Corridor Information Document

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Implementation Plan

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Version Control

Version	Chapter changed	Changes
20/11/2020	Review 1 Permanent team	- Based on the last final version published (TT 2020); - **Extension from Ghent to Terneuzen as connecting line in 2019;** - **With the withdrawal of the United Kingdom out of the European Union, and by consequence the leave as members of Network Rail and Eurotunnel, the content of this book has been adapted accordingly.**
27/11/2020	Review 2 Management Board for review by Executive Board and in parallel Stakeholder consultation	- Changes have been made on the basis of the input and comments provided by the members of the Management Board; - This version has been sent to the Executive Board members for review; - In parallel, this reviewed version has been sent out for stakeholder consultation.
10/12/2020	Final Draft	- Changes have been made on the basis of the input and comments provided by the members of the Executive Board; - Changes have been made on the basis of comments received during the Stakeholder consultation.
17/12/2020	Final version approved by the Executive board for publication on the website	The final version has been approved by the Executive Board for publication on the website on 01/01/2021.
01/01/2021	Publication on the website	

Table of Contents

1. Introduction

The Rail Freight Corridor (RFC) North Sea-Mediterranean Management Board consulted applicants to draft this new version of the Implementation Plan. This document is periodically updated, following its first submission to the Executive Board in 2013.

In 2019, an extension from Ghent to Terneuzen as a Connecting line was done on RFC North Sea-Mediterranean, but no update of the Implementation Plan was published at that time, due to the nature of the extension.

From 2021 on, a revised version of the Implementation Plan is made available, with regard to the withdrawal of the United Kingdom from the European Union, leading to the leave of the members Network Rail and Eurotunnel.

This new version was approved by the Executive Board on the 17th of December 2020.

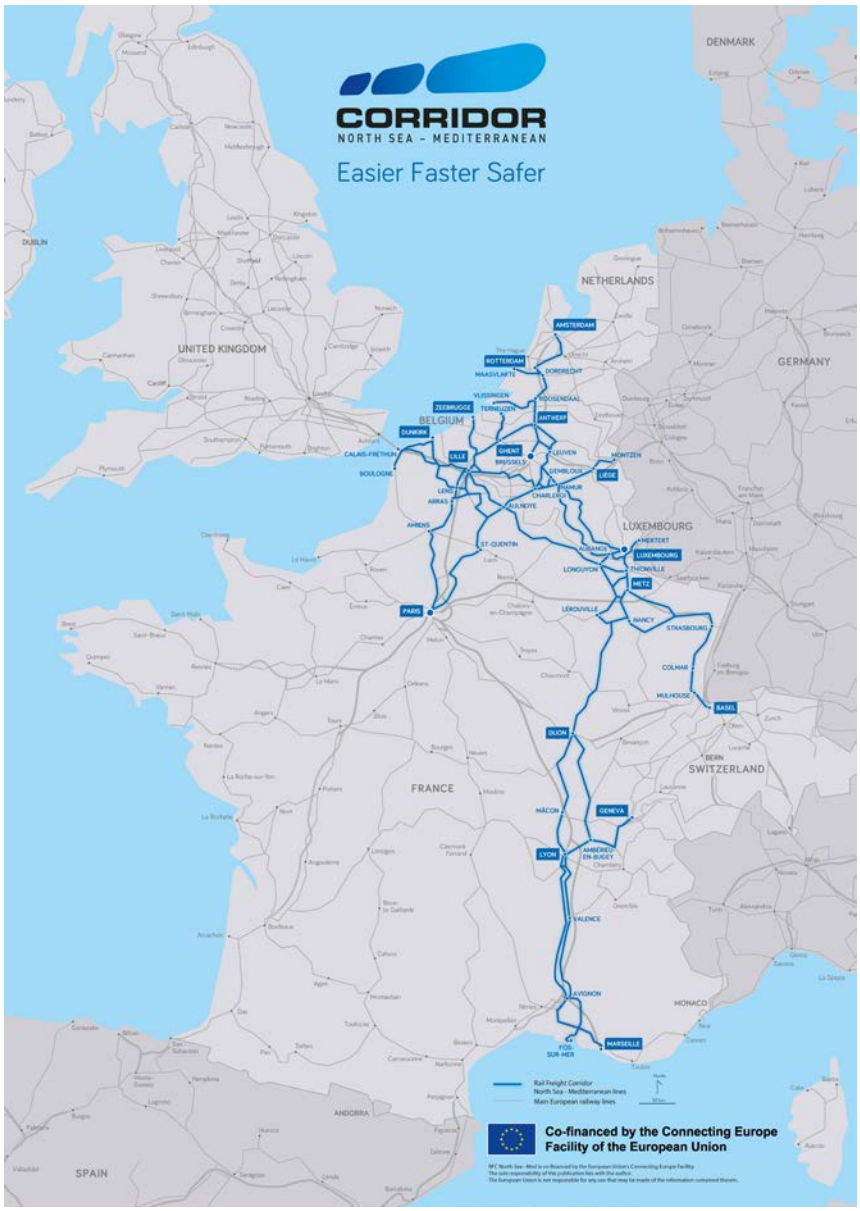
2. Corridor Description

2.1 Key Parameters of Corridor Lines

All information on the routing of the corridor can be found in the corridor information platform.

2.1.1 Routes and Lines

The RFC North Sea-Mediterranean is the continuation of the former ERTMS Corridor C, as all Corridor C lines still belong to this RFC.



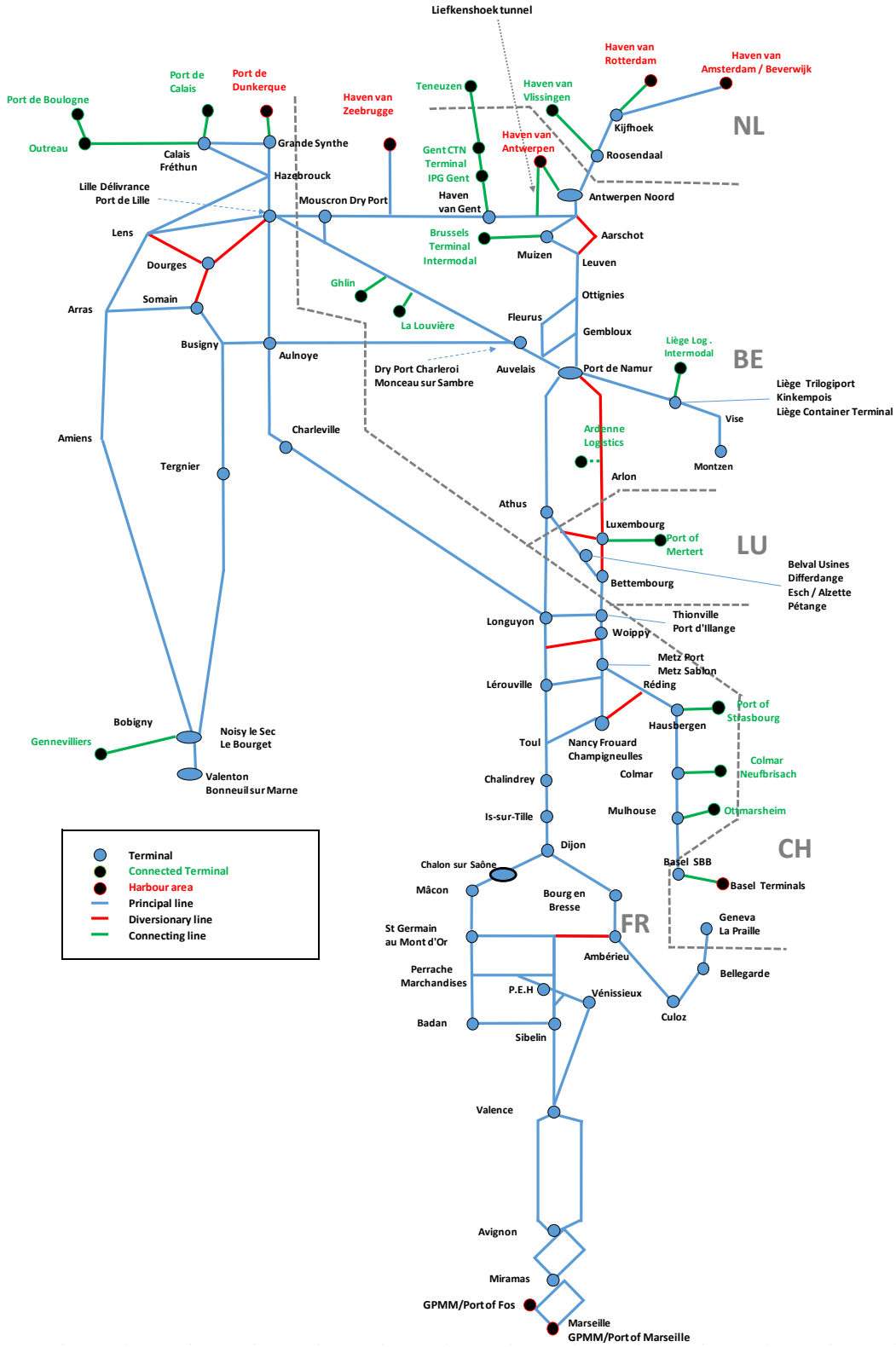
The designated RFC North Sea-Mediterranean lines can be split into four different categories:

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

The table below presents the breakdown of RFC North Sea-Mediterranean lines by country. This breakdown is based on the length of principal and diversionary lines, excluding the length of the connecting lines.

Country	***Length of lines from January 2021 on (in km)***
Netherlands	***306***
Belgium	***1081***
France	***3486***
Luxembourg	***87***
Switzerland	***19***
Whole Corridor	***4959***

