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North Sea Mediterranean



Second Work Plan of the
European Coordinator

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Mobility
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This report represents the opinion of the European Coordinator and does not prejudice the official position of the European Commission.

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1 Towards the North Sea Mediterranean updated Work plan

Since my appointment as European Coordinator for the North Sea Mediterranean Corridor in March 2014, and continuing in 2015 and 2016, I have been working closely together with six Member States: Belgium, France, Ireland, Luxembourg, the Netherlands and the United Kingdom, in the Corridor Forum and a consortium of consultancy companies contracted by the European Commission. Members of the consortium are: Panteia as leader, MDS-Transmodal, Egis, Stratec, and BG.

I was appointed European Coordinator by the European Commission from 12 March 2014 to 1 March 2018 and my appointment was confirmed by the Council and the European Parliament. My role as European Coordinator was to foster this new framework of intermodality and multimodality as the guiding principle for the corridor by taking soundings throughout the corridor, consulting ministers and senior civil servants. In close cooperation with the Member States on my corridor the necessary level of communication and dialogue is being secured, bearing in mind the great impact that the TEN-T development has on linking Europe. Listening to the various needs, limitations and national difficulties is imperative for my work as coordinator.

The North Sea Mediterranean Corridor is the only TEN-T corridor that includes the United Kingdom. On 23 June 2016 the majority of the UK citizens voted in a referendum to leave the EU, and the UK Government is in the process of formalising its position. I will follow the developments closely and, should it become necessary, I will ask for a modification of my mandate. However, before that, and as long as the UK is a full member of the EU, I will proceed in accordance with my original mandate defined by the Commission and approved by the European Parliament and the Council. I will closely cooperate in this matter with all the Corridor Member States and other stakeholders.

Since the Corridor Forum structure was first established in 2014 we have now held eight forum meetings in Brussels. Following the four meetings held in 2014, in which participation was steadily enlarged to include Member States, rail infrastructure managers, inland waterways, ports, regions as well as road and airport managers, four more forum meetings were held in 2015 and 2016. The fifth forum meeting, which relaunched the forum for the second phase took place on 2 October 2015, gathering all the stakeholders and the seventh meeting which took place on 17 March 2016, enlarged the forum again to include representatives of road/rail terminals.

In connection with the fifth and seventh Corridor Forum meetings, two Working Group meetings were organised for maritime ports, inland ports and inland waterways in the cities of Ghent and Paris. The Ghent meeting was the first corridor meeting to be held outside Brussels, and the Paris meeting was the first to be co-ordinated between two corridors, with joint participation from the Atlantic and North Sea Mediterranean corridor forum stakeholders. A Working Group with a focus on the needs and issues of the regions along the corridor was also established and a joint meeting with the Atlantic Corridor was held in Metz and Strasbourg in September 2016.

In addition to these Corridor Forum meetings and working group meetings, I attended a number of seminars for the European Coordinators, not least two very important meetings hosted by the EIB – The European Investment Bank - and seminars in Brussels debating common challenges across the corridors.



During the course of 2015 and 2016 I also carried out close to 40 missions along the corridor, visiting governments and projects from Scotland in the north to Marseille in the south, giving speeches at transport conferences and debating with relevant stakeholders. I am very pleased with the support and commitment shown by both Member States, project promoters and stakeholders.

I would like to take this opportunity to thank all those organisations and officials who contributed such valuable time and insights to the development of this corridor.

My Work Plan constitutes the basis for the development and implementation of the corridor investments which are needed to remove important bottlenecks along the corridor. Several main issues exist on the North Sea Mediterranean Corridor:

- the establishment of the Seine-Scheldt inland waterway canal and its access routes from Paris towards the south and from Dunkirk, the Netherlands and Belgium towards the north;
- hinterland connections of ports and major works on several sea ports to develop maritime interconnections and maintain efficiency; good examples are provided by the ports of Cork and Dublin in Ireland, which are developing their port facilities to accommodate deeper drafted ships and last mile connections to road hinterland connections.
- upgrading of various cross-border rail connections, such as the rail route between Brussels, Luxembourg and Basel to secure competitiveness with road.
- the removal of the rail capacity bottlenecks found in and around many of the urban nodes, e.g. Lyon and Brussels.
- the development of inland ports, such as the Paris Seine Métropole multimodal platform, in order to promote modal shift, help mitigate urban congestion and optimise urban logistics.
- the need to reduce the relative peripherality of the northern and western regions of the corridor through enhanced Motorways of the Sea connections and improved hinterland connections for ports.
- the need to ensure the continuity of the corridor through its maritime component, both in terms of the port infrastructure and facilities, and also in operational terms through efficient multimodal logistics chains involving maritime legs.

In this way, the development of the North Sea Mediterranean Corridor goes further than mere transport infrastructure. It creates a new link between Member States and has the potential to generate tangible added value to the infrastructure investments, by securing cross-border and interregional cooperation and thereby aims at coordinated approaches and implementation.

My first Work Plan, which was published in December 2014, highlighted critical issues that exist on the North Sea Mediterranean corridor and set out, in liaison with the Member States and a wide range of other stakeholders, a list of projects that could address these issues.

The EU has sought to encourage the implementation of these projects by providing co-funding through two calls for proposals under the Connecting Europe Facility (CEF) in 2014 and 2015. The 2014 Call for Proposals provided a total of €1.6 billion for a total of 34 projects located on the North Sea Mediterranean Corridor. Many of the projects that were co-funded were those highlighted in the 2014 Work Plan, including the Canal Seine Nord (as the core project in the broader Seine-Scheldt project) and other major inland waterway projects, railway capacity improvements, ERTMS deployment and investment in port infrastructure and hinterland connections in the corridor's northern and western periphery.



The 2015 CEF funding round, the results for which were published in July 2016, provided an additional estimated €0.2 billion for projects located on the Corridor. While the main focus of the 2015 call was on projects located in the Cohesion countries, there was a particular focus on projects that will implement technological innovations including ERTMS, SESAR/The Single Sky and RIS. Although there were relatively fewer projects, they are important in the broader context of information-oriented transport policies.

This document is the first draft of the 2017 Work Plan. Since the TEN-T days in Riga in June 2015, I have been focusing on deepening the analysis of the critical issues on the corridor and developing a more detailed plan for how they can be addressed and monitored. Work has been carried out by all corridors to develop sets of Key Performance Indicators (KPIs), including a set of corridor specific KPIs addressing priorities for the corridor. These KPIs allow progress to be measured on the corridor itself and in comparison with the other corridors across Europe. Work has also been carried out to update the list of projects, based on information from the Member States and other stakeholders, and the information on these projects will, again, be presented in a consistent way across all the corridors so that appropriate comparisons can be made.

The North-Sea Mediterranean corridor activities started in 2014 have enabled us to achieve a strong degree of collaboration between all the Member States and other stakeholders and this has allowed us to build a solid foundation for further work over the next few years. I believe we still need to work in close cooperation in order to guarantee the successful continuation of the Work Plan. It is only the starting point of a long cooperation to create the conditions for growth and prosperity, making Europe more competitive and securing that all EU citizens and businesses can benefit from this modern and sustainable European transport network on the North Sea Mediterranean core network corridor by 2030. I count on your continued support and commitment in the following years.

