Rail Freight Corridor North Sea-Mediterranean

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Corridor Information Document

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Book V – Implementation Plan Timetable **2018**

Co-financed by the European Union
Connecting Europe Facility

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VERSION CONTROL

Version	Chapter changed	Changes
14-09-2016	Draft document	For consultation

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1. Introduction

The RFC North Sea-Mediterranean Management Board consulted applicants on the initial Implementation plan and submitted it for approval to its Executive board on 7 May 2013. The Executive board gave its final approval on 11 December 2014, at the same time as it gave its approval for the implementation plan for timetables 2015 and 2016. The Implementation Plan is periodically updated and is a formal part of the Corridor Information Document.

Given the extensions of the corridor to London, Marseille, Zeebrugge and Amsterdam, the implementation plan for timetable 2017 was again submitted for consultation to all stakeholders and approval by the Executive Board.

For timetable 2018, a revised version is made available, with amongst other things, updated objectives, an updated investment plan and all details concerning the extension of the corridor between Ambérieu and Geneva.

2. Corridor Description

2.1 Key Parameters of Corridor Lines

2.1.1 Routes and Lines

The RFC North Sea-Mediterranean is a corridor in continuity of the ERTMS Corridor C, as all Corridor C lines still belong to the corridor. Therefore, ERTMS should be implemented along the corridor as provided by the deployment plan relating to interoperable systems, which was gradually extended before the start of the RFC 2, as the corridor was called until January 2015.

The designated RFC North Sea-Mediterranean lines can be split into four different categories:

- On **Principal lines**, Pre-arranged Paths (PaPs) are offered
- On **Diversionary lines**, PaPs may be considered
- **Expected lines** are lines which are either planned in the future or under construction but not yet completed, or existing lines planned to become a corridor line in the future
- **Connecting lines** are lines connecting a terminal to a principal or a diversionary line and there is no obligation for PaPs supply

On 11 December 2013, Regulation (EU) 1316/2013 establishing the Connecting Europe Facility modified the annex of Regulation (EU) 913/2010. RFC 2 became the “North Sea – Mediterranean” Corridor and is to be extended in three phases:

- the first phase is the extension of the corridor that took place in 2015, at the date of the 2016 timetable pre-arranged paths publication. The corridor was extended to Dunkirk, Calais, Liège (Montzen) and Paris ;

- a second phase concerns the extension of the corridor in 2016 towards London, Zeebrugge, Amsterdam and Marseille;
- end of 2016, the decision to extend the corridor to Geneva from January 1st, 2018 has been made by the member states and approved by the EC.
- a third phase plans the extension of the corridor in 2018 towards Glasgow, Edinburgh, Southampton and Felixstowe.

Several important freight routes are partly on RFC North Sea-Mediterranean and partly on another corridor. For example, a lot of trains run from Antwerp to Italy through Luxembourg, France and Switzerland.

The table below presents the breakdown of RFC North Sea-Mediterranean lines by country.

Country	Length of lines in November 2013 (in km)	Length of lines in January 2017 (in km)	Length of lines in January 2018 (in km) with extension to Geneva
Netherlands	*180*	*180*	*180*
Belgium	*924*	*1 243*	*1 243*
France	*1 731*	*2 844*	*2 950*
Luxembourg	*139*	*139*	*139*
Switzerland	*28*	*28*	*40*
United Kingdom	*-*	*228*	*228*
Whole Corridor	***3 002***	***4 662***	***4 780***

Breakdown of RFC North Sea-Mediterranean lines by country[1]

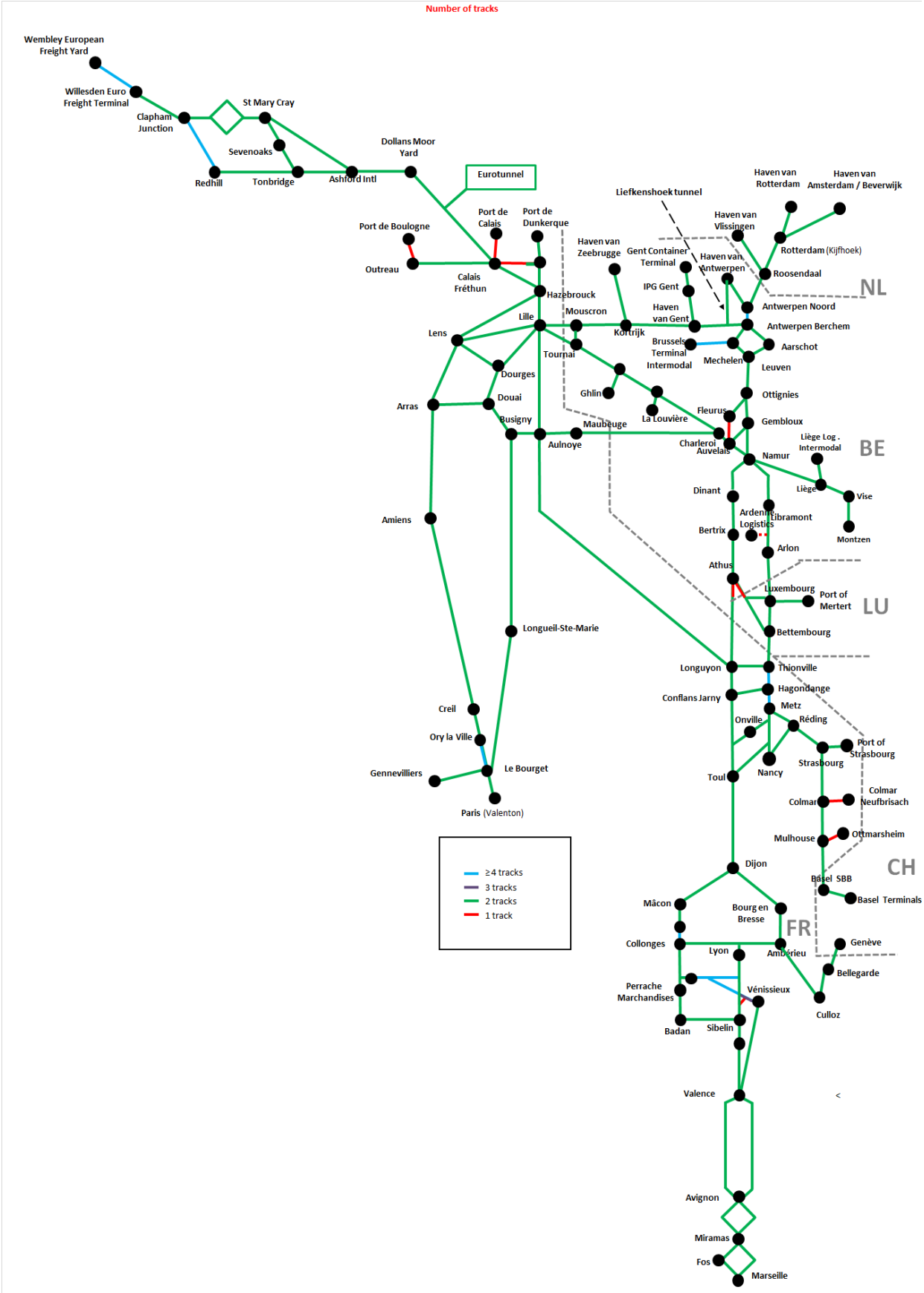
2.1.2 Number of tracks

All corridor sections have 2 or 4 tracks, except 10 kilometers in Belgium, six short lines in France and a small section in Luxembourg.

The following map shows the sections with two or more tracks (in green, yellow and blue) and the ones with a single track (in red). All sections in the Netherlands, Switzerland and the UK have two tracks or more. Belgium has one section between Fleurus and Auvelais and one South of Aubange with single track. France has one single track short line in the Lyon node, two single track connecting lines in Alsace and some single track lines in the vicinity of the ports of Calais and Boulogne. Luxembourg has a small section between Aubange and Pétange with one track.

[1] This table does not take into account the lines within the ports of Rotterdam, Antwerp and Basel

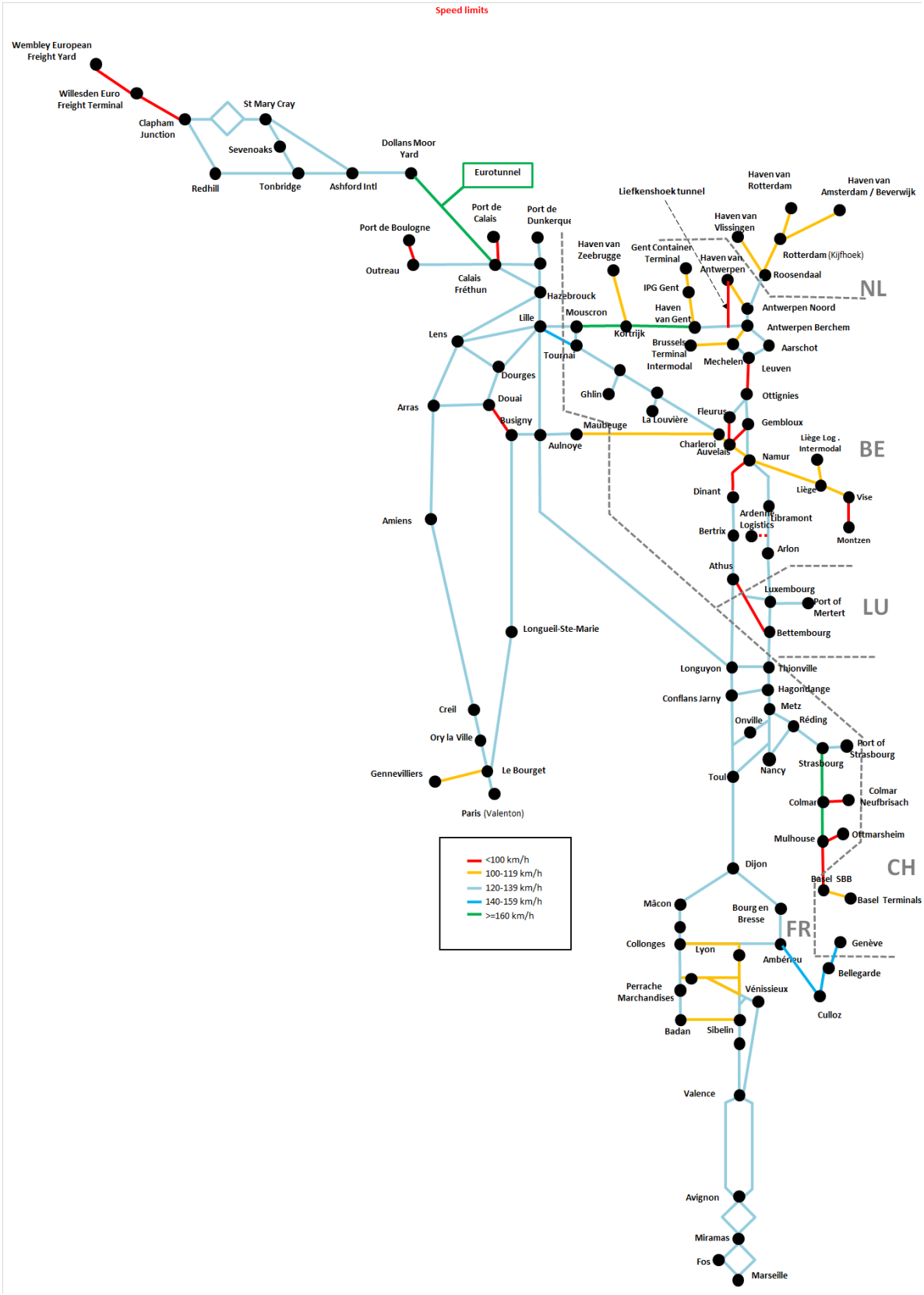
Number of tracks



2.1.3 Speed limits

The following map provides an overview on the speed limits on the corridor lines.

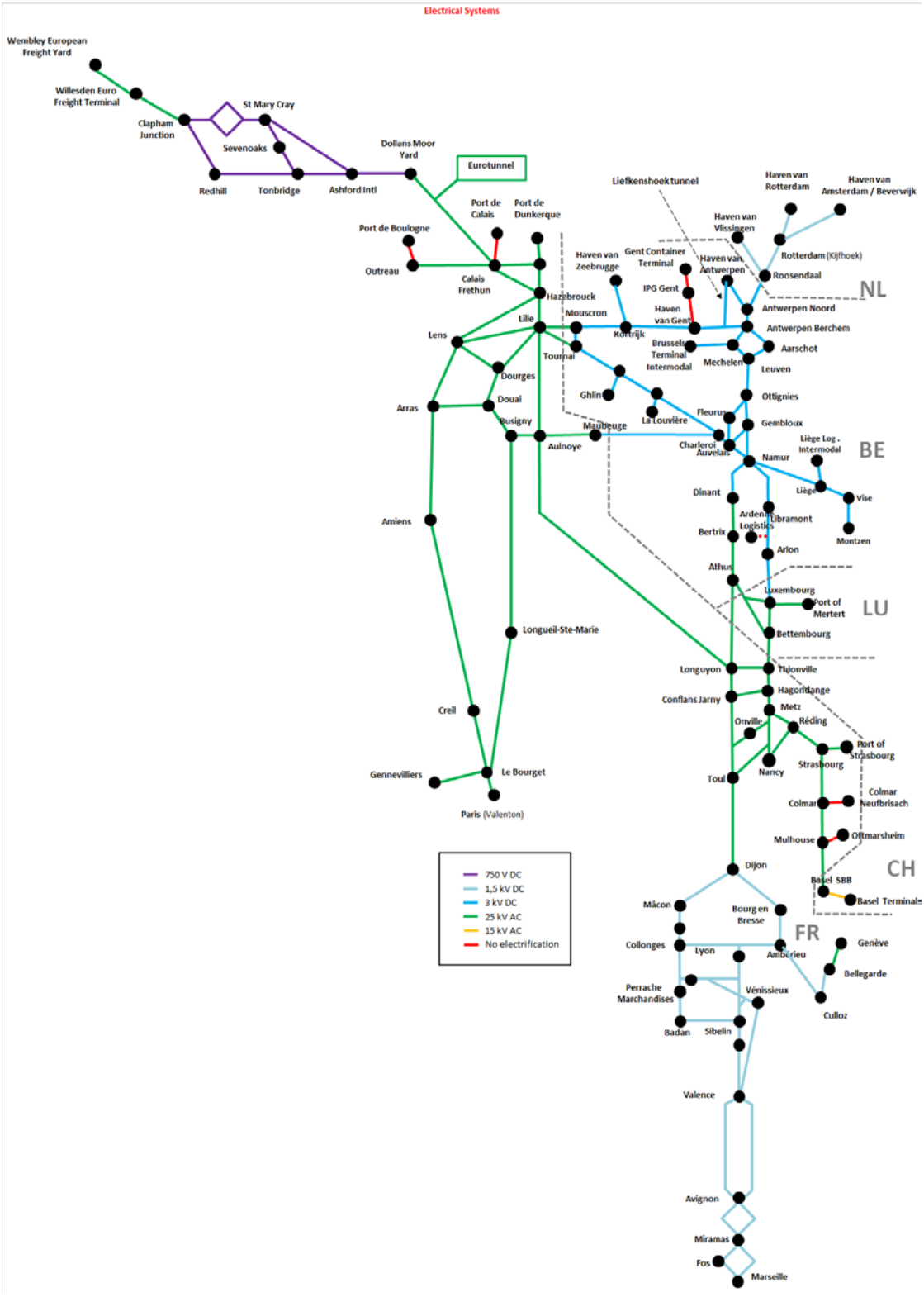
Speed limits



2.1.4 Electrical systems

All principal and diversionary lines of the corridor are electrified. They comply with the TEN-T core network standard which allows: 25 kV AC, 50 Hz; 3 kV DC; 15 kV AC, 6.7 Hz; 1.5 kV DC, 750V DC.

Electrical systems



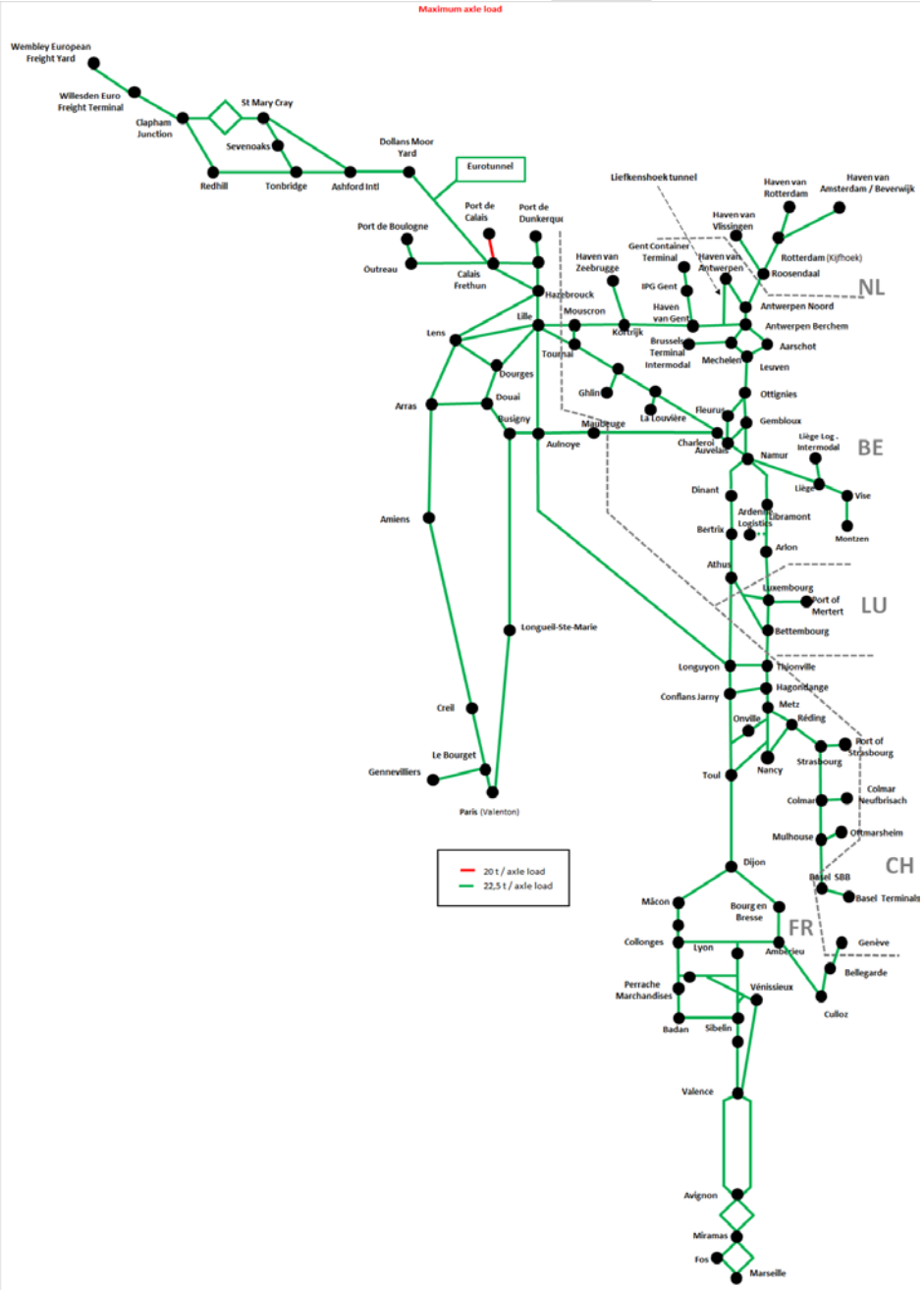
2.1.5 Signalling systems

The signalling systems of RFC North Sea-Mediterranean progressively migrate from legacy national systems to ERTMS. Section 4.2.3 about the interoperable system presents in detail the planning of the ETCS deployment on the corridor lines.

2.1.6 Maximum axle load

According to the TEN-T standards, the axle load on the core network will not exceed 22.5 tons per axle. All RFC North Sea-Mediterranean lines (with the exception of the small section to the Port of Calais) comply with this standard.