Breakdown of RFC North Sea-Mediterranean lines by country

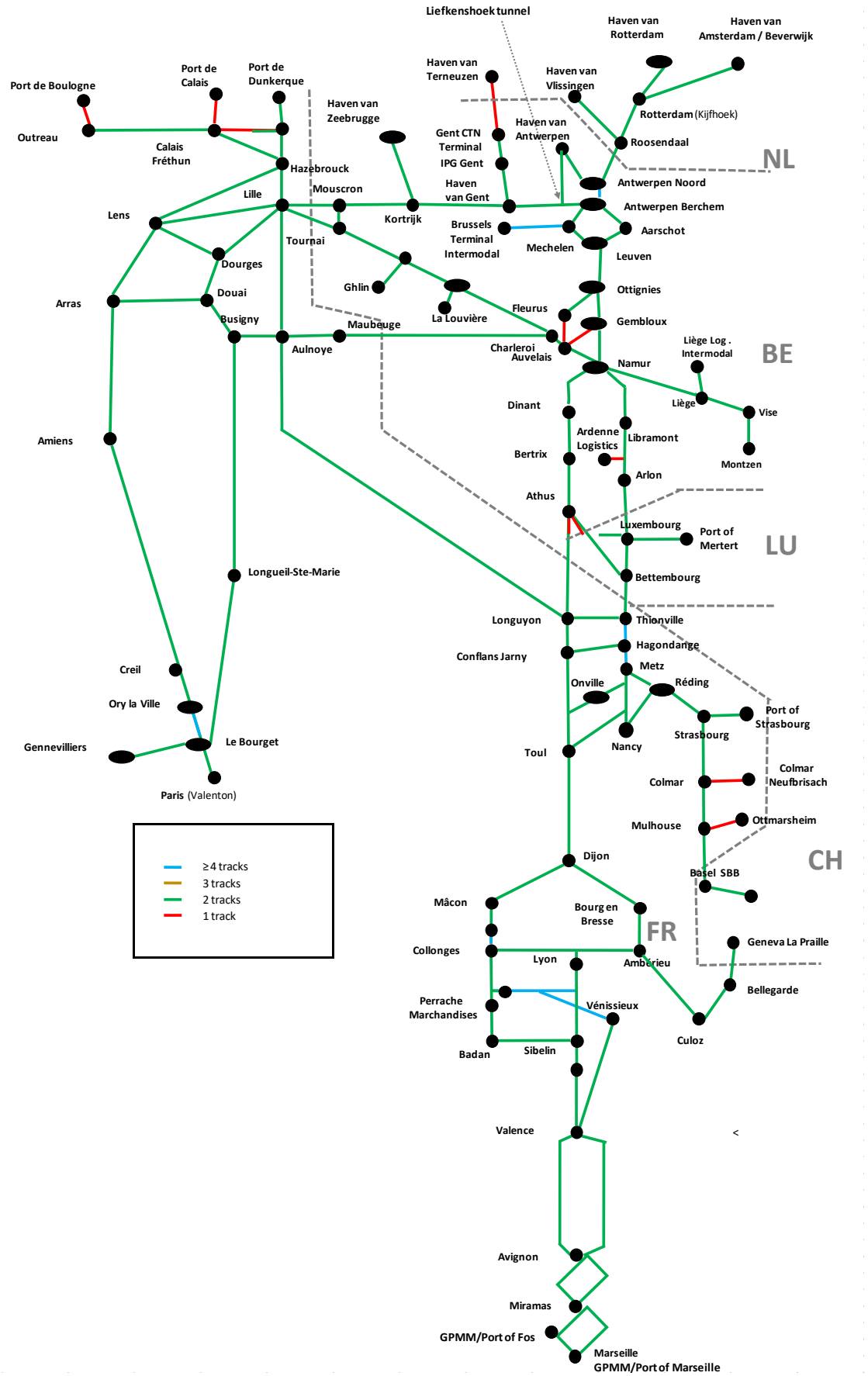


Map of the categories of lines of the corridor

2.1.2 Number of tracks

All corridor sections have 2 to 4 tracks, except less than 30 kilometers in Belgium, six short lines in France and a small section in Luxembourg.

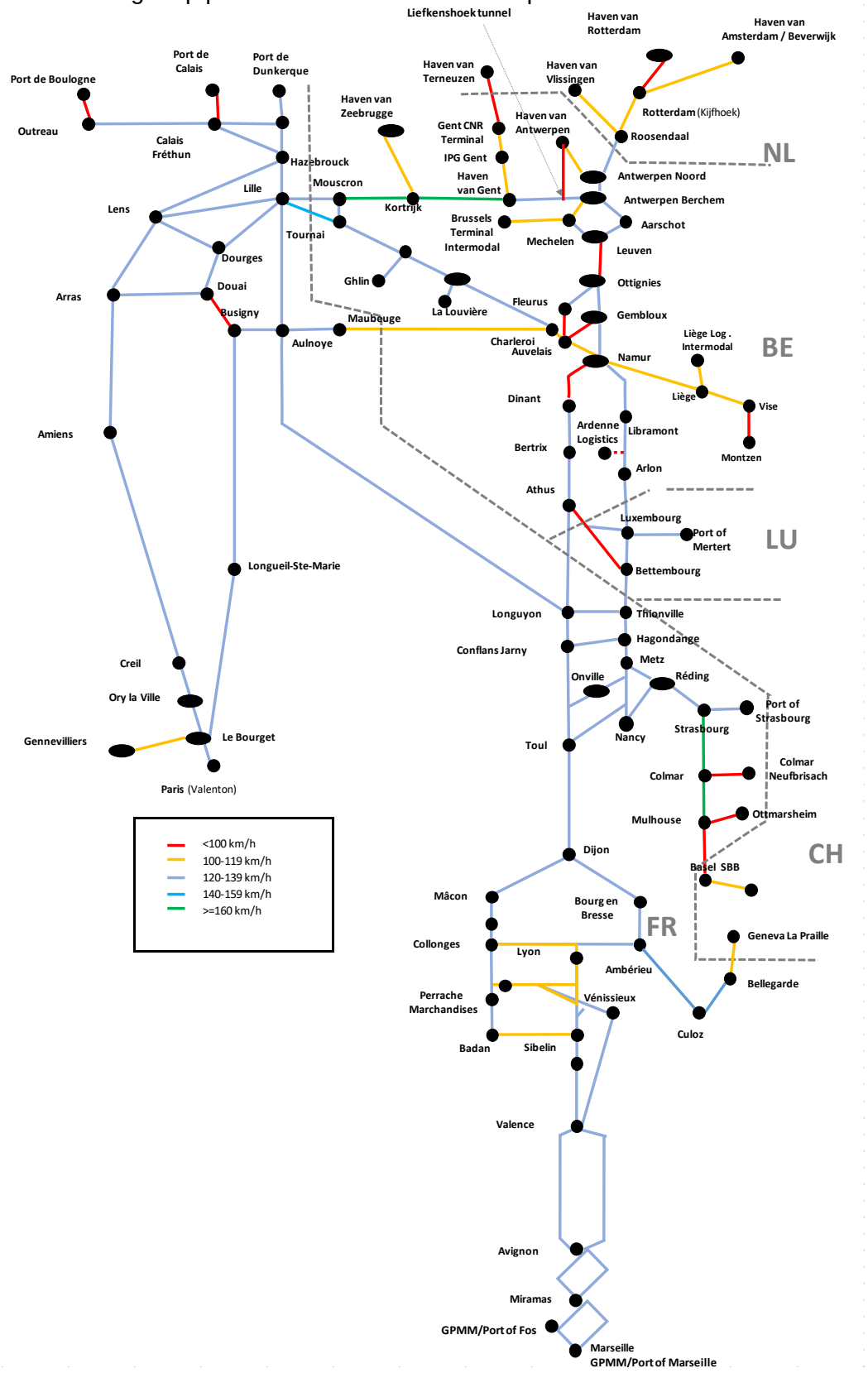
The following map shows the sections with two or more tracks and the ones with a single track (in red).
All sections in the Netherlands (except the stretch between the Belgian border and Terneuzen) and Switzerland have two tracks or more.
Belgium has a section between Fleurus and Auvelais, one between Jemeppe-sur-Sambre and Gembloux and one South of Aubange with single track, as well as the line between Ghent and Terneuzen.
France has one short single track 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.



Map with the number of tracks on the corridor

2.1.3 Speed limits

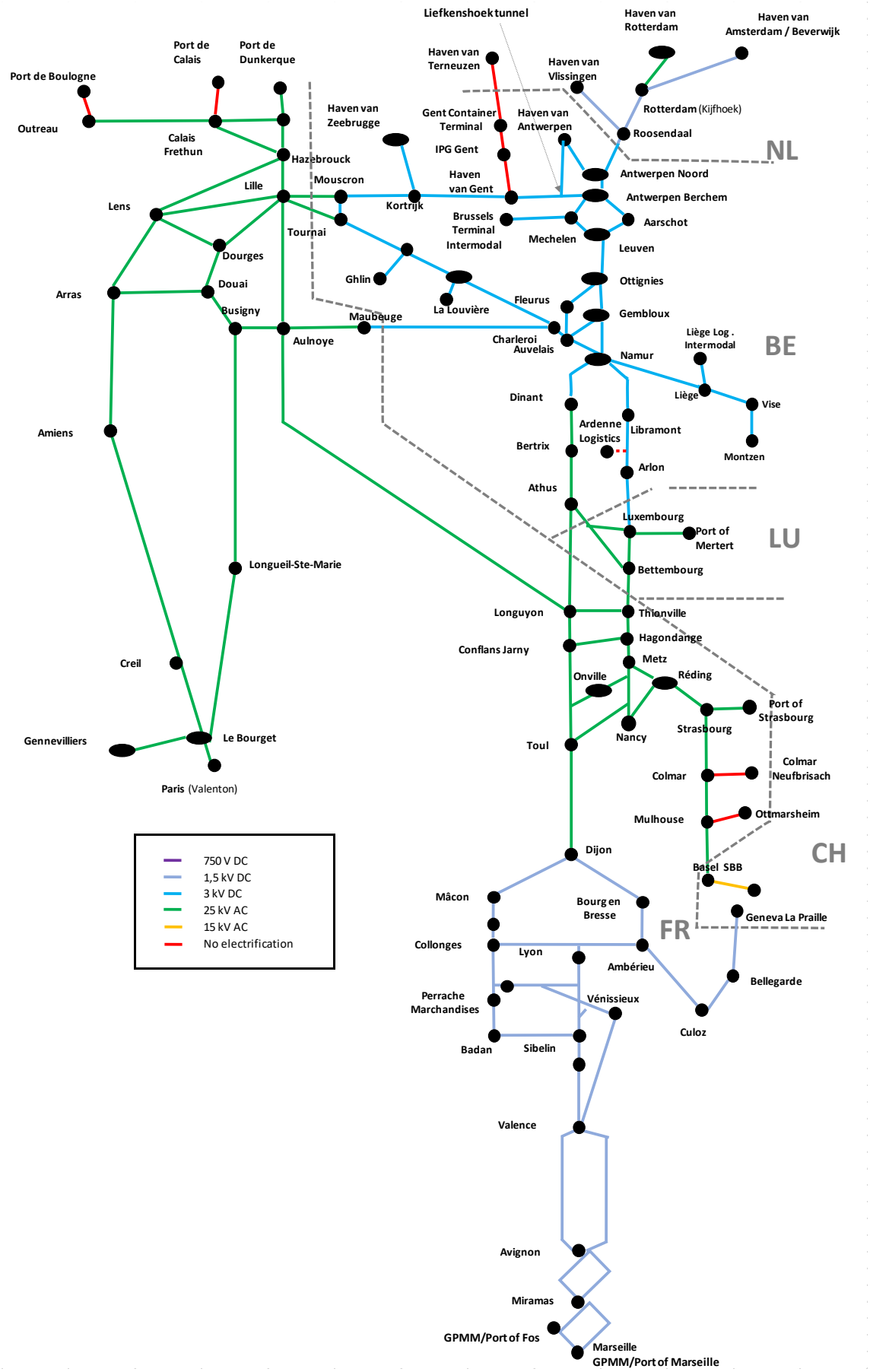
The following map provides an overview on the speed limits on the corridor lines.



Speed limitation on the corridor

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, 16.7 Hz; 1.5 kV DC, 750V DC.