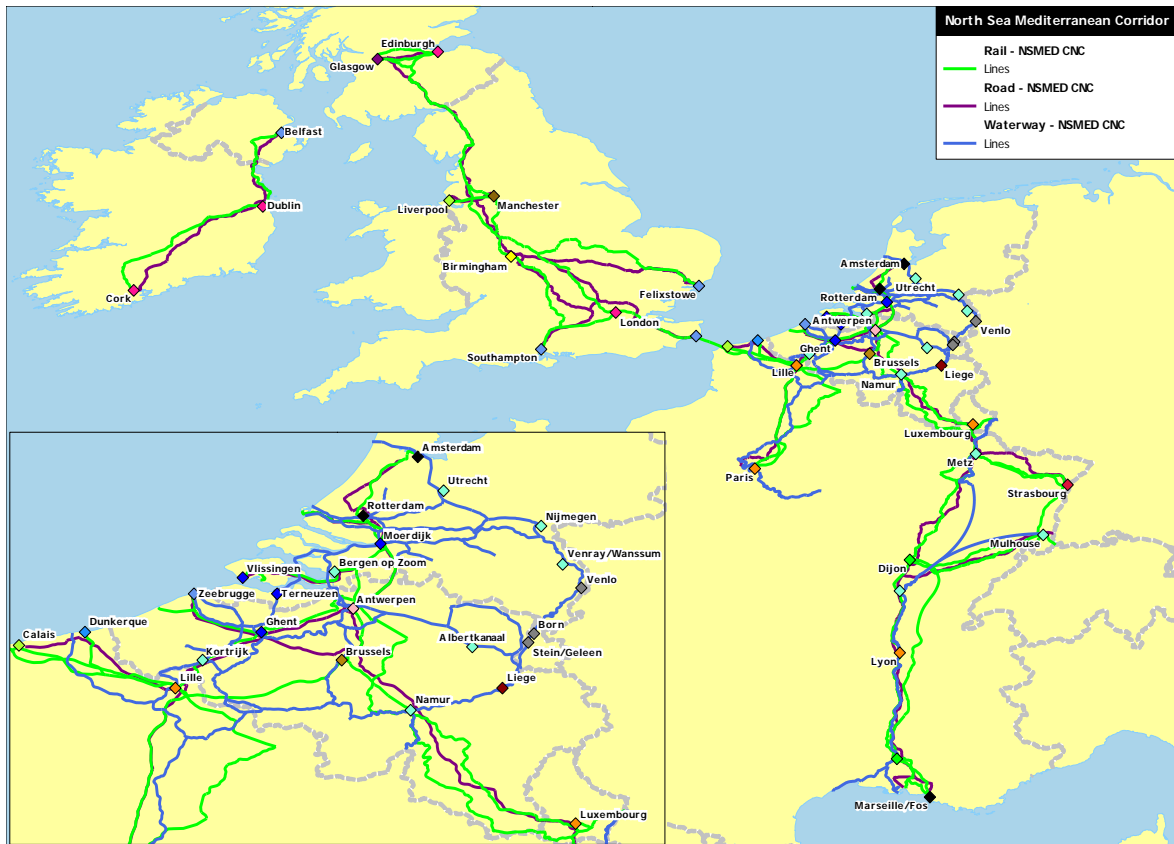
In the coming years, we will continue to work together in the Corridor Forum and, with all the stakeholders, not only revise the Work Plan in 2018 but also focus on key issues that we have not yet been able to address with all the deserved attention. I am here especially thinking about the greening of transport including innovative energies such as clean fuels, LNG, CNG, hydro energy, and also Intelligent Transport Systems (ITS), automatization and up-to-date transport management (e.g. RIS in inland navigation). We will also draw out attention in the direction of Innovative Financial Instruments and the Juncker Plan.

2 Characteristics of the North Sea Mediterranean Corridor

2.1 Corridor alignment

The North Sea Mediterranean core network corridor (NSMED CNC) stretches from Glasgow, Edinburgh and Belfast in the north to Cork in the west, Paris and Lille in the centre, Marseille in the south, and extends north-east through Luxembourg, Belgium and the Netherlands towards Amsterdam. It covers six Member States, namely Belgium, Ireland, France, Luxembourg, The Netherlands and the United Kingdom, as well as leading to the Swiss and German borders in Basel.

Figure 1: Corridor Alignment



This corridor groups together the former Priority Projects 2, 9, 13, 14, 24, 26, 28, 30, ERTMS Corridor C and Rail Freight Corridor 2 (RFC2). RFC2 is now called RFC North-Sea-Mediterranean, and although there is considerable overlap, several lines of RFC NSMED are not part of the CNC NSMED¹.

The North Sea Mediterranean Corridor will establish high capacity and multimodal transport connections in one of the most densely populated areas of Europe, connecting six important Member States. This is an area of extremely intensive economic and transport activity. The progressive implementation of the many projects so far identified will result in additional growth potential, generating new employment opportunities. I strongly believe that if all concerned Member States actively participate in this work, this will increase capacity, create European added value and strengthen the international competitiveness of our ports, road, railways and other connections to internal and external markets.

All modes of transport are heavily used within the North-Sea Mediterranean Corridor; air, sea, road, rail, inland waterway, and even transport by pipeline. Key infrastructure assets include the Channel Tunnel, three of Europe's top-five airports, several high-speed lines of the PBKAL network² and four of Europe's top-ten seaports.

¹ The Ministerial Declaration, 21 June 2016, TEN-T days Rotterdam, "Rail Freight Corridors to boost international rail freight", encourages cooperation on an equal basis between the CNC and RFC structures.

² Paris-Bruxelles/Brussel-Köln-Amsterdam-London high speed network

Waterborne transport, inland and maritime, is strongly emphasised in the corridor. This CNC also includes many of the busiest rail freight lines in this part of Europe.

This corridor is defined as a series of interlinked sections, with many short-sea connections between the United Kingdom, Ireland and the mainland Europe. It overlaps in some sections with the North Sea Baltic and Rhine-Alpine Corridors in the Netherlands and Belgium, the Atlantic Corridor in Northern France and the Mediterranean Corridor in Southern France, and it is the only core network corridor reaching the United Kingdom and Ireland. It is therefore an extensive and complex corridor containing densely populated regions of long-standing economic importance and with a high degree of urbanisation, along with more peripheral and less densely populated regions in the west and north. It is also characterised by important crossings, interlinkages and mutual capacity effects.

2.2 Compliance with the technical infrastructure parameters of the TEN-T guidelines

Regulation 1315/2013 provides, inter alia, technical requirements for the core network infrastructure. These are summarised below.

Table 1: Technical Parameters³

Rail: (non-isolated networks) Electrification. ERTMS. Track Gauge: 1435mm ⁴ <i>Freight:</i> Axle Load: 22.5t Line speed: Freight: 100km/h Train Length: 740m	Inland Waterways: CEMT IV (1000-1500t Vessel) Length: 80/85m Beam: 9.5m Draught: 2.5m Height: 5.25/7.00m
Road: Express road or Motorway. Secure parking areas every 100km. Availability of clean fuels. Interoperable tolling where applicable.	Ports/maritime: Rail connection -where possible ⁵ Waterway connection – where possible ⁶ Availability of clean fuels. Promoting MoS (short sea connections)
Airports: Availability of clean fuels. Connection to rail network ⁷ Connection to road network ⁸ .	Road/Rail Terminals: Indication of capacity.
	Inland ports Indication of capacity. Availability of clean fuels.

Source: DG-Move, working paper, 26-02-2014

³ The technical requirements below are subject to the provisos of art.1.4 and 7.2 of Regulation No 1315/2013

⁴ Except in cases where the new line is an extension on a network the track gauge of which is different and detached from the main rail lines in the Union.

⁵ Article 41.2: by 2030 except where physical constraints prevent such connection.

⁶ Article 41.2: by 2030 except where physical constraints prevent such connection.

⁷ Article 41.3: by 2015 except where physical constraints prevent such connection.

⁸ Article 41.3: by 2015 except where physical constraints prevent such connection.



Railway network and rail/road terminals

There are precise technical interoperability requirements set out within the TEN-T Regulation which apply to the majority of NSMED sections, excluding the non-standard gauge Irish railway network which is considered an “isolated network” and exempt from the interoperability requirements. For the rest, following adoption of the standards, it would become possible for an ERTMS-equipped, 740m, electrified freight train to travel across the CNC rail network without having to change locomotive or wagons.

Train Length – Currently France, the Netherlands and Luxembourg allow 740m freight trains along the North-Sea Mediterranean Corridor. In Belgium, the length of goods trains is limited in principle to 740m inclusive of traction units, but the Infrastructure Manager’s agreement must always be sought for any train longer than 650m. In practice, for the NSMED corridor, trains are frequently limited to 650m during peak (daytime) hours, and in order to increase train length, it is necessary to increase the number of sidings designed for 740m trains. In the mainland United Kingdom, 775m freight trains are allowed on parts of the West Coast Main Line between London and the North West, and on HS1⁹ between London and the Channel Tunnel. However, 50% of the United Kingdom corridor sections are below the 740m standard, 20% are above the standard, whilst for the remaining 30%, the train length restrictions were unknown. In Northern Ireland (United Kingdom) and in the Republic of Ireland all sections are below 740m, but as they are classified in TEN-T as “isolated networks¹⁰” they are exempt from this requirement.

