlovac	Construction of second track	Bottleneck relief	2022	2027	Works in progress	315	EU	State			

Hungary

List of projects														
N°	**Country**	**Region (if required)**	**Railway section**	**Nature of Projects**	**Benefits for RFC 6**	**Start date of the works**	**End date of the works**	**Actual step**	**Estimation of the costs in M€**	**Funder 1**	**Funder 2**	**Funder 3**	**Funder 4**	**Comments**
1	HUNGARY (OS-BA)		Zalaszentiván–Nagykanizsa	Reconstruction to TEN-T parameters Electrification	Interoperability Bottleneck relief	2027	2030	Preparation	10	EU	State			
2	HUNGARY (OS-BA) (OS-RD)		Budapest-Kelenföld - Ferencváros	3rd / partial 4th track	Capacity increase, Bottleneck relief	2024	2028	Construction	1000	EU	State			
3	HUNGARY (OS-BA)		Székesfehérvár - Boba	Interlocking, CTC, superstructure replacement	Bottleneck relief, 225kN axle load	2025	2028	Preparation	500	EIB	State			
4	HUNGARY		Tuzsér - Záhony Gr. - Chop (UA)	Transshipment capacity upgrade, renewal of standard and broad-gauge tracks	Increased transshipment capacity, reducing dwelling times	2025	2029	Preparation	20	EU	State			

6.3 Deployment Plan

The European Rail Traffic Management System (ERTMS) is a single European signalling system that ensures interoperability of the national railway systems, reducing the purchasing and maintenance costs of the signalling systems as well as increasing the speed of trains, the capacity of infrastructure and the level of safety in rail transport.

ERTMS comprises of the European Train Control System (ETCS), i.e., a cab-signalling system that incorporates automatic train protection, the Global System for Mobile communications for Railways (GSM-R) and operating rules.

Technical specifications for ETCS and GSM-R are published in the Control Command and Signalling (CCS) Technical Specification for Interoperability (TSI).

GSM-R provides voice communication for train drivers and signallers and provides data communication for ETCS. ERTMS and GSM-R rules are published in the Operation and Traffic Management TSI (OPE TSI).

The deployment plan related projects include all ERTMS Projects foreseen for development of infrastructure along Mediterranean Rail Freight Corridor.

Deployment plan related projects in the overlapping sections

The deployment plan related projects have been drafted taking into account the **overlapping sections** as identified in Chapter 2.2. of this document. The Corridor members checked the coherence of the information included in the list of projects with the same information provided for other corridors sharing the same overlapping sections.

ERTMS strategy along the corridor

Mediterranean RFC already complies with the interoperability criteria defined in Directive 2008/57/EC as far as loading gauge, axle load, train speed and train length are concerned. To comply with the control command technical specifications for interoperability, Mediterranean RFC is currently deploying ETCS (European Train Control System) on its lines.

ETCS strategy along the corridor

As an essential element of the strategy, the implementation of ETCS on Mediterranean RFC routes is one of the fundamental goals which led to the creation of the ERTMS Corridors, including the former Corridor D which has subsequently been renamed Mediterranean RFC. The creation of ERTMS corridors was itself inspired by the obligations set by the TSI CCS (Control Command System). This European train control-command system is designed to eventually replace national legacy systems, imposing specific equipment on engines running on several networks.

The ETCS specifications are drawn up under the aegis of the European Railway Agency (ERA), in collaboration with representatives of the railway sector such as EIM, CER and UNIFE. One of the main problems is building a system capable of adapting to networks whose braking and signalling philosophies and operating rules have been developed on national bases which are sometimes very different from one another.

Following a period of stabilization of the specifications, version 2.3.0d was made official and, until end of 2012, was the only version that could be implemented from both infrastructure / track and rolling stock perspectives.

At a technical level, ETCS level 1 uses a specific transmission mode, Eurobalises installed on tracks, to send information from track to on-board, while level 2 uses the GSM-R to exchange information bi-directionally between track and on-board. So far, level 1 has typically been superimposed on traditional national lateral signals, while level 2 was used for new lines.

Equipping the Corridor with ETCS depends on national projects incorporated into national ETCS deployment strategies. These projects did not start at the same time and each project has its own planning. The ETCS deployment realized through these national projects is not limited to corridor sections. Once ETCS is installed, the deactivation of national legacy systems has to be decided on a country per country basis.

- The LFP section is equipped only with ETCS. Trains using this infrastructure must be equipped with ETCS
- In France, the national KVB legacy system will be decommissioned when the commissioning of ETCS level 2 is done on a section. France chose a "dual on board" strategy and the railway undertakings will have to equip their rolling stock with ETCS or class B system depending on the ground equipment
- In Slovenia, the mandatory use of ETCS on the Corridor is expected to be enforced 10 years after its installation in-track
- In Croatia, the project started in 2013, the Study of ERTMS implementation completed and HŽI plans to apply for the 3rd CEF Call Project of implementation of GSM-R on the whole Mediterranean corridor (FS, CBA, design and build). HŽI is waiting the approval from the Ministry. The plan for the implementation of 2023
- In Hungary, it is expected that use of ETCS will be made compulsory on the corridor lines. No date has been set yet

ERTMS deployment plans

The following deployment plans could be subject to changes and all information about planning and financing are without prejudice of each national deployment plan and European decision making.

The ERTMS deployment plan on Spanish part of Mediterranean Corridor

Mixed Traffic Line (Barcelona-Figueres)

ERTMS Level 1.

- Section Figueres Vilafant – Límite LFP: Put in service in December 2010.
- Section Bif. Mollet – Figueres: Put in service in December 2012.
- Section Barcelona Sants – Bif. Mollet Put in service in April 2013.

ERTMS Level 2.

- Section Barcelona Sants – Figueres Vilafant: Pending completion of the ERTMS L2 works.

Conventional Line (Can Tunis – Castellbisbal – Nudo de Mollet – Bif. Gerona Mercaderies Villa Maya – Figueres Vilafant)

ERTMS Level 2.

- Section Can Tunis – Castellbisbal – Nudo de Mollet (double track with third rail): New contract including design + installation was awarded in June 2022. ADIF and its Contractor are still in the design phase. Commissioning expected in 2026.

Conventional line (Castellbisbal – Bifurcación Vilaseca)

ERTMS Level 2.

- Works are ongoing in this double track with third rail section. Place in service expected in 2026 in the optimistic scenario.

Conventional Line (Bifurcación Vilaseca – L´Ametlla de Mar (Vandellós)

ERTMS Level 1.

- Section Bifurcación Vilaseca – L`Hospitalet de l`Infant: Put in service in January 2020.
- L`Hospitalet de l`Infant – L´Ametlla de Mar (double track, 1668 mm, quite short stretch): installed but in test phase. Forecasted in service in 2027.

Conventional Line: Valencia – Castellón – L´Ametlla de Mar (Vandellós)

ERTMS Level 1.