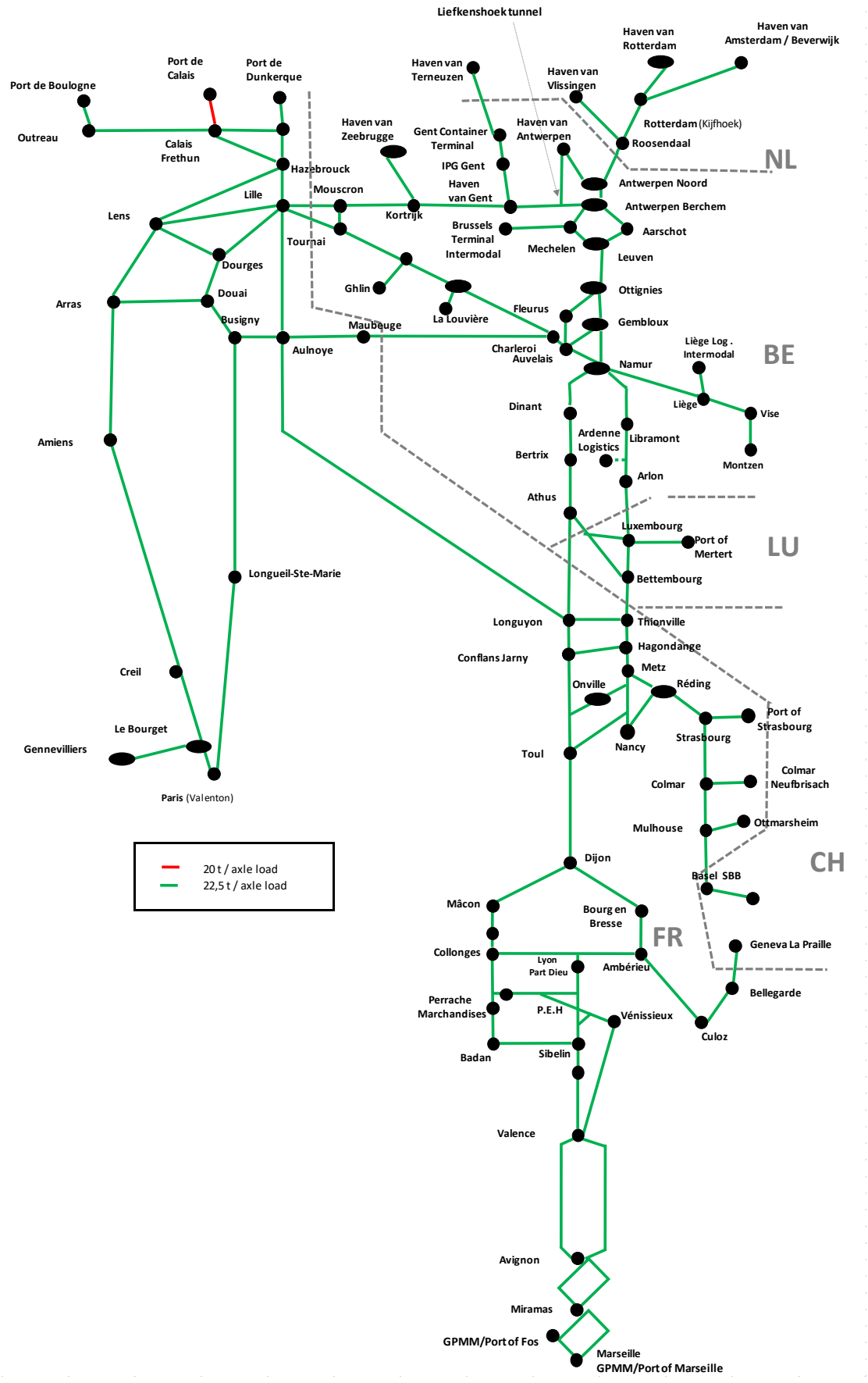
Electrical systems on the corridor

2.1.5 Signalling systems

ERTMS is progressively deployed on the RFC North Sea – Mediterranean lines. Section 6.3.3 about the interoperable system presents in detail the planning of the ETCS deployment.

2.1.6 Maximum axle load

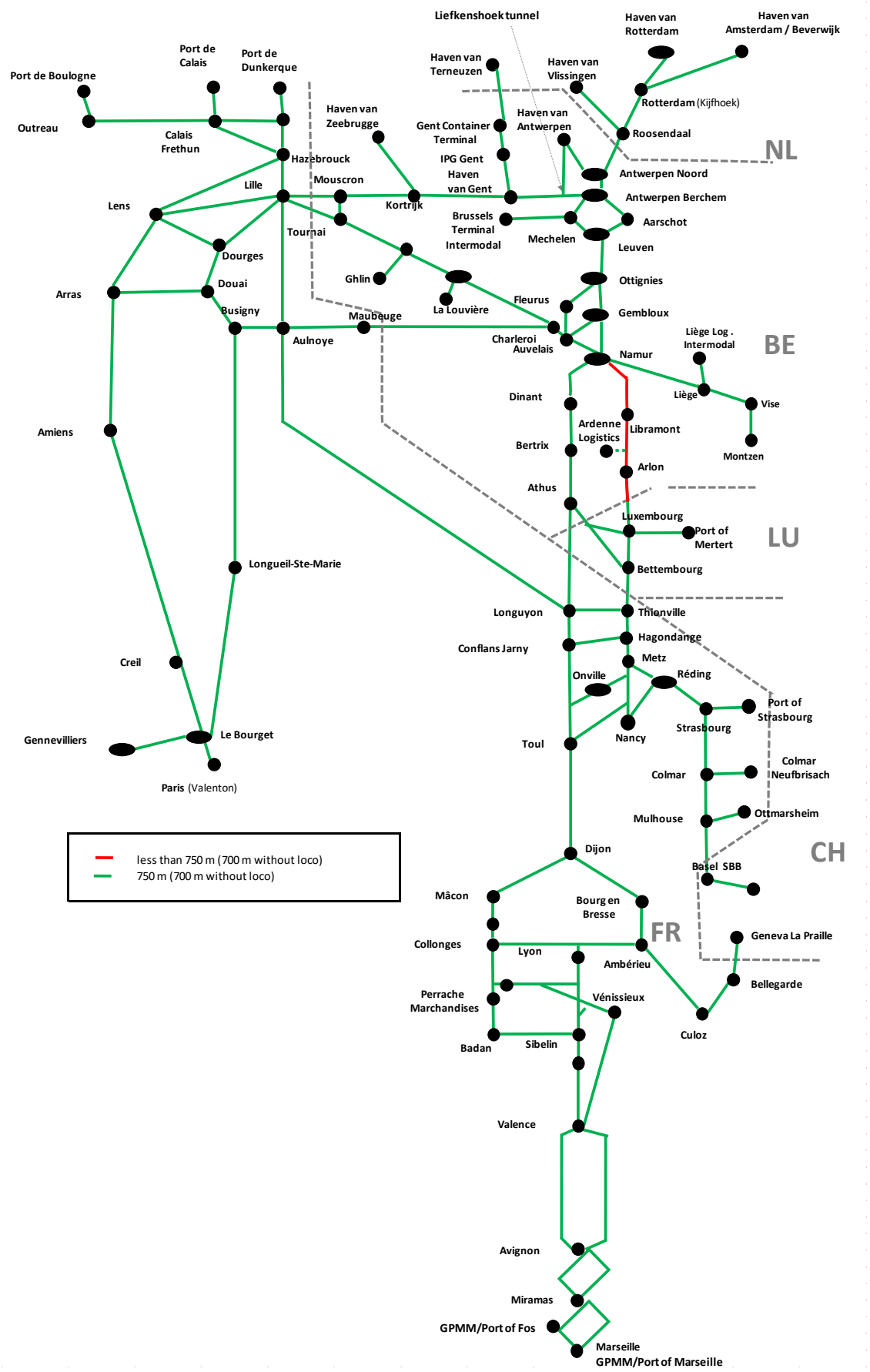
According to the TEN-T standards, the axle load on the core network should be at least 22.5 ton per axle. All RFC North Sea-Mediterranean lines (with the exception of the small section to the Port of Calais) comply with this standard.



Map of maximum axle load

2.1.7 Train length

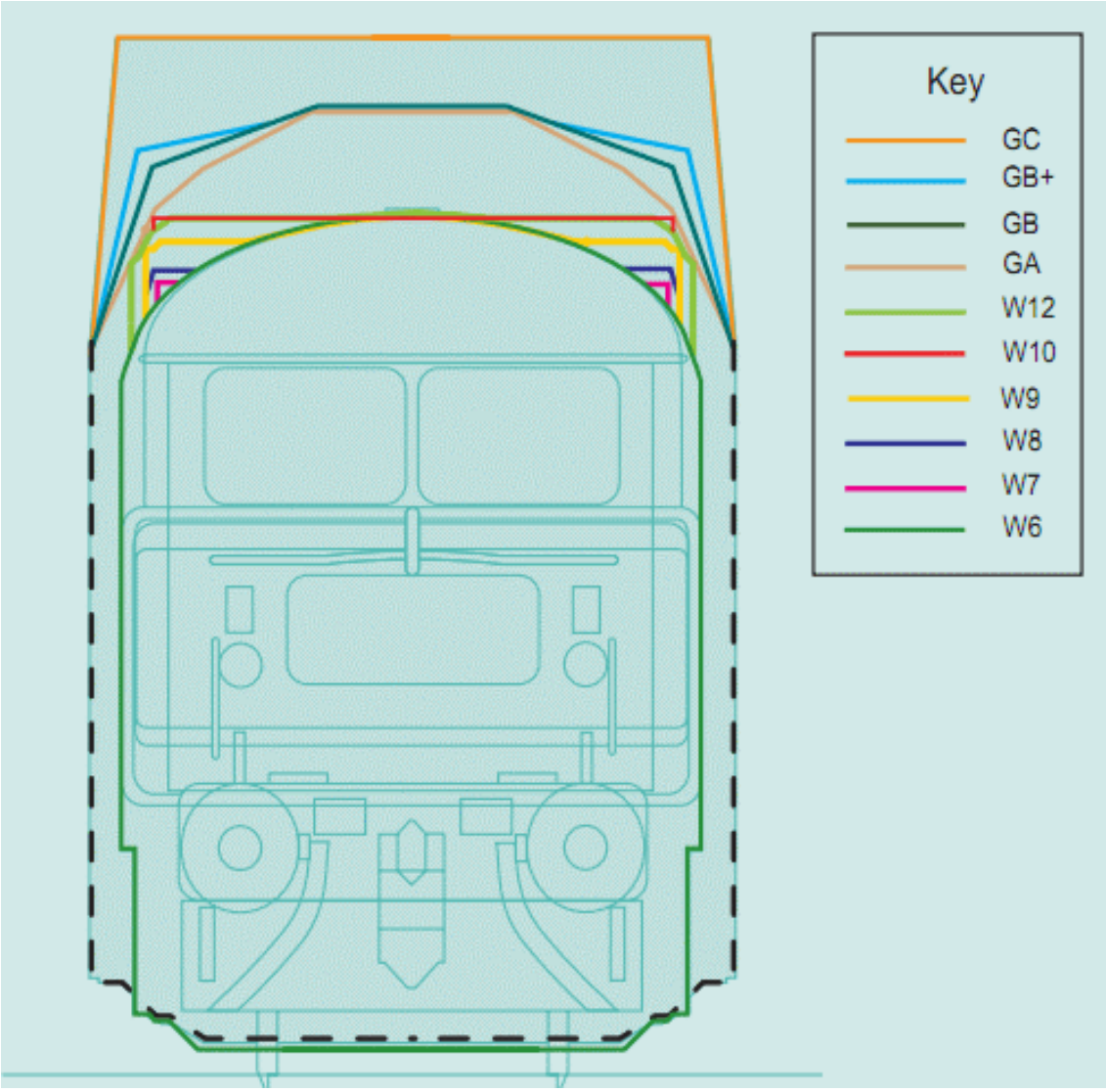
The standard train length is expected to be set at 740/750 meters (including locomotives). In Belgium, 740-meter-long trains are not allowed to run on some sections during peak hours. The Netherlands, Luxembourg, Switzerland and France fully meet the TEN-T standard.
On the section Bettembourg – Le Boulou, 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.