Track Gauge – all corridor sections use standard 1435mm gauge, with the exception of those in the Republic of Ireland and Northern Ireland where 1600mm broad gauge is used; as “isolated networks” these sections are exempted from the requirement.

Electrification – the continental branches of the rail corridor are, with the exception of a few “last mile” connections, fully electrified. However, interoperability issues still arise owing to the use of different voltages. France uses 25kV mainly in the North, and 1.5kV on most lines south of Dijon. Luxembourg uses 25kV electrification. Belgium uses 3kV on most corridor sections and 25 kV on others such as the high-speed line and the “Athus-Meuse” line, the southern part of RFC2¹¹ connected to France and Luxembourg. In the next years other major parts of the Brussels – Luxembourg axis will also be equipped with 25kV. The Netherlands uses 1.5kV as standard, but most of the high speed line, and the Rotterdam port railway which are the backbone of the North-Sea Mediterranean Corridor in the Netherlands use 25kV. In the United Kingdom, around a third of the corridor network is not electrified, and a further 160km uses third-rail electrification rather than an overhead power supply. In the Republic of Ireland and Northern Ireland, the railway network is not electrified, but these sections are exempt from this requirement as they are part of an isolated network.

Line Speed – all of the Member States allow line speeds of 100km/h or more, for the majority of sections within the corridor. In the United Kingdom (not including Northern Ireland), 68% of the corridor has line speeds over 100km/h, and for the remainder, line speeds typically vary from 64 km/h (40 miles/Hour) to 170 km/h.

⁹ High speed line between London and the Channel Tunnel

¹⁰ Regulation 1315/2013, Article 39, paragraph 2.

¹¹ RFC2, or Rail Freight Corridor 2, now known as RFC North Sea Mediterranean Corridor.



Axle Loads – France, Belgium, Luxembourg, The Netherlands and the United Kingdom (not including Northern Ireland), with minor exceptions, such as the 16km link between Paris Nord and Gonesse, do allow axle loads of 22.5 tonnes. In Ireland, the weight limit is 18.8 tonnes. This parameter only applies to links where freight trains are operated.

Signalling - The compliance issue which stands out in NSMED is the extent to which ERTMS has been implemented on the corridor. (See Commission Decision 2012/88/EU¹²). Luxembourg, the Netherlands and Belgium have either implemented ERTMS in full or in part, but the United Kingdom and France have yet to deploy ERTMS on the corridor sections. However plans are being made in France for ERTMS deployment taking into account system obsolescence, and the French corridor sections from Longuyon to Basel, will be amongst the first to be upgraded nationally. In Belgium, a program for the full deployment of ETCS on all railway lines has been initiated which shall be completed by 2022. The Netherlands has a national programme for the deployment of ERTMS, in which the corridor section between Kijfhoek, Roosendaal and the Belgian border will be completed by 2024. The current outlook is therefore that there will be a continuous stretch of ERTMS equipped rail from Rotterdam to Basel by the mid 2020s. Ireland is exempt from this requirement.

Road

Technical requirements for road refer mainly to safety and sustainability issues, as well as the implementation of interoperable tolling schemes where applicable.

Road Standard – Core links are required to be either motorways or express roads. In the North-Sea Mediterranean Corridor, virtually all of the core links comply with this standard, but there are certain last mile connections to seaports, including Zeebrugge and Cork, where current road standards are not adequate for the level of traffic. The A11 project is now on-going in Zeebrugge.

Secure Parking Areas – The availability of secure parking has been determined from the European Truck Parking Area Label certification system and IRU TransPark map. Parking facilities have been classified according to the facilities they provide. Ireland, the United Kingdom, the Netherlands and France have parking areas at the required distances along the Corridor, some of which have security guards, fencing, flood-lighting and security cameras. However, further work is likely to be required in the United Kingdom and Ireland to enhance provision for safe and secure parking for Heavy Good Vehicles with, for example, security fencing and CCTV. In Belgium there are a large number of parking areas, and several have been certified by the EU Label Project¹³, including Kruishoutem (2 sides), Kalken (1), Vorselaar (2), Wetteren (2), Minderhout (1) and Total Wanlin Houyet (1 side). In Luxembourg, six parking areas are listed, but none have IRU ratings. In light of security concerns, the adequacy of parking areas in ports such as Zeebrugge, Dunkerque and Calais is being reviewed. In the Netherlands, the Port of Rotterdam is developing several secure truck parking areas.

Availability of Clean Fuels - In Belgium there is a growing number of stations providing clean fuels such as LNG and electric charging, including fuelling stations for trucks in Kallo and in Veurne. At least seven clean fuel stations are planned for construction. France, Ireland, The Netherlands and the United Kingdom all have LPG

¹² 2012/88/EU: COMMISSION DECISION of 25 January 2012 on the technical specification for interoperability relating to the control-command and signalling subsystems of the trans-European rail system.

¹³ Annex I of EC Handbook for Labelling – Truck Parking Label – January 2011



stations. In the United Kingdom there are six stations providing LNG between Glasgow and Dover¹⁴. The CEF project, Connect2LNG¹⁵ is carrying out a pilot deployment of 5 LNG stations, including 2 at strategic locations within the NSMED corridor. The foreseen initiatives will have to comply with the Commissions new policy on e-charging, LNG, CNG, hydro energy as mentioned in Directive on the deployment of alternative fuels infrastructure¹⁶. The transposition of the Directive requires Member States to develop national policy frameworks for the market development of alternative fuels and associated infrastructure, to be submitted by the end of 2016.

Use of Tolls – France has an established system in which tolls are paid for the majority of corridor motorway links. Belgium introduced a road pricing system for lorries in April 2016, with charges depending upon the vehicle's registered weight, its EURO class, and the type of road used. The system requires the use of an on-board unit (OBU). Luxembourg is also considering introducing a distance based tolling system. In the United Kingdom, the Dartford Crossing on the M25 is also tolled, which is an important link for international traffic bypassing London towards Dover and there are also tolls on some sections of the motorway network in Ireland. Interoperability of tolling systems on the whole corridor remains a challenge.

Ports

Seaports are required to offer rail connections by 2030¹⁷, and if relevant, waterway connections. In addition they should offer clean fuels, and promote Motorways of the Sea (MoS).

Rail Connections – in Belgium, France and the Netherlands all core seaports have direct rail connections. In the United Kingdom, there are two ports, Dover and Belfast without rail connections. Dover faces physical constraints in bringing a rail connection to the main Eastern Docks and, although there was an active connection to Dover's Western Docks related to a train ferry service (now closed) there are likely to be costly enhancements required to railway tunnels to the west of Dover to allow competitive intermodal rail freight services to operate to and from the port. In addition, Dover's existing unit load traffic is almost entirely fast-moving driver accompanied RORO traffic which would not transfer to rail. For through Channel Tunnel intermodal rail freight services, there is, in any case, spare capacity on the same geographic axis via the Channel Tunnel between Folkestone and Calais. Belfast has a railway line that would require significant levels of investment in order to serve Belfast Port, and currently, the last mile access to Belfast Port is a bottleneck. Warrenpoint Port is also on the corridor, and its accessibility is of equal significance in regional terms. In Ireland there is a rail freight connection in Dublin Port. The rail connection to Cork is not currently in use and would require investment to bring it back into use as a working rail freight line. The Port is pursuing options to reactivate the rail connection. Although Shannon Foynes is currently not on the Corridor itself, it is a core port and therefore plays an important role in the interconnections with both rail and Motorways of the Sea. Shannon Foynes is Ireland's largest bulk port and it is also undertaking a study funded under CEF to review upgrading its rail connections.

Waterway Connections – are only required for seaports in Continental countries. The Netherlands and Belgian ports all have waterway connections of CEMT IV or (usually) higher. In France, Dunkerque and Fos-sur-Mer both have waterway connections of CEMT IV or higher. Calais is accessed via the CEMT class I Calais-St-

¹⁴ <http://www.ngvaeurope.eu/get-directions>

¹⁵ Connect2LNG, 2014-EU-TM-0630-S.

¹⁶ Directive 2014/94/EU of 22 October 2014

¹⁷ Except where physical constraints prevent such connection.