- Valencia – Castellón section: double track with third rail section. Place in service expected in December 2027.
- Castellón – L´Ametlla de Mar (Vandellós) section: gauge change Works awarded. Place in service expected in 2027.

Conventional Line (Valencia – Xátiva, Xátiva - La Encina)

ERTMS Level 2.

- Works are ongoing in this UIC double track section. Expected in service in 2027 (branch Fuente de San Luis terminal – Almussafess included)
- Contract already awarded.

HSL for passengers and freight (Valencia – La Encina)

ERTMS Level 2.

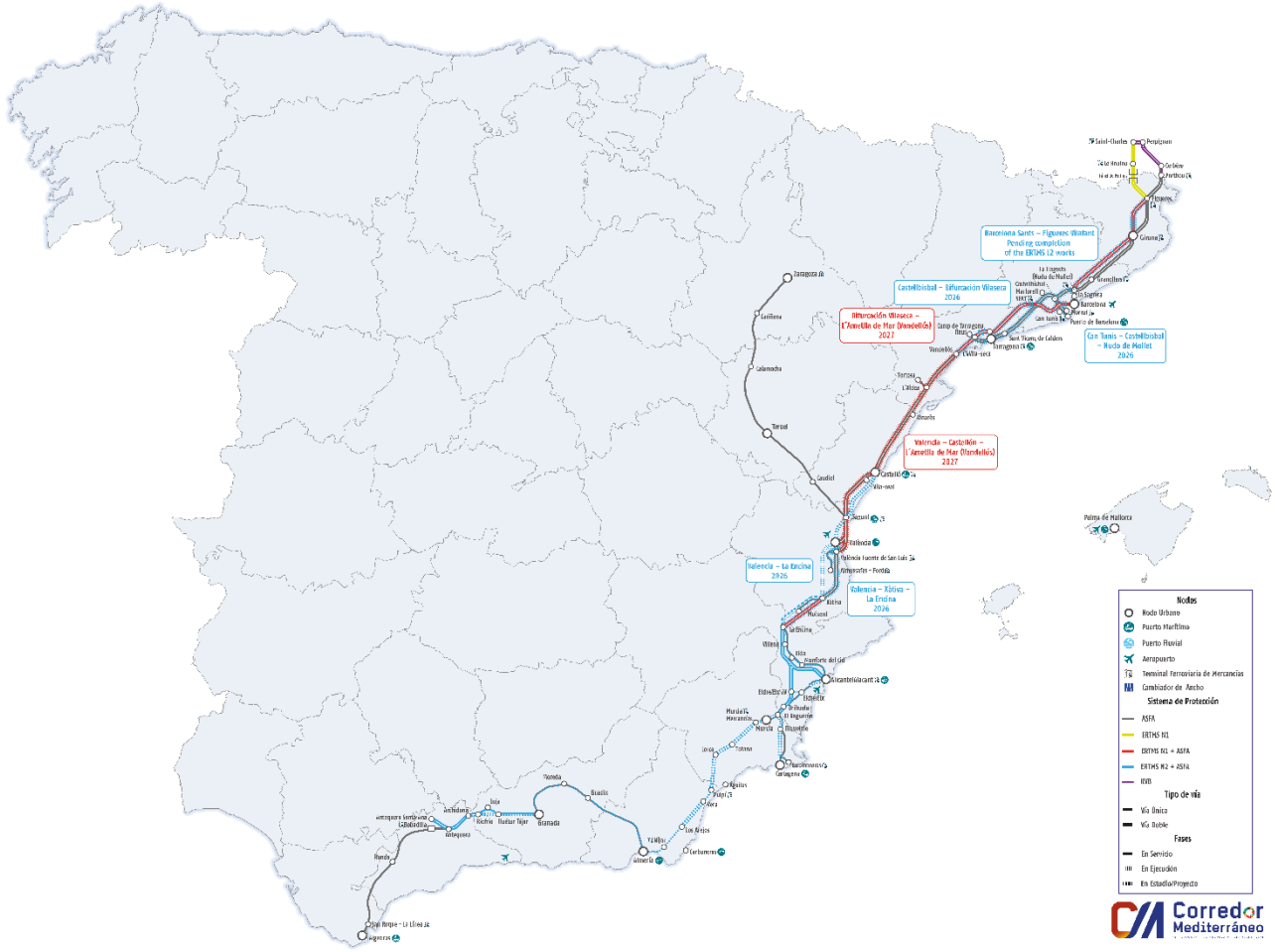
- Contract already awarded. Works on going. Expected in service in at the end of 2026.

HSL (La Encina-Monforte-Beniel)

ERTMS Level 2.

- La Encina – Alicante: Design Phase for this section.
- In service between La Encina – Monforte – Beniel (but it is exclusive LAV up to San Isidro, between San Isidro and Murcia freight will also use it). Beniel - Murcia placed in service in 2022 Q4.

The expected final situation is shown below on the map:



The ERTMS deployment plan on French part of Mediterranean RFC

HSL for passengers and freight LFP (Figueres – Perpignan)

ERTMS Level 1.

- Already in service

HSL for passengers and freight (Nîmes – Montpellier)

ERTMS Level 1.

- V. 2.3.0d, over KVB (French control system class B). 60 km + several junctions with the French network. Operated by SNCF Réseau, maintained by Oc'via.

Further deployments

- The present strategy on the conventional network is to deploy ETCS level 2 Baseline 3 while decommissioning lateral signalling and KVB. The French Implementation Plan is presently under revision and will be issued by end 2024.

The ERTMS deployment plan on the Italian part of Mediterranean RFC

Rete Ferroviaria Italiana has started an ambitious network update that foresees the deployment of ERTMS system on all the national railway infrastructure (around 16.800 km) according to Baseline 3 Release 2 (SV 2.1). The plan is in part financed with the fund foreseen by the National Recovery and Resilience Plan (NRRP) defined on the basis of the Next Generation EU Program (NGEU).

The strategy adopted for the definition of the ERTMS Accelerated Plan has been agreed with all the stakeholders and the new NIP (National Implementation Plan) will include the ERTMS deployment program identified.