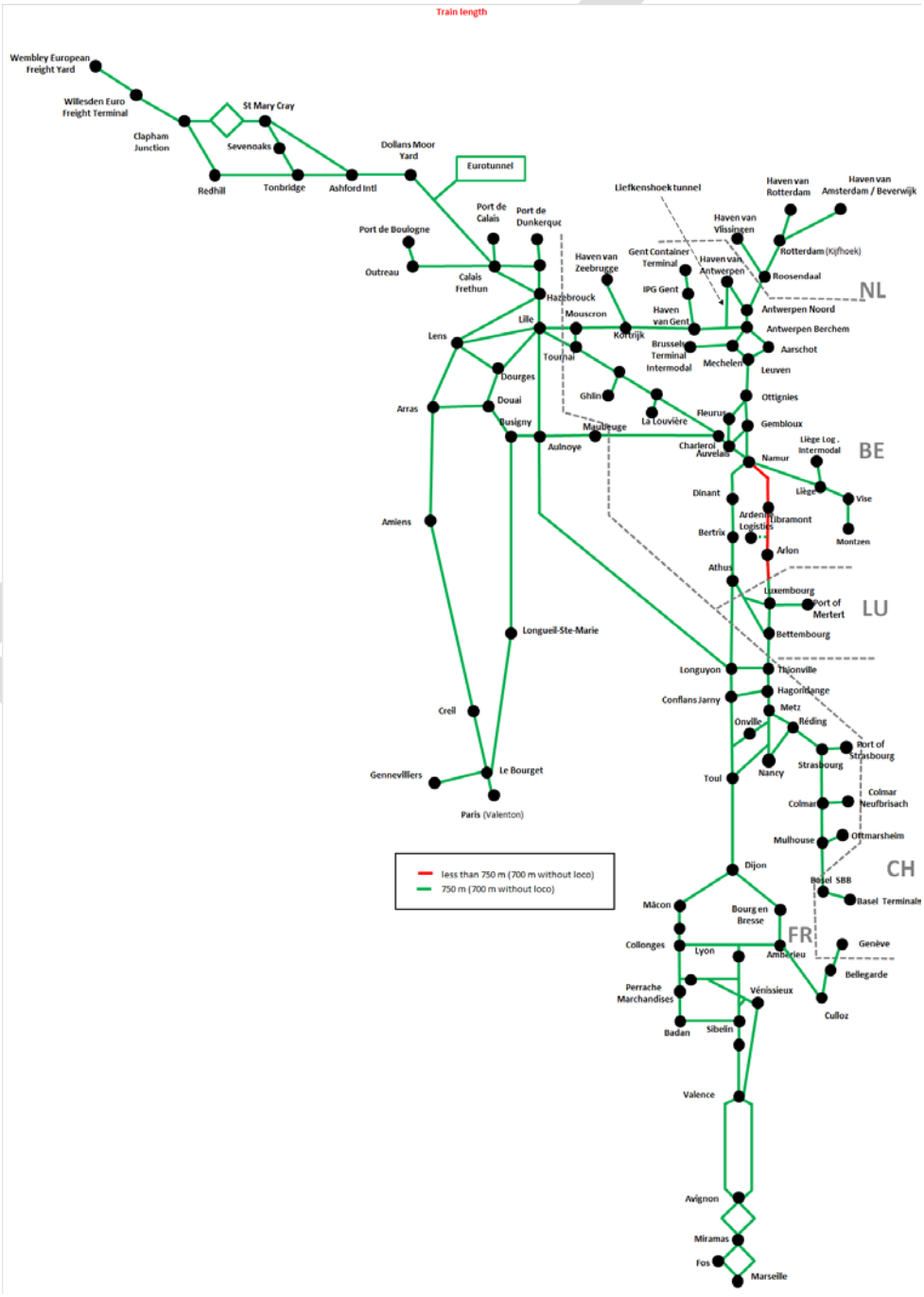
Maximum axle load



2.1.7 Train Length

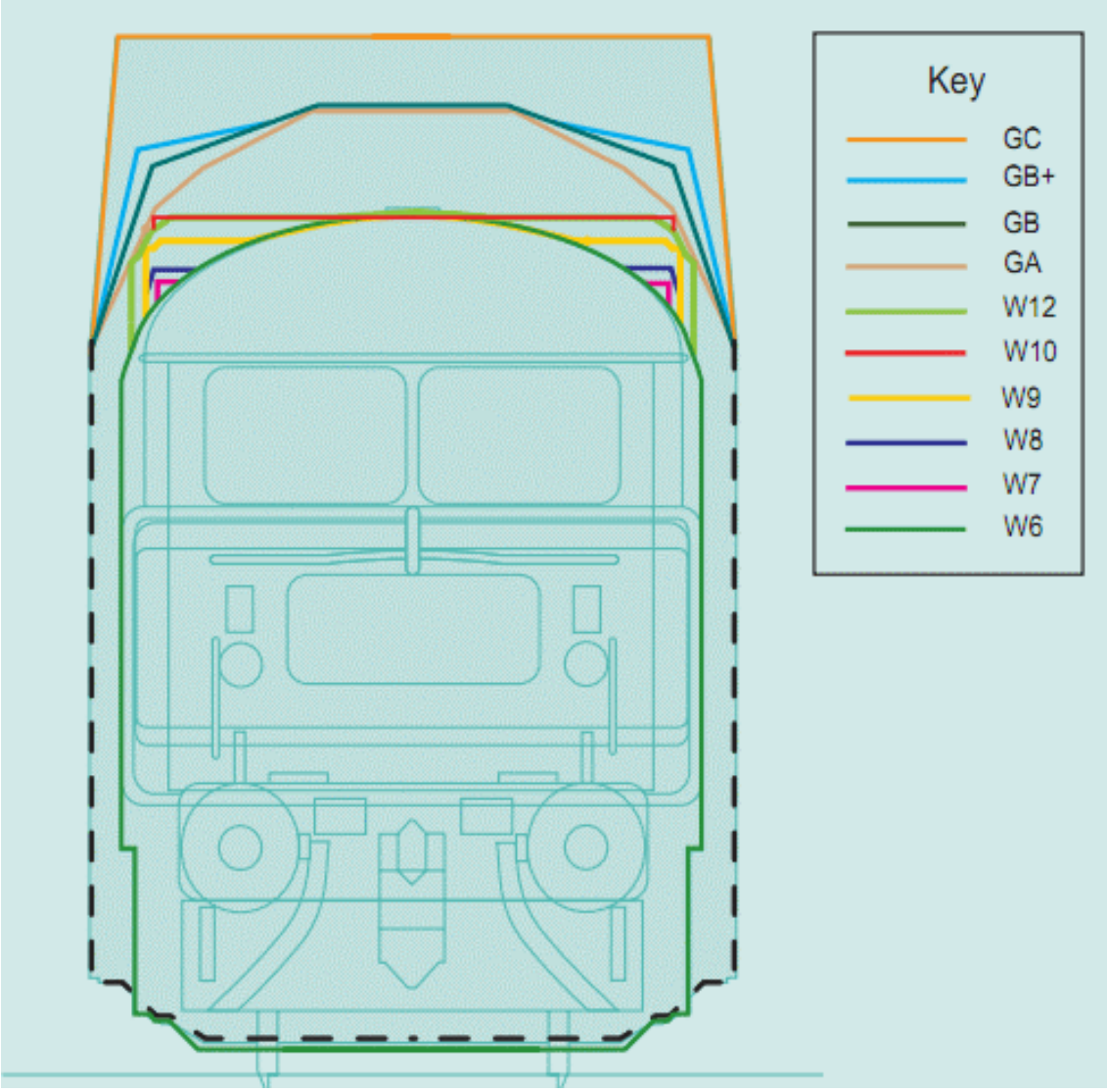
The standard train length is expected to be set at 740/750 meters (including locomotives). In Belgium, 740/750 meter-long trains are not allowed to run on some sections during the day time. The UK, The Netherlands, Luxembourg, Switzerland and France fully meet the TEN-T standard.
On the section of line Bettembourg – Le Boulou, trains of the rolling highway as well as combined transport trains with “high performance” wagons are allowed to run with a length of 850 meters.

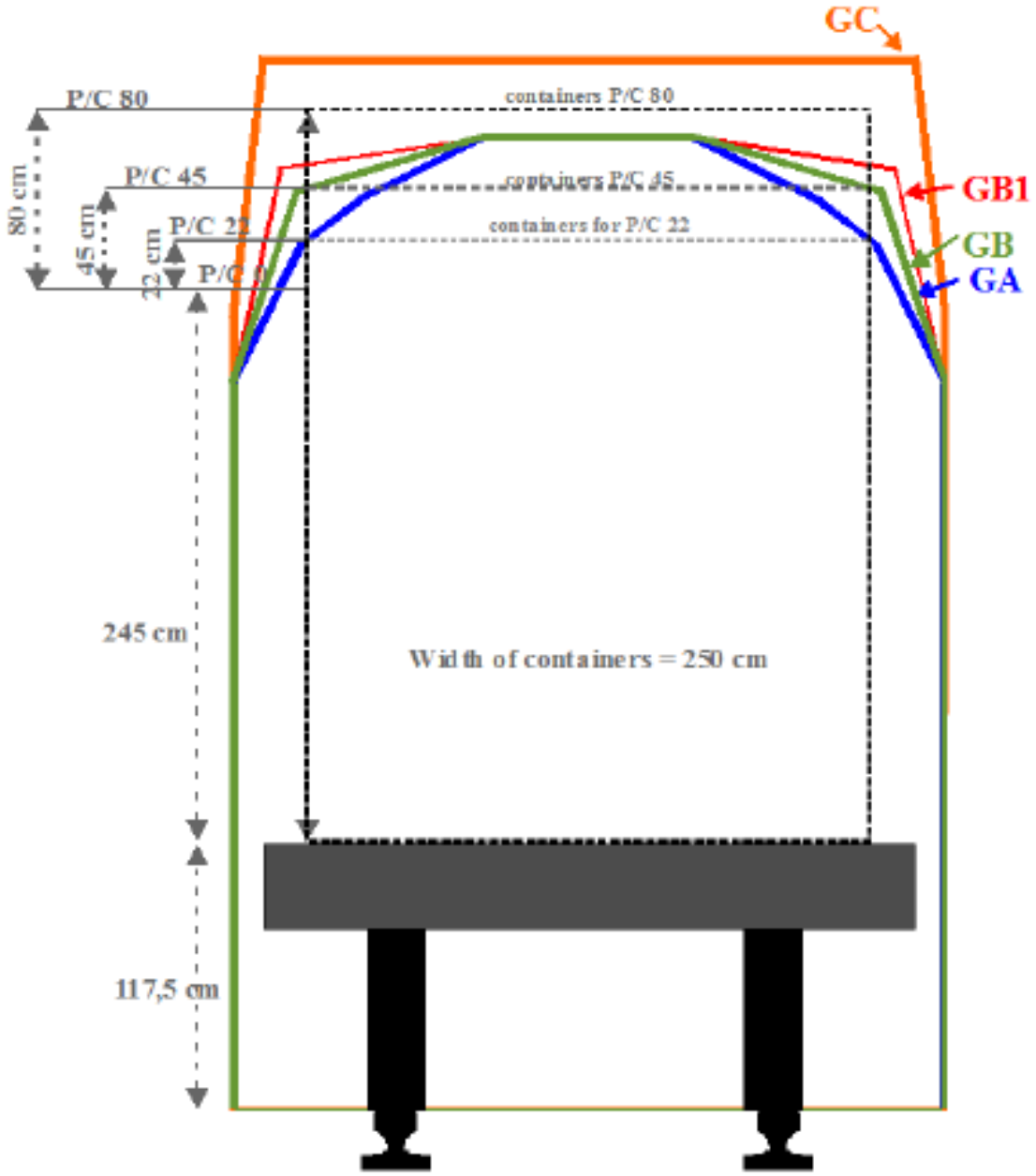
Train length

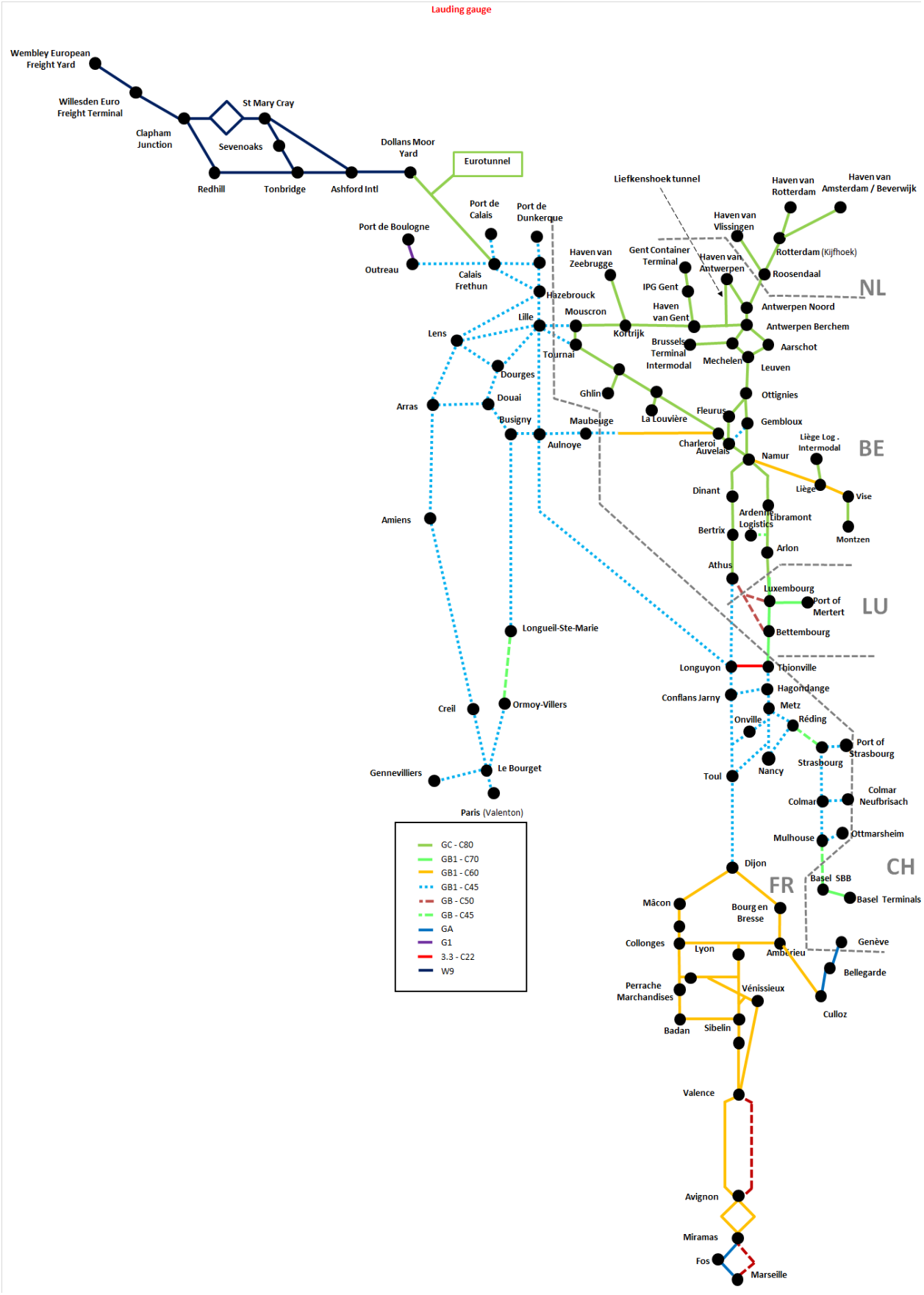


2.1.8 Loading Gauges

There is no TEN-T core network standard requirement for loading gauge. However, available loading gauge can be a criterion for railway undertakings to arbitrate between two routes. The loading gauge is different whether we consider conventional freight trains or combined transport freight trains. The following figures indicate the technical characteristics of loading gauge, and the specification per corridor section.



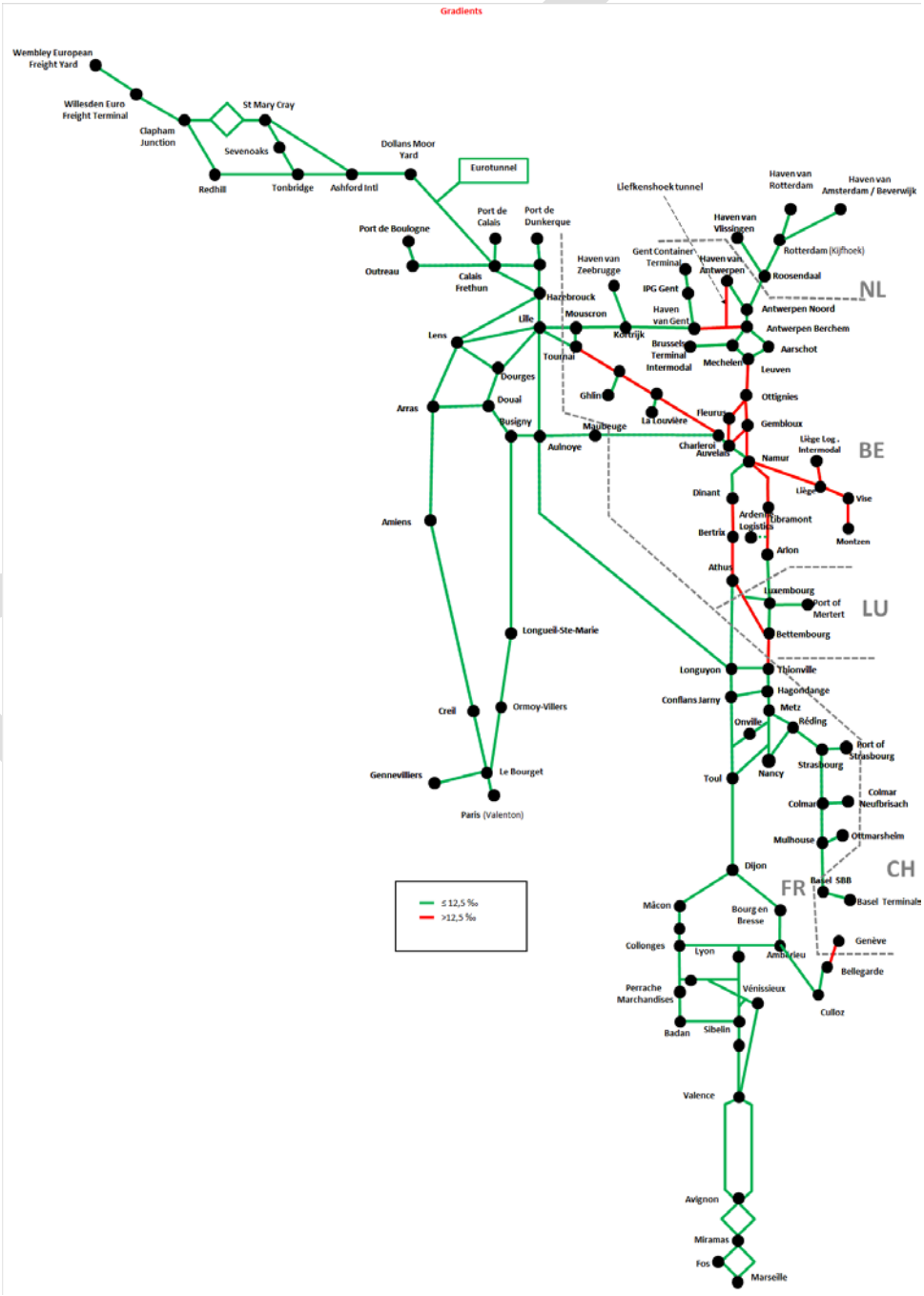

GC
P/C 80
containers P/C 80
P/C 45
containers P/C 45
P/C 22
containers for P/C 22
P/C 0
GB1
GB
GA
80 cm
45 cm
22 cm
245 cm
Width of containers = 250 cm
117,5 cm


Lauding gauge
Wembley European Freight Yard
Willesden Euro Freight Terminal
Clapham Junction
St Mary Cray
Sevenoaks
Redhill
Tonbridge
Ashford Intl
Dollans Moor Yard
Eurotunnel
Port de Calais
Port de Dunkerque
Port de Boulogne
Outreau
Calais Frethun
Hazebrouck
Liefkenshoek tunnel
Haven van Rotterdam
Haven van Amsterdam / Beverwijk
Haven van Vlissingen
Rotterdam (Kijfhoek)
Haven van Zeebrugge
Gent Container Terminal
Haven van Antwerpen
Roosendaal
IPG Gent
NL
Haven van Gent
Antwerpen Noord
Mouscron
Lille
Kortrijk
Antwerpen Berchem
Lens
Brussels Terminal Intermodal
Aarschot
Tournai
Mechelen
Leuven
Dourges
Ghlin
Ottignies
Douai
Arras
La Louvière
Fleurus
Gembloux
Busigny
Maubeuge
Aulnoye
Charleroi Auvelais
Liège Log. Intermodal
BE
Namur
Dinant
Liège
Vise
Ardenne Logistics
Libramont
Amiens
Bertrix
Montzen
Arlon
Athus
Luxembourg
Port of Mertert
LU
Longueil-Ste-Marie
Bettembourg
Longuyon
Thionville
Hagondange
Conflans Jarny
Metz
Creil
Ormoy-Villers
Onville
Réding
Port of Strasbourg
Strasbourg
Nancy
Toul
Gennevilliers
Le Bourget
Colmar
Colmar Neufbrisach
Paris (Valenton)
Mulhouse
Ottmarsheim
CH
Dijon
Basel SBB
FR
Basel Terminals
Mâcon
Bourg en Bresse
Collonges
Lyon
Ambérieu
Genève
Bellegarde
Perrache Marchandises
Vénissieux
Culloz
Badan
Sibelin
Valence
Avignon
Miramas
Fos
Marseille
GC - C80
GB1 - C70
GB1 - C60
GB1 - C45
GB - C50
GB - C45
GA
G1
3.3 - C22
W9

2.1.9 Gradients

To meet most of the railway undertakings' expectations to use only one loco for one train, the gradient shall not exceed 12.5‰. Netherlands, UK and Switzerland fully meet the standard. France meets the standard on all lines except between Collonges and Part-Dieu. Luxembourg has part of its sections meeting this expectation: between Autelbas and Bettembourg (30 km). The Athus – Zoufftgen section (35 km) has a slope greater than 19‰. In Belgium, there are only 40% of the sections which meet railway undertakings expectations. None of the routes between Rotterdam and Lyon/Basel is compliant from one end to the other.

Gradients



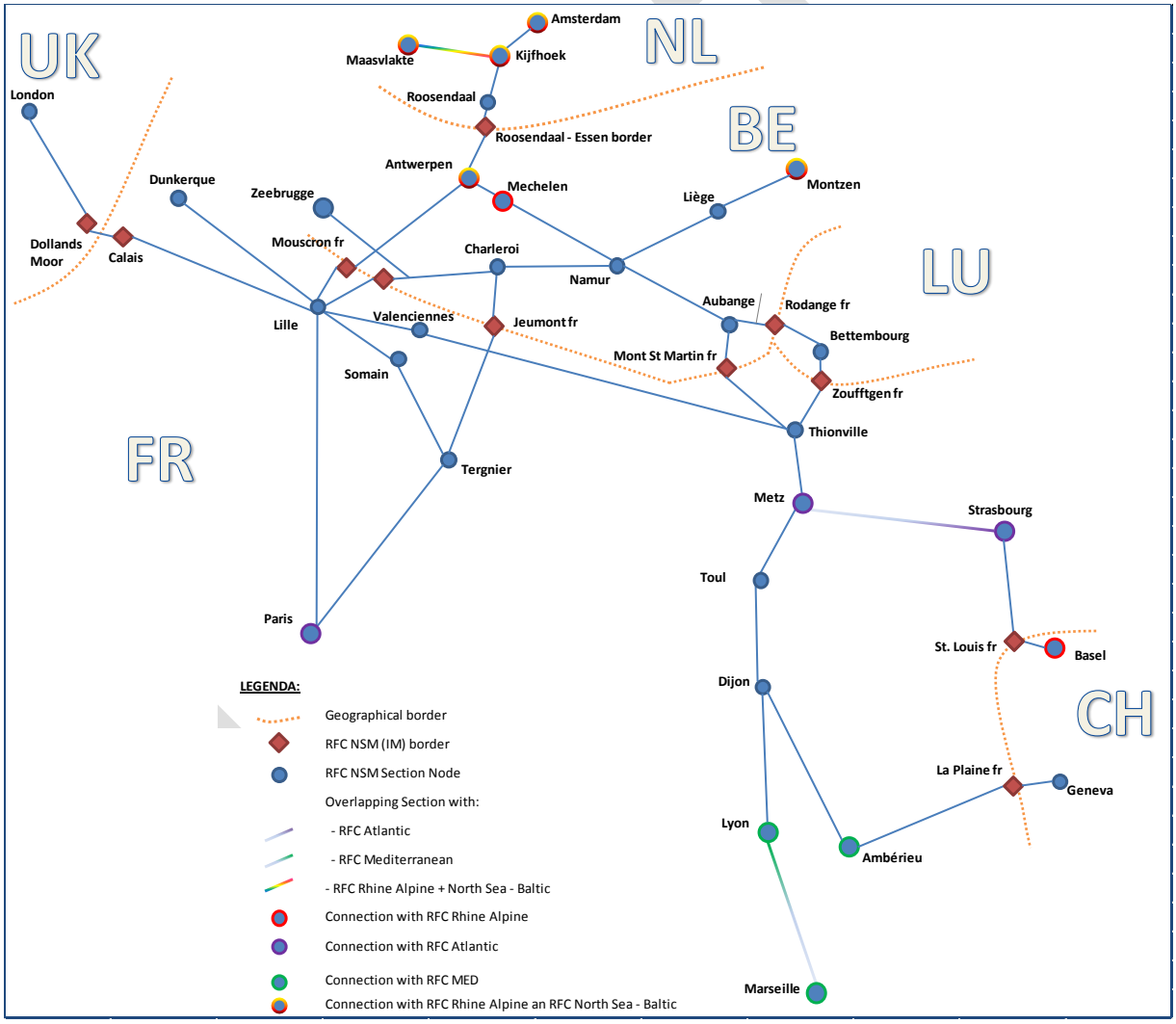
2.2 Connections with Other Corridors

2.2.1 Overlapping Sections with other Corridors

RFC North Sea-Mediterranean is connected to four other rail freight corridors:

- In Rotterdam, Antwerp, Ghent, Zeebrugge, Montzen and Basel with Corridor Rhine Alpine;
- In Metz and Paris with the Atlantic Corridor;
- Between Lyon and Marseille, and in Ambérieu with the Mediterranean Corridor; In Rotterdam and Antwerp with Corridor North Sea - Baltic.