Omer canal, but given the traffic profile, which is mainly RORO, there is no immediate case for upgrade. Marseille, which is the Eastern part of the Marseille/Fos core node, does not have direct inland waterway access, but logistics activities mainly take place in Fos-sur-Mer which has access to the River Rhône. In the north of France the Seine-Escaut project has the potential to generate significant growth in inland waterway traffic in this branch of the corridor, and to increase the share of waterway transport at connected seaports.

Clean Fuels - Several corridor ports in France, Belgium and the Netherlands are developing LNG bunkering facilities, with the potential to serve maritime, inland waterway and road sectors. In the corridor ports these are at different stages of development. Bunkering by truck has been available at e.g. Antwerp and Rotterdam since 2011/12. Since 2013, LNG has been used for inland waterway barges at Rotterdam and Amsterdam, and a broader range of LNG bunkering facilities are available for maritime vessels from Rotterdam, Antwerp, Zeebrugge and Vlissingen (Zeeland Seaports) amongst others. Finally, the Port of Dunkerque is working on future LNG bunkering facilities which would be set up next to the new LNG terminal.

Inland Waterways

The four continental countries within the North-Sea Mediterranean Corridor all have well-developed inland waterway networks. No core network waterway links are defined in the TEN-T Regulation for either the United Kingdom or Ireland.

In the Netherlands, the cross-border waterways related to the North Sea Mediterranean corridor are all classed as at least CEMT V. National waterways (new waterways and upgrades) are now designed according to the CEMT Vb (e.g. the Meuse) or CEMT IV (e.g. Zuid Willemsvaart) classification and are all in compliance with the TEN-T standard. TEN-T compliance regarding air-draught permits vessels with two layers of containers. However, Dutch waterways are now designed (for new waterways and upgrades) to CEMT Va specification, with 3.5 metres draught and clearance for four containers (9.1m). On international routes, CEMT Vb, and a minimum of 7m air draught (three containers) are required¹⁸ as the European standard.

Due to the high concentration of transport volumes around the Dutch and Flemish ports, priority should therefore be given to further developing the waterway connections between France and Belgium/the Netherlands: in the east via the Meuse and in the west via the Seine and the Scheldt Canal connection. To ensure good connections from the south to the ports of Rotterdam/Amsterdam and to the German waterway corridors, attention must also be paid to the northern part of the corridor.

In addition, freight volumes via Rotterdam and Amsterdam linking up with the inland waterway network of the North Sea Baltic and Rhine Alpine corridors have grown in recent years and that trend is expected to continue over the years to come. Despite measures already being taken as part of the "Better Use" programme to optimise the Volkerak, Kreekrak and Krammer locks, it will still be necessary after 2020 to expand the lock systems which will require major investments. With regard to the eastern waterway network, improvements of the navigability of the river Meuse, which connects Namur, Liège, Venlo-Venray and Nijmegen still need to be done. Moreover, Venlo which offers a multimodal connection with the North Sea Baltic and the Rhine Alpine, situated on the rail lines between Rotterdam and Germany/Italy and with IWW connections with ports in Belgium and Germany, will need to significantly expand its

¹⁸ Waterway Guidelines, 2011, Rijkswaterstaat.



existing rail and barge transfer points. A similar situation exists in Moerdijk in relation to multimodal connections with the North Sea Baltic and Rhine Alpine corridors.

In Luxembourg the only core waterway network connection is the CEMT V Moselle which connects to the Rhine at Koblenz, and for a short distance towards Metz in France. This route is part of the Rhine Alpine Corridor, but the ability to move goods from Luxembourg via the Rhine/Moselle waterway route to the Dutch and Flemish ports clearly helps to relieve traffic from one of the congested regions of the NSMED corridor.

In Belgium, there are a few short stretches of waterway in the corridor which limit vessel size below CEMT IV. This applies for example to the Bossuit-Kortrijk Canal, where 25% of the total length does not yet meet the criteria and also to a part of the Bocholt-Herentals Canal. Moreover, in the Upper Sea Scheldt it is difficult to navigate with Class IV ships, due to the tide. The Brussels-Charleroi canal is listed as a Class IV waterway but its current profile is less than optimal for shipping with Class IV ships. National waterways are now designed to Class Va and Vb. The upgrading of the Seine-Scheldt connection to Class Vb will take place along two main axes: (1) Class Vb¹⁹ via the Borderlys and the Lys rivers between the French border and the town of Deinze, the diverting canal of the Lys, the canal from Ghent to Ostend and the Ring Canal around Ghent as far as the canal from Ghent to Terneuzen and (2) Class Vb via the Upper Scheldt from the French border with Wallonia, the connection to the Ring Canal around Ghent and the Upper Sea Scheldt to Antwerp. This implies that some bridges on the axes have to be elevated and that the locks have to be modified. The heavily used Albert Canal also faces gauge and capacity issues. Bridge heights vary between 6.7m and 9.1m, but there is an ongoing programme aiming to lift all bridges to 9.1 m (four layers of containers) and waterway widening on one problematic section by 2020. The programme has received and continues to receive EU funding (€74 million under CEF). Concerning the Port of Zeebrugge, the capacity of the waterway connection between the port and the Seine-Scheldt connection (at Ghent) also has to be addressed in order to ensure reliable waterway access from this core seaport to the hinterland and to expand inland waterway traffic flows from Zeebrugge which are currently below their potential.

In Wallonia, additionally to the upgrading of the river Lys to Class Vb (Crossing of Comines), the Upper-Scheldt will be upgraded to Class V (Crossing of Tournai and modernization of the weirs of Kain and Hérinnes) and the "Dorsale Wallonne" between Pommeroeul and Namur to Class Va (locks, curves and equipments). The reopening of the cross-border Canal Pommeroeul-Condé will also contribute to the upgrading of the waterway network. The Meuse basin will be upgraded and modernized to Class Vb / VIb to ensure it continues to operate safely. The projects in Wallonia encompass the adaptation of bridge heights, the safety and continuity of the traffic (NICT, weirs, etc.) and multimodal connections, including port infrastructure such as quays and platforms.

In France all currently defined inland waterways within the corridor are either CEMT class IV (8% of the total length) or V (92% of the total length), hence complying with TEN-T standards. However, the three main waterway basins, the Seine/Oise, the Rhône/Saône, and the Escaut are inter-connected with CEMT II or lower grade links²⁰ in the comprehensive network, meaning that they are effectively cut off from one another. Furthermore, only 64% of the corridor waterways satisfy the criterion for

¹⁹ Infrastructure is accessible to Class Vb vessels, but they can only pass each other in certain dedicated sections.

²⁰ The interconnecting CEMT II (or lower) links are not part of core network.



minimum height under bridges. In the Northern part of France, most links do have a 5.25m height under bridges. This is the case for the Dunkerque-Valenciennes canal, the Deûle, the Haut-Escaut. On the Oise, the height under bridges is also limited to 5.25 metres and in Paris the Seine has a limited height of 5.15 meters. With the Seine/Escaut connection to the Belgian network, higher air clearance will be necessary in order to permit proper interoperability, especially for container vessels. The future Canal Seine-Nord Europe which is the major missing link for the European inland waterway network is expected to match the same standards as the rest of the Seine-Escaut global project. Much of the Saône waterway is limited to 4.40m.

Locks are an important limiting factor for inland waterway transport, both in terms of vessel sizes and the ability of the transport system to handle greater throughputs. Following the TEN-T regulation, the EU is developing the concept of good navigational status to allow better monitoring of waterway reliability and capacity.

Airports

There are altogether 15 core airport nodes along the North Sea Mediterranean Corridor, including several, e.g. London and Paris, consisting of more than one distinct airport. The Regulation requires that core airports have to be connected by rail, except where physical constraints prevent such a connection.

Road Connections – all core airports in the corridor have high quality road connections.