Concerning the ERTMS deployment plan for the section on the Italian network included in the alignment of the Mediterranean Corridor - RFC 6, the lines for which projects and construction contracts are already awarded and in construction phase are indicated in the following table:

Line	RFC/CNC	Level of ERTMS	SV
Novara – Milano- Verona - Vicenza – Padova – Mestre	RFC6 principal route/CNC Mediterranean	Level 2	2.1
Vicenza – Castelfranco V. – Portogruaro	RFC6 Alternative route (OS-RFC 5)	Level 1 with Radio Infill	2.1
Portogruaro – Bivio d'Aurisina – Villa Opicina/Trieste	RFC6 principal route/CNC Mediterranean (OS-RFC 5)	Level 1 with Radio Infill	2.1

Concerning the whole lines to be equipped, the scheduling is indicated in the following table:

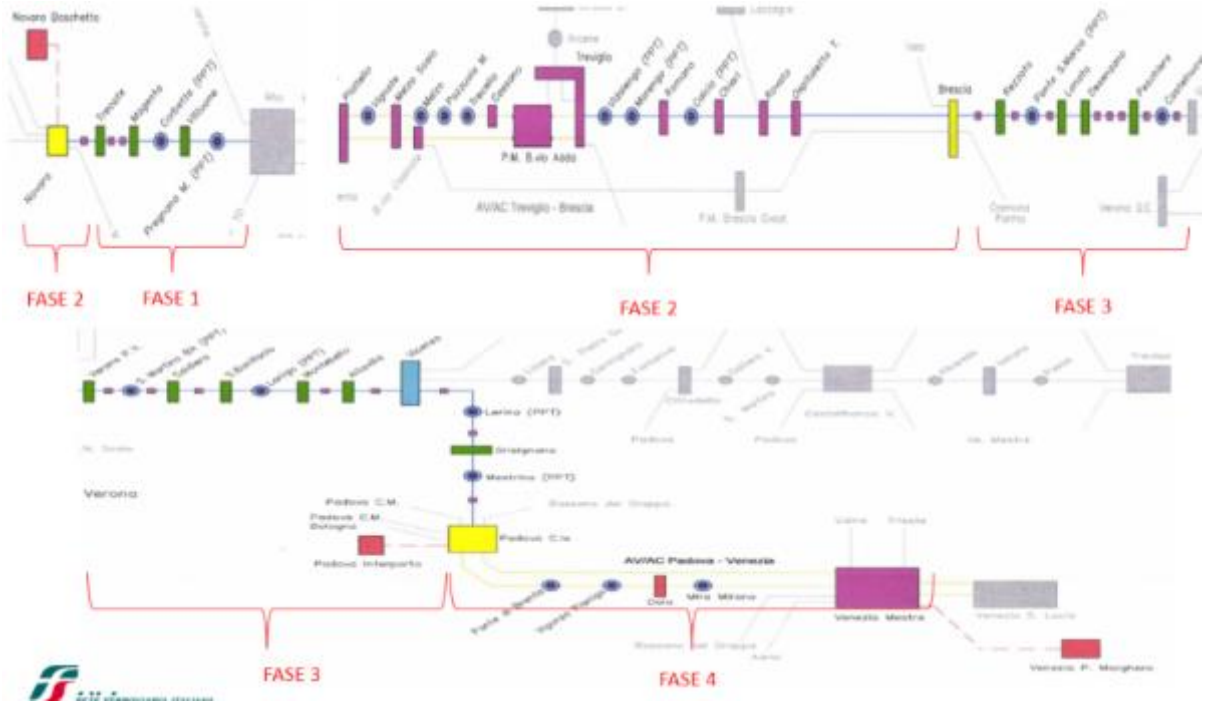
Year *	Section	KM
2027	MODANE FOURNEAUX - QUADRIVIO ZAPPATA (Modane Fourneaux - Avigliana)	81,81
2030	MODANE FOURNEAUX - QUADRIVIO ZAPPATA (Avignana - Quadrivio Zappata)	21,55
2027	TORINO (e) - SETTIMO - NOVARA (Chivasso - Novara)	71,35
2030	TORINO (e) - SETTIMO - NOVARA (Node of Torino - Chivasso)	28,39
2031	TORINO PORTA NUOVA - ALESSANDRIA	90,08
2031	ALESSANDRIA - TORTONA	21,92
2026	MILANO LAMBRATE - MILANO SMISTAMENTO	3,78
2026	MILANO SMISTAMENTO - PIOLTELLO-LIMITO	4,73
2025	PIOLTELLO - BRESCIA	70,53
2023	BRESCIA - VICENZA	116,30
2023	VICENZA - PADOVA	30,27
2024	VICENZA - TREVISO CENTRALE	60,06

2026	PADOVA - VENEZIA MESTRE	28,50
2028	PORTOGRUARO - VENEZIA MESTRE	59,34
2025	TREVISO CENTRALE - PORTOGRUARO-CAORLE	53,46
2026	PORTOGRUARO - CERVIGNANO - TRIESTE	85,66
2026	BIVIO D'AURISINA - VILLA OPICINA - CONFINE DI STATO ITA-SLO (LATO SEZANA)	15,62
2026	MILANO LAMBRATE - BIVIO LAMBRO - PIOLTELLO (VENEZIA LL)	8,51
2031	BIVIO P.C. LAMBRO - MILANO CERTOSA	12,61
2026	RHO - MILANO CERTOSA (Varese)	7,86

*Dates will be updated with the official release of NIP 2024.

The solution with Level 1 ERTMS is only transitory pending the migration of the stations and the sections to multi-station computer based Interlockings (IXL) and therefore to ERTMS Level 2.
The ERTMS Baseline implemented Trackside will be the Baseline 3 (SRS 3.6.0, Release 2 Annex A TSI CCS, SV 2.1) because it offers better performance, and it is particularly suitable for the freight traffic (to take advantage from the optimized functionality specified for the freight traffic, as train categories, the Infill by Radio, etc.).

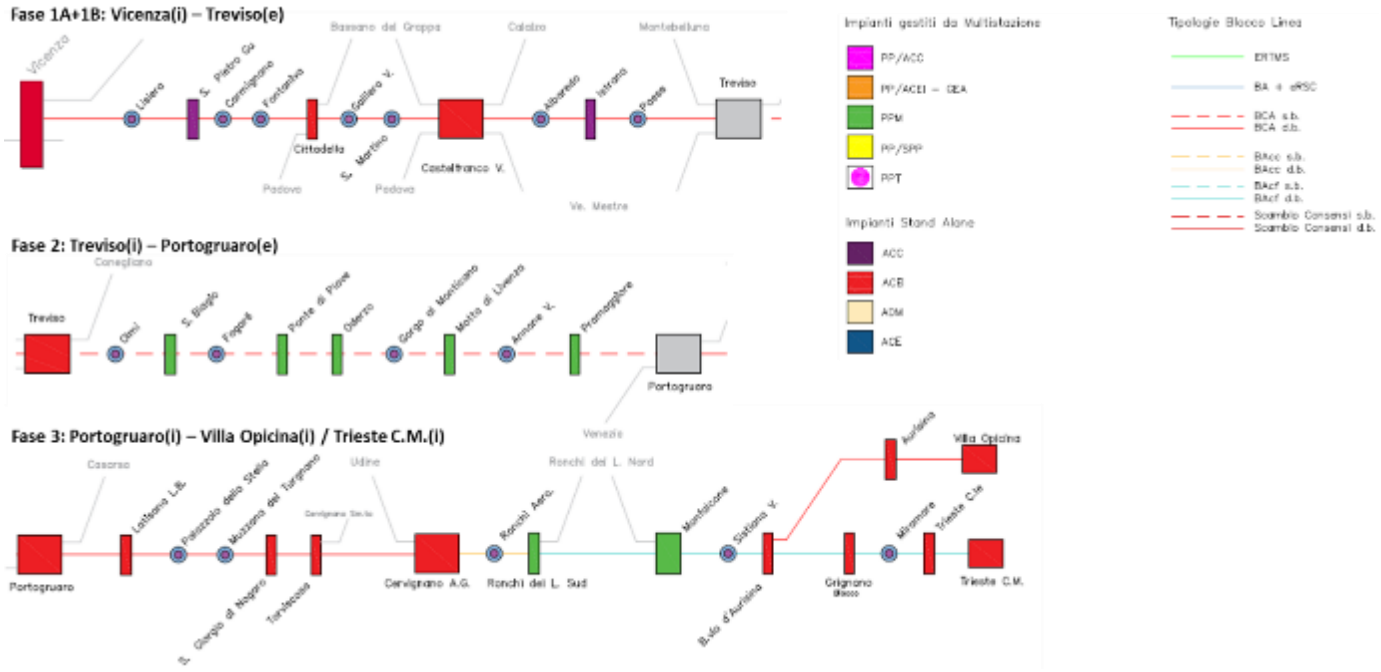
Novara – Milano- Verona - Vicenza – Padova – Mestre state of the art