Please find a schematic overview below:



2.2.2 Contiguous Traffic Flows with other Corridors

As RFC North Sea – Mediterranean is linked in many locations with other corridors, the importance to act as one network of corridors can't be overestimated. Many traffic flows using at least partly RFC North Sea – Mediterranean lines continue on/come from one or more other corridors. Below a non-exhaustive overview of these traffic flows is provided.

2.2.2.1 RFC Rhine Alpine

One of the dominant traffic flows using RFC North Sea – Mediterranean lines connects the Benelux region with the north of Italy, using RFC North Sea – Mediterranean and RFC Rhine Alpine lines. The main connection points for this traffic is Basel.

2.2.2.2 RFC Atlantic

The Benelux region is connected to Spain using RFC North Sea – Mediterranean and Atlantic Corridor lines. The main connection between the two corridors for this traffic is made in Paris.

2.2.2.3 RFC Mediterranean

Various regions in the North or Central France are connected to Italy via Dijon and Modane, using RFC North Sea – Mediterranean and Mediterranean Corridor lines. The connection between the two corridors for this traffic is made in Ambérieu.

2.2.2.4 RFC North Sea - Baltic

Transit traffic through the Netherlands from the Belgian harbours on RFC North Sea - Mediterranean (via Roosendaal and Bad Bentheim or Venlo) exists, which continue eastbound to Eastern Germany, Poland or the Czech Republic using RFC North Sea – Baltic lines.

2.2.2.5 Multiple Corridor Flows

Several traffic flows exist on RFC North Sea – Mediterranean, using at least three corridors. Please find some examples below:

- Sweden – Belgium using RFC North Sea – Mediterranean, North Sea – Baltic and ScanMed lines (via Bad Bentheim and Hamburg).
- Germany – Spain using RFC North Sea – Mediterranean, Atlantic and Mediterranean lines (via Forbach and Lyon).
- Le Havre – Italy using RFC North Sea – Mediterranean, Atlantic and Rhine-Alpine lines (via Metz and Basel).

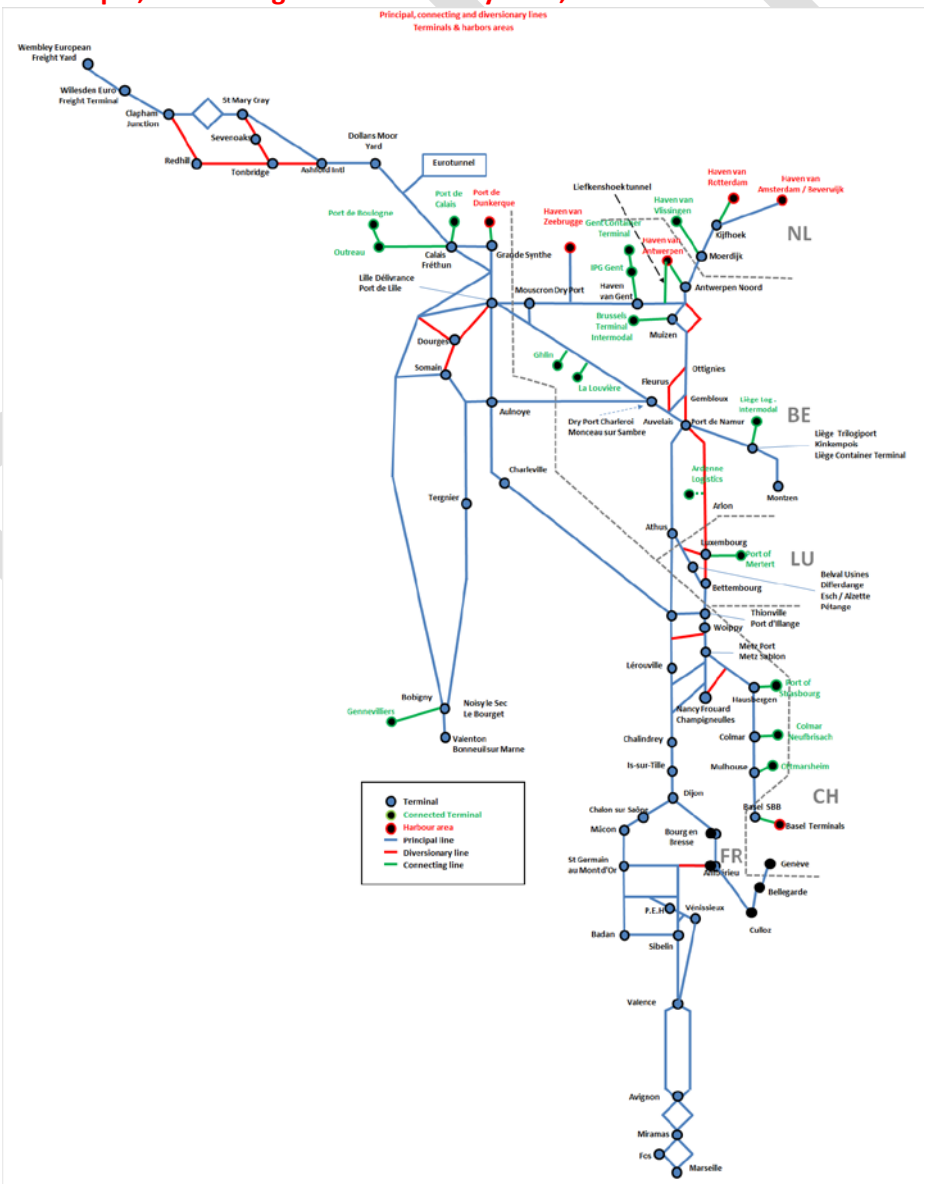
2.3 Corridor Terminals

In Regulation (EU) 913/2010, terminals are broadly defined. They can be the Infrastructure Managers' marshalling yards and sidings which are necessary for rail system operations like train formation operations. They can also be many other entry points of the various transportation systems in the commercial zone of influence of the corridor:

- combined transport terminals;
- river ports;
- multimodal platforms;
- maritime ports;
- private rail freight terminals.

The list of terminals is provided in Book III of the Corridor Information Document, and more detailed information can be found in our geographical information system, available on the corridor website. Please find a schematic overview of the corridor terminals.

Principal, connecting and diversionary lines, Terminals & harbors areas



2.4 Bottlenecks

2.4.1 Traffic on RFC North Sea-Mediterranean

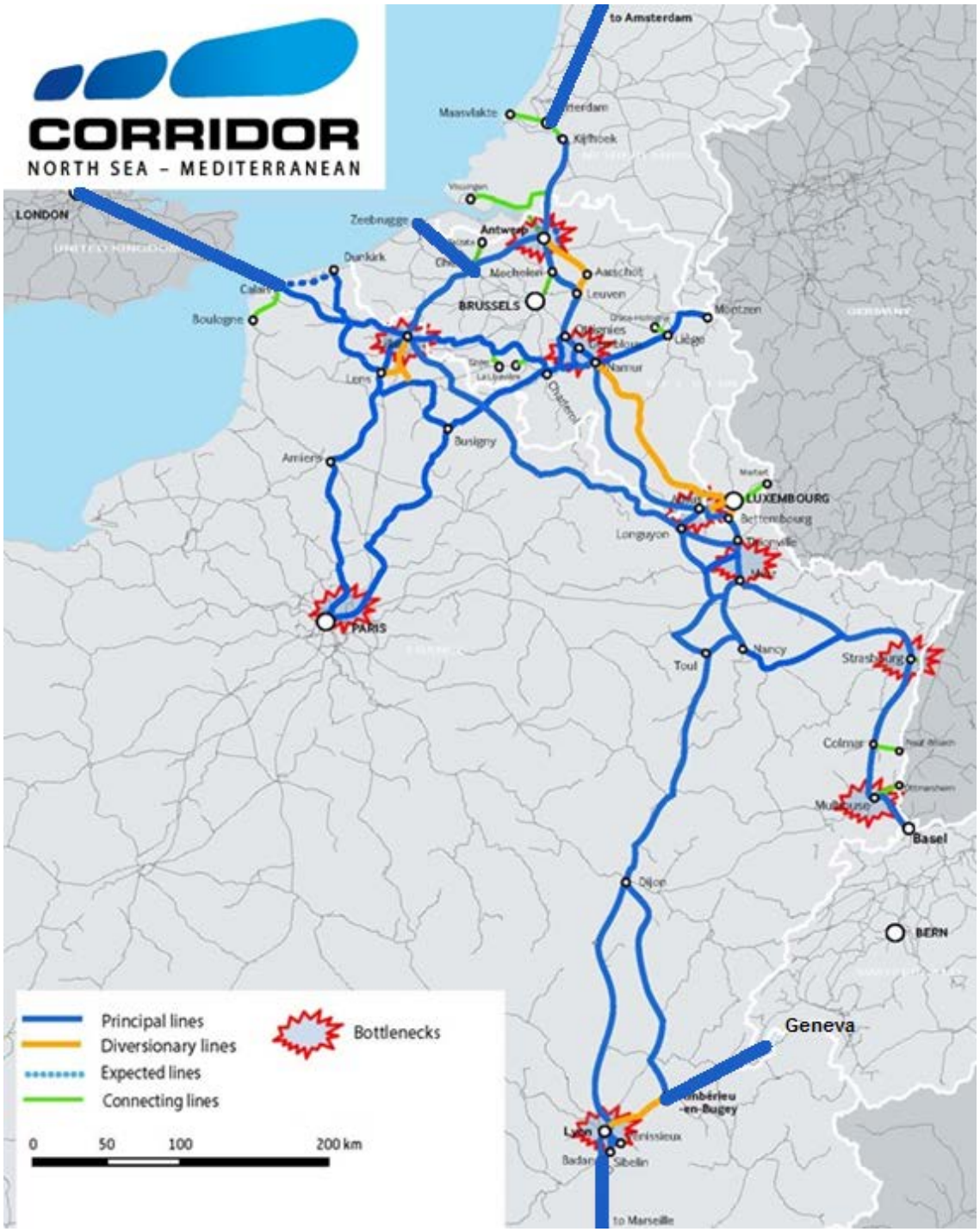
The first transport market study (TMS) concluded that the total weight transported in 2010 on the RFC North Sea-Mediterranean routes was almost **22 million tons**, and the Origin/Destination matrix shows that almost 34,000 trains crossing at least one border of the corridor are running each year on the corridor sections.

Please find additional information on traffic along RFC NSM in the essential elements of our Transport Market Study, which can be found on our website, or directly by clicking here.

2.4.2 Bottleneck description

RFC North Sea-Mediterranean calls “bottleneck” all rail sections where it has identified a capacity problem. Typically, this means that it is difficult to elaborate a train path if this path crosses one of these bottlenecks during peak hours.

In total, RFC North Sea-Mediterranean has identified the bottlenecks which are highlighted on the map below.



2.4.2.1 Antwerp node

Antwerp is the most active region of the corridor regarding international trains. It is also a very active passenger traffic area. The bottleneck of Antwerp comes from the fact that all trains run on the same tracks especially during the passenger peak hours. The access roads to the port, however, are saturated and hinder the accessibility thereof.

Second rail access to the port of Antwerp

Today, all trains from the port of Antwerp use one main railway line to access its hinterland. This line has, however, reached saturation point. That is why Infrabel would like to create a so called second railway access to the port of Antwerp. This new railway line, exclusively for freight transport, will connect the Antwerp-North marshalling yard with the Lier – Aarschot line (L16) and thus make the port of Antwerp more accessible from further inland.

2.4.2.2 Other bottlenecks

Additional information about RFC North Sea-Mediterranean bottlenecks is provided in chapter 6.3.

2.5 RFC Governance

The setting up of the governance of RFC North Sea-Mediterranean as below was one of the main measures necessary for creating the corridor. The other measures, more technical, are described in chapter 5.

2.5.1 Management board

The RFC North Sea-Mediterranean Management board is the European Economic Interest Grouping Rail Freight Corridor North Sea-Mediterranean, in short RFC North Sea-Med.

2.5.1.1 Members and Partners

As stipulated in article 8 of Regulation (EU) 913/2010, the Management board is composed of all Infrastructure managers (IM) and allocation bodies (AB) involved in RFC North Sea-Mediterranean, namely:

- ProRail (IM) for the Netherlands
- Network Rail (IM) for United Kingdom
- Infrabel (IM) for Belgium
- Eurotunnel (IM) for France and United Kingdom
- CFL (IM) and ACF (AB) for Luxembourg

- SNCF Réseau (IM) for France
- SBB (IM) and Trasse Schweiz (AB) for Switzerland

2.5.1.2 Legal structure

The EEIG RFC North Sea - Med is based in Luxembourg and ruled by:

- Regulation (EU) 2137/85 dated July 25 1985;
- the Law of Luxembourg concerning EEIGs dated March 25 1991, andits own by-laws.

It was created on March 16, 2007 under the name of EEIG Corridor C. On March 21st, 2013, the name, scope and governance of the EEIG were modified. The EEIG name became Groupement Européen d'Intérêt Economique Rail Freight Corridor 2, (in short GEIE RFC 2) and the scope was extended to include all tasks entrusted to the Management board as described by Regulation (EU) 913/2010. On October 20, 2015, the by-laws were modified to integrate Network Rail and Eurotunnel as new members and the name of the EEIG was changed to Rail Freight Corridor North Sea – Mediterranean.

The nine entities that participate in the activities of the Management board are either members of the EEIG or partners of the EEIG:

- ProRail, Network Rail, Eurotunnel, Infrabel, CFL and SNCF Réseau are members of the EEIG;
- SBB, Trasse Schweiz and ACF are partners of the EEIG.

The EEIG governance relies on an Assembly and a Managing Director.

The Assembly is chaired by a President. If the President is not available to chair the Assembly, this chairmanship is entrusted to a Vice-President. The Assembly has all powers to make decisions or to perform the actions which are necessary for the fulfilment of the EEIG scope.

The Managing Director is appointed by the Assembly. He is in charge of all the operational and technical tasks that must be performed by the EEIG. He can represent and commit the EEIG within the limit defined by the Assembly.

More details about the EEIG RFC North Sea - Med can be found in the organisation chart (see chapter 1.3.1.4).

2.5.1.3 Permanent team

RFC North Sea-Mediterranean has a Permanent team which has been set up gradually since 2009.
It consists of three persons under the authority of the Managing Director:

- a Quality and Capacity Manager;
- an Operations and Investment Manager and ERTMS coordinator

- a Communication and Finance Manager.

The Managing Director ensures the performance of the tasks entrusted to the EEIG.

The Quality and Capacity Manager is responsible for all matters related to train performance along the corridor as well as capacity allocation issues. Since 10 November 2013, he is the Corridor one-stop shop leader, in charge of the coordination and allocation of pre-arranged paths and reserve capacity on RFC North Sea-Mediterranean.

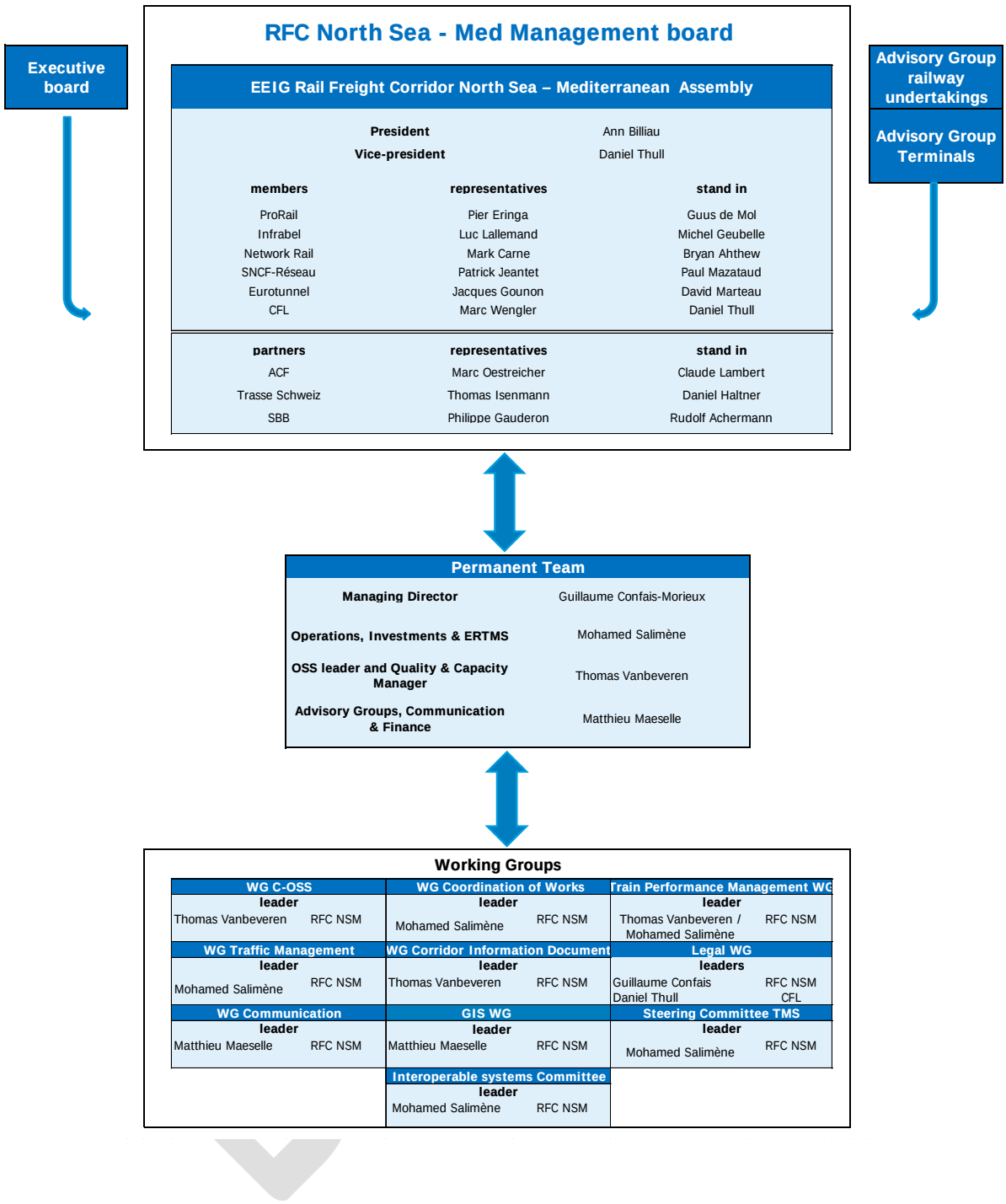
The Operations and Investment Manager concentrates his actions on operational problems and proposes measures to eliminate bottlenecks along the corridor or improve operational aspects of traffic. He also contributes to the coordination of works, Traffic Management aspects, and coordinates investments and the ERTMS deployment on the corridor.

The Communication and Finance Manager is responsible, among other things, for all tasks related to the management of European subsidies, the financial aspects of the management of the EEIG and the promotion of RFC North Sea-Mediterranean to stakeholders. He is also in charge of the relationship with the advisory groups.

This streamlined structure allows the EEIG to react with promptness, flexibility and efficiency.

2.5.1.4 Working groups

Besides actively participating in the RailNetEurope working groups, RFC North Sea-Mediterranean has implemented its own working groups. These groups are composed of members from the Permanent team and experts from the infrastructure managers and allocation bodies that form the corridor. Most working groups work on a pragmatic basis, while others have a more regular character:



2.5.1.5 Communication

Whether through its website or its publications, RFC North Sea-Mediterranean concentrates on presenting its activities, ambitions and its cooperation with its stakeholders. It means that stakeholders can be kept informed on the current projects and the results obtained on RFC North Sea-Mediterranean.

The communication policy of RFC North Sea-Mediterranean mainly relies on a website (www.rfc-northsea-med.eu), the presentation of its activities in events and conferences,

press conferences and releases and the publication of brochures, annual reports, articles and other communication supports.

Managing Director Guillaume Confais-Morieux at 2016 TEN-T days in Rotterdam

2.5.1.6 Finance

The financial resources available to the RFC North Sea-Mediterranean come from contributions from its members and partners and European subsidies received.

2.5.2 Executive board

The Executive board is composed of representatives of the authorities of the Member States concerned and Switzerland. This is the governance body to which the RFC North Sea-Mediterranean Management Board reports.

In order to be able to provide the Ministries with the best information, the EEIG members report regularly and present the progress of its activities as well as performance indicators (corridor key performance indicators (KPIs) and the results of the annual user satisfaction survey).

The following authorities represent the States in the Executive Board:

Country	Member
BE	SPF Mobilité et Transports
UK	Department for Transport
FR	Ministère du Développement durable

LU	Ministère du Développement Durable et des Infrastructures (MDDI)
NL	Ministry of Infrastructure and Environment
CH	Office Fédéral des Transports

RFC North Sea-Mediterranean Executive Board authorities

On top of the members, the European Commission, the EEIG members, partners and permanent team and one representative of the six involved regulatory bodies are also invited to the Executive board meetings.

National Safety Authorities as well as the Chairman of the Railway Advisory Group are invited to Executive board meetings on an ad hoc basis.

2.5.2.1 Mission Statement

On 27 June 2011, the Corridor C Executive board migrated to the RFC 2 Executive board, by approving a "mission statement" establishing the Rail Freight Corridor no. 2 Executive board. Its mission is to accomplish all the tasks entrusted to it under Regulation (EU) 913/2010.

This agreement was replaced by an agreement signed on 8 October 2014 in the margins of the Transport Council in Luxembourg. This agreement clarifies the responsibilities and tasks of the Executive Board and states that United Kingdom is represented on the Executive board.

2.5.2.2 Framework for capacity allocation

On December 20, 2012 the seven transport ministers involved in RFC 1 and RFC 2 signed a Framework for capacity allocation, which was then published in the Official Journal of the European Union on March 6, 2013.

This Framework for capacity allocation on the corridor concerns the allocation linked to the pre-arranged paths and the reserve capacity given to the C-OSS for freight trains, crossing at least one border on a corridor as foreseen by Article 14.4 of Regulation (EU) 913/2010, namely where the allocation of capacity by the C-OSS is mandatory, according to Article 13 of the same Regulation.