Rail Connections – According to Article 41 of the TEN-T Regulation²¹, dealing with nodes of the core network, the main airports indicated in the Part 2 of Annex II must be connected with the railway and road transport infrastructure by 2050 except where physical constraints prevent such connection. Airports without rail, tram or metro connections are Liège, Lille, Dublin, Cork, Luxembourg, Rotterdam-The Hague, London-Luton, and Glasgow. Of these, Dublin, London-Luton and Glasgow are the most significant in terms of passenger numbers. In the UK, London Luton, is near a railway station (about 2km), and uses a shuttle bus service to connect the airport to the station. In 2016, Luton has announced plans to build a mass passenger transit system which will connect the airport to the main railway station, expected to be in operation by 2020. Glasgow is around 1 km away from a suburban railway station (Paisley) with a bus service to connect the airport to that station. There are also shuttle bus services from the airport to Glasgow's main rail stations (8 km.). In Ireland studies are underway to examine the technical and economic feasibility of various options to provide a heavy or light rail or Bus Rapid Transit link between Dublin airport and the city centre. Luxembourg currently uses a shuttle bus service to connect the airport to the main railway station. A tram connection will be available by 2020/21.

For air cargo, rail connectivity at airports can also be beneficial. An initiative called the Euro Carex project was launched in 2006. This project is a collaboration between different European airports, including Liege Airport for Wallonia-Belgium, and proposes to encourage modal shift for airfreight currently transported by trucks and short or medium-haul planes to high-speed trains.

²¹ Regulation EU N° 1315/2013 on Union Guidelines for the Development of the trans-European transport network. Article 41: Nodes of the core network.



Road/Rail Terminals

Inland ports and road/rail terminals are listed in the TEN-T Regulation. Any given core node may contain several freight facilities, offering road to rail, road to waterway, and/or tri-modal accessibility. Some are terminals at seaports for barges or rail services, while others are inland multimodal platforms or logistics hubs containing either industrial or warehousing facilities. They handle a range of traffic types, some being specialised for containers, and others handling conventional cargo. The Albert Canal node refers to a long stretch of waterway, where there are many industrial facilities with their own wharves, rather than a specific inland terminal.

Given the wide range of contexts and operational possibilities, and the lack of criteria for specifying precisely which facilities are included or excluded in the corridor, it is advisable to further study the ways to characterise inland and road/rail terminals.

3 Results of the transport market study

Market analysis illustrates current traffic demand and modal shares within the corridor, as well as future prospects.

In overview, the North Sea Mediterranean corridor covers a large number of the most economically active cities and regions in Europe, as well as being the location of many of Europe's largest gateway ports and airports. It has a clearly defined central area (London-Paris-Brussels-Amsterdam), connected via the corridor branches to the more peripheral regions.

Base year (2014) data for the corridor shows high levels of activity, with intra-corridor freight flows amounting to 131 billion tonne-kilometres carried on the inland sections of the corridor. These are heavily concentrated within the central part of the corridor, meaning Southeast England, Northeast France, Belgium (especially the Flemish region) and the Netherlands.

Volumes in the corridor represent a disproportionately high share of EU28 volumes. For example, total throughput in the 21 NSMED core network ports corridor countries was 1.276 billion tonnes in 2014, over 30% of the EU28 total. Corridor (core network) ports handle both short-sea and deep-sea traffics. They handled 32.743 million TEUs in 2014, and 34.6 million passengers.

Airports in the corridor handle 7.87 million tonnes (55% of EU28 air cargo) and 410 million passengers (46% of EU28 air passengers). Port traffic is growing at a rate of 1-2% per annum since 2010, and airport traffic is growing at around 4% per annum for both passengers and freight.

Inland port traffic has been measured at 479 million tonnes in 2014. This is also a considerable figure. However, most of this volume is accounted for by the barge terminals in Rotterdam, Antwerp and Amsterdam (around 304 million tonnes collectively). This is largely maritime-related cargo moving towards the German hinterland via the Rhine, and therefore being transported out of the corridor. The genuinely inland terminals within the corridor, i.e. those along the Maas/Meuse, the Seine or the Rhone are typically each handling between one and ten million tonnes per annum. There is therefore quite an imbalance between the volumes being loaded onto waterway services at the coast, and the throughputs of the corridor's inland ports.



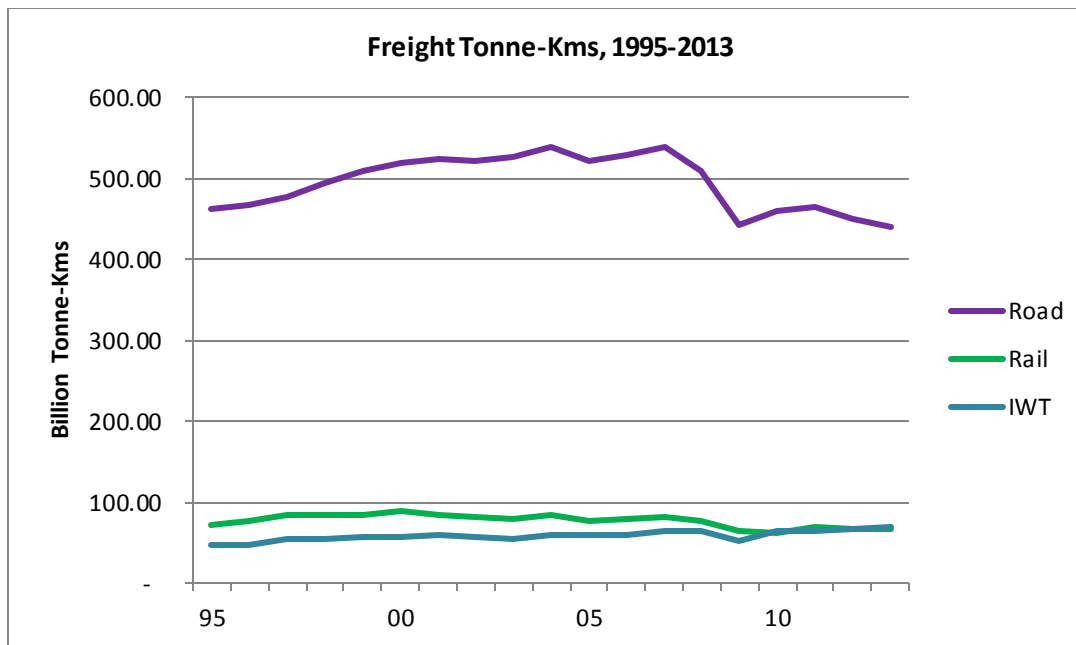
Whereas total traffic volumes are relatively stable within the corridor, it is clear that volumes through ports and airports are at a high level in this corridor and still growing.

Table 2: Corridor Traffic Volumes, 2014

	Volume	Trend since 2010	Basis
Road (bn TKm)	60.68	<i>Stable</i>	<i>NSMED Corridor sections, 2013</i>
Rail (bn TKm)	25.46	<i>Stable</i>	<i>NSMED Corridor sections, 2013</i>
Inland Waterway (bn Tkm)	44.93	<i>Stable</i>	<i>NSMED Corridor sections, 2013</i>
Core Airports (m Tonnes)	7.87	<i>Growth (4% pa)</i>	<i>Core Airports, 2014</i>
Core Airports (m Pax)	410.53	<i>Growth (4% pa)</i>	<i>Core Airports, 2014</i>
Core Ports (m Tonnes)	1,276.45	<i>Growth (1% pa)</i>	<i>Core Seaports, 2014</i>
Core Ports Containers (m TEU)	32.74	<i>Growth (2% pa)</i>	<i>Core Seaports, 2014</i>
Core Ports Passengers (m)	34.59	<i>Decrease (1% pa)</i>	<i>Core Seaports, 2014</i>
Core Inland Ports (m Tonnes)	479.77	<i>Growth (1%)</i>	<i>Core Inland Ports, 2014</i>