The construction of the ERTMS/ETCS System on the Novara - Padua - Venice section is currently divided into the phases listed below:

- **Phase 1:** Novara (e) - Rho (e) section, with RBC1 activation and related Backup at Milano Greco Pirelli Control Room (equipped);
- **Phase 2:** Brescia (e) - Sommacampagna (e) and Verona (e) - Vicenza (e) - Padua (e), over RBC2 at Verona P.N. Control Room (equipped)**;**
- **Phase 3:** Pioltello (i) - Brescia (e), with RBC1 reconfiguration (located in Milano Greco Pirelli) (under construction);
- **Phase 4:** Padua (i) - Venice Mestre (i) (under construction)**.**

Vicenza – Villa Opicina – Trieste C.le/Trieste C.M. state of the art



The planned activities are those indicated in the table below:

Line	Activity	Interlocking	ETCS level	BL	SV
Activity 1a: Cittadella (i) - Istrana (e)	ERTMS equipment + SCMT	Upgrading Electronic IXL	L1+RI(RIU-M)	3	2.1
Activity 1b: Vicenza (e) – Cittadella (e) and Istrana (i) – Treviso (e)	ERTMS equipment + SCMT	Upgrading Electronic IXL	L1+RI(RIU-M)	3	2.1
Activity 2: Treviso (i) – Portogruaro (e) and Vicenza	ERTMS equipment + SCMT	Upgrading IXL multistation	L1+RI(RIU-M)	3	2.1
Activity 3: Portogruaro (i) – Villa Opicina (i) /Trieste (i)	ERTMS equipment + SCMT	Upgrading IXL multistation	L1+RI(RIU-M)	3	2.1

The construction of the ERTMS/ETCS system with multi-station Radio Infill technology (RIU-M) on the Vicenza - Villa Opicina - Trieste C. le/Trieste C.M. section is currently divided into the phases listed below:

- **Activity 1a:** Cittadella (i) - Istrana (e) (activity done and achieved Autorization of Placing in Service by NSA);
- **Activity 1b:** Vicenza (e) – Cittadella (e) and Istrana (i) – Treviso (e) (activity done and achieved Autorization of Placing in Service by NSA);
- **Activity 2:** Treviso (i) - Portogruaro (e);
- **Activity 3:** Portogruaro (i) - Villa Opicina (i)/Trieste C.M. (i).

For activity 1a, the first trial test session took place between 4-13 May 2022 with a train ALn668-1920 from Cittadella to Treviso; the second trial test session took place between 12-14 November 2022 with the locomotive TRAXX DC3 E494-234.

The ERTMS deployment plan on Slovenian part of Mediterranean RFC

Slovenian part of ERTMS deployment on Mediterranean RFC originates back to »Deployment of ERTMS/ETCS on Corridor D«, for which the European Commission approved funding for the TEN-T co-financing in the Republic of Slovenia.

Mixed conventional line (Ljubljana – Sežana – border ITA)

The trackside deployment of the ETCS requested Level 1 with version 2.3.0d, overlaid with existing INDUSI I60 national signalling system. The transition period of 10 years will allow using ETCS level 1 and/or INDUSI I60 indifferently.

- Section Ljubljana – Pivka in operation from Q2 2017
- Section Pivka – Sežana – border ITA in operation from Q2 2017

Mixed conventional line (Divača - Koper)

The trackside deployment of the ETCS requested Level 1 with version 2.3.0d, overlaid with existing INDUSI I60 national signalling system. The transition period of 10 years will allow using ETCS level 1 and/or INDUSI I60 indifferently.

- Section Divača - Koper in operation from Q2 2017

Mixed conventional line (border CRO – Zidani Most – Ljubljana)

The trackside deployment of the ETCS requested Level 1 with version 2.3.0d, overlaid with existing INDUSI I60 national signalling system. The transition period of 10 years will allow using ETCS level 1 and/or INDUSI I60 indifferently.

- Section Zidani Most - Ljubljana is in operation from Q2 2017

Deployment of ERTMS/ETCS (Level 1, baseline 3-set 2 overlaid existing INDUSI I60 national signalling system), online section (Zidani Most – Dobova – border HR) for which the European Commission approved funding for the CEF co-financing in the Republic of Slovenia with the agreement no. INEA/CEF/TRAN/M2015/1125663 for action no. 2015-SI-TM-0111-W.

- Section border CRO – Dobova – Zidani Most in test operation all the works were completed, and NSA issued operating permit in Q4 2020 (section is still in test operation)