A new version of this framework concerning the 2016 timetable, was adopted on 11 December 2014 by all representatives of the concerned ministers of transport of Rail Freight Corridor North Sea Mediterranean. At about the same time, three other Executive boards of Rail Freight Corridors have signed a similar framework. In December 2015, a new FCA for timetable 2017 was adopted, for all nine Rail Freight Corridors. This document can be found in annex to Book IV of this CID.

2.5.3 Advisory groups

On June 27, 2012, the Management board of RFC North Sea-Mediterranean formally created the RFC North Sea-Mediterranean Railway undertaking Advisory Group (RAG) and the Terminal Advisory Group (TAG). The kick off meeting of these two advisory groups took place on the same day in Brussels. The creation of these two groups complies with articles 8.7 and 8.8 of Regulation (EU) 913/2010.

2.5.3.1 Railway undertaking Advisory Group

Railway Undertakings potentially interested by RFC North Sea-Mediterranean

RFC North Sea- Mediterranean invites all railway undertakings interested in the use of the corridor as well as – since a decision taken in the RAG of 1 October 2014 - all active non-RU applicants to be involved in the activities of the RFC North Sea- Mediterranean RAG. For that purpose, RFC North Sea- Mediterranean publishes on its website announcements about upcoming RAG meetings and has set a mailing list of all railway undertakings which, to the knowledge of RFC North Sea-Mediterranean, could be interested in the use of the corridor. If other railway undertakings express their interest to participate in RFC North Sea-Mediterranean's activities, they will be added to this mailing list.

Concerning active applicants which are not railway undertakings, RFC North Sea-Mediterranean sends invitations to the ones which have already requested pre-arranged paths on the corridor. Four railway sector organisations also take part in the RAG's activities: CER (Community of European Railway and Infrastructure Companies), ERFA (European Rail Freight Association), RFG (Rail Freight Group) and KNV (Royal Dutch transport federation).

The RAG is chaired by a representative of a railway undertaking. A vice-chairman replaces him in case of unavailability. They are both chosen by the RAG. In May 2016, the RAG chose M. Lieven Goethals (B-Logistics) as chairman and Eric Lambert (CFL Multimodal) as vice-chairman.

Participants RAG meeting London 24/05/2016

Purpose and scope

RFC North Sea-Mediterranean set up its RAG to enable a fruitful dialogue with railway undertakings on all topics related to the corridor. The RFC North Sea-Mediterranean Management board and the RAG can share information, ideas and opinions. This advisory group may issue an opinion on any proposal by the Management board which has consequences for these undertakings. It may also issue own-initiative opinions. The Management board shall take any of these opinions into account.

The Management board organises in average two general RAG meetings a year (to which it also invites a representative of the European Commission, Executive board and Regulatory bodies of the corridor) and consults the RAG on all important issues, for example via a consultation of the Corridor Information Document update in case of major changes.

On request of the RAG, the Management board can launch any RAG/Management board working group to go deeper into a given subject. An electronic data management system is made available to the members of the RAG to share documents on these groups or other topics.

2.5.3.2 Terminal Advisory Group

Members

RFC North Sea-Mediterranean invites all RFC North Sea – Mediterranean terminal managers and owners to participate in the activities of the Terminal Advisory Group (TAG).

The list of these terminals can be found in Book 3 of the Corridor Information Document.

TAG meeting Amsterdam 12/10/2016

Purpose and scope

As for the RAG, the TAG is set up to enable a fruitful dialogue with terminals on all topics related to the corridor. The RFC North Sea-Mediterranean Management board and the TAG can share information, ideas and opinions. This advisory group may issue an opinion on any proposal by the Management board which has direct consequences for investment and the management of terminals. It may also issue own-initiative opinions.

The Management board organises in average one general TAG meeting a year (to which it also invites a representative of the European Commission, Executive board and Regulatory bodies of the corridor) and consults the TAG on all important issues, for example via a consultation of the Corridor Information Document update in case of major changes.

On request of the TAG, the Management board can launch any TAG/Management board working group to go deeper into a given subject. An electronic data management system can be made available to the members of the TAG to share documents on these groups.

3. Transport Market Study

In application of Article 9 of Regulation (EU) 913/2010, the RFC North Sea-Mediterranean Management board has mandated a consortium of consultant firms to carry out a first Transport Market Study. This study was carried out in 2012 and 2013.

On June 2016, an update has been made (as an addendum) in order to assess the market for international rail freight in the United Kingdom. The addendum is based on the UK's Freight Market Study (FMS), which was published by Network Rail in October 2013. The aim of the FMS was to assess the demand for rail freight over a thirty year period. The FMS, together with similar studies for the passenger markets, is part of Network Rail's Long Term Planning Process (LTPP), which will help determine investment priorities for the UK's rail network over the next few years. The FMS addresses rail freight demand in Great Britain, including international rail freight demand through the Channel Tunnel.

The essential elements of these studies have already been published and are available in the previous versions of this book V of the CID on the website of RFC North Sea Mediterranean.

A synthesis can be found on our website, or directly by clicking here.

A new study is currently considered and should be a Europe-wide approach, such as a single TMS for all RFCs: the RFCs are currently investigating the possibility of the realization of a joint Europe-wide analysis of European freight traffic flows of all transportation modes with relevance for RFCs and based on a common database of origins & destinations. This joint analysis would serve as an input for the future updates of the individual RFC Transport Market Studies.

It should be finalized on 2018 and should contain the main following items:

1. *Scope:*
   a. *A Europe-wide analysis of European freight traffic flows of all transportation modes with relevance for RFCs and based on a common database / logic of origins & destinations.*

2. *Content & methodology:*
   a. *Definition of the catchment area (based on NUTS 2) for each country*
   b. *Definition of the origin / destination multimodal fluxes matrix (based on NUTS 2)*
   c. *Quantitative analysis*
   d. *All freight traffic flows shall be analyzed (network approach), and the main strategic axes on the main O/D pairs and in their catchment area with impact on the RFC concerned shall be identified/highlighted at the same time as well.*
   e. *Analysis of current freight transport market*
      i. *Methodology incl. database*
      ii. *Recent development of overall freight transport demand*
      iii. *Modal split*
      iv. *Commodity structure by type of transport mode*
      v. *Translation of traffic volumes into number of trains, trucks, vessels, etc.*

   f. *Market projections*
   g. *Transit traffic from/to third countries (transit O/D pairs) shall also be taken into consideration.*
   h. *In addition, a simple evaluation of the gathered data shall be added to the study per RFC, in a standardized way. In this way, the RFCs would have the same basic approach to the interpretation of the data.*
3. *Geographical scope:*
   a. *The geographical scope of the analysis shall be NUTS 2 zones. The future extensions of the RFCs as described in EU Regulation 1316/2013 shall also be taken into consideration.*
   b. *The future new RFC 10 and RFC 11 shall also be provided the opportunity to join this project if they set up their organization / decision-making structure in due time for that.*
4. *Time horizons & reference year:*
   a. *Prognosis up to 2023 and 2030*
   b. *Reference year: 2015*
   c. *Updates: every 5 years or when a new RFC or new extension to an existing RFC is foreseen*
5. *Scenarios:*
   Optimistic, medium, pessimistic

4. List of Measures

4.1 Coordination of Planned Temporary Capacity Restrictions

All information on the coordination of planned temporary capacity restrictions can be found in Book IV of the CID.

4.2 Corridor One Stop Shop

All information on the Corridor One Stop Shop can be found in Book IV of the CID.

4.3 Capacity Allocation Principles

All information on capacity allocation can be found in Book IV of the CID.

4.4 Applicants

All information on applicants can be found in Book IV of the CID.

4.5 Traffic Management

All information on traffic management can be found in Book IV of the CID.

4.6 Traffic Management in the Event of Disturbances

All information on traffic management in the event of disturbances can be found in Book IV of the CID.

4.7 Information Provided

The Management board of RFC North Sea-Mediterranean has decided to use as a basis the RNE Corridor Information Document Common Structure. More information on the subject can be found in Book I of the CID (chapter 2).

4.8 Quality Evaluation

4.8.1 Performance Monitoring Report

RFC North Sea-Mediterranean publishes an annual performance report on its website, and presents these figures during a TAG and RAG meeting, to its customers. This publication is foreseen for the first quarter of every year.

4.8.1.1 Measurements

RFC North Sea-Mediterranean monitors its performance by using a number of Key Performance Indicators and other measurements. These were chosen on the basis of the following parameters:

- Measurability: performance should be measurable with the tools and resources available for the corridor
- Clarity: KPI should be understandable for all public it is designed for
- Comparability: KPI should be comparable across time and region
- Relevance and empowerment: KPI should provide information on which project decisions can be based

The difference between general measurements and KPIs lies in the fact that we link concrete objectives to the KPIs, while this is not the case for general measurements.

The list will be updated regularly, depending on management needs and availability of data. They will form the basis, together with the results from the user satisfaction survey, for the annual performance report.

For the KPIs or other measurements, only RFC North Sea-Mediterranean trains are taken into account. Rail Freight “Corridor train” is an international train which crosses at least one RFC North Sea-Mediterranean border, and runs at least 70 continuous kilometres on this Corridor.

The KPIs and OMs have been divided into three categories: general corridor performance, monitoring of the allocation process and infrastructure characteristics.

4.8.1.2 Harmonisation of Measurements across Corridors

In order to facilitate data processing and data provision for the calculation of the KPIs of the corridors, as well as to establish a common interpretation of similar measurements, the corridors, together with RNE, have drafted a common guideline, to ensure a certain degree of harmonisation of the KPIs.

Our list of measurements has been updated accordingly.

4.8.1.3 Key Performance Indicators

The list of measurements indicated below will be used for the annual performance report from timetable 2016 (publication beginning of 2017).

- **General Corridor Performance:**

KPI 1: Traffic Volume (Total)

Measures the number of train runs on RFC North Sea-Mediterranean. Trains that pass two RFC North Sea-Mediterranean border points will not be counted twice.

KPI 2: Corridor Punctuality

Measures the average punctuality of a selection of corridor trains on a fixed number of passage points, including an overview on the punctuality at origin and at destination.

KPI 3: Theoretical Running Time

Makes the comparison between the average yearly timetable running time and the average prearranged path running time for predefined RFC North Sea-Mediterranean routes. The average speed will also be calculated, to be able to compare along the Corridor. This KPI is updated yearly after the publication of the Corridor PaPs Catalogue at X-11.

- **Monitoring of the allocation process:**

KPI 4: Volume of offered capacity

Kilometres per day offered at X-11 (yearly PaP catalogue), X-8 (PaPs for late requests) and X 2 (Reserve Capacity), with a specification for capacity for which standard priority rule applies and capacity for which Network PaP priority rule applies.

KPI 5: Volume of requested capacity

Kilometres per day requested as a PaP in the period X-11 till X-8 and X-8 (-1 day) till X-30 days (without feeder/outflow sections; with a specification for PaPs for which standard priority rule applies and PaPs for which Network PaP priority rule applies).

KPI 6: Volume of pre-allocated capacity

Kilometres per day requested as a PaP in the period X-11 till X-8 (without feeder/outflow sections) that have been pre-allocated by the C-OSS.

KPI 7: Relation between capacity allocated by the C-OSS and total (scheduled) traffic

Comparison between number of trains (for selected timetable) allocated by the C-OSS per corridor border (final allocation X-3.5) and total amount of scheduled trains at the start of the given timetable year.

4.8.1.4 Other Measurements

- **General Corridor Performance:**

OM 1: Traffic Volume (Per Corridor Border)

Measures all corridor train runs per RFC North Sea-Mediterranean border point.

OM 2: Cancelled Trains

Measures the average amount of cancelled trains (entire trajectory) on the corridor. This KPI is updated on a monthly basis.

- **Monitoring of the allocation process:**

OM 3: Volume of requests

Number of requests submitted to the C-OSS in the period X-11 till X-8 and X-8 (-1 day) till X-30 days.

OM 4: Number of conflicts

Number of requests submitted to the C-OSS which are in conflict with at least one other request at X-8.

OM 5: Relation between the capacity allocated by the C-OSS and the total traffic

Comparisons between the number of paths allocated by the C-OSS involving the selected border points with the number of train runs that circulated on these selected border points, measured in January after the timetable year concerned.

4.8.2 User Satisfaction Survey

In order to be aware of the satisfaction level of our customers regarding the services provided and to increase the quality of these services, RFC North Sea-Mediterranean launched its first survey in September 2014. A third survey will be held in September 2016.

To make the results of the satisfaction survey more comparable, RFC North Sea-Mediterranean and RNE have jointly developed a harmonised survey for all rail freight corridors. The questionnaire addresses topics such as coordination of works, the CID, capacity allocation, C-OSS, traffic management, train performance management, communication tools and advisory groups.

This survey will be conducted every two years and its results will be published on RFC North Sea-Mediterranean website and in its annual report. It will also be presented in the advisory group meetings.

Regulation (EU) 913/2010 requires management boards to carry out such a satisfaction survey and describes its principles.

5. Objectives / Performance

The performance of the corridor is monitored via different KPI and other measurements. The content of these are described more into detail in chapter 4.8.1. For all KPIs, measurable objectives are fixed. These can be found in this chapter.

5.1 Train Performance Management: a corridor oriented performance scheme

5.1.1 Introduction

RFC North Sea-Mediterranean has chosen the Train Performance Management (TPM) project to comply with Regulation (EU) 913/2010.

The aim of Train Performance Management is to build an international common system and international common procedures which enables a corridor organization to measure, analyse (raw data, weak points, operational information …) and take actions to improve train performance along corridor lines. TPM follows a process on international rail traffic and relations to prepare the base for its improvements. These improvements produce benefits for all involved parties within international rail transports, for instance getting more efficiency on rail transport. This will be:

- Improved competitiveness for RUs
- Optimized use of capacity for IMs
- Shifting transports form road to rail

In consequence, this supports the target of the European Commission to shift traffic from road to rail.

Train Performance Management allows:

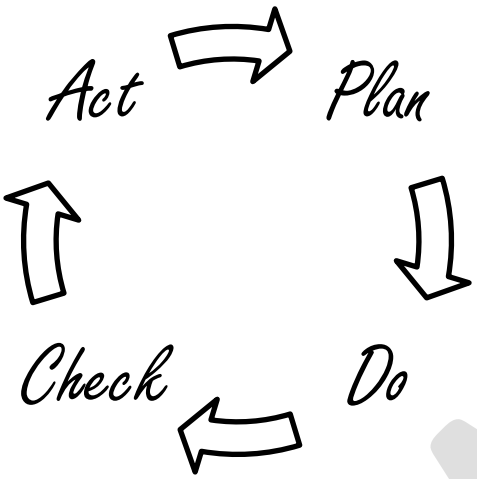
- an international approach for punctuality analysis
- appointing a dedicated team of Performance Managers
- the identification of quality problems as a basis for improvement
- the fulfilment of customer expectations, the improvement of customer satisfaction and the increase of railway transportation
- the fulfilment of current and future obligations with respect to the monitoring of punctuality
- the promotion of international cooperation (look across the borders), involvement of Railway Undertakings (RU) in existing international working groups
- positive influence to insure a stable national network and international traffic

5.1.2 TPM Objectives

The goal of TPM is an international approach for punctuality analyses to improve the quality of train performance on the Corridor, and so to improve customer satisfaction. The establishment of regular international cooperation on the quality performance (looking over the borders) between IMs themselves and also together with the RUs is a further objective.

5.1.2.1 General description of procedure

Train Performance Management leads to a continuous improvement through systematic monitoring and intervention (if necessary) to achieve an optimal quality in the whole production process.

	**Act: (improve)** **Post-processing** Normative / actual value comparison Set defaults Identification of problems	**Plan: (prepare)** **Operation** Clarify and define improvement topic Define and describe the problem Collecting information Find of causes Formulation of improvements Set of measures
	Check: (evaluate) **Analysis** Monitoring of results Registration of results Summary of results Visualization of results	**Do: (implement)** **Operation** Implementation of the measures Keep deadlines Documentation of measures

TPM Production Process

All activities regarding quality improvements have to be covered by a circle of management, which describes all necessities of plannings, doings, checks and actings. This means in particular to create exactly defined measures for all phases of improving quality on the rail network. The main purpose of such a working approach will be at least to have a very clear process description for all involved participants. The input for all phases has to be predefined by experts, worked out within special meetings of sub-groups.

Measure punctuality

Punctuality of a train is measured on the base of comparisons between the planned time in the timetable of a train identified by its train number and the actual running time at certain measuring points. A measuring point is a specific location on the route where the trains running data are captured. One can choose to measure arrival, departure or both, or run through time. Punctuality measurement is based on the internationally agreed timetable for the whole train run. Some IMs allocate a new timetable in case of delays. There may be cases where train runs should not be considered and are excluded from the punctuality measurement, e.g. allocation of a new timetable in case of big delays for the remaining part of the train run (load shifting), missing running advices at specific measuring points, timetable inconsistencies at the border etc…

The main Corridor axes will be defined, on which the traffic will be monitored. Per axis, different measuring points will be selected based on the number of trains passing, data quality and handling importance. This list will be updated periodically.

It is neither possible nor advisable to monitor all the trains running along the Corridor. Therefore, a selection must be made. This selection will be revised on a regular basis. The basic principles to take a train into account in the selection are the following:

- Only trains which are available in the information tool (TIS)
- Only trains crossing at least one Corridor border point
- Only trains passing at least 80% of the measuring points of the corresponding Corridor axis

Cross corridor reporting

If traffic flows on several corridors can be identified, cross-corridor reporting may be considered.

International data exchange

The objective of the international data exchange, which will become mandatory with the implementation of TAF TSI, is to provide electronic data. This defines the obligations of the parties regarding confidential information and the conditions under which this information may be passed on to third parties. Confidentially of data is a precondition to have access to the tools and to share information.

Confidentiality of data

The data shall remain the property of the IMs providing it. Notwithstanding this circumstance, the data shall be confidential for IMs and RUs receiving it. In this respect the involved organisations (IMs or RUs) may divulge information on the data according to laws or contractual provisions governing the use and confidentiality of data. This confidentiality is ensured by the use of confidentiality agreements. This defines the obligations of the parties regarding confidential information and the conditions under which this information may be passed on to third parties. Signing the confidentiality agreement is a precondition to have access to the tools and to share information. The confidentiality agreement template can be found in annex 2.

Data quality checks

Data quality needs to be monitored and is an integral part of Train Performance Management. A systematic procedure for the analysis of data quality issues as well as for the setting up of corrective actions is necessary. It does not concern the analysis of

performance and related improvement actions. The data source is TIS and data will be processed by Oracle Business Intelligence (OBI SE 1) through standardized templates provided by RNE.

5.1.3 Tasks & roles of IM/RU members in Train Performance Management

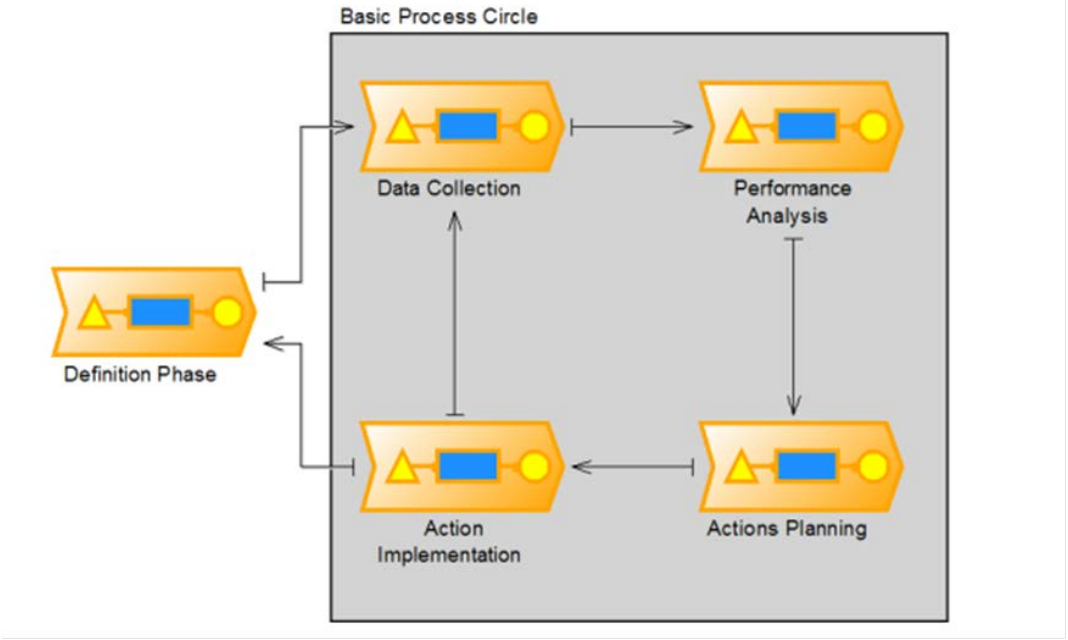
The project is guided by the TPM Work Group, with dedicated tasks and roles. This expert working group consists out of:

- A Project Leader (member of the Corridor Permanent Team)
- A Corridor Performance Coordinator (person, member of an IM, in charge of the overall coordination of IM Performance Managers along a corridor and acting as a consultation partner for the project leader in the questions of performance analyses)
- IM Performance Managers (person who represents their IM in the expert working group. This person is also the responsible for taking care of needed measures in his area to improve the punctuality (together with the concerned RU(s)).

The TPM WG will meet approximately 4 times a year. For two of these meetings, RUs are invited to participate to give feedback on ongoing issues. These numbers are only indicative.

Apart from the TPM WG, pragmatic bilateral working groups can be set-up, with composition depending on subject and/or corridor section, to act on issues raised in the TPM WG. These working groups are led by an IM Performance Manager (or the TPM Project Leader, when needed), and include concerned IM and RU representatives. The goal of these bilateral working groups is to investigate more deeply on the concerned issues, draft an action plan, and follow-up on measures to be taken.

The following graphic shows the work flow for each part of the whole TPM-process:



work flow for each part of the TPM-process

A non-exhaustive list of tasks and responsibilities of the TPM WG-members can be found below:

Tasks	Project Leader	Performance Coordinator	IM Performance Manager
Definition Phase			
Defining processes and standards for the TPM	R	X	X
Implementing processes for the TPM	R	X	X
Requesting development of IT tools based on requirements of TPM	R	X	X
Defining punctuality thresholds related to international products and traffics	R	X	X
Makes strategic decisions	R	X	X
Contact point for questions related to corridor issues at PM meetings	X		X
Checking processes and standards for the TPM		R	
Data Collection			
Updating train lists	X	R	X
Collection of data		X	R
Defining/implementing/checking the templates for reporting	X	R	X
Ensuring high data quality (raw data)		X	R
Distributing of defined performance reports	R	X	
Performance Analysis			
Combining national data into international performance data		R	X
Analysing the punctuality and delay causes in the reports		R	X
Analysing and ensuring high data quality, addressing problems to improve data completeness		X	R
Interpretation of graphs to define the problems	X	X	R
Addressing of weak points to the proper working group for taking actions	X	X	R
Receiving of feedbacks in terms of concrete actions and deadlines		X	R
Controlling of results of implemented measures		X	R
Combining national data into international performance data		R	X
Action Planning			
Organising TPM meetings for freight	R		X
Organising operational bilateral or multilateral meetings for freight and passenger	X	X	R
Analysing the reasons behind the problems		X	R
International escalation process	R	X	
Action Implementation			
Taking actions to eliminate the problems	X	R	X

Tallocation of TPM tasks

R = responsible, X = involved in the process, (X) = facultative

During all tasks, Corridor and IM representatives may consult concerned RUs to execute these topics in the optimal way.