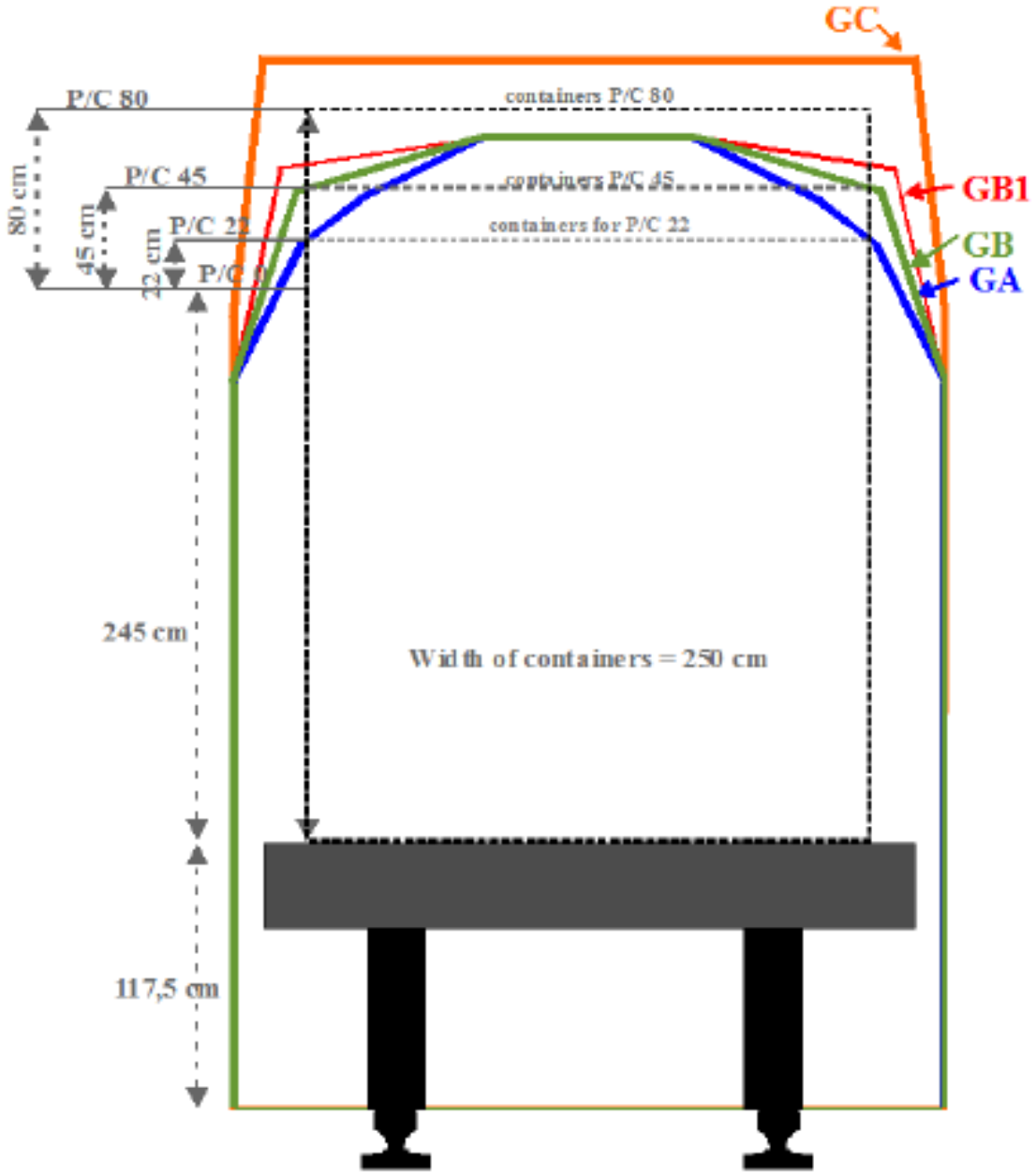


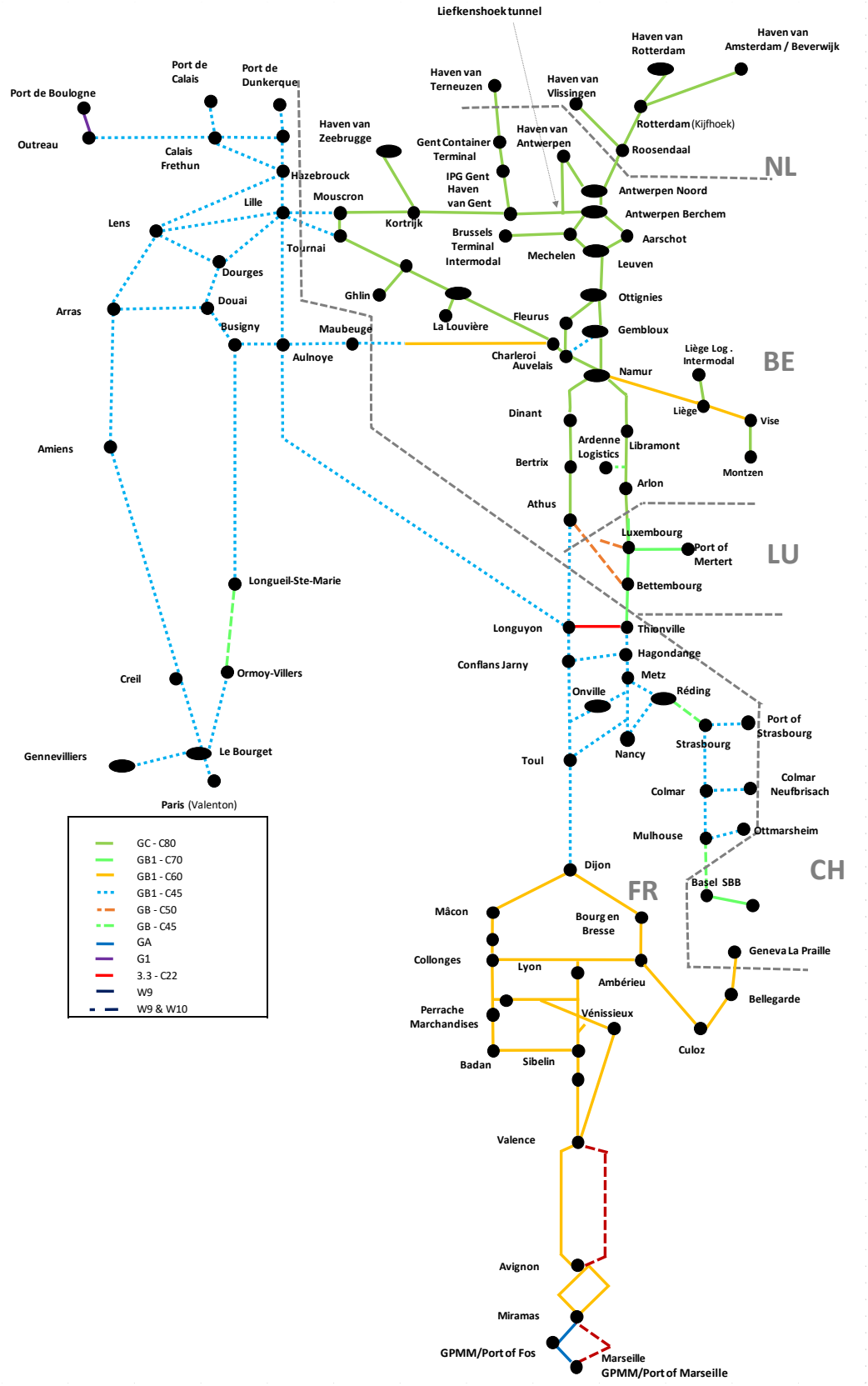
Maximum train length

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 choose 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. In addition, a new baseline for the gauge P400 is currently been defined by SNCF Réseau and will allow to run most of the 4 meter semi-trailers loaded on pocket wagons.



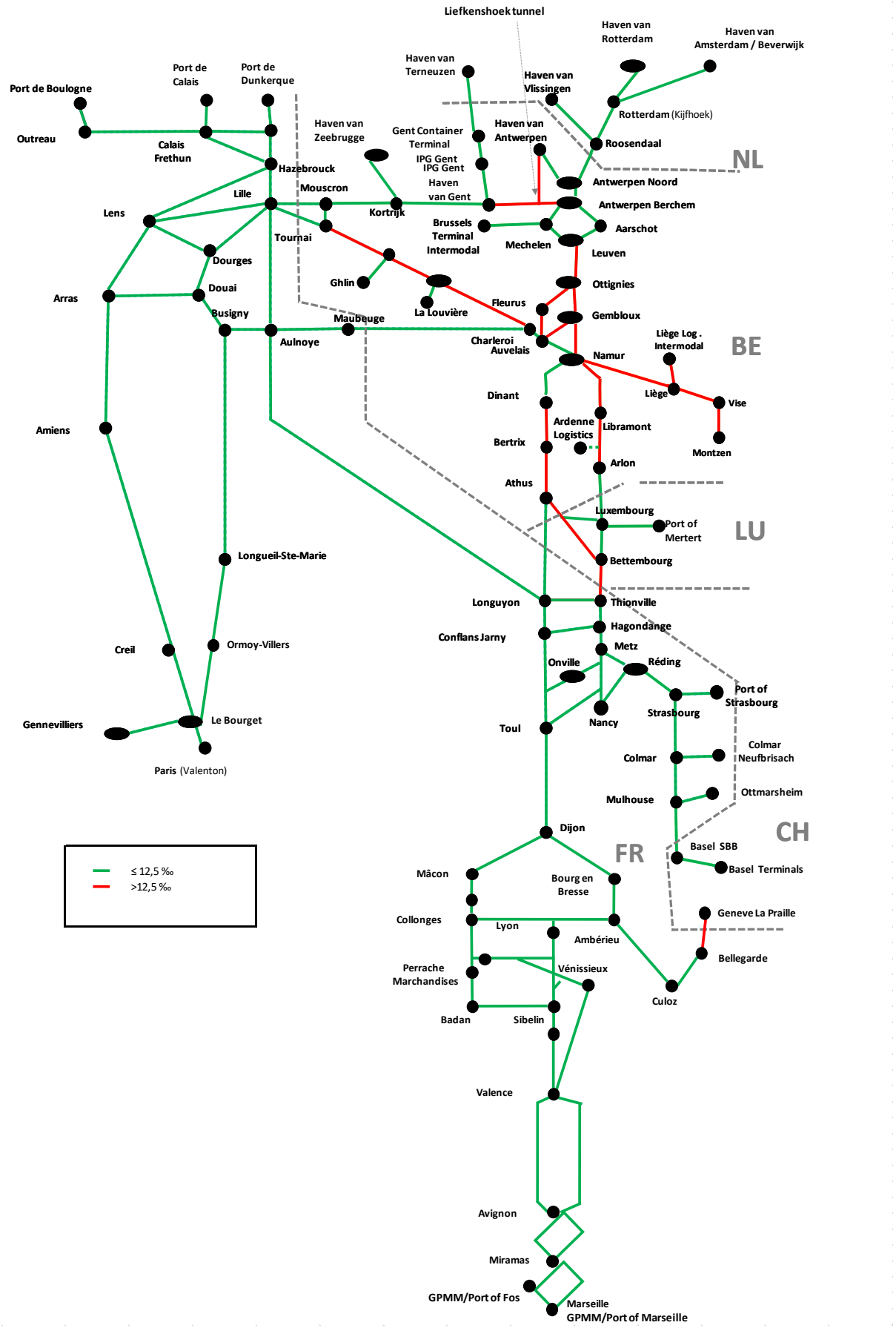

GC
P/C 80
containers P/C 80
P/C 45
containers P/C 45
GB1
P/C 22
containers for P/C 22
GB
GA
80 cm
45 cm
22 cm
245 cm
Width of containers = 250 cm
117,5 cm



Loading gauge

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‰.
The Netherlands fully meet the standard.
Switzerland meets the standards except on the section La Plaine – Genève La Praille.
France meets the standard on all lines, except between Bellegarde and the Swiss border.
Luxembourg meets the expectation on the section 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.