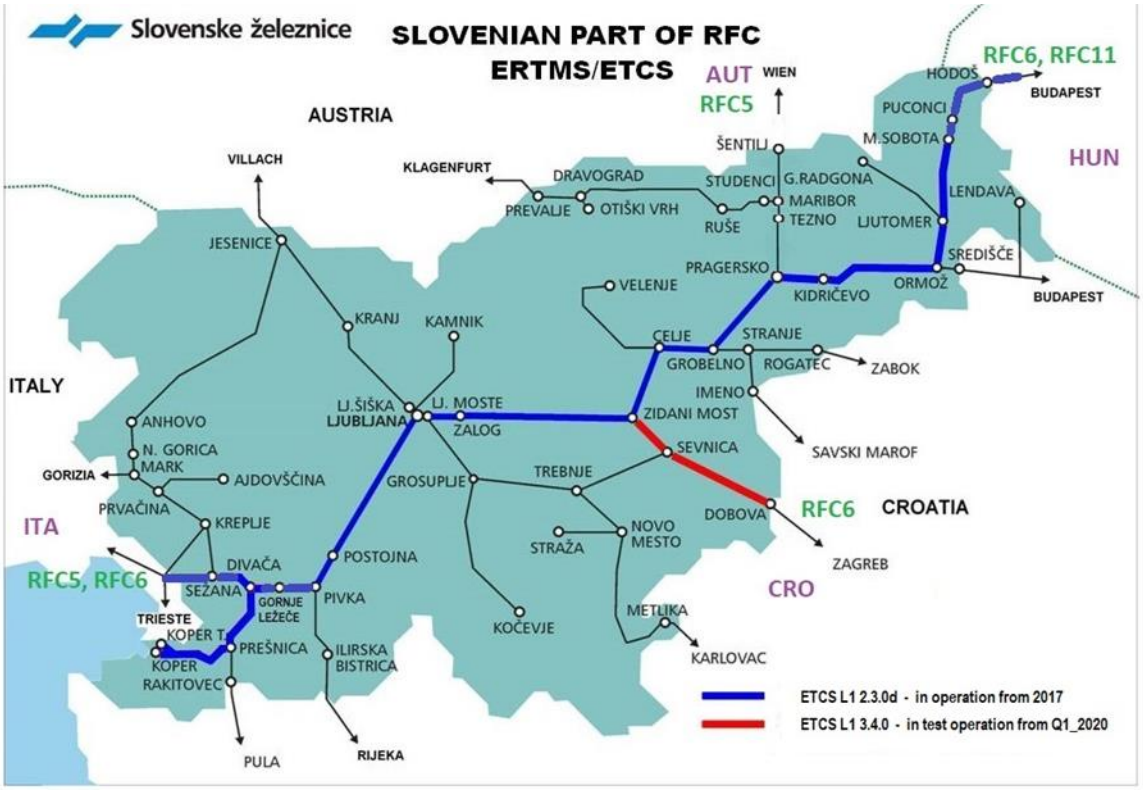
Mixed conventional line (Zidani Most - Pragersko – border HU)

The trackside deployment of the ETCS requested Level 1 with version 2.3.0d, overlaid with existing INDUSI I60 national signalling system. The transition period of 10 years will allow using ETCS level 1 and/or INDUSI I60 indifferently.

- Section Zidani Most – Pragersko in operation from Q2 2017
- Section Pragersko – Murska Sobota in operation from Q2 2017
- Section Murska Sobota – Hodoš – border HUN in operation from Q2 2017

Plans till end of 2026:

Majority of civil works on a new railway connection between Divača and Koper (called 2TDK) are completed. In subsequent phases, the track will be equipped with ETCS Level 1, baseline 3-set 2. The project is expected to be in full operation by the end of 2026.



GSM-R:

All sections of the Mediterranean RFC are equipped with GSM-R. The system is in operation from Q4 2017.

The ERTMS deployment plan on Croatian part of Mediterranean RFC ETCS

In Croatia, it is expected that use of ETCS Level 1 will be implemented on a section line Dugo Selo – Križevci in 2027, Križevci – SB by the end of 2027, and on a section line Hrvatski Leskovac – Karlovac by 2029.

GSM-R

For now, at the corridor there is no GSM-R. HŽI plans implementation of GSM-R on the whole Mediterranean corridor in 2035.

The ERTMS deployment plan on Hungarian part of Mediterranean RFC

ETCS L2 and GSM-R installation are ongoing or under preparation on some section of the corridor (detailed in following parts).

Section [border to Slovenia]–Őriszentpéter–Boba (102 km)

The rail link between Slovenia and Hungary was established in 2000, when a new rail line was built to cover the 19 km long gap along the Hungarian side of the border.

The 19 km long section connected to the border was built between 1998 and 2000. The remaining 83 km long part has been reconstructed and significantly upgraded from a former branch line. Following the upgrading the line now has electronic interlocking installed on its whole length.

ETCS level 1 system was equipped on the line in 2004. ETCS level 2 has been installed on the whole length of the line, i.e., the old level 1 section has also been upgraded. Level 1 TSS - as fall-back system - remains on section Zalacséb - Salomvár - Hodoš, however, this section has also level 2. Őriszentpéter - Hodoš section remains pure level 1, because of SZ installs level ETCS Level 1 and this section is used as a GSM-R radio communication "entry section".

This section served as ETCS L2 pilot section (supplier: Thales).

ETCS L2 is available for commercial service from 12 December 2021.

Section Boba – Székesfehérvár (excl.)

The rail link between Boba and Székesfehérvár is 114 km long. 90% percent of the stations are equipped with Domino55 relay interlocking system. Two branch stations are electro-mechanical with light signals. One station is a former Russian-style interlocking, another one is a Domino67 system.

Now largest part of freight traffic coming from Slovenia is rolled on this section.

GSM-R is in second part GSM-R installation phase, up to 2025.

Székesfehérvár station (node)

Székesfehérvár is a large station (with 6 directions, including two double-track connections). The old electro-mechanical and relay interlocking has been replaced by Elektra electronic one; the project contained an RBC connected to the interlocking system, only for Székesfehérvár. Of course, RBC is active if the line towards Budapest has active ERTMS/ETCS L2, too. Low-cost EVM (legacy) remains.

ETCS L2 is available for commercial service.

Székesfehérvár (excl.) – Kelenföld (excl.)

This line is a 63 km long rail link. Its recent reconstruction finished in 2014. All (6) stations with SIMIS IS electronic interlocking. ETCS L2 was part of the signalling reconstruction. This section serves as ETCS L2 pilot section (supplier: Siemens).

Now largest part of freight traffic coming from Slovenia is rolled on this section.

ETCS L2 is available for commercial service. EVM (legacy ATP) remains parallel with ETCS L2.

Kelenföld, Ferencváros and Kőbánya-Kispest (large nodes in Budapest area)

(OS-RD) This section is a common part of Rhein-Danube ETC.

6 kilometres of the corridor in Budapest (Kelenföld –– Ferencváros) is in operation with ETCS L2 v2.3.0d since 2022. This section will be changed from double-track into a triple-track line, the first infrastructure works were started in spring 2023 and the project will end in 2027.

Budapest (excl.) – Miskolc – Nyíregyháza

270 km long railway line.

The suburban section between Budapest and Hatvan the line was upgraded and equipped with ETCS L2. On the rest of the suburban section, the ETCS L2 is currently under construction.

Between Hatvan and Miskolc (120 km) track and interlocking reconstruction is planned for 2030. Old relay interlocking between Budapest and Hatvan stations will be also replaced. Between Hatvan and Miskolc, Domino55 relay interlocking on middle-sized stations remain. Miskolc area will be replaced by a new electronic one.

Between Miskolc and Nyíregyháza (90 km) no reconstruction is planned up to 2030. The whole line is planned for ETCS L2. Estimated GSM-R and ETCS L2 PIO: after 2025.