5.1.4 Documentation of results

The major tools for documenting results of TPM are explained below.

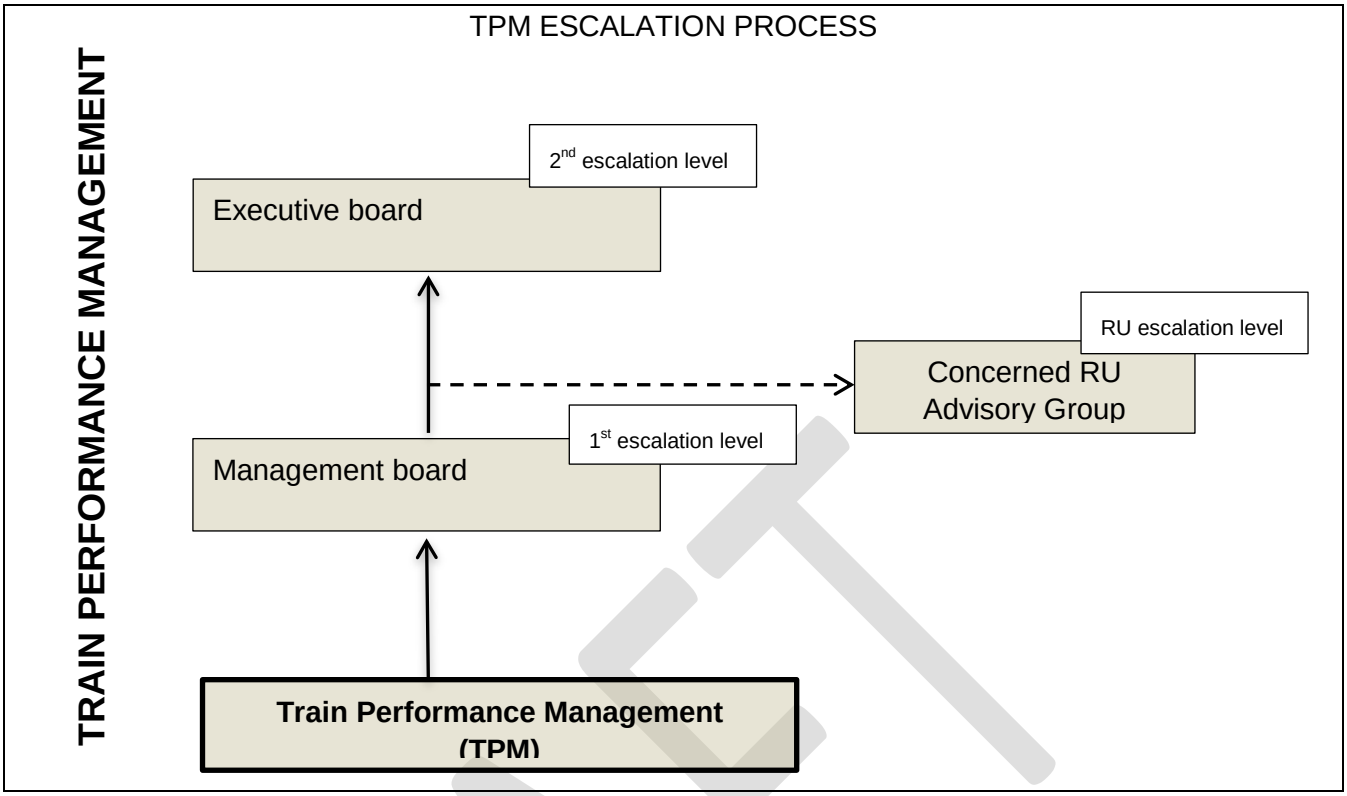
5.1.4.1 Reporting incl. catalogue of measures

Train Performance Management works with standardized templates which are used by all participating countries. This way comparability and aggregation is promoted. All monitored traffic will be evaluated and regularly reported. The reports will show the current development of important key figures. Some of these figures will be used to calculate the KPI described in chapter 5.8.3 of this Implementation Plan. The identified weaknesses and the formulated measures to eliminate them are collected in a catalogue of measures.

5.1.5 Escalation

Insufficient quality in the production process has to be addressed at the appropriate level and will be escalated where necessary. Primarily, the problem must be solved on the national level by the involved IMs and RUs according to national valid process. If the problem is not solvable by the IMs and RUs themselves, an escalation process can be started.
Different scenarios like:

- no progress possible concerning the collaboration with ministries
- problem in the cooperation amongst IMs
- problems in the cooperation between IMs and RUs



TPM escalation process

During all TPM WG meetings, reporting will be done concerning the past TPM bilateral meetings. Problems that occur during these meetings can be identified, and possible escalation can be discussed.

If the TPM WG agrees on the escalation of a given case, the TPM Project Leader will address this case to the Management board (MB).

The MB can decide to tackle this issue in the higher hierarchy of the concerned IM or to escalate further.
This further escalation can imply three decisions: the MB can decide if this case will be discussed in a RAG meeting (for problems concerning all RUs), in a bi- or multilateral meeting with the involved RU representatives to the RAG, or to escalate immediately to the Executive board of the Corridor.

5.1.6 Used tools

5.1.6.1 RNE Train Information System (TIS)

The Train Information System (TIS) supports international train management by delivering real-time train data concerning international passenger and freight trains. The tool allows following the complete train run of an international train across European borders. TIS serves as a source of information for international quality analysis, e.g. TPM.
The range of the tool will be continuously extended to other parts of the European railway network. TIS data is based on the standard UIC data exchange process. All RFC North Sea-Mediterranean routes are covered by TIS.

The IMs send data to TIS, where all the information from the different IMs is combined into one train run from departure or origin to final destination. In this manner, a train can be monitored from start to end across borders. All collected data for the train runs, is accessible in TIS and OBI SE 1.

Oracle Business Intelligence Standard Edition One (OBI SE 1)

Oracle Business Intelligence Standard Edition One is a comprehensive business intelligence platform that delivers a full range of analytic and reporting capabilities. It is used by RNE to process the raw TIS data and to deliver the necessary reports to the Corridors.

5.2 National Performance Schemes

The relevance of integrate part of the European Performance Regime into Train Performance Management has been studied, but due to poor results the decision was taken to not continue with this. To have a better understanding of the performance regimes along the corridor, an overview on the performance schemes applied on the corridor has been drafted and presented by the Managing Board to the Executive Board of December 17, 2015.

5.3 Punctuality Objectives

It is the goal of the RFC North Sea-Mediterranean to improve punctuality on the Corridor. This goal can be reached by 3 methods. The Train Performance Management, an improved harmonisation and resilience of the PaP Catalogue and the removal of traffic bottlenecks. TPM is described in detail in chapter 5.1. The removal of bottlenecks is described more in detail in chapter 2.4.2 and 6.3.

The setup of the yearly PaPs catalogue can help to improve punctuality by implementing specific procedures on harmonisation at border points. Furthermore, an improvement in punctuality can be achieved by insisting on realistic train paths and offer buffer time between train paths between Corridor sections. With these three strategies, RFC North Sea-Mediterranean intends to contribute to the improvement of punctuality on problematic Corridor sections and passing points.

To fix a measurable objective, we have taken into account the punctuality of the past years, measured from more than 30 minutes delay, on a selection of Corridor trains, in 24 measuring points along the corridor.

For the near future, the corridor will not see a big rise in available capacity due to works. Continuing works for example on the installation of the ETCS system or maintenance during the night on the heavily charged Alsace and Artère Nord-Est-lines, makes an improvement of the current punctuality very unlikely.

2011	2012	2013	2014	2015	Objective 2016 - 2019	Objective 2025
82%	82%	78%	79%	79%	**80%**	**85%**

5.4 Capacity Objectives

Capacity on RFC North Sea-Mediterranean is situated mainly in three different fields; trains running on the corridor lines, the number of PaPs offered, and the average running time on the main corridor sections.

5.4.1 Trains running on the Corridor

The total volume of Corridor trains is measured in KPI 1. All trains crossing at least one corridor border, and running at least 70 continuous kilometres on the Corridor are taken into account. This means that not only trains running on PaPs are considered. The evolution of the total amount of corridor traffic is influenced heavily by the economic growth of the corridor region. However, the corridor aims to increase the amount of corridor trains in the following matter, compared to the year 2013, taking into account a low economic growth:

2020	2030
+ 3%	**+ 9%**

5.4.2 Strategy for the number of Pre-arranged Paths

Each year, around X-18, the RFC North Sea-Mediterranean C-OSS organises a client survey (“Expression of Capacity Needs”) to have a better view on the quantity of PaPs needed for the next PaP catalogue. Based on the outcome of this survey, the Management board (MB) makes a preliminary decision about a PaP strategy (as far as quantity is concerned). For this proposal, also other parameters are taken into account:

- offer previous timetable
- quantity of allocated PaPs of previous timetable
- total of allocated paths of previous timetable
- total of used paths of previous TT timetable
- Transport Market Study interpretation
- promotional paths (to offer more flexibility to the market and to act proactively on possible growing demands, on top of the Transport Market Study results)

This proposal is then presented to the Executive Board and Advisory Groups, and adapted according to their input where advised relevant by the Managing Board.

Up to now, the PaP catalogue consisted largely of paths reflecting historic market demand. It is the goal of RFC North Sea-Mediterranean to extend this offer for the following catalogues with a number of PaPs designed for the development of new traffics. These paths shall be

published on top of the amount of market demand paths for two reasons. This way the Corridor offers more flexibility to the market in number of paths and alternative routes, and it anticipates on possible extra traffic and promotes the use of under exploited lines and trajectories.

It is the objective of the RFC North Sea-Mediterranean to offer a complete PaP offer (at X-11) on all Corridor principal lines and to increase the share of requests for international freight paths along corridor lines, that go via the C-OSS, from around 10%, to at least 50% by 2025.

The table below gives an overview on the capacity offered as PaP in the RFC North Sea-Mediterranean catalogues for timetable 2015 and 2016, and an objective on the short and long term.

Evolution PaP Capacity on RFC North Sea-Mediterranean						
million kms constructed X days offered	**TT2015**	**TT2016**	**TT2017**	**TT2018 objective ***	**TT2020 objective ***	**TT2025 objective ***
lines TT2015	7,3	8,5	11,9	=	+ 12,5%	+ 25%
lines TT2016	NA	9,2	14,1	=	+ 12,5%	+ 25%
lines TT2017	NA	NA	15,1	=	+ 12,5%	+ 25%
lines TT2018	NA	NA	NA	=	=	+ 12,5%
**** compared to TT2017***						

5.4.3 Average Journey Time Objectives

The goal of RFC North Sea-Mediterranean is to be a fast, efficient and quality rail link. This objective means increasing the efficiency, reliability and durability of end-to-end rail freight traffic, thereby strengthening the railway's competitive position, in line with European freight transport targets. Therefore it is vital to continue the optimisation of harmonisation of train paths between the different IMs and ABs.

The follow-up on the average Journey time is monitored in KPI 4. The objective is based on the following parameters:

- preview of works
- preview of infrastructure investments
- past catalogue path journey time evolution
- timetable journey time evolution

Taking into account these parameters, the Corridor has defined the following objectives:

KM/H per Corridor Route								
Route including	Length	Catalogue TT 2013	Catalogue TT 2014	Catalogue TT 2015	Catalogue TT 2016	Catalogue TT 2017	Objective catalogue TT 2018 to 2020	Objective catalogue TT 2025
Antwerp - Basel	**748,8**	57,0	51,4	55,2	53,8	54,3	**55**	**58**
Antwerp - Bettembourg	**343,7**	60,7	59,7	61,6	58,1	58,3	**60**	**62**
Mont-St-Martin - Basel	**425,9**	51,4	44,6	48,5	48,7	48,4	**50***	**54**
Rotterdam - Antwerp	**74,3**	53,4	58,7	71,3	63,7	65,1	**70***	**72,5***
Antwerp - Lyon	**890,7**	NA	NA	51,8	59,7	57,4	**62,5****	**65****
Antwerp - Lille	**125,4**	50,2	52,4	56,2	44,2	62,7	**56***	**60**
Lille/Somain - Paris	**247,3**	NA	NA	NA	63,3	73,5	**72,5***	**75***
Metz - Lyon	**454,1**	NA	NA	57,8	61,9	69,9	**70***	**72,5***
Dunkerque - Liège	**311,1**	NA	NA	NA	43,7	56,1	**57,5***	**60***
London - Calais	**230,4**	NA	NA	NA	NA	55,0	**60****	**68****
Calais - Metz	**454,7**	NA	NA	NA	69,9	62,4	**65****	**68****
* Objective increased compared to last year		** New Objective						

5.5 Allocation Objectives

The Corridor OSS will allocate capacity on the Corridor. To be able to measure the success of this new way of allocating capacity, the Corridor has chosen the following objectives for the concerning KPIs:

Requests for pre-arranged paths (capacity)

The number of requests for pre-arranged paths is measured for two periods:
- X-11 till X-8
- X-8 (-1 day) till X-2 (without feeder/outflow sections).

RFC North Sea-Mediterranean objectives:
- o X-11 till X-8: **50 %** of PaPs offered (in km per year).
- o X-8 (-1 day) till X-2: **20%** of the PaPs offered at X-7.5 (in km per year).

Allocated pre-arranged paths (capacity)

The number of pre-arranged paths which are allocated by the C-OSS is measured for two periods:
- X-11 till X-8
- X-8 (-1 day) till X-2

RFC North Sea-Mediterranean objective = 75% of the requests during the given period

Reserve Capacity Offer

The Corridor wants to provide Reserve Capacity of at least 10% of the capacity provided in the yearly timetable PaP Catalogue (in kms). To be able to calculate this, the lengths of the Corridor sections have been fixed, and can be found in annex to the CID Book IV.

Allocated Reserve Capacity

RFC North Sea-Mediterranean objective = 75% of the requests for Reserve Capacity.

6. Indicative Investment plan

RFC North Sea-Mediterranean collected data about investments from its Infrastructure Managers members. The investments planned by IMs are either renewal or development. Some IMs combine both investment types if possible.
This investment plan has been drawn from four categories:

- The deployment of ERTMS to encourage interoperability and to avoid as quick as possible the multiple on board control command systems for operators.
- The improvement of the loading gauge to support the growth of the market share of combined transport with the carriage of P400 semi-trailers.
- The bottlenecks relief to facilitate the traffic in railway nodes experiencing capacity problems.
- Increase train length up to 700m (without loco) to standardise this technical characteristic on all the sections of the corridor.

6.1 List of projects

In total, RFC North Sea-Mediterranean identified 72 projects or programs which may go live in a 10 year time horizon for a total cost of approximately 6.5 billion euros. The table below provide the complete list of these projects.

WARNING: this list displayed in the table below is provided on an indicative basis. This matter falls within the remit of the Member States, in accordance with the principle of subsidiarity. A number of technical, political or financial factors may affect the completion of the listed projects. It is therefore possible that at least some of these projects will not be put into service or will be delayed. Similarly, the dates and costs presented in this list may be modified from time to time in the future.

INDICATIVE LIST OF NS-MED RFC PROJECTS IN THE NETHERLANDS

Route	Railway section	Nature of Projects	Benefits for NS-MED Corridor	Start date of the works	End date of the works	Current phase	Cost estimation in M€	Comments
ROTT - ANTW	Rotterdam - Antwerp	ERTMS Deployment	Interoperability	2016	tbd	Technical study		ERTMS deployment – Starting date is indicative

INDICATIVE LIST OF NS-MED RFC PROJECTS IN UK

Route	Railway section	Nature of Projects	Benefits for NS-MED Corridor	Start date of the works	End date of the works	Current phase	Cost estimation in M€	Comments

INDICATIVE LIST OF NS-MED RFC PROJECTS IN BELGIUM

Route	Railway section	Nature of Projects	Benefits for NS-MED Corridor	Start date of the works	End date of the works	Current phase	Cost estimation in M€	Comments
ANTW - AUB - BETT	ICAT-MAX (catenary enhancement)	Others	Capacity improvement	2013	2015	Works phase	3,60	
ANTW - AUB - BETT	L147 Auvelais - Fleurus: doubling of tracks	Creation of siding, passing tracks, extra tracks	Capacity improvement	2022	2024	Technical study	23,50	
ANTW - AUB - BETT	Adaptation of passing tracks for 750 m trains	Creation of siding, passing tracks, extra tracks	Capacity improvement	2018	2025	Technical study	27,10	
ANTW - AUB - BETT	L27A - Construction junction "Oude Landen"	Creation of siding, passing tracks, extra tracks	Capacity improvement	2019	2025	Technical study	79,00	
ANTW - AUB - BETT	L27A - Modification junction "Krijgsbaan"	Creation of siding, passing tracks, extra tracks	Capacity improvement	2019	2025	Technical study	82,00	
ANTW - AUB - BETT	Railway sections from Antw to Lux border	ERTMS Deployment	Interoperability	2014	2020	Works phase	383.3	RFC2 principal lines + extensions 2015 (timetable 2016) without the common sections with RFC1

ANTW - AUB - BETT	Antwerp - 2nd railway access	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement			Preliminary study		
ANTW - AUB-BETT	Right Bank - Port of Antwerp	Creation of siding, passing tracks, extra tracks	Capacity improvement	2020	2023	Technical study	14,80	35,7 for time period 2005-2023
ANTW - AUB-BETT	Left Bank - Port of Antwerpl	Creation of siding, passing tracks, extra tracks	Capacity improvement	2017	2025	Technical study	36,20	146,4 for time period 2005 - 2025
ANTW - AUB-BETT	EuroCapRail: modernisation de l'axe Bruxelles - Luxembourg (Axe 3 Modernisation + Axe 3 Electrification 25kV)	Track enhancement	Capacity improvement	2005	2021	Technical study	640.9	Total cost of the project (since 2005)
ANTW - LIL	Port de Ghent various extensions	Creation of siding, passing tracks, extra tracks	Capacity improvement	2019	2025	Technical study	1,50	14,9 for time period 2005-2025
ANTW - LIL	Railway sections from Antw to Mouscron border point	ERTMS Deployment	Interoperability	2014	2020	Preliminary study		RFC2 principal lines + extensions 2015 (timetable 2016) without the common sections with RFC1 Total amount for all belgian sections of RFC2 383.3M€
DK - LIEGE	L130 – Namur-Charleroi – Augmentation de vitesse	Track enhancement	Capacity improvement	2008	2015	Works Phase	53,30	Total cost of the project (since 2008)
DK - LIEGE	Extensions TT2016 - Erquelinnes - Auvelais + Namur - Montzen + Charleroi - Baissieux (L94 -96/2 - 96 - 96/1 - 117 124A)	ERTMS Deployment	Interoperability		2022			RFC2 principal lines + extensions 2015 (timetable 2016) without the common sections with RFC1 Total amount for all belgian sections of RFC2 383.3M€
ROTT - ANTW	L12: Antwerpen - Essen	ERTMS Deployment	Interoperability	2017	2018	Preliminary study		Starting dates are indicative - RFC2 principal lines + extensions 2015 (timetable 2016) without the common sections with RFC1 Total amount for all belgian sections of RFC2 383.3M€

INDICATIVE LIST OF NS-MED RFC PROJECTS IN FRANCE								
Route	**Railway section**	**Nature of Projects**	**Benefits for NS-MED Corridor**	**Start date of the works**	**End date of the works**	**Current phase**	**Cost estimation in M€**	**Comments**
ANTW - LIL	Railway sections from Lille to Tourcoing border point	Renewal of signalling system	Maintenance of performance		<2020	Preliminary study	12,00	Signalling system: national renewal program
ANTW - LIL	Railway sections from Lille to Tourcoing border point	Renewal of tracks	Capacity improvement	2013	2017	Approved and financed (but works have not started yet)	20,00	
DK - LIEGE	Calais	Track enhancement	Capacity improvement	2015	2020	Technical study	53,00	Rail access to the port of Calais
LIL - LONG	Béthune Station	Creation of siding, passing tracks, extra tracks	Bottleneck relief	2017	<2020	Technical study	5,00	
LIL - LONG	Hazebrouck Station	Creation of siding, passing tracks, extra tracks	Bottleneck relief	2016	<2020	Technical study	20,00	
LIL - LONG	Railway sections from Lille to Longuyon	Renewal of signalling system	Maintenance of performance	2011	<2025	preliminary study	20,00	Signalling system: national renewal program
LIL - LONG	NIFT	Creation of siding, passing tracks, extra tracks	Bottleneck relief	2013	2015	Works phase	100,00	
LIL - LONG	Armentières Lestrem and Somain Lourches Cambrai	Signalling enhancement	Capacity improvement	2012	2016	Technical study	100,00	Terminal access enhancement and TCC enhancement
LIL - LONG	Hirson-Longuyon	Creation of siding, passing tracks, extra tracks	Capacity improvement		2020		100,00	Both sides running tracks on "Artère Nord Est"
LIL - LONG	Tourcoing - Lille - Longuyon	ERTMS Deployment	Interoperability			Preliminary study	100,00	ERTMS deployment
LIL - LONG	Railway sections from Lille to Longuyon	Renewal of tracks	Capacity improvement	2013	2017	Approved and financed (but works have not started yet)	140,92	
LIL - LONG	Lille Valenciennes	Creation of siding, passing tracks, extra tracks	Bottleneck relief	2015	2025	Preliminary study	200,00	Studies 2015-2020 - Works 2020-2025 (between 100 and 300M€)
LIL - LONG	Corridor Lines in North Region	Adjustment of gauge	Capacity improvement	2016	<2020	Preliminary study		
LIL - LONG	Lens Station	Creation of siding, passing tracks, extra tracks	Bottleneck relief	2016	<2020	Technical study		