Liefkenshoek tunnel
Haven van Rotterdam
Haven van Amsterdam / Beverwijk
Haven van Terneuzen
Haven van Vlissingen
Rotterdam (Kijfhoek)
Port de Boulogne
Port de Calais
Port de Dunkerque
Haven van Zeebrugge
Gent Container Terminal
Haven van Antwerpen
Roosendaal
Outreau
Calais Frethun
IPG Gent
IPG Gent
Haven van Gent
Antwerpen Noord
NL
Hazebrouck
Mouscron
Lille
Kortrijk
Antwerpen Berchem
Lens
Brussels Terminal Intermodal
Aarschot
Tournai
Mechelen
Leuven
Dourges
Ottignies
Ghlin
Douai
Arras
La Louvière
Fleurus
Gembloux
Busigny
Maubeuge
Charleroi Auvelais
Liège Log . Intermodal
BE
Aulnoye
Namur
Dinant
Liège
Vise
Amiens
Ardenne Logistics
Libramont
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
Dijon
CH
FR
Basel SBB
Basel Terminals
Mâcon
Bourg en Bresse
Geneve La Praille
Collonges
Lyon
Ambérieu
Bellegarde
Perrache Marchandises
Vénissieux
Culoz
Badan
Sibelin
Valence
Avignon
Miramas
GPMM/Port of Fos
Marseille GPMM/Port of Marseille
≤ 12,5 ‰
>12,5 ‰

Gradients

2.1.10 Connections with Other Corridors

2.1.10.1 Connection points with other Corridors

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.

Generally speaking, RFC North Sea-Mediterranean is connected to five other rail freight corridors:

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

Exact information on routing on all adjacent corridors can be found via the multicorridor view of the corridor information platform.

2.1.10.2 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 should not be underestimated. 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.

2.1.10.3 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 point for this traffic is Basel.

2.1.10.4 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.

2.1.10.5 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.

2.1.10.6 RFC North Sea - Baltic

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

2.1.10.7 RFC Rhine-Danube

As the RFC Rhine – Danube was just installed; traffic between the two RFC's will grow in the future.

2.1.10.8 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).

2.2 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:

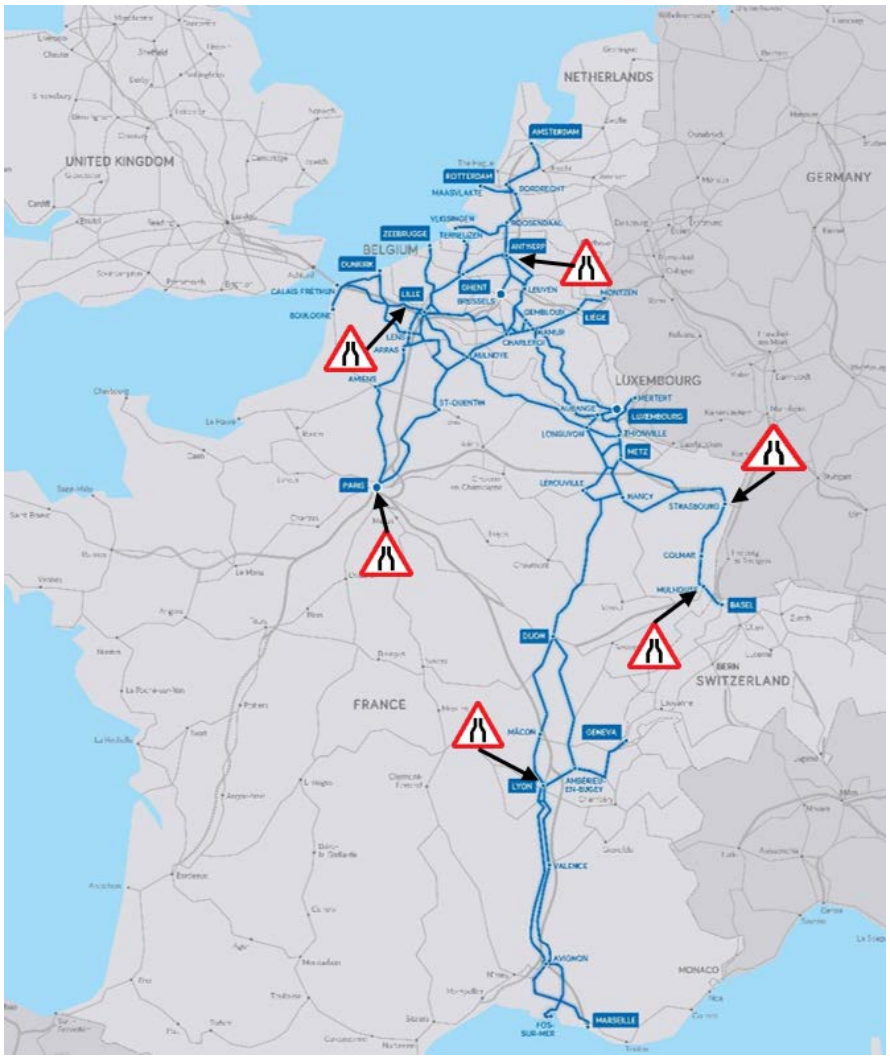
- combined transport terminals;
- river ports;
- multimodal platforms;
- maritime ports;
- private rail freight terminals.

The list of terminals is provided in Section 3 of the Corridor Information Document, and more detailed information can be found in our Customer information platform (CIP).

2.3 Bottlenecks

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.

RFC North Sea-Mediterranean has identified the bottlenecks (⚠) which are highlighted on the map below.



Additional information about RFC North Sea-Mediterranean bottlenecks is provided in chapter 6.1.

2.4 RFC Governance

All details can be found in Section 1 of the CID.

3. Market Analysis Study

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

In June 2016, an update has been made (as an addendum) in order to assess the market for international rail freight in the United Kingdom.

Since 2016, no updates were done on the Transport Market Study.

The essential elements of these studies have been published and are on the website of RFC North Sea-Mediterranean.

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

4. List of Measures

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

4.1 Coordination of Planned Temporary Capacity Restrictions

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

4.2 Corridor One Stop Shop

All information on the Corridor One Stop Shop can be found in Section 4, chapter 4.2 of the CID.

4.3 Capacity Allocation Principles

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

4.4 Applicants

All information on applicants can be found in Section 4, chapter 4.3.2 of the CID.

4.5 Traffic Management

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

4.6 Traffic Management in the Event of Disturbance

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

4.7 Quality Evaluation

4.7.1 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 annual publication is foreseen in the first quarter of each year. The report is based on the RNE Guidelines on the Key Performance Indicators of the Rail Freight Corridors:

http://www.rne.eu/rail-freight-corridors/downloads-documents/. More information on KPI and objectives can be found in chapter 5.

4.8 Corridor Information Document

The CID, which consists of 4 sections and this implementation plan as an annex, is published every year in January. From January 2021 on, this will be published in a new tool called Network and Corridor Information (NCI) portal. Access to the NCI portal is free of charge and without user registration. For accessing the application, as well as for further information, use the following link: http://nci.rne.eu/.

Following the Sector Statement (priority 10), continuous efforts are being made to harmonise the CID even further.

5. Objectives / Performance

The performance of the corridor is monitored via different KPIs and other measurements. For all KPIs, measurable objectives are fixed. These can be found in this chapter.

5.1 Train Performance Management: a corridor oriented performance scheme

All information concerning the Train Performance Management project on RFC North Sea-Mediterranean can be found in the CID Section 4 chapter 4.6.

5.2 Punctuality Objectives

It is the goal of the RFC North Sea-Mediterranean to improve punctuality on the Corridor. This goal can be reached by three methods. The Train Performance Management (TPM), an improved harmonisation and resilience of the PaP Catalogue and the removal of traffic bottlenecks. TPM is described in chapter 5.1. The removal of bottlenecks is described more in detail in chapter 2.3 and 6.1.

The setup of the yearly PaP 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. 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 of 80% in 2021, 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 26 measuring points along the corridor. The evolution of this figure is displayed in the table below.

Yearly RFC NSM punctuality (30min on selected corridor trains)	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
punctuality evolution compared to TT2013	78%	79%	79%	77%	78%	78%	80%

5.3 Capacity Objectives

Capacity on RFC North Sea-Mediterranean is measured 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.

5.3.1 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 heavily influenced by the economic growth of the corridor region. However, the corridor aims to increase the amount of corridor trains in the following manner, compared to the year 2013, taking into account a low economic growth:

2013	2022	2030
Base 100	+ 3%	**+ 9%**

5.3.2 Strategy for the number of Pre-arranged Paths

Each year, around X-18, the RFC North Sea-Mediterranean C-OSS, together with the other RFCs, organises a client survey ("Capacity Wishes Survey") 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 makes a preliminary decision about a PaP strategy (as far as quantity is concerned) based on a proposal from the C-OSS. For this proposal, other parameters are also 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 timetable*
- *transport market study interpretation*
- *capacity needs survey*
- *capacity availability and strategy IM (capacity model)*

This proposal is then presented to the Executive board and the Advisory Groups, and adapted according to their input when it is deemed relevant by the Managing board.

At first, the PaP catalogue consisted largely of paths reflecting historic market demand. RFC North Sea-Mediterranean is extending this offer gradually with a number of PaPs designed for the development of new traffics. These paths are published on top of the amount of market demand paths for two reasons. The Corridor offers more flexibility to the market in number of paths and alternative routes, and it anticipates on possible extra traffics 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 (compared to the concerned timetable year).

The table below gives an overview on the capacity offered as PaP in the RFC North Sea-Mediterranean catalogues from timetable (TT) 2015 to 2021 and an objective for TT2025 on the short and long term. Because of the maximisation of the capacity offered for TT2021, which meant that in principle all harmonised international paths were published as a PaP, the objective for TT2022 is to offer a similar amount of capacity than for TT2021.

Evolution PaP Capacity on RFC North Sea-Mediterranean								
million kms constructed X	**TT2015**	**TT2016**	**TT2017**	**TT2018**	**TT2019**	**TT2020**	**TT2021**	**TT2025 objective ***
days offered	7,6	9,2	15,1	12,6	21,3	24,7	21,7	Maximisation: 100% preconstructed paths crossing the corridor border as PaP
**** compared to TT2021***								

5.3.3 Planned Average Speed of Corridor Capacity Objectives

The goal of RFC North Sea-Mediterranean is to be a fast, efficient and high 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 speed is monitored in KPI 3. The objective is based on the following parameters:

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

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

KM/H per Corridor Route							
Route including	Length	Catalogue TT2013	Catalogue TT2019	Catalogue TT2020	Catalogue TT2021	Objective catalogue TT 2018 to 2020	Objective catalogue TT 2025
Antwerp - Basel	748,8	57,0	52,2	55,1	54,4	55	58
Antwerp - Bettembourg	343,7	60,7	57,8	57,4	54,9	60	62
Mont-St-Martin - Basel	425,9	51,4	46,4	50,5	51,9	50	54
Rotterdam - Antwerp	74,3	53,4	64,6	64,1	64,1	70	72,5
Antwerp - Lille	125,4	50,2	51,4	49,2	61,9	56	60
Lille - Paris	247,3	NA	69,2	68,5	70,7	72,5	75
Calais - Metz	454,7	NA	75,0	75,1	72,5	65	68
Metz - Lyon	454,1	NA	69,2	65,3	66,5	70	72,5
London - Calais	230,4	NA	40,7	40,7	40,7	60	68
Dunkerque - Liège	311,1	NA	55,1	58,7	58,7	57,5	60

Average Speed Objectives

5.4 Allocation Objectives

The Corridor OSS allocates 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 KPIs concerned:

Requests for pre-arranged paths (capacity)

The number of requests for pre-arranged paths is measured for two periods:

- *X-11 untill X-8*
- *X-8 until X-2 (with feeder/outflow sections).*

RFC North Sea-Mediterranean objectives:

- *X-11 until X-8: 50% of PaPs offered at X-11 requested (in km per year).*
- *X-8 until X-2: 20% of the PaPs offered at X-8 requested (in km per year).*

Allocated pre-arranged paths (capacity)

The number of pre-arranged paths which are pre-booked by the C-OSS is measured for two periods:

- X-11 until X-8
- X-7.5 until X

RFC North Sea-Mediterranean objective is to allocate 85% of the Published PaP's.