Cost Benefit Analysis

Costs

The costs are incurred at national level; when available, they have been described in the sections above.

Interoperability

Until the deployment of ETCS, railway undertakings have to change their locomotives every time they cross a border, or they have to equip these locomotives with multiple expensive on-board control command systems. The first choice has a negative impact on travel time and on rolling stock management. The second is expensive.

With ETCS, they will be able to use locomotives that can run from the origin to destination with a single on-board control command system. This will facilitate asset management, save journey time and reduce costs.

On top of that, ETCS will enable a driver to run an international train with the sole knowledge of ETCS related driving rules. In contrast, with the current situation were a driver is allowed to run in several countries only if he/she has been trained to use each national legacy system.

National legacy systems ("Class B") renewal

All the Infrastructure Managers of Mediterranean RFC consider that ETCS will replace in the mid run or in the long run, the national Control Command systems in use, and will hence provide a solution to the obsolescence of these legacy systems. However, the deadline is not the same among infrastructure managers.

This benefit however should not be overestimated as the deployment of ETCS will not be as simple as the mere renewal of legacy systems. The complexity will depend on the characteristics of the legacy systems but in some cases, the new and the old systems will have to cohabit for many years and the old system may even have to be renewed after the deployment of ETCS.

Increased competition

ETCS is an opportunity for a Railway Undertaking to use its own rolling stock and act with open access, opening up competition and potentially bringing prices at market level

Reduction of externalities

With cost savings and increased competition, the railway mode should become more attractive and gain market share, hence reducing road congestion, greenhouse effect emissions and air pollution. On top of that, players who will switch from road to rail will enjoy cost savings or journey time reduction.

Safety

ETCS is a state-of-the-art tool as far as safety is concerned and, at various degrees and its deployment provides infrastructure managers with benefits from an increase of safety compared to the safety provided by their legacy systems.

Recovery in the event of disturbances

In France, ETCS will allow a faster recovery in the event of disturbances compared to the current KVB legacy system which is driven by the so-called VISA driving principle. Consequently, the deployment should lead to more robust performances.

Conclusion

The computation of a monetary value for the benefits listed above is difficult, as corridor members/partners use different methods to assess them. This is specifically the case for the assessment of safety improvement. On top of that, the value of time saved thanks to ETCS when operating a railway node is a factor that cannot be determined, as it is sensitive to the node characteristics, and the time and conditions of operation.

All in all, corridor members and partners share the view that the ground deployment of ETCS does not provide an immediate financial return on investment nor a positive socio-economic net asset value. The traffic gains induced by the use of ERTMS are presently difficult to assess, especially in the starting phase when few trains will be running in ETCS mode.

What is more, the socio-economic benefits of ETCS vary a lot from one country to another as it depends on the characteristics of the legacy control command system and on the size of the country.

6.4 Reference to Union Contribution

Mediterranean RFC was established and developed thanks to the co-financing received by the European Commission.

Recently, it was the recipient of the following funding awarded from the European Commission:

- CINEA.B – Sustainable networks and investments B.2 – CEF Transport: Central and Southeast Europe + ATM and JTM GRANT AGREEMENT Project 101081917 — 21-IT-TG-MedRFC-TA

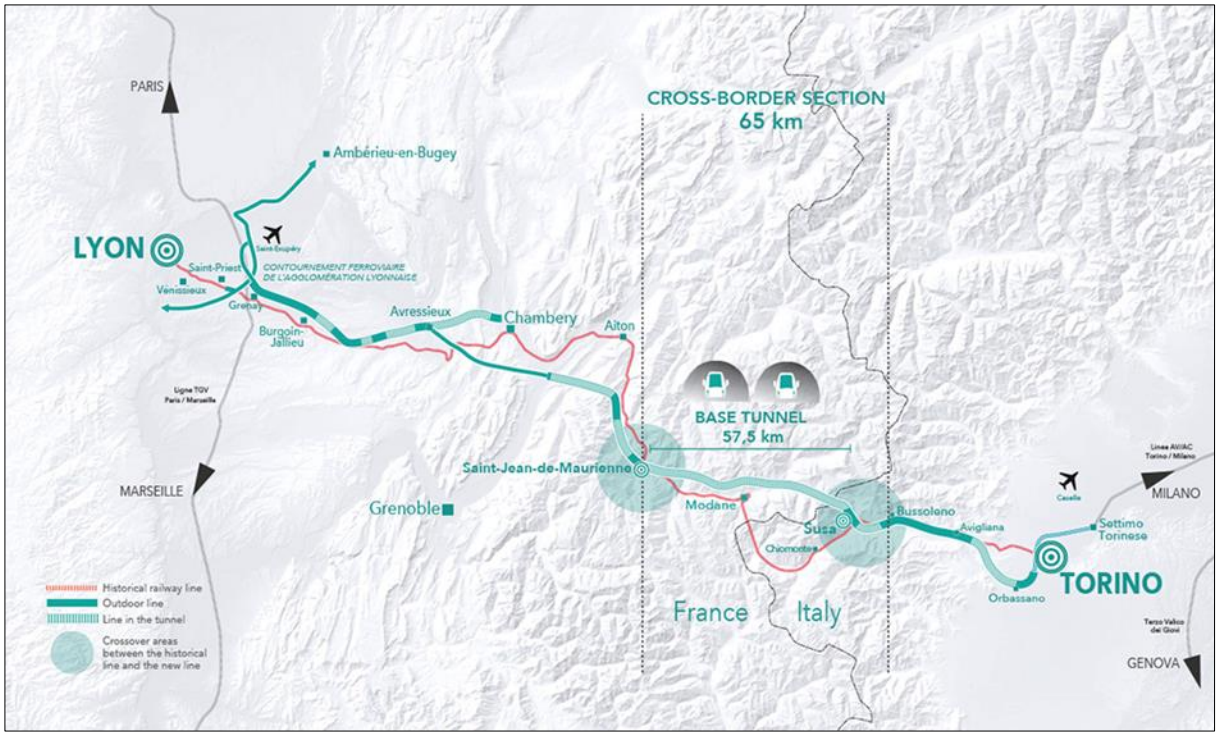
In the past, it was co-financed by the European Commission under:

- Mediterranean Rail Freight Corridor Support to the implementation of the priorities identified by the rail sector to boost international rail freight, INEA/CEF/TRAN/M2016/PSARFC06
- Connecting Europe Facility (CEF) funding, Proposal 2014-IT-TM-0089-S, Action "Upgrade and Strengthening of Mediterranean RFC including Extension to Croatia"
- TEN-T Programme 2007-2013, Decision C (2012) 7813 of the 26.10.2012 concerning "Studies, managerial structures and activities for the establishment of the Mediterranean RFC in line with Regulation No. 913/2010", Action 2011-EU-95093-S
- TEN-T Programme 2007-2013, Decision C (2010) 5873 of the 20.08.2010 concerning "Deployment of ERTMS on Corridor D: Valencia to Budapest", Action 2009-EU-60122-P
- TEN-T Programme 2007-2013, Decision C (2011)3250 of the 06.05.2011, which modifies Decision C (2008) 7888 of the 10.12.2008 concerning "ERTMS implementation on the Railway Corridor D (Valencia-Budapest)"; Action 2007-EU-60120-P

Annex 1 - TELT

The cross-border section of the Lyon-Turin freight and passenger railway line extends over a stretch of 65 km between Susa in Piedmont and Saint-Jean-de-Maurienne in Savoy. The main feature of the work is the 57.5 km long Mont Cenis base tunnel – 12.5 km in Italy and 45 in France – linking the international stations of Saint-Jean-de-Maurienne and Susa, which constitute the connection points to the respective national lines in France and Italy.