LIL - PARIS	Cambrai - Tergnier	Track enhancement	Capacity improvement	2016	2016	Approved and financed (but works have not started yet)	7,50	Renewal of switches and both sides running tracks installations
LIL - PARIS	Etudes GPMR réseau structurant IdF	Creation of siding, passing tracks, extra tracks	Bottleneck relief	2015	2020	Preliminary study	10,00	Bottleneck relief in the stations of Paris (except Gare de Lyon) and in their yards
LIL - PARIS	Creil - Orry la Ville - St Denis	Renewal of tracks	Maintenance of performance	2016	2016	Approved and financed (but works have not started yet)	20,90	Renewal of switches in these 3 stations
LIL - PARIS	Lille - Lens and Phalempin - Fives	Renewal of tracks	Maintenance of performance	2016	2016	Approved and financed (but works have not started yet)	30,30	
LIL - PARIS	Roissy-Picardie	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2015	2020	Technical study	300,00	New high spped line between CDG Airport and Creil - would free capacity beween Creil and Paris Nord
LIL - PARIS	Gare de Lyon	Creation of siding, passing tracks, extra tracks	Bottleneck relief	2015	2020	Preliminary study		Between 100M€ and 500M€ according the identified facilities
LIL - PARIS	Lille (Dourges) - Paris	Track enhancement	Capacity improvement	2015	2020	Technical study	63,00	Network improvements for rolling motorways
LUX - LYON	Baudrecourt-Rémilly	Creation of siding, passing tracks, extra tracks	Capacity improvement		<2020	Preliminary study	10,00	Both sides running tracks
LUX - LYON	Pagny - Novéant	Creation of siding, passing tracks, extra tracks	Capacity improvement	2020	2025	preliminary study	40,00	Both sides running tracks
LUX - LYON	Hagondange Conflans	Creation of siding, passing tracks, extra tracks	Capacity improvement	2020	2025	Preliminary study	60,00	Conflans siding creation and tunnels gauges enhancement between Hagondange and Conflans (GB1)
LUX - LYON	Toul-Dijon	Creation of siding, passing tracks, extra tracks	Capacity improvement	2020	2025	Preliminary study	150,00	Both sides running tracks
LUX - LYON	Railway sections from Luxemburgian border to Lyon	ERTMS Deployment	Interoperability	2013	2023	Technical study	250,00	ERTMS deployment - including technical study
LUX - LYON	Railway sections from Luxemburgian border to Lyon	Renewal of signalling system	Maintenance of performance	2011	<2025	preliminary study	500,00	Signalling system: national renewal program

LUX - LYON	Railway sections from Luxemburgian border to Lyon	Renewal of tracks	Capacity improvement	2013	2017	Approved and financed (but works have not started yet)	642,96	
LUX - LYON	Longuyon-Thionville and Metz	Electrical systems	Capacity improvement		<2020	Technical study	35,00	Study about the electrical capacity of the network in Lorraine region started in 2013
LUX - LYON	Lyon Node	Others	Bottleneck relief	2013	2020	Technical study	600,00	First treatment of the Lyon Node
LUX - LYON	Metz node	Track enhancement	Capacity improvement		<2020	Technical study	145,00	Metz node upgrade
METZ - BASEL	Colmar	Creation of siding, passing tracks, extra tracks	Capacity improvement	>2020		Preliminary study	35,00	Creation of a new track in Colmar Station
METZ - BASEL	Railway sections from Metz to Basel	Renewal of signalling system	Maintenance of performance	2011	<2025	preliminary study	50,00	Signalling system: national renewal program
METZ - BASEL	Railway sections from Metz to Basel	Renewal of tracks	Capacity improvement	2013	2017	Approved and financed (but works have not started yet)	113,88	
METZ - BASEL	Railway sections from Metz to Mulhouse	ERTMS Deployment	Interoperability	2015	2018	Technical study	181,00	ERTMS deployment - including technical study
METZ - BASEL	Strasbourg node including Vendenheim 4th track	Creation of siding, passing tracks, extra tracks	Capacity improvement		<2020	Technical study	120,00	Creation of a 4th track between Strasbourg and Vendenheim
METZ - BASEL	Railway sections from Metz to Mulhouse	Signalling enhancement	Capacity improvement	2020	2022	Preliminary study	200,00	Capacity improvement in Mulhouse, Kibitzenau and Colmar
METZ - BASEL	Lutterbach-Richwiller	Creation of siding, passing tracks, extra tracks	Capacity improvement					Creation of 2 freight passing tracks at the HSL sidings in Lutterbach and Richwiller
METZ - BASEL	Strasbourg	Electrical systems	Capacity improvement		<2020	Preliminary study	30,00	A study on the electrical capacity of the network in Alsace region started in 2012
METZ - BASEL	Strasbourg node	Track enhancement	Capacity improvement	>2020		Preliminary study		2nd phase of the Strasbourg node upgrade
METZ - BASEL	Metz Mulhouse	Others	Capacity improvement			Preliminary study		Feasability study of a freight route from Metz to Mulhouse without going through Strasbourg
METZ - BASEL	Mulhouse	Station enhancement	Capacity improvement	2014	2021	Technical study	140,00	Capacity improvment for passenger and freight

Longuyon - Basel	Longuyon - Basel	ERTMS Deployment	Interoperability					ERTMS deployment - including technical study
Forbach-Béning	Forbach-Béning	Creation of siding, passing tracks, extra tracks	Capacity improvement					Both side tracks
METZ - STRASBOURG		Adjustment of gauge	Capacity improvement					Loading gauge enhancement between Metz and Strasbourg

INDICATIVE LIST OF NS-MED RFC PROJECTS IN LUXEMBOURG

Route	Railway section	Nature of Projects	Benefits for NS-MED Corridor	Start date of the works	End date of the works	Current phase	Cost estimation in M€	Comments
ANTW - AUB - BETT	Rodange - Bettembourg and Luxembourg - Bettembourg	Renewal of tracks	Maintenance of performance	2012	2016	Works phase	15,00	Differdange - Belval Usines + Berchem - Bettembourg frontière
ANTW - AUB - BETT	Rodange - Bettembourg	Creation of siding, passing tracks, extra tracks	Capacity improvement			Preliminary study	30,00	Modernisation and layout improvement of Belval-Usines station
ANTW - AUB - BETT	Rodange - Bettembourg	Creation of siding, passing tracks, extra tracks	Capacity improvement	2015	2016	Works phase	51,00	Modernisation and layout improvement of Differdange station
ANTW - AUB - BETT	Whole network	Others	Interoperability	2010	2017	Works phase	51,10	GSM-R deployment
ANTW - AUB - BETT	Luxembourg - Kleinbettingen	Electrical systems	Interoperability	2014	2018	Works phase	60,80	Re-electrification Luxembourg - Kleinbettingen in 25kV 50Hz
ANTW - AUB - BETT	Luxembourg - Bettembourg	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2015	2020	Works phase	212,80	New line between Luxembourg and Bettembourg
ANTW - AUB - BETT	Luxembourg - Kleinbettingen	Track enhancement	Higher speed			Preliminary study	328,50	Track renewal and upgrade to 160km/h
ANTW - AUB - BETT	Kleinbettingen - Bettembourg	Creation of siding, passing tracks, extra tracks	Capacity improvement	2013	2023	Works phase	416,50	Layout improvement in Luxembourg station Incl signal boxes
ANTW - AUB - BETT	Rodange/Kleinbettingen - Bettembourg	Creation of siding, passing tracks, extra tracks	Capacity improvement	2013	2022	Works phase	507,40	Modernisation and layout improvement of Bettembourg station Incl signal boxes
ANTW - AUB - BETT	Whole network	Adjustment of gauge	Capacity improvement			Preliminary study		Study on gauge enhancement to allow P400 gauge trains

INDICATIVE LIST OF NS-MED RFC PROJECTS IN SWITZERLAND								
Route	**Railway section**	**Nature of Projects**	**Benefits for NS-MED Corridor**	**Start date of the works**	**End date of the works**	**Current phase**	**Cost estimation in M€**	**Comments**
METZ - BASEL	St.Louis - Basel	ERTMS Deployment	Interoperability	2015	2015	Works phase	2	2nd half of the ERTMS deployment

In total, RFC North Sea-Mediterranean also identified 10 projects or programs which achieved since 2013 for a total cost of approximately 540 million euros. The table below provide the complete list of these projects.
For ERTMS projects, please refer to the ERTMS deployment plan map (§ 4.2.3)

INDICATIVE LIST OF NS-MED RFC PROJECTS ACHIEVED SINCE 2013

Route	Railway section	Nature of Projects	Benefits for NS-MED Corridor	Start date of the works	End date of the works	Put on operation	Cost estimation in M€2012	Comments
ANTW - AUB - BETT	Antwerp - Liefkenshoek Rail Link (excluding PPP financing)	Creation of new structure (line, tunnel, bridge, leapfrog)	Bottleneck relief	2005	2014	TT2015	170,5	Liefkenshoek Rail Link operational 14/12/2014
ANTW - AUB - BETT	Antwerp - Luxembourg	ERTMS Deployment	Interoperability	2010	2014	TT2015		Athus-Meuse route equiped
METZ - BASEL	St Louis - Basel	ERTMS Deployment	Interoperability	2014	2014	TT2016	2	1st half of the ERTMS deployment - operational foreseen for TT2016
ALL	All French sections	Renewal of signalling system	Maintenance of performance	2012	2014	2014	50	46 projects achieved by the end of 2014 on signalling system: national renewal programm security systems
LIL - LONG	1 program of 2 Level crossings	Level crossings	Safety / Security	2013	2014	2014	2	Level crossings in Beuvry and Raismes
LUX - LYON	1 program of 6 Level crossings	Level crossings	Safety / Security	2013	2014	2014	25	Level crossings in Bourg en Bresse, Tossiat, Brétigny-Norges, Ruffey les Echirey, Neufchâteau, Villegusien
METZ - BASEL	1 program of 3 Level crossings	Level crossings	Safety / Security		2013	2013	25	Level crossing in Laneuville, Blesmes and Fain
ALL	All French sections	Renewal of tracks	Maintenance of performance	2012	2013	TT2014	122,24	Part of the renewal program of tracks that has been achieved for TT2014 - 22 projects achieved
METZ - BASEL	Vendenheim node	Others	Bottleneck relief	2012	2013	2014	100	Modification of tracks (3rd track), TCC renewal
ANTW - AUB - BETT	Luxembourg - Kleinbettingen	ERTMS Deployment	Interoperability	2012	2014	TT2015	43,5	New CCS incl. Signal boxes and ETCS (1,5 M€ for ETCS and 42 M€ for the rest of the investments)
							540,24	

6.2 Deployment Plan relating to interoperable systems

RFC North Sea-Mediterranean already complies with most of the interoperability criteria defined in Directive 2008/57/EC. To comply with the control command and signalling specifications for interoperability, RFC North Sea-Mediterranean is currently deploying ETCS (European Train Control System) on its lines.

6.2.1 ERTMS strategy along the corridor

The implementation of ETCS on Corridor routes is one of the fundamental goals which led to the creation of the ERTMS Corridors, including Corridor C which has subsequently been extended and renamed RFC North Sea-Mediterranean. The creation of ERTMS corridors was itself confirmed by the obligations set by the TSI CCS (Control Command Signalling).[6] In accordance with these obligations, each Member State of the corridor has notified to the European Commission the detailed timeline for equipping their corridor sections with ERTMS and/or the corridor sections already equipped. On the one hand following a positive discussion with the European Commission, and on the other hand following an agreement amongst the Member States involved in the corridor to prioritise the section from Rotterdam and Antwerp to Basel, the timeline for the deployment has been updated and is presented on the map in chapter 4.2.3.

[6] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:051:0001:0065:EN:PDF

The TSI 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 stabilisation 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 an infrastructure / track and a rolling stock perspective.

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 realised through these national projects is not limited to corridor sections.

On the main routes ETCS version 2.3.0d is or will be installed, except on the short Swiss corridor section where Baseline 3 will be deployed. As 2.3.0d on board systems cannot run on Baseline 3 tracks, to reach Muttenz, the final destination of the Corridor, locomotives will have to be equipped with baseline 3 on-board equipment, or have to be changed in Saint-Louis near the Swiss border or will have to equipped with a KVB/PZB set of control systems. On top of that, equipping locomotives with Baseline 3 on-board systems enables to offer limited supervision. It also provides other functions that improve ETCS interoperability.

ETCS level 1 (punctual information given to the trains by in-track balises) is or will be installed all along the principal routes of former Corridor C. Infrabel intends to install level 2 (continuous information exchanged between track and on-board systems through GSM-R) on the alternative route Namur-Athus via Libramont. The section between Antwerp and Rotterdam is also likely to be equipped with 2.3.0d level 2. In Switzerland Baseline 3 balises will implement the Limited Supervision mode. Therefore it is highly recommended for railway undertakings to equip their rolling stock with Baseline 3 on-board systems. For 2.3.0d on-board system, the recommendation is to implement the braking curves algorithm specified in baseline 3.

6.2.2 Compulsory systems and deactivation of national legacy systems

Once ETCS is installed, the deactivation of national legacy systems has to be decided on a country per country basis.

- **In the Netherlands**, from 15 December 2014, ETCS Baseline 2 (version 2.3.0d), level 1 or 2 and ATB will be compulsory to run on the corridor lines (no deactivation of the national legacy system);

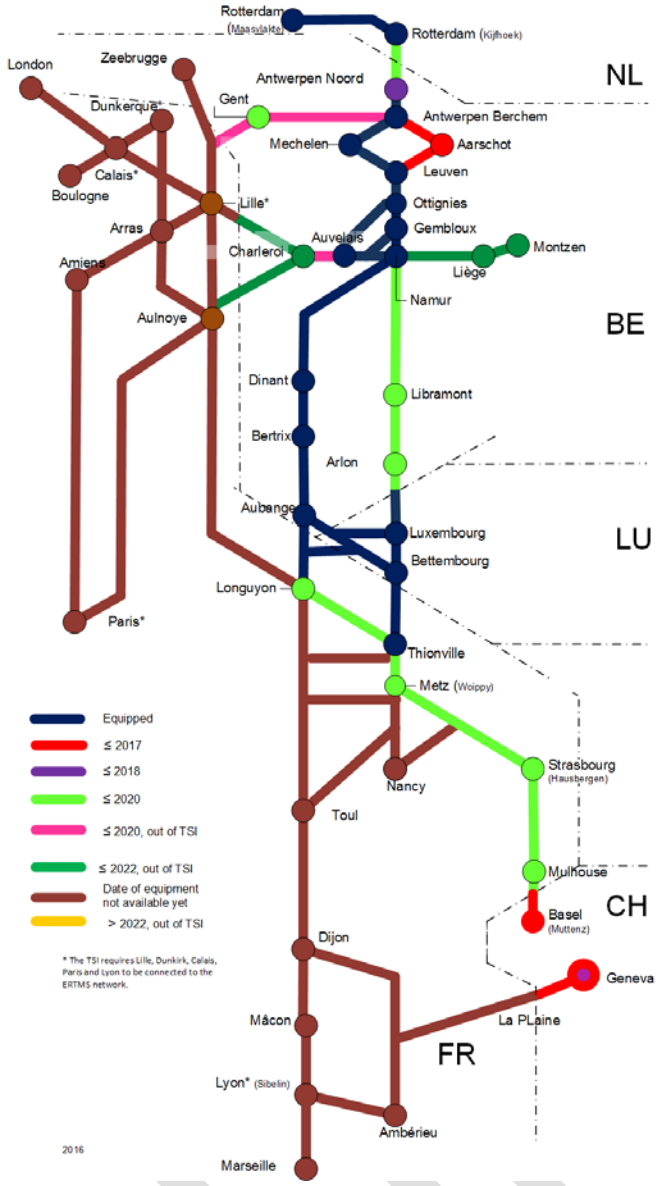
- **In Belgium**, the complete network is expected to be equipped by 2022. In 2025, ETCS is very likely to become compulsory for a train to be allowed to run on the Infrabel tracks. Legislation to fade out legacy system in favour of ETCS has come into force the 9th of July 2013. From 2016 onwards, the class B system Memor-crocodile will be put out of service on those lines equipped with ETCS level 1 version 2.3.0d, allowing only trains equipped with ETCS Level 1(minimum Baseline 2) or TBL1+ to run on these tracks;

- **In Luxembourg**, trains will have to be equipped with ETCS Baseline 2 (version 2.3.0d), level 1 or 2 from mid-2017 onwards;
- **In France,** the national KVB legacy system will be decommissioned at some point in the future. The date of this decommissioning is not yet determined. The European Deployment Plan (EDP) proposed by the European Commission (EC) is expected to be adopted before the end of 2016. It should provide more details about the implementation of ERTMS on part of RFC NSM corridor
- **In Switzerland**, all new vehicles purchased after July 1st 2014 will have to be equipped with ETCS Baseline 3 or be easily adaptable to ETCS as from 2017. They will still also have to be equipped with KVB if they come from France.

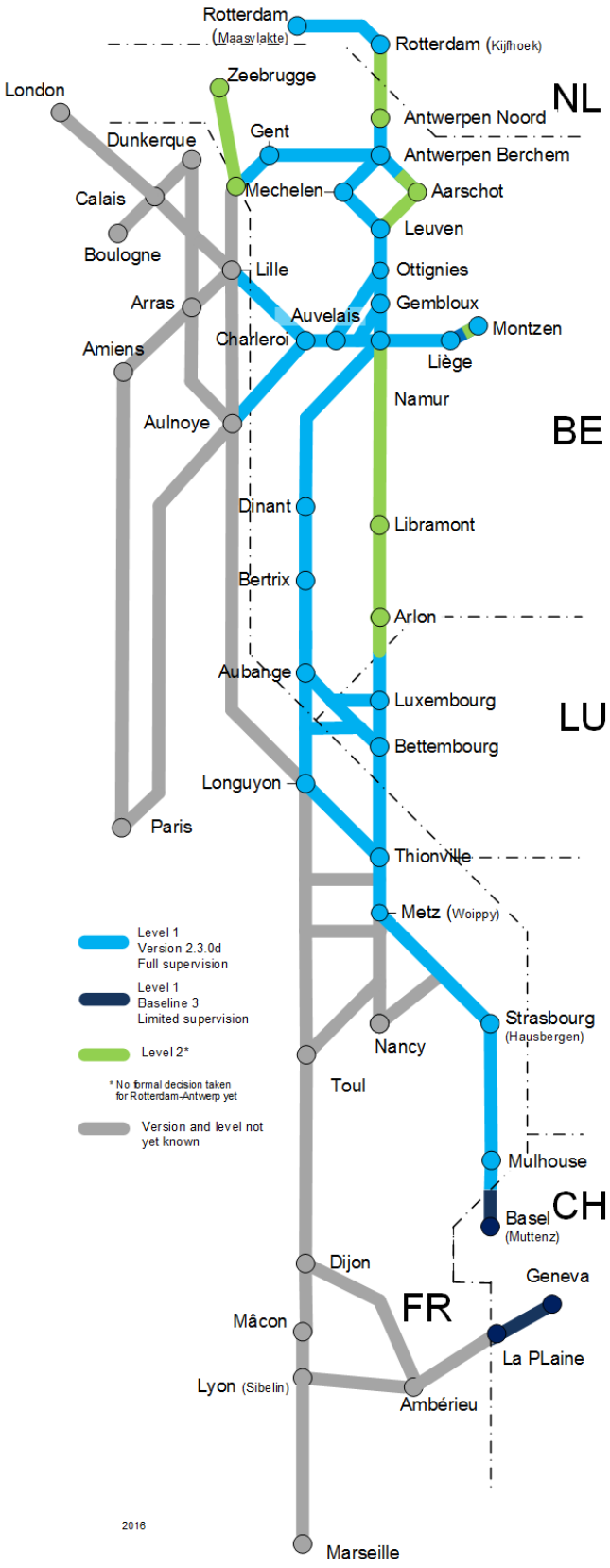
6.2.3 ERTMS deployment plan

The planning of ETCS deployment along the current corridor lines and the nature of the ETCS deployment system are described in the following maps (see next page)[7]:

[7] Connecting lines, except Maasvlakte - Kijfhoek, are not displayed on the maps of this section 4.2.2.



Timing of the ETCS deployment along the corridor lines



Nature of the ETCS deployment system along the corridor lines

- **Costs**

In this section, we focus on the sole Antwerp-Luxembourg-Lyon/Basel sections as the ERTMS deployment projects are relatively mature on these lines and therefore cost estimation can be considered as more reliable than the costs of other sections where ERTMS studies have not even started. For the sake of homogeneity, we have also ignored the Namur – Kleinbettingen line as it is expected to be equipped with ERTMS level 2.

The average cost per kilometre, calculated on the basis of the equipment of the Antwerp-/Basel routes, is approximately 370 k€ per kilometre. Obviously, this ratio varies a lot. It is significantly different in large nodes than in the country side.

The ratio we currently on Longuyon-Bâle is 170 k€ average for every signal. Knowing that we have in average 2 signals per km, we have then 340 k€ for the French rail network.

The costs in Belgium may be lower, but we should keep in mind that equipment projects are done at national level, therefore an average cost on the entire corridor is not pertinent due to important disparities.

- **Benefits**

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.

National legacy systems (“Class B”) renewal
All the Infrastructure Managers of RFC North Sea-Mediterranean 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. The deadline is not the same among infrastructure managers. In Luxembourg and Switzerland, the replacement is needed in the short run; in Belgium all the former Corridor C lines have been equipped with ERTMS on December 2015. In France the national systems still have some time to run and the replacement is not yet necessary.
In Switzerland, the existing control command systems, ZUB and Signum are close to obsolescence and SBB aims to quickly replace them with the European interoperable system.

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 and noise, 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, its deployment provides infrastructure managers with an increase of safety compared to the safety provided by their legacy systems.

In Belgium, Infrabel's ETCS Masterplan which aims at equipping the entire Belgian network with ETCS by 2022, will globally improve the safety compared to the existing control systems. Similarly, all rolling stock running in Belgium will be directed to be fitted with ETCS. It is very likely that ETCS will become mandatory from 2025 onwards, in addition to the TSI-CSS which dictates that all equipment bought after 1st January 2012 shall be equipped with ETCS.

In Luxembourg, the Memor II+ system presently equipping the network has been from the very beginning considered as an interim system to be replaced by ETCS. As Memor II+ is a relatively simple system, its replacement with ETCS will greatly improve the level of safety in Luxembourg.

In France, the existing KVB system does not control all the block signals. In contrast, ETCS will be installed on all signals, including block ones, hence improving the overall safety on the network.
In Switzerland, during a first phase, ETCS will be deployed with the limited supervision mode. With this mode, the level of safety will be the same as the existing ones. In particular, the speed supervision function will be installed depending on the real risk.

ETCS level 1 with Limited Supervision mode allows a quick and cost efficient migration. Still, the future of ETCS is ETCS level 2 due to capacity reasons and for performing the operational interoperability. The ETCS level 2 is planned for the timeframe when interlockings have to be replaced due to their life cycle end (starting around 2025). ETCS will then bring the optimal benefit with regards to capacity and safety.

Recovery in the event of disturbances

In France, a study has shown that ETCS should 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 in-track and on-board 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.

To take the case of France, the socio economic interest of the deployment of ETCS in France is far from being obvious, as ETCS deployment in that country is costly due to the length of the French network and on the complexity and heterogeneity of the technical components of the legacy signalling system; will only provide a modest improvement of safety given the good safety performance of the legacy system (KVB)

6.3 Capacity Management Plan

Remark: at the moment the status of the investment projects in Belgium is to be determined as the current multi annual investment plan is still under revision."