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 length of the Corridor sections has been fixed, and can be found in annex of the CID Section 4.

Allocated Reserve Capacity

RFC North Sea-Mediterranean objective is to allocate 85% of the published Reserve Capacity.

5.5 Performance Monitoring

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

- *Measurability: performance should be measurable with the tools and resources available to 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 concrete objectives are linked to the KPIs in terms of threshold values, while this is not the case for general measurements.

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

For the KPIs or other measurements, only RFC North Sea-Mediterranean trains are taken into account. On RFC North Sea-Mediterranean, a “Corridor train” is an international freight 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:

- *Operations*
- *Capacity Management*
- *Market Development (not measured on RFC North Sea – Med)*

5.5.1 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. This guideline is under constant review and updated regularly, on the basis of customer feedback.

Our list of measurements has been updated accordingly.

5.5.2 Key Performance Indicators

Operations:

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

Capacity Management :

KPI 3: Average planned speed of PaPs

Makes the comparison between the average running time of the yearly timetable and of the prearranged path 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.

KPI 4: Volume of offered capacity

The KPI is calculated as: Kilometres x days offered at X-11 (yearly PaP catalogue), X-8 (PaPs for late requests and Reserve Capacity).

KPI 5: Volume of requested capacity

The KPI is calculated as: Kilometres x days requested as a PaP in the period X-11 until X-8 and X-8 (-1 day) until X-30 days (without feeder/outflow sections).

KPI 6: Volume of pre-booked capacity

The KPI is calculated as: Kilometres x days requested as a PaP in the period X-11 until X-8 (without feeder/outflow sections) that have been pre-booked by the C-OSS.

Market Development:

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

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

5.5.2.1 Other Measurements

Operations:

OM 1: Traffic Volume (Per Corridor Border)

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

OM 2: Cancelled Trains

Measures the average amount of cancelled trains (entire trajectory) on the corridor.

Capacity Management:

OM 3: Volume of requests

This OM is calcuted as the number of requests submitted to the C-OSS in the period X-11 until X-8 and X-8 (-1 day) until X-30 days.

OM 4: Number of conflicts

This OM is calcuted as the 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 results of the capacity wishes survey, the published and the requested capacity

Comparison between the results of the capacity wishes survey and the actual published and requested capacity for the corresponding timetable year, on predefined corridor O/Ds.

5.5.3 User Satisfaction Survey

Every year as required by the Regulation (EU) 913/2010, a common satisfaction survey is organised by the RFC's, and the results are published on the website, the annual report as well as a base for discussion and exchange with stakeholders, e.g. in the Advisory Groups.

To make the results of the satisfaction survey more comparable, RFC North Sea-Mediterranean works with all active RFC's and the support of the RFC Network Secretary on the survey. The 2020's survey was sent out in Fall. 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.

All results of the User Satisfaction Survey can be found on our dedicated figures page of our website: https://www.rfc-northsea-med.eu/en/page/figures-performance-corridor

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 of the infrastructure. Some IMs combine both investment types if possible.
This investment plan takes into account four categories:

- The deployment of ERTMS to encourage interoperability and to avoid as quickly as possible the multiplication of 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.
- The increase of the train length up to 740m (with loco) to standardise this technical characteristic on all the sections of the corridor.

6.1 Capacity Management Plan

6.1.1 Projects

6.1.1.1 Lyon Railway Node (NFL)

This junction is:

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

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

6.1.1.2 Flyover Oude Landen

The Port of Antwerp is the largest Belgian and the second largest European port after Rotterdam and the number of containers handled at the port is gradually increasing. Over the past decade Infrabel has strengthened the railway infrastructure in and around the port in various strategic locations, such as the Liefkenshoek Rail Link. A range of other projects can support the further development of the port in the future. Today all trains travel from the Port of Antwerp to the hinterland via a single line between Antwerp North and Mortsel (L 27A). This line has reached its capacity limits. The construction of a flyover, called Oude Landen, in order to replace the current junction Schijn at the entrance of the marshalling yard Antwerp North,

is a first step on the way to enhancing the capacity on the line L27A. This project can be considered as the first phase of a long-term solution to improve the access to the Port of Antwerp, consisting in the construction of a complete new railway line between Antwerp North and Lier, the so-called second railway access. If all goes according to plan the flyover should become operational by the end of 2027.

6.1.1.3 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 two trains per hour per direction, due to flat junctions and the signalling system. To increase the capacity, the signalisation should be upgraded.

6.1.2 Train length increase

740m long trains can run on RFC North Sea-Mediterranean except in Belgium during peak hours. Works are in progress or planned to extend some sidings. A study is ongoing at Infrabel.

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

6.1.3 Loading gauge increase

The Corridor Transport Market study performed in 2012 and 2013 showed a major market demand for the transport of trailers/trucks. This has been unanimously and repeatedly reaffirmed by railway undertakings in the advisory group meetings since 2013.

As P400 loading gauge already exists in Belgium and the Netherlands, and as a similar study was performed in Switzerland, studies were performed in 2015 to assess the opportunity to enhance the loading gauge on the French 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/trucks across borders (France, Belgium, Netherlands, Luxembourg, Germany, and Switzerland). It will also enable the connection with other lines with similar gauge, such as Perpignan – Luxembourg.

In Switzerland, on the Calais-Basel route, two tunnels (Kannenfeld, Schützenmatt) still need to be enhanced to achieve P400 loading gauge. Timetable and financing of the enhancement are currently being investigated.

- Kannenfeld (length 800m/ current profile: EBV2): renewal foreseen
- Schützenmatt (length 286m/ current profile: EBV2): renewal foreseen

In France, the study showed that on the Calais – Basel route, 11 tunnels (tunnels of Liart, Martinsart, Montmédy, Vachemont, Platinerie, Fontoy, Mercy, Arzviller, Lutzelbourg, Niederrheinthal and Haut Barr) needed to be enhanced to meet the AFM 427 gauge (close to P400 with usage of 27cm high wagons), and most of them needed to obtain external financing.

In 2020, a socio-economic study was conducted by SNCF Réseau on the main routes of its network, including the RFC North Sea-Mediterranean lines. The results, will serve as a basis for the French ministry to make decisions on the financing of the loading gauge. This topic is also being dealt within an ad hoc working group in the Network Operators Committee ("COOPERE").

6.2 List of projects

RFC North Sea-Mediterranean identified a list of projects or programs which may go live in a 10 year time horizon.

WARNING: this list displayed in the table in annex is provided on an indicative basis. The list of projects provided in this document is presumably considered as secured, unless indicated otherwise. 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.

All projects can be found in Annex I to this Implementation Plan, and some are displayed on the interactive map in CIP.

For ERTMS projects, please refer to the ERTMS deployment plan map (§ 6.3.3.)

6.3 Deployment Plan relating to interoperable systems

RFC North Sea-Mediterranean already complies with most of the interoperability criteria. 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.

6.3.1 ERTMS strategy along the corridor

ETCS version 2.3.0.d level 1 FS (punctual information given to the trains by in-track balises) is installed all along the principal routes of former Corridor C, except for the section Kapellen – Dutch border. Infrabel intends to install ETCS level 2 FS version 2.3.0d compatible (continuous information exchanged between track and on-board systems through GSM-R) on this section.

In Switzerland Baseline 3 balises are implemented for the Limited Supervision mode. 2.3.0d on board systems cannot run on Baseline 3 tracks in ETCS Level 1 to reach Basel SBB Rangierbahnhof (Marshalling Yard), the Northern destination of the Corridor, and access to the Swiss part of the Corridor Rhine-Alpine. Locomotives will have to be equipped with baseline 3 on-board equipment to be able to run under ETCS limited supervision in Switzerland according to Notified National Technical Requirements (NNTR). At middle term

the actual allowed access to locomotives with 2.3.0d equipped with KVB/PZB (STM) will be dismantled. **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 systems, the recommendation is to implement the braking curves algorithm specified in baseline 3.

6.3.2 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.

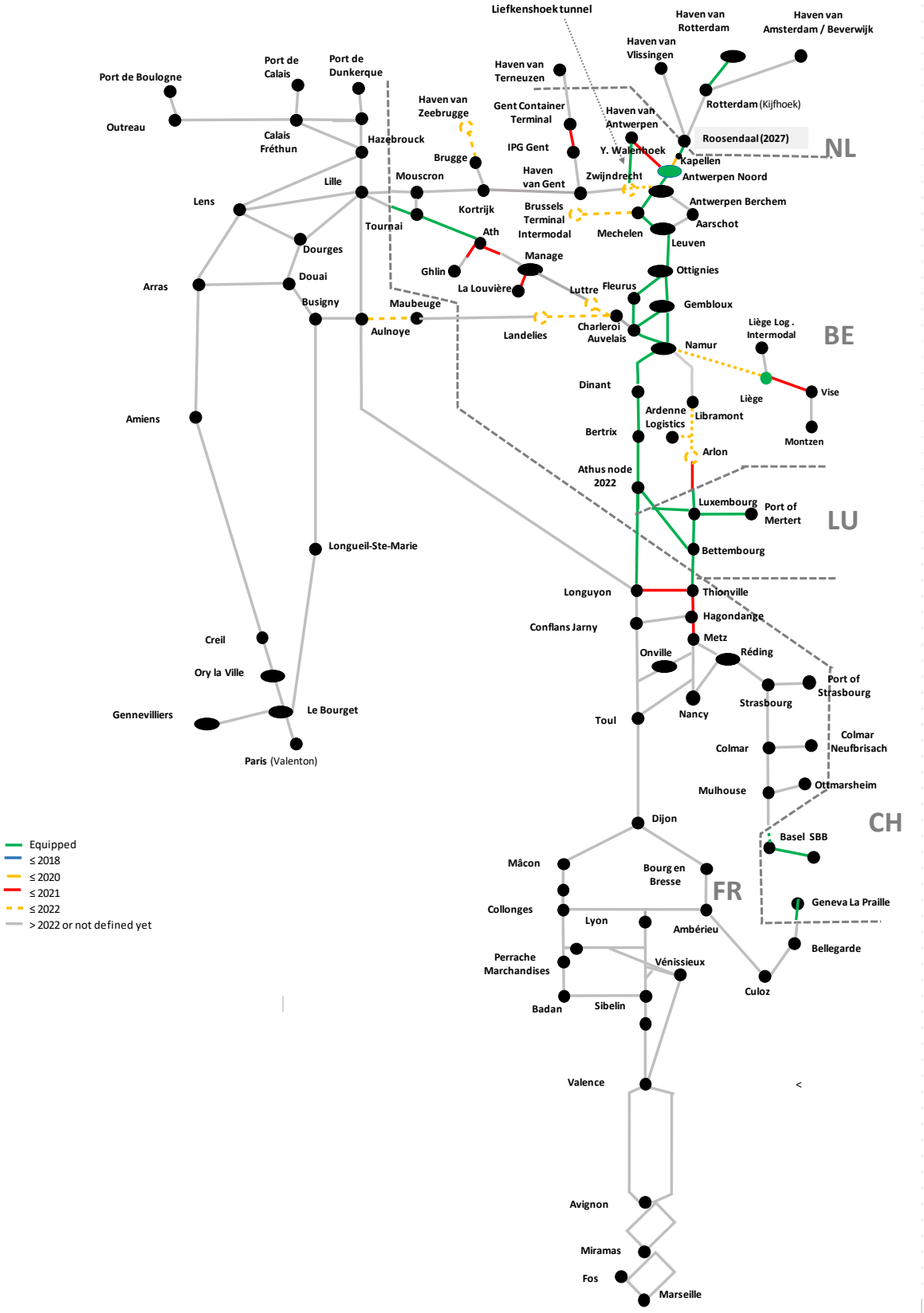
- **In the Netherlands**, the line Kijfhoek – Roosendaal will be equipped in 2026.