Tunnel Euralpin Lyon Turin (TELT) is a company owned 50% by the Italy state, 50% by the French state. This company is not part of the MED ETC, together with the corresponding line.



This project includes the development of the construction of the Base Tunnel under Mont Cenis, together with its financial requirements and resources.

Region (if required)	Railway section	Nature of Projects	Benefits for RFC 6	Start date of the works	End date of the works	Actual step	Estimation of the costs in M€	Funder1	Funder2	Funder3
RAA-Piemonte	New Line under the Alps St jean de Maurienne (FR)- Susa (IT)	New line	Safety / Security Higher speed Punctuality improvement Maintenance of performance Capacity improvement Interoperability	2017	2032	Under construction	8,300	EU	French State	Italian State

Annex 2 – RFC KPIs

CAPACITY MANAGEMENT

Volume of offered capacity – PaPs (at X-11)

2024	for TT 2025	**19.1 mio (path) km**
2023	for TT 2024	16.5 mio (path) km
2022	for TT 2023	16.2 mio (path) km

Volume of requested capacity – PaPs (at X-8)

2024	for TT 2025	**9.0 mio (path) km**
2023	for TT 2024	8.7 mio (path) km
2022	for TT 2023	6.0 mio (path) km

**The figures refer to the capacity which the C-OSS of the RFC concerned publishes and pre-allocates. These might therefore not reflect the total amount of offered and pre-allocated PaPs along the RFC.*

RailNetEurope · MEDITERRANEAN RAIL FREIGHT CORRIDOR

Commonly applicable RFC KPIs 1

CAPACITY MANAGEMENT

Number of requests – PaPs (at X-8)
(number of PCS dossiers)

2024	for TT 2025	**87**
2023	for TT 2024	88
2022	for TT 2023	75

Number of conflicts – PaPs (at X-8)
(number of conflicting PCS dossiers)

2024	0	for TT 2025
2023	**6**	for TT 2024
2022	0	for TT 2023

**The figures refer to the capacity which the C-OSS of the RFC concerned publishes and pre-allocates. These might therefore not reflect the total amount of offered and pre-allocated PaPs along the RFC.*

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Commonly applicable RFC KPIs 2

CAPACITY MANAGEMENT

Volume of pre-booked capacity – PaPs (at X-7.5)

2024	for TT 2025	**9.0 mio (path) km**
2023	for TT 2024	8.9 mio (path) km
2022	for TT 2023	5.9 mio (path) km

Ratio of pre-booked capacity (to the volume of capacity offered at x-11)

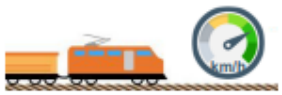
2024	for TT 2025	**47.1%**
2023	for TT 2024	51.6%
2022	for TT 2023	36.7%

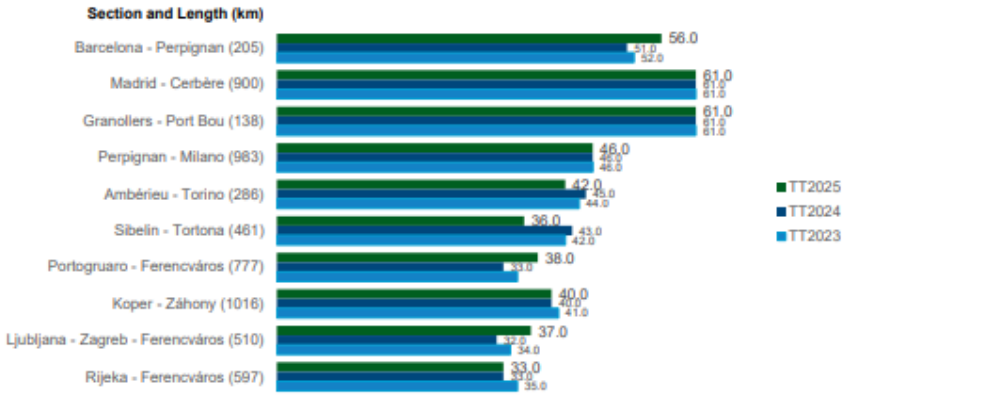
**The figures refer to the capacity which the C-OSS of the RFC concerned publishes and pre-allocates. These might therefore not reflect the total amount of offered and pre-allocated PaPs along the RFC.*

Commonly applicable RFC KPIs 3

CAPACITY MANAGEMENT

Average planned speed of PaPs (calculation per O/D pairs, km/h)





**This KPI should be perceived as qualitative as journey times might include commercial and operational stops.*

Commonly applicable RFC KPIs 4

CAPACITY MANAGEMENT

Volume of offered capacity – Reserve Capacity (at X-2)

TT 2024		**2.34 mio (path) km**
TT 2023		2.4 mio (path) km
TT 2022		1.4 mio (path) km

**The figures refer to the capacity which the C-OSS of the RFC concerned publishes and pre-allocates. These might therefore not reflect the total amount of offered and pre-allocated PaPs along the RFC.*

Commonly applicable RFC KPIs 5

CAPACITY MANAGEMENT

Number of requests – Reserve Capacity (at X+12) (number of PCS dossiers)

TT 2023	**0**
TT 2022	2
TT 2021	0

Volume of requested capacity – Reserve Capacity (at X+12)

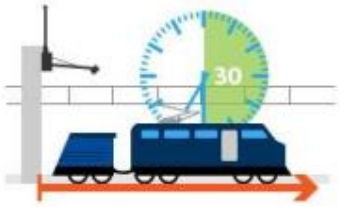
TT 2023	**0 (path) km**
TT 2022	0.02 mio (path) km
TT 2021	0 (path) km

**The figures refer to the capacity which the C-OSS of the RFC concerned publishes and pre-allocates. These might therefore not reflect the total amount of offered and pre-allocated PaPs along the RFC.*

Commonly applicable RFC KPIs 6

OPERATIONS

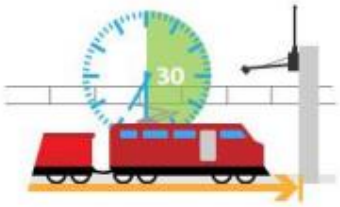
Punctuality at origin (RFC entry)