Flyover Schijn (project Oude Landen)

Context

The long-term solution to improve the access to the Port of Antwerp consists in constructing a completely new railway line between the marshalling yard Antwerpen-Noord and Lier, the so-called second rail access to the Port.

The construction of the flying junction, called Oude Landen, in order to replace the current junction Schijn at the entrance of the marshalling yard Antwerpen-Noord, is a first step on the way to enhancing the capacity on the line L27A between Ekeren and Mortsel. The construction of this junction is in line with the end situation (second rail access) and fits into the current layout of the tracks.

The enhancement of the capacity on the line L27A is necessary in the first instance to:

- offer a solution for the existing capacity problems during peak moments during the day;
- tackle the expected future rail freight traffic growth as a consequence of the expansion of the port on the one hand and the expected increase of the rail market share in handling freight traffic on the other hand.
-

Motivation

Capacity on line L27A

In order to justify the above mentioned issue, it's useful to look at a number of figures, such as the actual number of trains compared to the theoretical capacity of the railway line and the level junction, and this on a daily basis and during peak moments. In determining the theoretical capacity the following characteristics are taken into account: the heterogeneity of the rail traffic (passenger + freight), regularity, maintenance of the railway infrastructure and the sequence of trains.

The line L27A between Ekeren and Mortsel has a theoretical hourly capacity of 13 train paths per direction or 26 train paths in both directions together. This amounts to a maximum of 470 commercial train paths a day.

The (current) level track intersections in Ekeren (Y Schijn) and Mortsel (Y Krijgsbaan) have a theoretical capacity of 10 train paths per hour and per direction. That is 20 train paths in both directions together or 360 train paths a day. With a flyover this number rises to 13 paths per hour and per direction, meaning 470 train paths a day (both directions together).

Looking at the complete section Y Schijn – Y Krijgsbaan it can be seen that the capacity of that section of the line L27A is limited by the capacity of the level junctions (360 train paths) Schijn and Krijgsbaan. If the junction Schijn can be avoided by transforming it into a flyover (Project Oude Landen) the number of trains on the line L27A will be restricted by the level junction Krijgsbaan. That's why the number of trains on the line L27A can amount to maximum 360, increased with 40 trains joining or leaving the L27A in the junction near Berchem-Oost (L59) or Driehoekstraat (L12). Only if the junction Krijgsbaan will be transformed into a flyover, then the capacity on the line L27A can be used at its maximum level (470 train paths).

Comparison of the current traffic versus the capacity over a 24 hour period

Looking at the current traffic figures, we can see that about 200 trains pass via the L27A. Taking into account the above described limiting condition this would mean that the level junction Schijn still has sufficient spare capacity (200 train paths << 360 train paths = capacity).

It should be pointed out here however, that the impact of the crisis (2008-2009) has not been overcome yet; even worse, the traffic still has not reached the same level as before the crisis.

Looking at the figures before the crisis (2007), on average 300 trains can be counted between the 2 junctions on L27A. Spare capacity remains after the revitalisation of the freight traffic after the crisis, but this spare capacity will be fully used once the expected growth of rail freight becomes reality.

Comparison between the current traffic figures and the capacity on an hourly basis

As expected, the train journeys are not evenly spread over the day and at certain times, peaks can be noticed. These peaks can emerge, even if the total amount of journeys on a daily basis remains under the daily capacity limit.

Looking at the capacity of the level junction in Ekeren (Y Schijn), we notice that the capacity is restricted to 20 train paths an hour (both directions together) – see above. The actual number of trains before the crisis (see environmental impact assessment - EIA) show, that the maximum capacity is reached on certain weekdays between 2 and 3. In 2009, during the full blown crisis, a new measuring was conducted and this figure was confirmed. This means, that already today, “traffic jams” occur during these peak moments.

Traffic prognosis

In the frame of the EIA (2006) for the project Oude Landen an estimation of the future freight traffic flows on the line L27A was made. Despite the fact that the EIA dates from before the crisis, it can be assumed that the figures are representative, because these kind of prognosis are long term studies in which influences, such as a crisis, are automatically taken into account.

In the aforementioned study, estimation has been made per year and per modal split scenario of the number of train journeys on the line L27A. It was supposed that the Liefkenshoek Rail Link will be in operation.

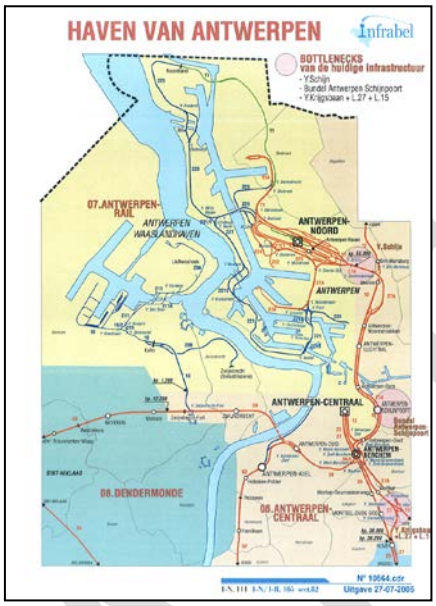
Starting from a limited change in modal shift (10 %) - realistic scenario – the following train numbers were forecasted:

- 2015: 363 (both directions)
- 2020: 386 (both directions)
- 2025: 409 (both directions)
- 2030: 444 (both directions).

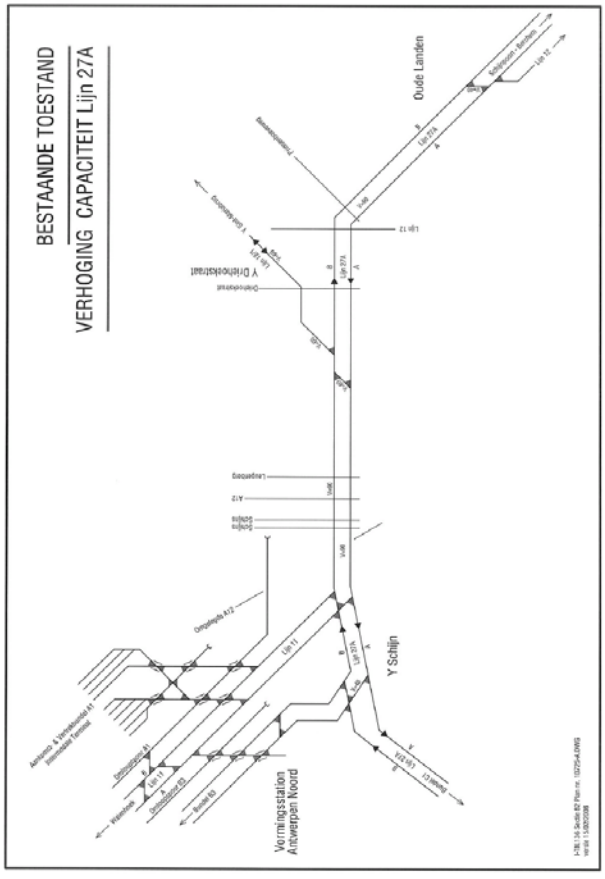
This clearly shows that the forecasted train numbers exceed the number of available train paths as of 2015 (availability: 360 train paths < forecast: 363 train paths). If the junction Schijn is transformed into a flyover (project “Oude Landen”), capacity problems will arise on the line L27A from about 2025. Only after the transformation of the junction Krijgsbaan, the line L27A will dispose of its maximum capacity.

As a consequence, serious capacity issues may arise on the short term. This requires a structural phased approach, in which the flying junction Schijn is just a first step. This will increase the capacity of the junction to 470 train paths a day. L27A will be able to handle more trains a day (400 instead of 360) than today.

In the multi-annual investment plan 2013-2025 the transformation of the junction Schijn into a flying junction is foreseen for the period 2019-2025 for a total amount of 79 million €$_{2012}$.



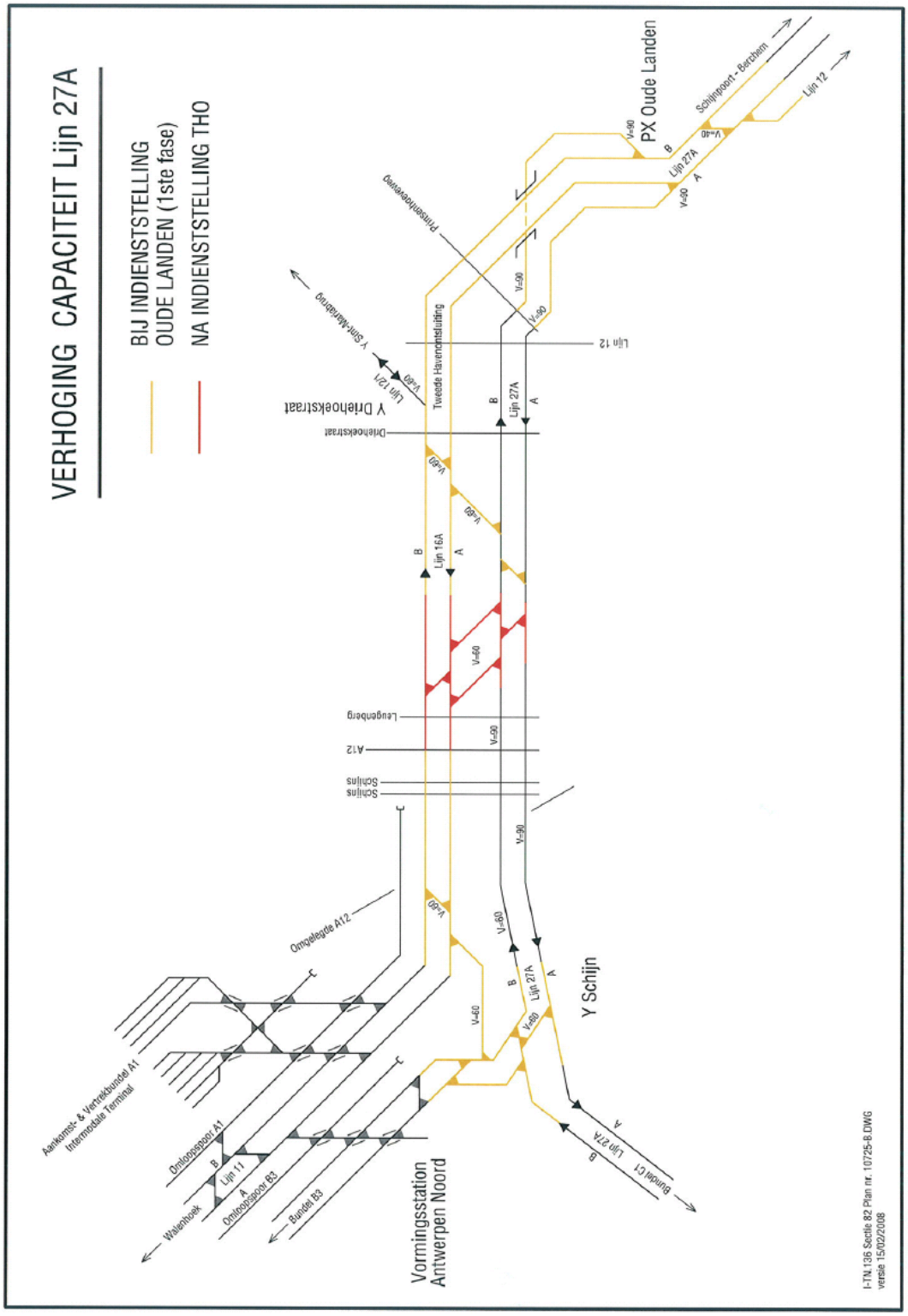
Current situation
Capacity enhancement Line 27A



capacity enhancement of line 27A (current situation)

Capacity enhancement Line 27A

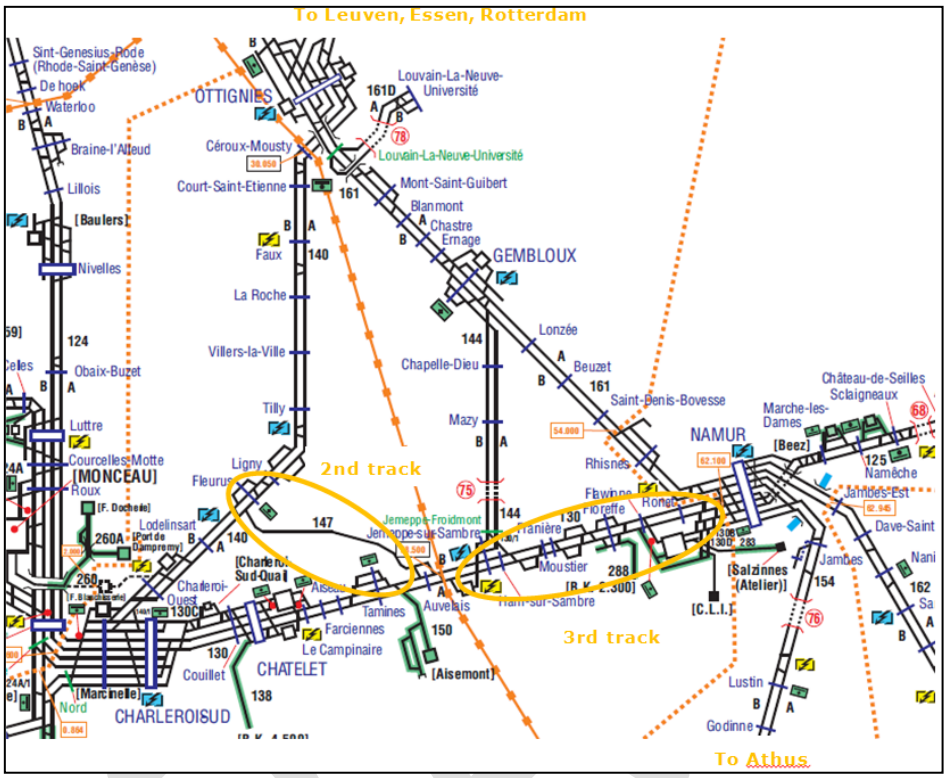
- After putting into service of the project Oude Landen (1st phase)
- After putting into service second access to the port



capacity enhancement of line 27A
(with project project Oude Landen (1st phase) and second access to the port)

6.3.1.1 Second track Fleurus-Auvelais

This project is planned in order to reroute more freight trains on Ottignies-Fleurus-Auvelais-Namur, where less passenger trains run compared to Ottignies-Namur. The project should be implemented in 2024. The investment plan has not been signed yet.



Second track Fleurus-Auvelais

6.3.1.2 Bettembourg central signalling centre

In Luxembourg, the main project concerns the renewal of the Bettembourg central signalling centre, combined with an improvement of the track layout and the building of a new line between Luxembourg and Bettembourg It will offer the possibility to increase reliability and capacity, improving the access to the marshalling yard.

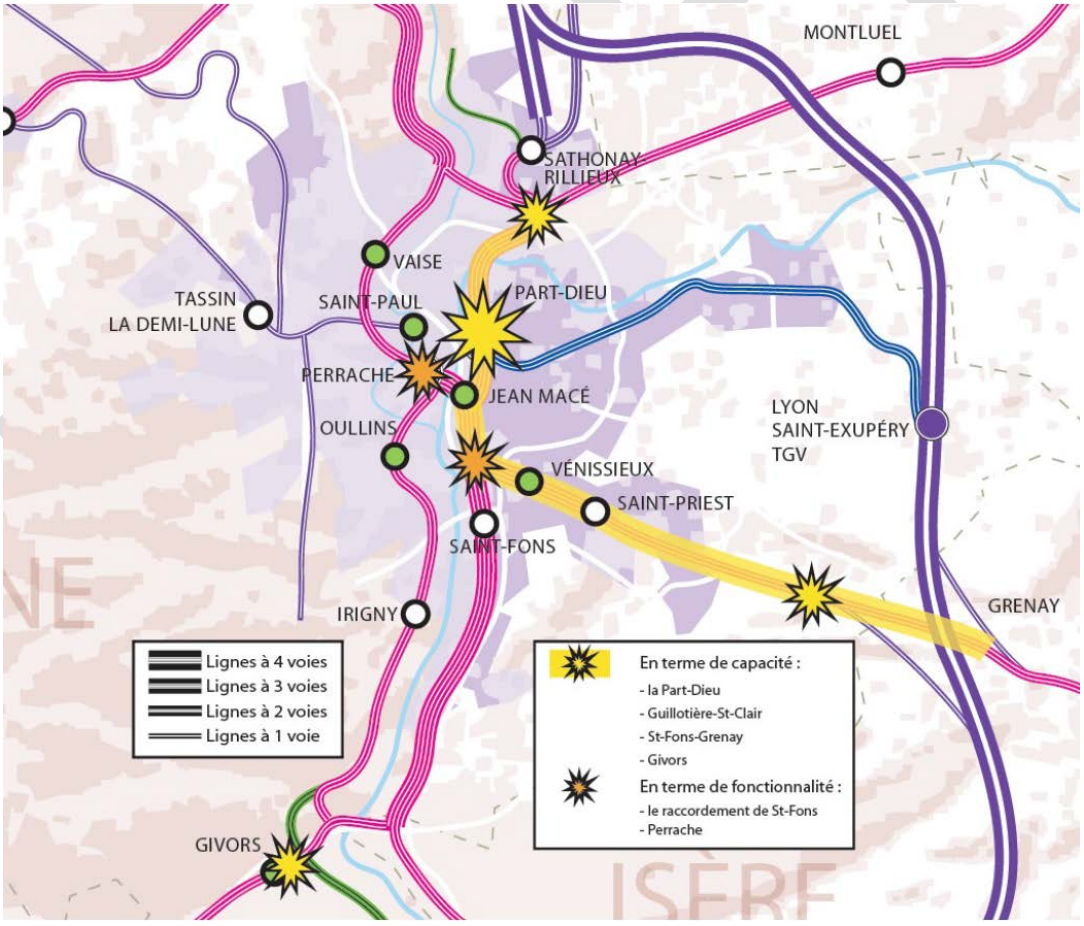
6.3.1.3 Lyon Railway Node (NFL)

As the main traffic hub on the French network, the Lyon railway junction is of crucial importance in the management of all European, national and regional freight and passenger traffic flows that pass through or converge on this location and the Lyon bottleneck is, along with the Parisian one, the biggest bottleneck on the French rail network and one of the most significant one on the European network. The main North-South French axis runs through the middle of the city where over 10 lines converge with large regional train traffic and very limited available capacity. The main project in the Lyon node is the the Lyon Railway Node (NFL). It consists in performing works on the existing network aiming to increase reliability, security and capacity.

The project consists in designing and implementing the most adapted solutions to the capacity issues of the Lyon Railway Node at different timelines: short, medium and long term. This project assembles and structures analysis on operations, targeted investments and a "major project" on the long term. It must take into account for the different timelines, projects that have their own dynamics, on a local, regional or national level.

The project is based on the decision of 25 February 2013 from the Ministry of Transport, whose guidelines are:

- Report from the ministry in late 2011 on the NFL and the Saint-Fons – Grenay line;
- Part-Dieu Station will be the main hub;
- Special attention to be given to the management of passenger flows (station and platforms);
- Short term plan and medium term plan to be defined (heart of the node and the Saint-Fons – Grenay line)
- Additional studies needed for the definition of a long-term scenario;
- Results of studies and consultation in 2014
- Governance framework of the studies: appointment of a coordinator from the ministry and set up of a steering committee of major partners
- Decision process on investments by SNCF Réseau.



6.3.1.4 Other improvement projects

Other projects are planned to ease operations on RFC North Sea-Mediterranean.

The freight traffic between Basel and the French border is limited to 2 trains per hour per direction, due to flat junctions and the signalling system. To increase the capacity, the signalisation should be upgraded.

6.3.2 Train length increase

740/750 m long trains can run on RFC North Sea-Mediterranean except in Belgium during day time. Works are in progress to extend some siding tracks, along the Athus-Meuse (Namur-Athus) axis, Ottignies-Auvelais-Namur as well as on the Namur-Arlon line. More works are planned on the other axes:

- Ottignies: modification within the frame of the RER;
- Moustiers et Ronet: modification within the frame of the L130 line investments;
- Tilly and Athus: modification from 2018 as part of the budgetary item “trains 740M RFC North Sea-Mediterranean”;
- Bertrix: only an ETCS adaptation is necessary. This will be performed within the frame of an ETCS change request.

In France, some 850 m trains are allowed to run and effectively run on the Bettembourg-Lyon section.

6.3.3 Loading gauge increase

In order to enable the transport of trailers/trucks on trains along RFC North Sea-Mediterranean to fit market needs, RFC North Sea-Mediterranean has requested European funding to assess the opportunity to enhance loading gauge on the sections of the corridor where they are too low.

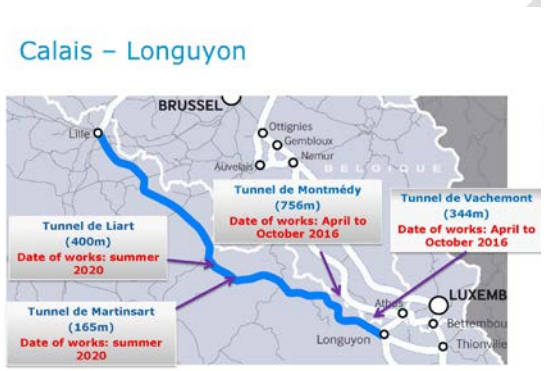
The Corridor Transport Market study performed in 2012 and 2013 showed that there was a major market demand for the transport of trailers/trucks. This has been unanimously reaffirmed by railway undertakings (advisory group meeting of 18 January 2013).

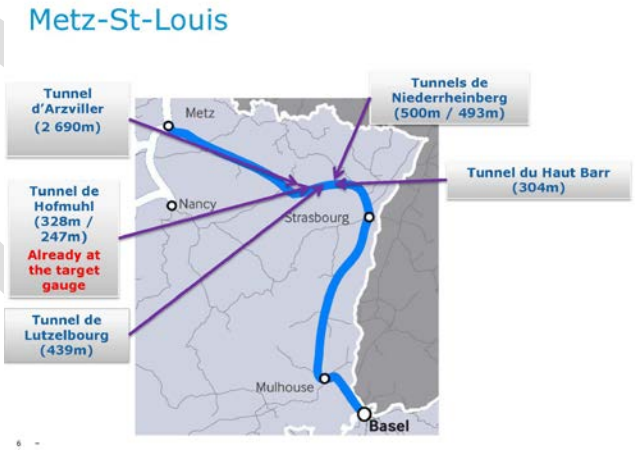
As P400 loading gauge already exists in Belgium and the Netherlands, and as a similar study will be performed in Switzerland, the studies would concern the North-East of France and the Swiss and Luxembourg part of the corridor.