- **In Belgium**, all the principal lines of the former ERTMS Corridor C from Antwerp to the Luxembourg and French border are equipped with L1 (V2.3.0d) since 2016. The line from Antwerp (North of Kapellen) to the Dutch border will be equipped in Level 2 in 2021. The complete network is expected to be equipped by end of 2025. Legislation to fade out legacy system in favour of ETCS has come into force the 9th of July 2013. The decommission of the class B system Memor-crocodile started in December 2016. Since the latest iteration of the royal decree published on 16 October 2018, the class B system Memor-crocodile is put out of service progressively on the lines equipped with ETCS , allowing only trains equipped with ETCS or under certain exceptions TBL1+ to run on these tracks. Furthermore this royal decree provides the decommissioning of all class B systems on the main tracks of the Belgian network by 14.12.2025 (including TBL1+ on main lines). On that date Belgium will become an ETCS only network only accessible with ETCS (full access will require a baseline 3 on-board installation).

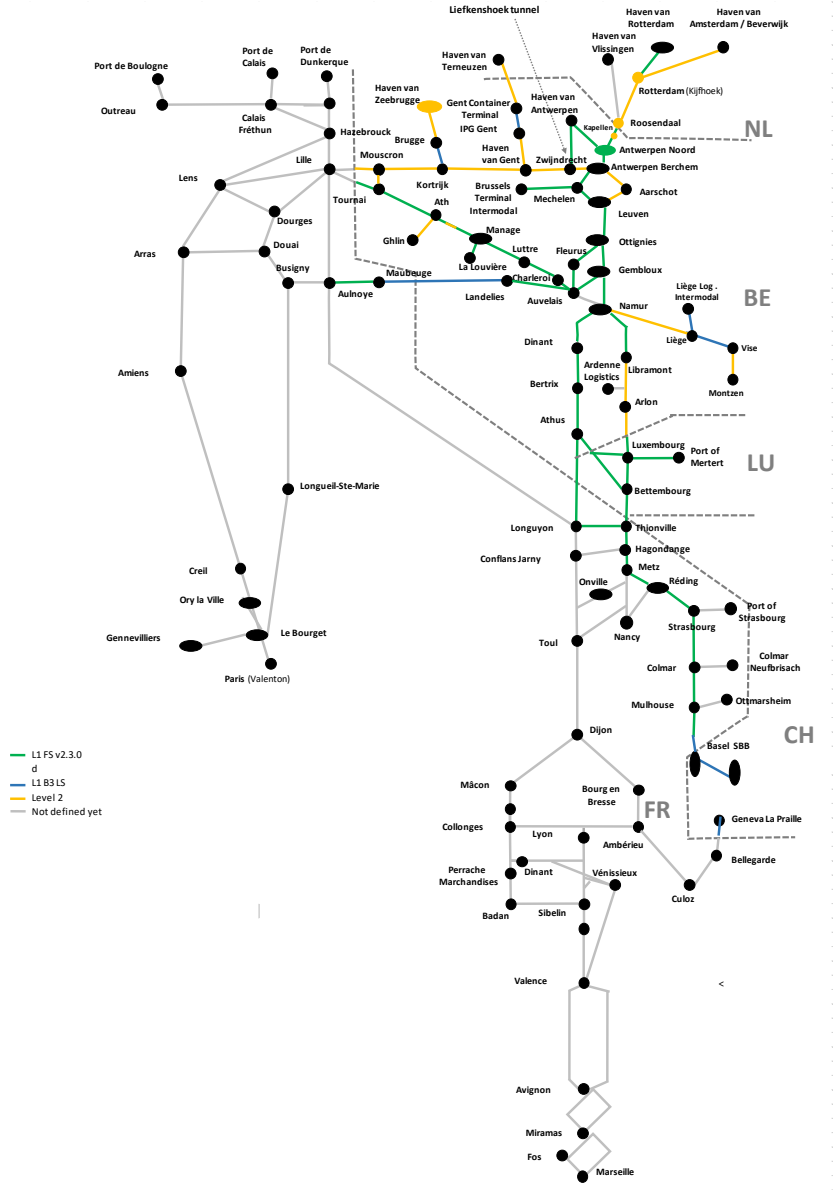
- **In Luxembourg**, the whole network is equipped with ETCS Baseline 2 (version 2.3.0d), level 1. Since 1st of July 2017 trains have to be equipped with ETCS with derogations for existing rolling stock operating on the network before that date – end of derogation 31/12/2020;
- **In France,** the national KVB legacy system will be decommissioned at some point in the future. The date of this decommissioning is not yet determined. The section Longuyon – Basel is planned to be put in service in several steps between 2023 and 2025.
- **In Switzerland**, all new vehicles purchased after July 1st 2014 have to be equipped with ETCS Baseline 3. The national System EuroSignum/ EuroZUB is implemented as part of ETCS packet 44 on the line sight signalling network. A trackside deactivation is not yet planned.

6.3.3 ERTMS deployment plan (cf. EC Implementing Act of January 2017, EDP and National Implementation Plan NIP)

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) :


Liefkenshoek tunnel
Haven van Rotterdam
Haven van Amsterdam / Beverwijk
Haven van Vlissingen
Port de Boulogne
Port de Calais
Port de Dunkerque
Haven van Terneuzen
Haven van Zeebrugge
Gent Container Terminal
Haven van Antwerpen
Rotterdam (Kijfhoek)
Outreau
Calais Fréthun
Hazebrouck
IPG Gent
Y. Walenhoek
Roosendaal (2027)
NL
Brugge
Kapellen
Lille
Mouscron
Haven van Gent
Zwijndrecht
Antwerpen Noord
Lens
Kortrijk
Brussels Terminal Intermodal
Antwerpen Berchem
Tournai
Ath
Mechelen
Aarschot
Dourges
Leuven
Manage
Ottignies
Douai
Ghlin
Arras
La Louvière
Luttre
Fleurus
Busigny
Maubeuge
Gembloux
Charleroi Auvelais
Liège Log. Intermodal
Aulnoye
Landelies
BE
Namur
Dinant
Liège
Vise
Amiens
Ardenne Logistics
Libramont
Bertrix
Montzen
Arlon
Athus node 2022
Luxembourg
Port of Mertert
LU
Longueil-Ste-Marie
Bettembourg
Longuyon
Thionville
Hagondange
Conflans Jarny
Creil
Metz
Onville
Réding
Ory la Ville
Port of Strasbourg
Strasbourg
Nancy
Gennevilliers
Le Bourget
Toul
Colmar
Colmar Neufbrisach
Paris (Valenton)
Mulhouse
Ottmarsheim
Dijon
CH
Basel SBB
Mâcon
Bourg en Bresse
FR
Geneva La Praille
Collonges
Lyon
Ambérieu
Bellegarde
Perrache Marchandises
Vénissieux
Culoz
Badan
Sibelin
Valence
Avignon
Miramas
Fos
Marseille
Equipped
≤ 2018
≤ 2020
≤ 2021
≤ 2022
> 2022 or not defined yet

Timeline ERTMS 2020



ETCS Level (state of play December 2020)

6.4 Reference to Union Contribution

The financial resources available to RFC North Sea - Mediterranean come from contributions from its members and partners and European subsidies. Since its creation, RFC North Sea - Mediterranean has been granted six subsidies.

Action n.2016-PSA-RFC02 under CEF funding, entitled “Long-term development, governance and support to the harmonisation processes of Rail Freight Corridor North Sea - Mediterranean within the European rail freight network compliant with the Regulation (EU) No 913/2010 and the Sector Statement "Boosting International Rail Freight” foresees EU co-financing of the RFC North Sea – Mediterranean.

The Grant agreement was signed on 11th of June 2018. This Action covers, for 2019 and 2020, the following activities:

- Capacity, traffic and performance management and studies for the deployment of interoperability;
- Coordination of further developments and communication with clients and stakeholders.

The forecast amount of the subsidy is 1.09 million €.

At the date of publication of this update of the Implementation Plan, no EU funding was foreseen from 2021 on.