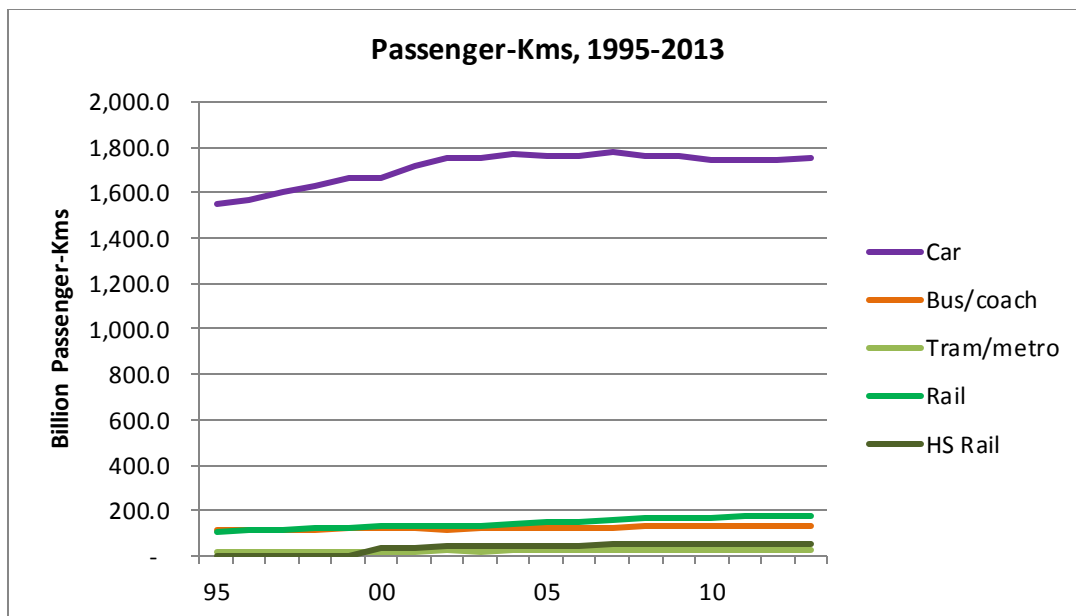
Source: Eurostat, and operators' websites.

Examination of the trends in freight traffic (national basis for all six NSMED member States) shows the dominant position of road transport, and a stable position in terms of traffic growth.

Figure 2: Trends in freight traffic for corridor Member States

Source: Eurostat.

A similar analysis of passenger traffic also shows a dominant road sector. The impact of the 2008 recession is less marked, and there are positive trends for rail and high speed rail services.

Figure 3: Trends in passenger traffic for corridor Member States

Source: Eurostat.

The analysis of future flows has focused on examining demand-side issues for both passengers and freight, including available official forecasts that have been produced by or for the Member States.



Market analysis indicates that although headline activity indicators such as population and economic growth are at modest levels for the EU as a whole, there is substantial absolute growth expected within the North Sea - Mediterranean Corridor, linked to the attractiveness of the major cities, and the faster-than-average growth in long-distance traffic, especially inter-continental container traffic with East Asia which naturally feeds directly into the corridor's networks.

Economic and demographic data shows that there is essentially a clustering of economic activity within the centre of the corridor, creating population growth around the major cities, and transport growth, linked also to the establishment of global hubs at the major container ports and airports. Economies of scale associated with the use of large container ships result in maritime internal and external transport costs being much lower (per tonne-km) than inland costs, so shipping lines who face intense competitive pressures therefore focus their activities upon the ports that give them nearby access to these population centres. In this context it means shipping lines are bringing the largest volumes of containers into the range of ports between Le Havre and Hamburg on the continental side and between Southampton and Felixstowe on the United Kingdom side. Parallels can be found in the aviation sector too, where volumes are heavily concentrated upon London Heathrow, Paris CDG and Amsterdam Schiphol.

The degree to which demographic and economic clustering stimulates transport volume growth creates a high potential risk for the corridor, which is still highly dependent upon road transport for inland transport. However, the majority of the corridor's core seaports are actively developing facilities and programmes to develop multimodal hinterland networks, and there is sufficient critical mass of cargo to make this feasible. Such initiatives need to be helped by providing the necessary rail and waterway networks to raise the shares of these inland modes to levels observed, for example in the parallel corridor between the Dutch and Flemish ports and the German Ruhr area.

Forecasts currently published by the corridor ports typically indicate expectations of throughput increasing by 50% or even 100% by 2030, with the container sector growing the fastest. Available national forecasts suggest that corridor port throughput has the potential to increase by an additional billion tonnes, of which around 60% would be distributed inland via the hinterland networks belonging to the corridor. If all ports can achieve waterway shares similar to Rotterdam, Amsterdam and Antwerp, and rail shares similar to Zeebrugge or the major German ports of Hamburg and Bremen, much of the expected growth can be absorbed 'off-road'. Largely this depends upon solving bottlenecks inland, raising the performance of the inland rail and waterway networks south and west of the Rhine, where non-road modal shares are still low, and developing networks of inland multimodal platforms as logistics hubs.

In the continental part of the corridor, attention must therefore focus on improving rail and waterway transport. For waterways, market shares in the corridor are around 11% of total transport, and not increasing. Moreover, volumes are heavily concentrated on sections leading towards the Rhine, so there is a need to develop other parts of the network. Routes on the Maas/Meuse, the Albert Canal, the Escaut/Scheldt including the Canal Seine Nord Europe, and Lys/Leie waterways still require upgrades to remove bottlenecks, and the French waterway basins along the Seine, Oise, Marne, and Saône/Rhône are essentially cut off from the Dutch and Belgian networks. Forecasts related to the Seine-Scheldt project indicate flows of up to 13 million tonnes per annum on the upgraded waterway sections by 2030²², and

²² VNF Presentation, Corridor Working Group, Paris, 9/03/2016.



associated growth on the connecting sections, especially in the direction of Ghent and Antwerp.

In the case of rail freight, even though modal share is around 11%, levels are decreasing and cross-border volumes are low inside the corridor, especially when compared against national volumes (mainly in France and UK) or on parallel routes e.g. from Germany or between the Alpine countries. Rail Freight Corridor statistics show cross-border flows of around 22 million tonnes per annum, mainly between Belgium and France.

In order to build up volumes, there is a particular need:

- to address rail bottlenecks in France e.g. Lyon, Lille, Metz, Strasbourg, Mulhouse and Paris,
- to solve loading gauge problems in order to allow the two main axes (Paris-Amsterdam, and Marseille-Luxembourg-North Sea as well as Rotterdam-Antwerp-Base) to reach their full potential.
- to achieve, in practice, the technically feasible 740m train length in Belgium for a greater number of train paths.

In future it is expected that rail traffic related to Spain will develop on the Atlantic corridor, transiting France via Paris and entering the North Sea Mediterranean corridor in the North East of France. Of the 50 million tonnes of freight crossing the French/Spanish border, almost half is in transit through France going to Paris, Lyon and Lille. Most of this is long distance road transport.

The majority of studies indicate that with the implementation of UIC gauge in Spain, the number of direct intermodal services between Spain and northern Europe will increase significantly, including new flows towards Paris, Lille, and Benelux countries. Even with a hypothesis of 15% to 20% market for rail, which is low considering the distances involved, and in relation to EU policy, this can generate significant growth, especially for intermodal services. A prerequisite will be the connection of terminals and services, necessitating a multimodal approach across both Atlantic and North Sea Mediterranean corridors.

In contrast to the situation on the Continent, the market issues in Ireland and regions of the United Kingdom, including Northern Ireland, focus on peripherality, cohesion and accessibility. In Ireland, the development of the public transport system, in particular the DART Underground Programme and its sub-projects will contribute towards alleviating the isolated nature of Ireland's economy. The Interconnector/Dart Underground programme will substantially improve connectivity, linkages and integration within the railway network. While there is a risk of Europe's economic centres crowding out development in more peripheral areas, there is a need to support the recovery of economies which have been severely hit by the Eurozone crises. Ireland and Northern Ireland depend to a great extent upon short-sea container services for trade with continental Europe and via hubs to the rest of the world, and upon ferry services for trade with Great Britain and the continent. The combination of depressed demand and the potential impact of higher transport costs arising from the need to cross the SECA area, create the potential for fewer services, lower service frequencies and higher freight rates between the more peripheral areas and the core areas of the corridor. Unlike many regions in the corridor, Ireland and Northern Ireland depend on feeder, rather than deep-sea container services to connect its ports to global container networks, so there is a need to offset this disadvantage. Improving inland (road) and maritime (including Motorways of the Sea) access to core ports is therefore a first step towards achieving greater cohesion. Beyond this, a real



opportunity exists for greater cohesion by enabling Ireland and Northern Ireland to build up a greater range of maritime services for intra-European and global trade.