These studies enabled to assess the best solution and the related cost for the necessary infrastructure upgrade to have P400 loading gauge on the Rotterdam – Antwerp – Metz - Basel route of the corridor. If the project goes live, it will facilitate the traffic of trains carrying trailers/truck across borders (France, Belgium, Luxembourg, Germany, and Switzerland). It will also enable the connection with other lines with similar gauge, such as Perpignan – Luxembourg.

In France, on the Calais – Basel route, 10 tunnels (tunnels of Liart, Martinsart, Platinerie, Fontoy, Mercy, Arzviller, Lutzelbourg, Niederreinthal (2) and Haut Barr) still need to be enhanced, and most of them need to obtain financing.

The following maps show the precise location and planning – when known - of the enhancement of these tunnels.





6.4 Reference to Union Contribution

The financial resources available to RFC North Sea - Med come from contributions from its members and partners and European subsidies received. Since its creation, RFC North Sea - Med has been granted five subsidies. In 2016, one subsidy contributed to its financing and to some of its members and customers

Action n. 2014-EU-TM-0043-S, entitled “Improvement and promotion of Rail Freight Corridor North Sea – Mediterranean”, foresee in EU financing of the RFC North Sea – Med.

The Grant agreement was signed on 1 December 2015. This Action covers, from 2015 to 2018, the following activities:

- Capacity, traffic and performance management and studies for the deployment of interoperable systems,
- Further harmonisation and updates of the CID and GIS,
- Updates of the Transport Market Study,
- Coordination of the corridor's further developments and communication,
- Loading gauge upgrade study on the Network Rail lines of the corridor (beneficiary: Network Rail).

The forecast amount of the subsidy is 1.2 million €.

Annex 1: Glossary

This glossary is an excerpt of an RNE glossary.

Glossary/abbreviation	Definition
Ad hoc capacity allocation	Allocation of capacity by an Infrastructure Manager or Allocation Body outside the time scale it normally uses.
Ad hoc request	An Applicant's request for an individual train path (available as spare capacity) in the running timetable.
Allocation	Means the allocation of railway infrastructure capacity by an Infrastructure Manager or Allocation Body. When the Corridor OSS takes the allocation decision as specified in Art. 13(3) of 913/2010, the allocation itself is done by the Corridor OSS on behalf of the concerned IMs, which conclude individual national contracts for the use of infrastructure based on national network access conditions
Applicant/Applicants	All entities allowed to request capacity.
Allocation Body (AB)	An Allocation Body is an independent organisation responsible for train path allocation to Railway Undertakings; this includes the designation of individual paths and the assessment of their availability. In most cases, the AB is the same organisation as the Infrastructure Manager. But if the rail operator is not independent from the Infrastructure Manager, then path allocation must be carried out, according to the relevant guidelines of the first EU Railway Package, by an independent Allocation Body.
Allocation Process	The process by which capacity is granted to an Applicant by the Infrastructure Manager or relevant capacity Allocation Body; this capacity is available for the duration of the working timetable period only.
Border Point	The location at which an international border is formally crossed. For the UK, this will involve customs and nationalisation personnel.
Capacity	The totality of potential train paths that can be accommodated on a railway line or a network.
Capacity Allocation	The process by which capacity is granted to a Railway Undertaking or to any other Applicant by the relevant capacity Allocation Body; this capacity will later be used as actual train paths.
Catalogue of International Train Paths	A document listing international train paths that have been pre-constructed and harmonised by the IMs and/or Corridors.
Catalogue Path	Catalogue Paths are concrete, published path offers to the customers, both for external (RU/applicant) and internal (IM/AB) use. They are pre-constructed paths offered either on whole corridors or corridor sections, or on lines not covered by a corridor but involving a border point. Catalogue paths may be used for the annual timetable as well as for late request, ad-hoc requests and instant capacity. They have a significant advantage compared to non-catalogue paths: immediate availability of the path characteristics. This is made possible by advance coordinated scheduling by the countries involved. Pre-arranged Paths (see definition) are a form of Catalogue Paths.
Combined Transport	General definition: the use of road and rail or water for the movement

	of goods in a single journey.
Confidentiality	Confidentiality has been defined by the International Organization for Standardization (ISO) in ISO-17799 as 'ensuring that information is accessible only to those authorized to have access' and is one of the cornerstones of information security.
Conflicting applications / customer requests for train paths	The situation where several applicants are applying for the same/adjacent path sections in more or less the same time period.
Congested lines / congested infrastructure	Section of infrastructure for which the demand for capacity cannot be fully satisfied during certain periods, even after coordination of all the requests for capacity.
Connecting point	A point in the network where two or more corridors share the same infrastructure and it is possible to shift the services applied for from one corridor to the other.
Corridor Coordinator	Person who ensures the overall coordination of Performance Managers along a corridor and acting as a consultation partner for the Corridor in the questions of performance analyses (cf. Train Performance Management).
Corridor OSS / C-OSS	A joint body designated or set up by the RFC organisations for Applicants to request and to receive answers, in a single place and in a single operation, regarding infrastructure capacity for freight trains crossing at least one border along the freight Corridor (EU Regulation No 913/2010, Art. 13).
Corridor Information Document	Under EU Regulation (EU) 913/2010: a document drawn up, regularly updated and published by the Corridor Management board. This document comprises all the information contained in the network statement of national networks regarding the freight corridor in accordance with Article 3 of Directive 2012/34/EC; the list and characteristics of terminals, in particular information concerning the conditions and methods of accessing the terminals; information concerning the procedures of application for capacity, capacity allocation to freight trains, traffic management coordination, and traffic management in the event of disturbance.
Corridor Train	A train that crosses at least one Corridor border, and runs at least 70 continuous kilometres on Corridor lines.
Delay	Time during which some action is awaited but does not take place. Train delays: mostly used when a train circulates or/and arrives later than planned in the timetable. A 'primary delay' is a delay that directly affects the train; a 'secondary delay' (or knock-on delay or cascading delay) is a delay caused by a primary delayed train. The definitions of delay thresholds (as well as the measurement of delay) vary widely around the world (for example, in Japan only trains with less than one minute's delay are defined as 'on time'). In 2008, the UIC recommended to set the threshold value at 30 minutes for freight trains.
Disturbance	When some disorder on the rail network leads to disruption of the services provided by IMs to RUs, and consequently to train services provided by RUs to their customers.
ERTMS (European	ERTMS is a major industrial project being implemented by the

Railway Traffic Management System)	European Union, which will serve to make rail transport safer and more competitive. It is made up of all the train-borne, trackside and line side equipment necessary for supervising and controlling, in real-time, train operation according to the traffic conditions based on the appropriate Level of Application.
ETCS (European Train Control System)	This component of ERTMS guarantees a common standard that enables trains to cross national borders and enhances safety. It is a signalling and control system designed to replace the several incompatible safety systems currently used by European railways. As a subset of ERTMS, it provides a level of protection against over speed and overrun depending upon the capability of the line side infrastructure.
Executive board (ExB)	Ministry of Transport representatives on the corridor. The ExB defines the strategy and the objectives of the corridor.
Feeder and Outflow path	Branching path off a main transport link as a RFC. The feeder and/or Outflow path may also cross a border section which is not a part of a defined RFC.
Flexible approach	When an Applicant requests adjustments to a pre-arranged path, e.g. different station to change drivers or for shunting that is not indicated in the path publication. Also if the Applicant requests feeder and/or outflow paths connected to the pre-arranged path, these requests will be handled with a flexible approach
Gauge / Loading Gauge	The maximum dimensions of trains that a specific route can allow. Gauge: maximum height and width (size) of rail vehicles allowed on a specific route. Loading gauge: maximum physical dimensions (height and width) to which an open rail wagon can be loaded.
Handover Point	Point where the responsibility changes from one IM to another.
Infrastructure Manager (IM)	Any body or undertaking responsible for establishing and maintaining railway infrastructure. This may also include the management of infrastructure control and safety systems. The functions of the Infrastructure Manager on a network may be assigned to different bodies or undertakings.
International Traffic	The movement across borders of railway vehicles on railway lines over the territory of at least two States.
Interoperability	A property referring to the ability of diverse systems and organizations to work together (inter-operate). The term is often used in a technical systems engineering sense, or alternatively in a broad sense, taking into account social, political, and organizational factors that impact system-to-system performance.
Investment	Any use of resources intended to increase future production output or income; laying out money or capital in an enterprise with the expectation of profit; the spending of money on stocks and other securities, or on assets such as plant and machinery. Investment in rail infrastructure: for example, modernising signalling, building new lines, electrifying existing lines, improving railway station facilities, etc.
IM Performance Manager	Person in charge who is responsible for the definition phase and the performance analyses process in Train Performance Management. This is also the responsible person for the IM who takes care of

	needed measures in his area to improve the punctuality.
Key Performance Indicators (KPI)	Performance factor with which the progress regarding important objectives can be measured within an organization.
Line	EC Decision of 15 September 2011 on the common specifications of the register of railway infrastructure: a sequence of one or more sections, which may consist of several tracks.
Line Section	EC Decision of 15 September 2011 on the common specifications of the register of railway infrastructure): 'section of line' means the part of line between adjacent operational points and may consist of several tracks.
Management board (MB)	Representatives of the IMs and ABs on the corridor.
Marshalling Yard	Railway facility equipped with tracks with special layout and technical facilities, where sorting, formation and splitting-up of trains takes place; wagons are sorted for a variety of destinations, using a number of rail tracks. There are 3 types of marshalling yards: flat-shunted yards, hump yards and gravity yards. From a shunting point of view, both flat shunting and hump shunting may be in use; from the track position point of view, track can be parallel, continuous or mixed; from the point of view of technology: it can be automated (central switching, time and target braking), power operated (partial central switching, use of rail brake, drag shoes), or manually operated (local switching). This can refer either to freight or passenger trains and there are two types of train formation locations: marshalling yards and other station yards. Marshalling yards have the following four features: - lead track - automated switching - hump with entry and/or exit group - direction tracks.
Network / Rail Network	DIRECTIVE 2008/57/EC, Art. 2: "the lines, stations, terminals, and all kinds of fixed equipment needed to ensure safe and continuous operation of the rail system'. World Bank definition: total length of railway route open for public passenger and freight services (excl. dedicated private resource railways). OTIF definition: 'the lines, stations, terminals, and all kinds of fixed equipment needed to ensure safe and continuous operation of the rail system'. UK definition: any railway line, or combination of two or more railway lines, and any installations associated with any of the track comprised in the line(s), together constituting a system which is used for, and in connection with, the support, guidance and operation of trains.
Network Statement (NS)	DIRECTIVE 2012/34/EU definition: the statement which sets out in detail the general rules, deadlines, procedures and criteria concerning the charging and capacity allocation schemes. It shall also contain such other information as is required to enable application for infrastructure capacity. In the UK, 'The Network Statement aims to provide all current and

	potential train operators wishing to operate train services on Network Rail's infrastructure with a single source of relevant information on a fair and non-discriminatory basis.'
NUTS	The Nomenclature of Territorial Units for Statistics or Nomenclature of Units for Territorial Statistics (NUTS for French Nomenclature des unités territoriales statistiques) is a geocode standard for referencing the subdivisions of countries for statistical purposes. The standard is developed and regulated by the European Union, and thus only covers the member states of the EU in detail. The Nomenclature of Territorial Units for Statistics is instrumental in the European Union's Structural Fund delivery mechanisms.
Path	Infrastructure capacity needed to run a train between two places over a given time-period (route defined in time and space).
Path Allocation Process	Process that involves assigning specific train paths to railway operators.
Path Application / Request	Application for the allocation of a train path submitted by Applicant/RU to IM or to Allocation Body, if this is different from IM.
PCS – Path Coordination System (formerly called Pathfinder)	PCS is a web application provided by RNE to Infrastructure Managers, Allocation Bodies and Path Applicants which handles the communication and co-ordination processes for international path requests and path offers. Furthermore PCS assists Railway Undertakings and Applicants in their pre-co-ordination tasks related to train path studies and international train path requests.
Performance	The accomplishment of a given task measured against pre-set known standards of accuracy, completeness, cost and speed. In a contract performance is deemed to be the fulfilment of an obligation in a manner that releases the performer from all liabilities under the contract. Performance in TPM is related to punctuality.
Performance Regime	In the railway sector, this is a system aimed at improving the quality and punctuality of international/national rail services. This system may include penalties and/or compensation for actions which disrupt the operation of the network and/or bonuses.
Permanent Team (PT)	Managing Director and programme managers, seconded from the partnering IMs/ABs to the RFC North Sea-Mediterranean organisation, running the business.
Pre-arranged path (PaP)	A pre-constructed path on a Rail Freight Corridor according to the Regulation (EU) 913/2010. A PaP may be offered either on a whole RFC or on sections of the RFC
Pre-constructed path products	Any kind of pre-constructed path, i.e. a path constructed in advance of any path request and offered by IMs; applicants can then select a product and submit a path request Pre-constructed path products are either: Pre-arranged paths (PaP) on Rail Freight Corridors or Catalogue paths (CP) for all other purposes
Possession (or restriction of use)	Non-availability of part of the rail network for full use by trains during a period reserved for the carrying out of works. This can be due to the

	disconnection or restriction of use of signalling equipment to enable work to be carried out on the equipment. Possession is an operational arrangement that prohibits scheduled train movements, marshalling or shunting activities on the track. Possession can be planned or unplanned.
Publishing	Preparing and issuing printed material for public distribution or for sale. Publishing may also mean to bring something to the public attention or to announce something.
Punctuality	Strict adherence of a timetable and threshold for rail transport.
Quality	Indicating the effectiveness of a product complying with the existing requirements.
Railway Undertaking Advisory Group (RAG)	Group of RU and other active applicants (AA) representatives which are contacted by the Corridor in order to get their opinion concerning corridor tasks. These opinions must be taken into consideration. The advisory group is set up by the Corridor, in line with Regulation (EU) 913/2010.
Regulatory Body (RB)	Under European Union legislation, each Regulatory Body (RB) has the task to oversee the application of Community rules and act as an appeal body in case of disputes. Applicants have the right to appeal to the RB if they believe that they have been unfairly treated, discriminated against or are in any other way aggrieved. In particular, they may appeal against decisions adopted by the IM (or where appropriate the Railway Undertaking) concerning: a) the network statement; b) criteria contained within it; c) the allocation process and its outcome; d) the charging scheme; e) level or structure of infrastructure fees which it is, or may be, required to pay; f) arrangements for access.
Reserve Capacity	Pre-arranged paths kept available during the running timetable period for ad-hoc market needs (Art 14(5) Regulation (EU) 913/2010)
Renewal / Track Renewal	DIRECTIVE 2008/57/EC, Art. 2: 'any major substitution work on a subsystem or part subsystem which does not change the overall performance of the subsystem'.
Rail Freight Corridor (RFC)	Rail Freight Corridor. A corridor organised and set up in line with the EU Regulation (EU) 913/2010
RailNetEurope (RNE)	RailNetEurope is an association set up by a majority of European Rail Infrastructure Managers and Allocation Bodies to enable fast and easy access to European rail, as well as to increase the quality and efficiency of international rail traffic. Together, the current 37 members of RailNetEurope are harmonizing conditions and procedures in the field of international rail infrastructure management for the benefit of the entire rail industry.
Railway Undertaking (RU)	Any public or private undertaking licensed according to applicable Community legislation, the principal business of which is to provide services for the transport of goods and/or passengers by rail. There is a requirement that the undertaking must ensure traction, and this also includes undertakings which provide traction only.
Running Time	The scheduled time which a train is expected to take between two given locations. From the passenger point of view, this is called the 'journey time'.

Shipper	The contracting party (person or company) entitled to give orders and instructions about its shipment to the accepting (issuing) carrier, simultaneously assuming full responsibility for any charges arising, until the moment the consignee has signed for receipt.
Shunting	The movement of rail vehicles, usually within a shunting yard or similar, to rearrange them for whatever reason. For example, freight trains that consist of single wagon loads must be made into trains and divided according to their destinations. Thus the cars must be shunted several times along their route (in contrast to a block train, which carries, for example, automobiles from the plant to a port, or coal from a mine to the power plant). This shunting is done partly at the start and end destinations and partly (for long-distance-hauling) in marshalling yards. According to EU legislation, shunting is an 'additional service' to be supplied to the Railway Undertaking. Where an Infrastructure Manager offers this service, it shall supply it upon request.
Signalling System	Railway signalling is a system used to control railway traffic safely, essentially to prevent trains from colliding. The main purpose of signalling is to maintain a safe distance at all times between all trains on the running lines. The secondary aim - particularly today - is to make the best use possible of the railway infrastructure, so that the total throughput of trains meets business requirements. There are 'fixed block signalling systems' and the more modern 'moving block signalling systems', which increases line capacity.
Single-Track, Single Line	A single-track railway is one where traffic in both directions shares the same track.
TAF TSI	TAF TSI is the Technical Specification for Interoperability relating to Telematic Applications for Freight.
Tailor-Made Path	A path created specifically to meet a customers' specific needs.
Terminal	The installation provided along the freight corridor which has been specially arranged to allow either the loading and/or the unloading of goods onto/from freight trains, and the integration of rail freight 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. The Management board [of the freight corridor] shall draw up, regularly update and publish a document containing ... the list and characteristics of terminals, in particular information concerning the conditions and methods of accessing the terminals'. Under EU legislation, Railway Undertakings shall be entitled to have access to terminals. Supply of services shall be provided in a non-discriminative manner, and requests by Railway Undertakings may only be rejected if viable alternative under market conditions exist.
Terminal Advisory Group (TAG)	Group of terminal representatives which are contacted by the Corridor in order to get their opinion concerning corridor activities. These opinions must be taken into consideration.

	This advisory group has to be set up by the Corridor to be in line with the EU Regulation (EU) 913/2010.
Timetable	A schedule listing the times at which certain events, such as arrivals and departures at a transport station, are expected to take place. The timetable defines all planned train and rolling-stock movements which will take place on the relevant infrastructure during the period for which it is in force.
Train	One or more railway vehicles capable of being moved. It may consist of a locomotive (sometimes more than one) to provide power with various unpowered vehicles attached to it. It may consist of a multiple unit, i.e. several vehicles formed into a fixed formation or set, which carry their own power and do not require a locomotive. A train may be only a locomotive running light (deadheading) to a point elsewhere on the railway. A train may carry passengers, freight or, rarely nowadays, both. UNISIG definition for ERTMS: a traction unit (vehicle from where a train is operated) with or without coupled railway vehicles or a train set of vehicles with train data available.
Train Information System (TIS)	Is a web-based application that supports international train management by delivering real-time train data concerning international passenger and freight trains. The relevant data is processed directly from the Infrastructure Managers' systems. TIS is the data provider system for TPM.
TMS	Transport Market Study
Train Performance Management (TPM)	Organisation that defines processes for regular monitoring and analysing of international train runs.
X-8 (months)	Deadline for requesting of paths for the annual timetable (Annex III(2), Directive 2012/34/EU)
X-11 (months)	Deadline for publication of pre-arranged paths (Annex III(4), Directive 2012/34/EU)

Annex 2: Confidentiality Agreement TPM Project (template)

Agreement on Information Confidentiality

concerning
freight traffic operated and reported along the RFC North Sea-Mediterranean

between

- ProRail
- Infrabel
- CFL
- ACF
- SBB
- Trasse Schweiz
- SNCF-Réseau
- Eurotunnel
- Network Rail.

and

- *RUs name(s)*

(The up above mentioned Infrastructure Managers and Railway Undertakings are hereinafter also called **"Performance Manager Team"**)

(the above mentioned associations and companies are all together hereinafter called **"The Parties"**)

Preamble

According to the decision of the Management Board of RFC North Sea-Mediterranean, in order to improve the quality of the produced performances along the corridor, the Project "Train Performance Management" has started in November 2013 and will continue for timetable 2016.
The Performance Management Team has agreed to officially start a new performance monitoring process in January 2016, based on train run information available in RNE TIS (Train Information System) platform, treated by Oracle Business Intelligence (OBI) SE1 software.
In this context train run data has to be evaluated and disclosed to the Performance Management Team for facilitating the punctuality improvement of international trains.

1. Objectives

The objective of this agreement is to ensure the confidentiality of any information, such as planned trains, RUs and RU cooperation pattern, punctuality and causes which is shared among the Performance Management Team. The agreement defines the obligations of the parties regarding confidential information as defined in clause 2 below and the conditions under which the confidential information may be passed on to third parties.

2. Confidential information

The parties undertake, to the extent of the present agreement, to keep any information either in the form of electronic data or data in written form on paper or any other material (e.g. printouts of excel files, diagrams, tables, slides), exchanged under the Trains Performance Management, particularly information on train delays and causes of delays, as confidential.
Electronic data is a collection of information stored in a computer memory and / or on another physical medium.

3. Obligations of the involved parties

3.1. The parties agree to provide or forward exchanged information to each other. This obligation is limited to the information concerning all trains which are handled through the Performance Management and its preparation.
3.2. In this regard the project leader defines, and keeps the exact train set to be included in the performance management reports, periodically updated according to the process and the deadlines fixed by RNE,.
3.3. The parties shall ensure that confidential information exchanged remains confidential and is not disclosed or transmitted to any third parties or used for any purpose other than those intended for the purposes of the performance monitoring process here above mentioned. The parties undertake to implement and maintain security procedures and measures, in order to ensure the protection, integrity and authenticity of exchanged data against the risks of unauthorized access, alteration, destruction or loss.
3.4. The parties will not disclose the above mentioned information by any means whatsoever and for any reason whatsoever, including orally, directly or indirectly, to third parties,

- unless the party whose data is concerned agrees expressly in written form; or

- unless the party disclosing the information is forced to do so by legal obligation.

3.5. When authorized, further transmission of such confidential information shall be subject to the same degree of confidentiality.

4. Liability

If the obligations defined in clause 3 above are not fulfilled by a party and damage occurs to a different party caused by the breach of the obligation, the party will be excluded from the Performance Management project. This liability is restricted to cases of gross fault or wilfulness on the part of the breaching party.

This clause is without prejudice to the right of a party to claim damages caused by the breaching party.

5. Period of validity

5.1. This agreement enters into force on the day on which it is signed by the Performance Management members of all the parties.

5.2. This agreement is valid for the duration of the train performance management activities and for one year after the end of these activities.

, .. / .. / 2016

Organisation Infrastructure Managers	Date and Signature
ProRail	Name (in block letters) …… Signature ……
Infrabel	Name (in block letters) …… Signature ……
CFL	Name (in block letters) …… Signature ……
ACF	Name (in block letters) …… Signature

	……
SBB	Name (in block letters) …… Signature ……
Trasse Schweiz	Name (in block letters) …… Signature ……
SNCF-Réseau	Name (in block letters) …… Signature ……
Eurotunnel	Name (in block letters) …… Signature ……
Network Rail	Name (in block letters) …… Signature ……

Organisation Railway Undertakings	Date and Signature
	Name (in block letters) …… Signature ……
	Name (in block letters) …… Signature ……
	Name (in block letters)

	…… Signature ……
	Name (in block letters) …… Signature ……
	Name (in block letters) …… Signature ……
	Name (in block letters) …… Signature ……