Annex I: Indicative Investment Plan

Annex I: Indicative Investment Plan

Country	Route or Region	Railway section	Nature of project	Benefits	Go Live Date	Budget status (Belgium)	Current phase	Cost estimation (in 2020) (in € mio)	Financing source	Remark
Belgium	**Route Antwerpen - Aubange - Bettembourg / Longuyon**	Port of Antwerp: Right bank	Signalling of several regularly used fan of sidings on right bank of the port of Antwerp	Capacity	2022	secured	works phase	**17,6**	Public (federal + region)	
Belgium	**Route Antwerpen - Aubange - Bettembourg / Longuyon**	North-South railway tunnel in Antwerp	Technological migration of the tunnel safety systems of the North-South railway tunnel in Antwerp	Safety	2023	secured	works phase	**13,8**	Public, European	
Belgium	**Route Antwerpen - Aubange - Bettembourg / Longuyon**	Junction Oude Landen	Construction of junction at Oude Landen (L27A) to provide a better access to the port of Antwerp	Capacity	2027	partly secured	Study and first works	**128,9**	Public	
Belgium	**Route Antwerpen - Aubange - Bettembourg / Longuyon**	Second acces to the port of Antwerp	Study on the construction of a new line between Antwerp North and Lier to provide a better access to the port of Antwerp	Capacity	2023	secured	Study Phase	**1,9**	Public (federal + region)	
Belgium	**Route Antwerpen - Aubange - Bettembourg / Longuyon**	By-pass Mechelen	Line 25: Construction by-pass Mechelen	Capacity	2029	partly secured	works phase	**80,2**	Public	
Belgium	**Route Antwerpen - Aubange - Bettembourg / Longuyon**	EuroCapRail Bxl-Lux	Axe 3 Modernisation and electrification 25kV	Capacity	2030	partly secured	works phase	**272,0**	Public	
Belgium	**Route Antwerpen - Aubange - Bettembourg / Longuyon**	Athus - Mont-St-Martin	Connection of the intermodal node in Athus to the French railway network	Capacity	2022	partly secured	works phase	**11,8**	Public, European	
Belgium	**Route Antwerpen - Aubange - Bettembourg / Longuyon**	Increase of line speed	Increasing performance on 4 freight sections on CNC in Belgium - increase of line speed (L130 Moustier - Flawinne, L24 Glons - BE/DE border, L154 Jambes - Neffe and L166 Y Neffe - Anseremme - Bertrix)	Capacity	2024	secured	Study and Works	**64,3**	Public, European	Global budget, no split per RFC
Belgium	**Route Antwerpen - Lille**	Port of Gent	Construction of side tracks 750m	Capacity/ train length	2021	secured	Study and Works	**4,2**	Public	
Belgium	**Route Antwerpen - Lille**	L59 - 3th track between Lokeren and Sint-Niklaas	Studies and first works related to the construction of a thirth track between Lokeren and Sint-Niklaas and the removal of level crossings	Capacity	2025	secured	study	**35,1**	Public (federal + region)	
Belgium	**Route Kortrijk - Zeebrugge**	Masterplan port of Zeebrugge	Extension and modernisation of Zeebrugge Formation with a new hub of 24 tracks in Zwankendamme, a fan of sidings in Zeebrugge and the removal of the level crossing in Lissewege	Capacity	2025	secured	works phase	**37,8**	Public, European, SPV	
Belgium	**Route Kortrijk - Zeebrugge**	L51 - 3th track between Bruges and Dudzele	Construction of a thirth track between Bruges and junction Dudzele	Capacity	2031	partly secured	works phase	**75,8**	Public	
Belgium	**N/A**	Elimination of level crossings	Elimination of 17 level crossings on RFC Rhine-Alpine and RFC NS-Med	Safety / Capacity	2022	secured	works phase	**37,0**	Public, European	Global budget, no split per RFC
Belgium	**N/A**	ETCS equipment	Equipment of the remaining part of the Belgian network with ETCS	Interoperability	2025	partly secured	works phase	**1.022,9**	Public, European	Remaining amount to equip the whole Belgian network with ETCS (including interlockings)
Belgium	**N/A**	Side tracks 750m	Construction of side tracks 750m in Belgium apart from major projects where this is already included in other works	Capacity	2025	secured	Study phase	**13,2**	Public	Global budget, no split per RFC
France	**Ile-de-France**	Paris - Lille - Belgique	Track renewal	maintenance of performance	2020		Works phase	**10,5**		
France	**Ile-de-France**	Paris-Belfort	Renewal of signalling system	maintenance of performance	2025		Study	**10,7**		
France	**Ile-de-France**	Paris-Belfort	Track renewal	maintenance of performance	2023		Study	**18,8**		
France	**Ile-de-France**	Régional	Track renewal	maintenance of performance	2024		Study	**18,9**		
France	**Ile-de-France**	Paris-Belfort	Track renewal	maintenance of performance	2021		Study	**24,1**		
France	**Ile-de-France**	Régional	Creation of a 3rd track	bottleneck relief	2026		Study	**31,7**		

France	**Ile-de-France**	Régional	Track renewal	maintenance of performance	2023		Study	**32,4**		
France	**Ile-de-France**	Paris-Belfort	Track renewal	maintenance of performance	2023		Study	**38,7**		
France	**Ile-de-France**	Régional	Track renewal	maintenance of performance	2021		Works phase	**125,2**		
France	**Nord Est Normandie**	Artère Nord Est	Track renewal	maintenance of performance	2020		Works phase	**12,8**		
France	**Nord Est Normandie**	Artère Nord Est	Track renewal	maintenance of performance	2022		Study	**13,9**		
France	**Nord Est Normandie**	Luxembourg - Dijon	Track renewal	maintenance of performance	2022		study	**14,2**		
France	**Nord Est Normandie**	Luxembourg - Strasbourg - Bale	Track renewal	maintenance of performance	2025		preliminary study	**16,6**		
France	**Nord Est Normandie**	Luxembourg - Dijon	Track renewal	maintenance of performance	2023		Study	**17,9**		
France	**Nord Est Normandie**	Artère Nord Est	Track renewal	maintenance of performance	2022		preliminary study	**22,0**		
France	**Nord Est Normandie**	Artère Nord Est	Track renewal	maintenance of performance	2023		Study	**22,1**		
France	**Nord Est Normandie**	Paris - Strasbourg - Khel et Lérouville - Forbach	Track renewal	maintenance of performance	2023		preliminary study	**22,5**		
France	**Nord Est Normandie**	Régional	Track renewal	maintenance of performance	2020		Works phase	**24,6**		
France	**Nord Est Normandie**	Paris - Boulogne - Calais	Track renewal	maintenance of performance	2020		Works phase	**45,5**		
France	**Nord Est Normandie**	Artère Nord Est	Track renewal	maintenance of performance	2021		Study	**56,1**		
France	**Nord Est Normandie**	Paris - Lille - Belgique	Track renewal	maintenance of performance	2025		Study	**58,9**		
France	**Nord Est Normandie**	Luxembourg - Dijon	Renewal of signaling system	maintenance of performance	2023		Works phase	**83,2**		Centralised command of the network (CCR) in Thionville
France	**Nord Est Normandie**	Paris - Lille - Belgique	Renewal of signaling system	maintenance of performance	2020		Works phase	**91,1**		Centralised command of the network (CCR) in Douai
France	**Nord Est Normandie**	Luxembourg - Strasbourg - Bale	Renewal of signaling system	maintenance of performance	2025		Works phase	**108,3**		Centralised command of the network (CCR) & modernisation of South Alsace - Mulhouse node
France	**Nord Est Normandie**	Luxembourg - Strasbourg - Bale	ERTMS	Interroperability	2025		Works phase	**209,8**		ETCS level 1
France	**Sud EST**		creation of new tracks (Lyon railway node	bottleneck relief	2026		Study	**10,0**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2023		Study	**12,1**		
France	**Sud EST**	Régional	Track renewal	maintenance of performance	2025		Study	**12,5**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2025		Study	**17,8**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2024		Study	**19,9**		
France	**Sud EST**	Dijon Nîmes PortBou	Track renewal	maintenance of performance	2026		Study	**29,1**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2021		Works phase	**35,0**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2022		Works phase	**37,4**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2026		Study	**42,8**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2023		Works phase	**47,8**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2025		Study	**48,6**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2021		Works phase	**53,2**		
France	**Sud EST**	Dijon Nîmes PortBou	Track renewal	maintenance of performance	2019, 2020, 2021, 2023		Works phase	**75,0**		
France	**Sud EST**	Dijon Marseille	Track renewal	maintenance of performance	2025		Study	**81,2**		
France	**Sud EST**	Dijon Nîmes PortBou	Track renewal	maintenance of performance	2019, 2020		Works phase	**83,2**		

France	**Sud EST**	Dijon Marseille	renewal of signaling system	maintenance of performance	2023		Works phase	**101,5**		Centralised command of the network (CCR)
France	**Sud EST**	Dijon Marseille	renewal of signaling system	maintenance of performance	2026		Study	**136,6**		Centralised command of the network (CCR) in Douai
France	**Sud EST**	Dijon Marseille	renewal of signaling system	maintenance of performance	2026		Study	**164,4**		Centralised command of the network (CCR) in Miramas
France	**Sud EST**	Dijon Marseille	renewal of signaling system	maintenance of performance	2026		Works phase	**190,6**		Centralised command of the network (CCR)
Luxemburg	**ANTW - AUB - BETT**	Rodange - Bettembourg	Creation of siding, passing tracks, extra tracks	Capacity improvement	N/A		Preliminary study	**N/A**		Modernisation and layout improvement of Belval-Usines station
Luxemburg	**ANTW - AUB - BETT**	Luxembourg - Bettembourg	Creation of new structure (line, tunnel, bridge, leapfrog)	Capacity improvement	2027		Works phase	**212,8**		New line between Luxembourg and Bettembourg
Luxemburg	**ANTW - AUB - BETT**	Kleinbettingen - Bettembourg	Creation of siding, passing tracks, extra tracks	Capacity improvement	2023		Works phase	**416,5**		Layout improvement in Luxembourg station Incl signal boxes
Luxemburg	**ANTW - AUB - BETT**	Rodange - Bettembourg	Creation of siding, passing tracks, extra tracks	Capacity improvement	2026		Works phase	**507,4**		Modernisation and layout improvement of Bettembourg station Incl signal boxes
Luxemburg	**ANTW - AUB - BETT**	Rodange - Bettembourg	Redesign of track plan, upgrading to dual-track	Capacity improvement	2025		Study phase	**42,0**		Layout improvements of Rodange station west and upgrade to dual-track
Luxemburg	**ANTW - AUB - BETT**	Rodange - Bettembourg	Redesign of track plan, redevelopment of station	Capacity improvement	2023		Works phase	**107,5**		Layout improvements of Rodange station centre and upgrade to dual-track
Luxemburg	**ANTW - AUB - BETT**	Rodange - Esch/Alzette - Bettembourg	Renewal of catenary	Quality improvement	2025		Works phase	**15,0**		Complete replacement of caternary and optimisation of the traction current return circuit
Luxemburg	**ANTW - AUB - BETT**	Luxembourg - Kleinbettingen	Suppression of a level crossing	Quality and safety improvement	2025		Study phase	**17,2**		Suppression of a level crossings in Capellen
Netherlands		Harbourline - 25 kV connection Betuweline	Change the voltage on the catenary from 1500 V DC to 25.000 V AC between Barendrecht Vork - Kijfhoek - and Sophiatunnel. Project on hold.	Quality	open		Study / To be decided	**N/A**		
Netherlands			SY Maasvlakte Zuid + C2 bocht fase 1	Capacity	2026.01		Study / To be decided	**100,0**		Construction of the first bundle of tracks on the new yard Maasvlakte Zuid + adjustment C2 bocht (commissioned by Port of Rotterdam
Netherlands			ERTMS Roosendaal - Sloehaven	undefined	2030.12		Study / To be decided	**N/A**		Implementation of ETCS between Roosendaal and Sloehaven
Netherlands			Elevated railwaytrack along the Theemsweg (Harbourline)	Capacity	2021.12		Secured	**N/A**		Realization of an elevated railwayline along the Theemsweg, as a result of which rail traffic will no longer hindered by Calandbridge openings.
Netherlands			Botlekbridge (Harbourline) - Oude Maas river crossing	Capacity	2021.03		Secured	**N/A**		Adjusting railway bridge and improving connection to Botlek Freightyard
Netherlands			Dive-under at Amsterdam Dijksgracht	Capacity	2028.12		Planned	**N/A**		free entrance to Amsterdam Westhaven
Netherlands			Redevelopment Waalhaven Zuid freight yard	Capacity	2025.01		Planned	**N/A**		Increasing capacilty and track length (740 m trains)
Netherlands			ERTMS Kijfhoek - Roosendaal grens	undefined	2028.01		Planned	**N/A**		Implementing ERTMS between Kijfhoek and Roosendaal border. Go live 2026-2028
Switzerland	**Mulhouse - Basel**	St. Louis - Basel SBB	Border transition ETCS	ETCS	2024		Detail study	**Approx 1**		Swiss ETCS Implementation programme
Switzerland	**Mulhouse - Basel**	Basel St. Johann - Basel SBB	Upgrade loading gauge Lowering tunnel floor Kannenfeld and Schützenmatt tunnels	EBV3/LGP400 Re-routing	2028		Pre-Study 2020 - 2022	**180,0**		4m-Corridor extension programme EBV3
Switzerland	**Mulhouse - Basel**	Basel SBB - Basel RB	Unbundling and bypass Muttenz	Capacity	2025		Construction	**282,0**		Construction programme AS 2025 knot Basel
Switzerland	**Mulhouse - Basel**	Basel RB Shunting Yard	Upgrade shunting yard BS RB	Capacity and more long trains	2024		Construction	-		Costs included in AS 2025 knot Basel