For the mainland United Kingdom, issues of accessibility and cohesion are also important, but to a lesser degree because of high density of economic activity especially around London and the South East. Traffic analysis shows that there has been a strong trend for transport flows with the continent to become concentrated on the North-Sea Mediterranean Corridor links via the Short Straits, strengthened by the construction of the Channel Tunnel. Apart from the notable exception of Eurostar passenger rail services, most of this growth has led to greater numbers of lorries and cars using long distance motorway connections, via the M25 around London and bottlenecks such as the Dartford Crossing, to reach the port of Dover and the Eurotunnel terminal (near Folkestone). Both the Dover-Calais and Dover-Dunkerque route suffer from RORO capacity issues due to the growth of cross-Channel traffic, which also leads to road congestion in France between the A16 motorway and the Dunkerque RORO terminal. In the summer of 2015 the heavy reliance upon the Dover Straits connections was exacerbated by security issues and the dispute over My Ferry Link, leading to "Operation Stack" whereby lanes on the M20 motorway were used as emergency parking for large numbers of lorries. The dispute is now over, and the normal traffic patterns have resumed, but the major medium to long term impact may have been on the through Channel Tunnel freight services, which were severely disrupted.

It highlights over-reliance on the Dover-Calais Short Straits link, the need to improve supply chain resilience and signals the need for longer term solutions such as boosting North Sea routes (United Kingdom East Coast to the Netherlands and Belgium), rebuilding customer confidence in Channel Tunnel rail, and the consideration of measures to add capacity to the Thames road crossings.

In the United Kingdom container sector, which covers both global and European connections, growth has focused around the two main ports of Felixstowe and Southampton. In addition, a new container port has been developed at London Gateway on the Thames. These factors have tended to draw traffic towards the south-east corner of Great Britain. However, the Port of Liverpool, with a more central location in Great Britain on the west coast, is opening a new container terminal in 2016 with the objective of securing additional traffic via a container port in the north of England. Such initiatives play an important role in shifting inland traffic from congested parts of the corridor.

So, therefore, while the United Kingdom is heavily dependent on North-Sea Mediterranean Corridor sections to maintain the efficiency of its networks, it also has the potential to develop parallel or East-West routes involving longer sea crossings and shorter inland road or rail hauls, as well as long distance rail freight through the Channel Tunnel.

4 Capacity issues

Achieving efficiency and sustainability within the transport networks of the North Sea Mediterranean corridor depends to a large extent upon managing the supply/demand balance. The quality of the infrastructure, in general, is high, and in most cases the TEN-T technical standards are met. Moreover, non-road alternatives are available in all branches of the corridor.



However, as demonstrated, the corridor contains regions of high economic activity, high population density, which have been growing faster than the European average. In the transport sector, greater international interconnectivity has focused growth around the major gateway ports and airports, most of which are located within the central part of the corridor. In 2014, critical road congestion issues were identified in and around Antwerp, Brussels, Paris, Strasbourg, Lille, Lyon, Marseille, Dublin, Cork, Amsterdam, Rotterdam, London (M25), Birmingham and Manchester, meaning that the corridor is punctuated by capacity constraints at all the major nodes.

National studies in the six corridor Member States predict that total population (national basis) will grow by 19 million persons, but given recent patterns, it is expected that more than half of this growth (11-12 million) will occur in or around London, Paris, Brussels, Lille, Antwerp and the Randstad, thereby reinforcing the clustering effect around the central regions of the corridor. In London alone, population is expected to grow from 8.6 to 10 million by 2031²³, or by the size of Birmingham and Glasgow combined. This has major implications, especially on personal travel, and the demands placed on the transport network for short-distance personal travel.

Between 2010 and 2014, population within corridor regions rose by 2.4 million persons, and employment rose by 1.15 million. Economic agglomeration and clustering around the centre of the corridor not only leads to restricted mobility within these regions but also reduces accessibility from more peripheral areas which need to bypass these central urban areas to reach other European markets. The pressing need to expand capacity for short-distance personal transport on road and rail can have a detrimental effect on road and rail capacity for long-distance freight transport services which are also drawn towards these main urban centres. As demonstrated during the 2016 working group in Paris, competition for urban space even affects the development of capacity for inland waterway transport because of the shortage of suitable water-side sites available for terminals. Similar issues can be found in maritime nodes, especially ports in large urban areas such as Amsterdam, Antwerp and Dublin where urban development limits land availability and restricts traffic between the ports and the strategic transport network.

Key elements of the work-plan are therefore related to the alleviation of bottlenecks, especially in urban areas, expanding multimodal opportunities, and improving network usage and end-to-end corridor efficiency, through ICT.

Rail Capacity

For the continental rail networks, RFC North Sea Mediterranean has identified bottlenecks²⁴ according to circumstances where capacity restrictions lead to problems in creating new rail paths for cross-border trains. These are found in Antwerp, Lille, Paris, Luxembourg, Metz, Strasbourg, Mulhouse and Lyon.

In Antwerp, which is one of the largest cargo centres in Europe, and a key gateway node for the NSMED corridor, all of the trains from the port use one main line, shared with passenger services, to access the hinterland. Several projects have therefore been established by Infrabel to make Antwerp more accessible for freight trains. For passenger trains there is an important capacity bottleneck at the Brussels north-south junction due to competition for paths between HSL, national trains and regional trains as well as the recently upgraded rail connection to airport. A feasibility study, co-

²³ Transport for London, Annual Report, 2014/15.

²⁴ RFC North Sea Mediterranean, Book V, Implementation Plan, 2017 Timetable. P20.



funded by the CEF, is currently being conducted to identify one (or more) preferred solution(s) to remove this major bottleneck.

In Lille, which is a focal point on both the Paris-Antwerp and Calais-Metz axes, much of the rail freight reaching the node needs to bypass the city, but currently the Paris-Antwerp traffic passes through a single point in the city centre, intermingled with passenger services. Although not part of the core network, the double-track Lille-Metz rail line (Artère Nord-Est) has extra capacity and is electrified. It is currently part of the alignment of the Rail Freight Corridor North Sea Mediterranean and offers additional capacity to the core network corridor routes. Similarly, the discontinuity along the freight lines forming the NSMED CNC rail corridor between Brussels and Paris means that capacity along certain non-CNC sections is also highly relevant for achieving continued growth on these important cross-border routes. Achieving a closer fit between the core network and rail freight corridor alignments is especially important in this branch of the network.

As one of the main traffic hubs 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 in 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. Two projects aim at solving the Lyon node issue: works on the existing network aiming to increase reliability, security and capacity on the one hand, and a new bypass of the city dedicated to freight trains.

Strasbourg is also highlighted as a capacity bottleneck for RFC cross-border train paths. The lines from Luxembourg, Metz and Germany all converge on Strasbourg from the north. Between Strasbourg and Basel there is just one line, and within Strasbourg, freight and passenger trains run on the same lines. A number of projects between Metz, Strasbourg and Mulhouse have been planned by SNCF Réseau to improve traffic flow and reliability.

In the UK, there is a general shortage of capacity on the rail network for freight traffic, but particularly on the southern sections of the West Coast Main Line (WCML) and on the Felixstowe branch line for access to and from the deep sea container port. On the WCML more capacity should be freed up eventually by the construction of the new high speed line from London to Birmingham and Crewe and then on to Manchester (HS2) if the capacity on the conventional routes is not taken up by additional passenger services.

Waterborne Transport

While rail and road capacity issues tend to reflect traffic growth, capacity limitations for the waterway sector relate to the vessel sizes that can be used, the reliability of the network, and capacity through inland terminals. Increasing the number of routes in the corridor for which high-capacity vessels can be used reliably, helps the sector to compete, and thereby improves the overall capacity of the corridor across all modes. With the extension of the waterway corridor towards Paris, capacity issues around the Schelde and Meuse/Maas routes will become more prominent.

One of the aims for the corridor work-plan is therefore to establish a network of high capacity waterways within the corridor, capable of boosting the sector on branches which currently do not have significant traffic. A large number of co-ordinated



upgrades have therefore been identified in the Work Plan project list, which are aimed at solving local bottlenecks such as fairway enlargement, the raising of bridge heights, and the enlargement of locks.

Two specific capacity bottlenecks affecting existing traffic are the Terneuzen (Westerschelde) and the Volkerak lock systems in the Southwest Delta of the Netherlands. Terneuzen is an important access point for seagoing and inland waterway vessels, including, in future, the connections via the upgraded Seine-Nord link to Paris. The Volkerak lock system, which lies between Rotterdam and Antwerp is part of the most heavily used waterway connections in Europe, and a potential bottleneck for the future.