(delay ≤ 30 minutes)

2023:	**52.7%**
2022:	55.0%
2021:	60.0%

Punctuality at destination (RFC exit)



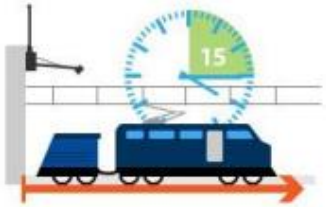
(delay ≤ 30 minutes)

2023:	**39.0%**
2022:	41.0%
2021:	48.0%

Commonly applicable RFC KPIs 7

OPERATIONS

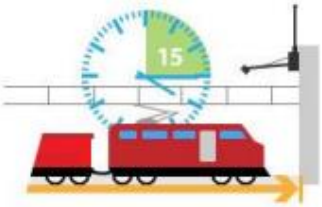
Punctuality at origin (RFC entry)



(delay ≤ 15 minutes)

2023:	**47.7%**
2022:	49.0%
2021:	55.0%

Punctuality at destination (RFC exit)



(delay ≤ 15 minutes)

2023:	**34.9%**
2022:	37.0%
2021:	44.0%

Commonly applicable RFC KPIs 8

OPERATIONS

Train Kilometers (million) of trains crossing a border along the RFC*

2023: **9.68 mio**

*The calculation of this KPI is based on data in RNE's TIS. International freight trains crossing a border of an RFC are considered in the calculation. The presented data might differ from the data gathered in the national systems due to data quality differences between individual IMs.

OPERATIONS

Number of trains crossing a border along the RFC*

2023: **24,823**
2022: 24,984
2021: 29,848

*The calculation of this KPI is based on data in RNE's TIS. International freight trains crossing a border of an RFC are considered in the calculation. The figures for 2021 were updated in April 2023. KPI values published earlier may differ. Please consider this sheet as the up-to-date version.

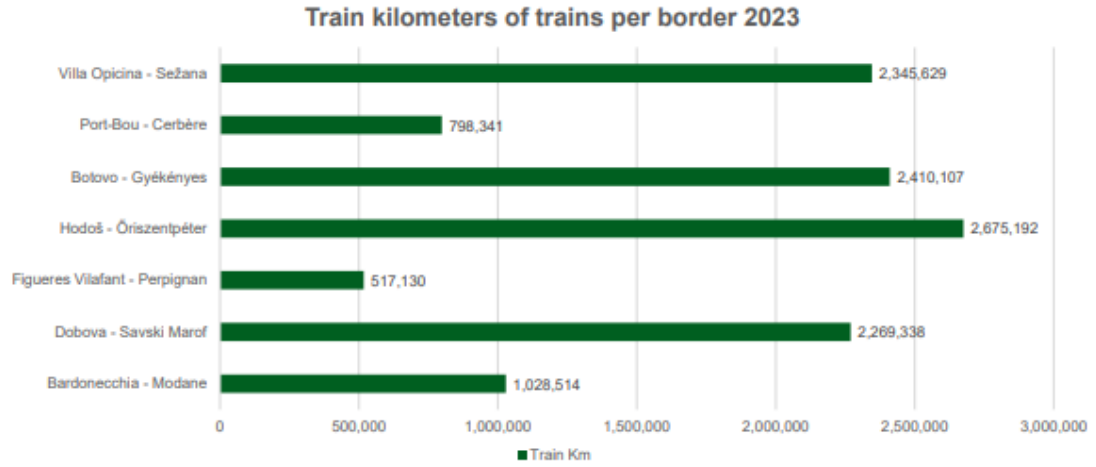
OPERATIONS

Dwell times in border sections (planned and clean/real)
2023

Border		Avg. planned dwell (min.)	Avg. clean/real (min.)
Cerbère	PortBou	0	0
Perpignan	Figueres Vilafant	23	17
Modane	Bardonecchia	1	1
Villa Opicina	Sežana	77	127
Hodoš	Őriszentpéter	82	151
Botovo	Gyékényes	196	345
Dobova	Savski Marof	121	255

*The calculation of this KPI is based on the data in RNE's TIS. International freight trains crossing a border of an RFC are considered in the calculation. The presented data might differ from the data gathered in the national systems due to data quality differences between individual IMs.

MARKET DEVELOPMENT



*The calculation of this KPI is based on the data in RNE's TIS. International freight trains crossing a border of an RFC are considered in the calculation. The presented data might differ from the data gathered in the national systems due to data quality differences between individual IMs.

MARKET DEVELOPMENT

Number of trains per border - Part 1*

	2021	2022	**2023**
Total ES - FR:	4,562	4,682	3,678
Total FR - IT:	8,271	8,546	3,352
Total IT - SI:	8,973	7,522	7,612
Total SI - HU:	6,755	6,297	6,492

-21.4% Total ES - FR

Total FR - IT -60.8%

+1.2% Total IT - SI

Total SI - HU +3,1%

*The calculation of this KPI is based on data in IMs' systems. The total sum of the figures per border does not correspond to the figure of the KPI 'Overall number of trains on the RFC' due to, among other reasons, the potential double-counting of trains crossing more than one border.

MARKET DEVELOPMENT

Number of trains per border - Part 2*

	2021	2022	**2023**
Total SI - HR:	7,161	7,058	**8,009**
Total HR - HU:	7,091	6,008	**6,741**

+13.5% Total SI - HR

Total HR - HU +12.2%

*The calculation of this KPI is based on data in IMs' systems. The total sum of the figures per border does not correspond to the figure of the KPI 'Overall number of trains on the RFC' due to, among other reasons, the potential double-counting of trains crossing more than one border.

MARKET DEVELOPMENT

Ratio of capacity allocated by the C-OSS and the total allocated capacity*

Location Code	Between member states		Between operational points		Allocated by C-OSS 2021	Allocated by C-OSS 2022	Allocated by C-OSS 2023
EU00120	France	Spain	Cerbère	PortBou	84.0%	87.0%	84.0%
EU00121	France	Spain	SNCF Réseau/LFP	Limite LFP/ADIF	62.0%	59.0%	77.0%
EU00127	France	Italy	Modane	Bardonecchia	72.0%	58.0%	0.0%
EU00151	Italy	Slovenia	Villa Opicina	Sežana	11.0%	13.0%	10.0%
EU00185	Slovenia	Hungary	Hodoš	Őriszentpéter	7.7%	26.0%	65.0%
EU00201	Croatia	Hungary	Botovo	Gyékényes	18.0%	13.0%	10.0%
EU00216	Slovenia	Croatia	Dobova	Savski Marof	22.0%	15.0%	11,6%

*In case of border points with more than one C-OSS responsible (in case of common offer or in case of overlapping sections), the KPI figure presents the combined number of all C-OSSs concerned.