Further inland, a series of bottlenecks has also been identified on the Walloon network that need to be addressed in order to permit CEMT class V operation. This will be done through the upgrade of the Scheldt waterway (Crossing of Tournai and Kain and Hérinnes locks), the reopening of the cross-border Pommeroeul-Condé canal as well as the upgrade of the "Dorsale Wallonne" to Class Va (locks, curves and equipment) and the Ampsin-Neuville lock on the river Meuse.

5 The identified planned projects

In 2016, the nine core network corridors have established a common project database for monitoring and planning investments in the TEN-T network. It consists of projects identified in the 2014 Work Plan, new projects launched within the 2014 and 2015 CEF calls, and additional relevant projects from national and regional plans. Each project is related to one or more of the corridors. This list is being updated continuously, both in terms of the number of projects, and the information gathered about the projects.

In July 2016, the North Sea Mediterranean corridor list consisted of 294 projects distributed as follows across transport modes and corridor Member States:

Table 3: Distribution of NSMED projects by mode of transport

	Aviation	Innovation	Waterway	Maritime	Multimodal	Rail	Road	Total
BELGIUM	2	2	31	7	3	9	7	61
FRANCE			62	15	17	30	7	131
IRELAND		2		7		12	5	26
LUXEMBOURG						6	3	9
NETHERLANDS	1	1	11	5	3	13	10	44
UK				1	3	10	9	23
Total	3	5	104	35	26	80	41	294

These projects collectively account for €62.95 billion, for the projects where estimated costs are available.

Table 4: Distribution of NSMED project COSTS by mode of transport (€m)

	Aviation	Innovation	Waterway	Maritime	Multimodal	Rail	Road	Total
BELGIUM	239	26	1782	1418	464	3003	3632	10563
FRANCE			7401	1636	2693	11097	253	23080
IRELAND		40		969		4266	574	5849
LUXEMBOURG						2178	Not known	2178
NETHERLANDS	Not known	6	1641	1409	223	3787	8289	15354
UK				134	135	3543	2116	5928
Total	239	72	10824	5566	3514	27874	14864	62953

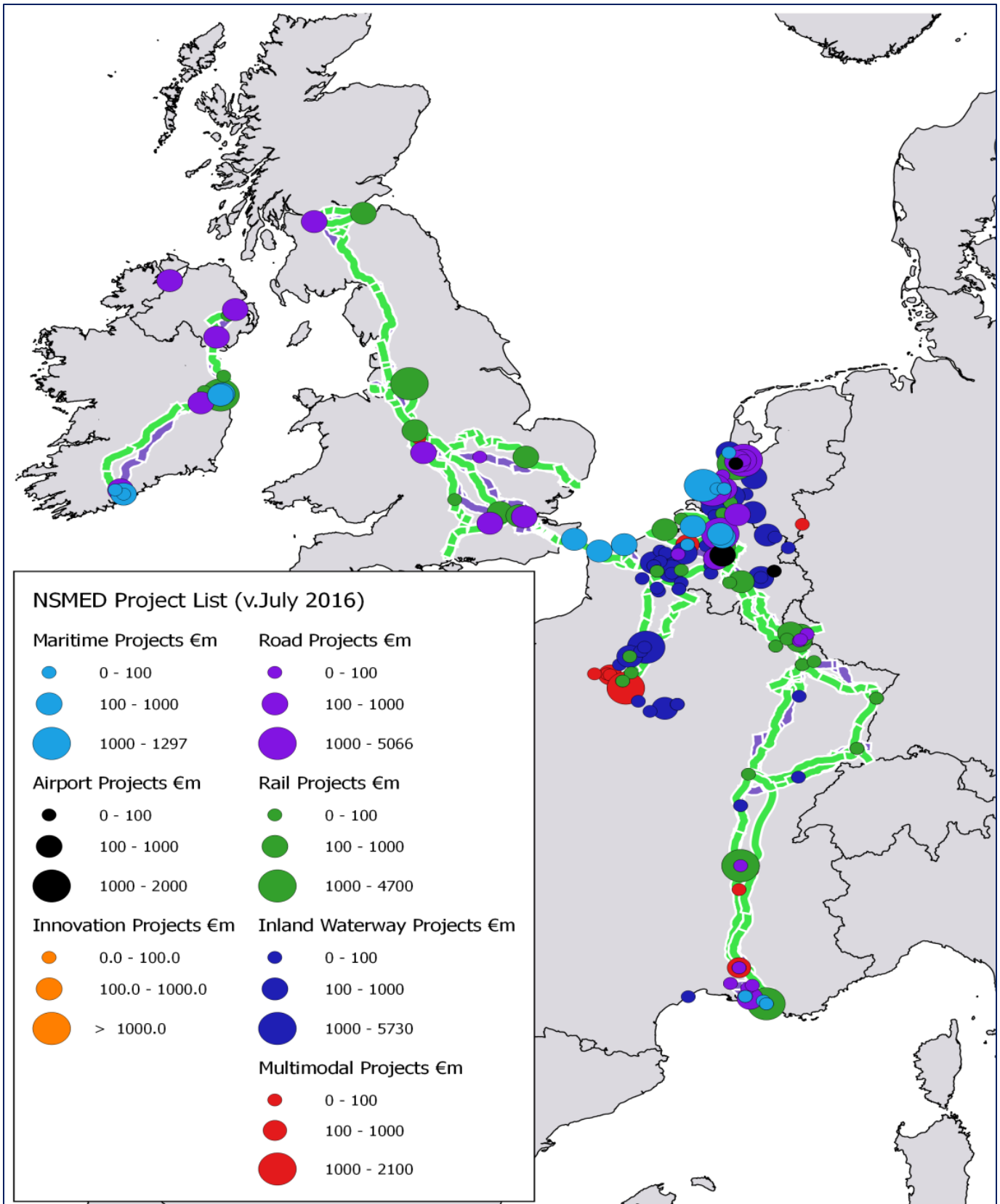
More than half of this total investment relates to projects which have already started, including those launched with the 2014 CEF call. A further €11.5 billion will start before 2020, to be completed for the most part before 2030. An additional €12.1 billion investment relates to projects still being developed, for which the start dates are not yet known. The majority of these have uncertain completion dates too.

Table 5: Distribution of project costs by start and end dates (€m)

	Completed	By 2020	By 2030	After 2030	Unknown	Total
Started	2656	10687	16580	5077	839	35840
Before 2020		306	11005		195	11506
After 2020			2979		569	3548
Unknown			100		11958	12058
Total	2656	10994	30665	5077	13562	62953

In the figure overleaf, the 294 projects are plotted according to their location within the corridor. Note that some projects relating to horizontal initiatives such as the use of ICT or clean fuels do not have precise locations within the corridor network. For others such as the upgrade of a long stretch of railway line, the projects have been located at central points.

Figure 4: Distribution of investments by mode within the NSMED corridor





The map shows that there are distinct regional patterns of investment within the corridor.

Inland waterway projects, indicated in dark blue are generally focused around Paris-Lille, Lille-Antwerp-Amsterdam, and the Maas/Meuse branch. These investments reflect the new potential being offered through the development of new high-capacity routes between the Seine and Rhine/Maas/Scheldt networks. Key projects include the French and Belgian parts of the Seine-Scheldt connection, including the new lock at Terneuzen, which together exceed €8 billion.

Rail projects, indicated in green are primarily found at the major urban nodes, which are key bottlenecks for long distance freight traffic. In the South, there are major projects planned in Marseille and Lyon, to improve rail capacity along the Rhone valley. A series of investments are being coordinated on the stretch between Luxembourg, Namur and Brussels, improving capacity between Mulhouse/Basel, Strasbourg and the northern range seaports. Similar investments, including ERTMS upgrades are being undertaken between Amsterdam, Rotterdam and Antwerp. In the UK there are upgrades related to the Felixstowe-Nuneaton and Southampton-Birmingham lines, both of which are important hinterland connections for the largest UK container ports and on the West Coast Main Line. The Northern Hub project, centred on Manchester also involves major upgrades in terms of capacity and electrification. In Ireland the major rail projects are centred on Dublin which is the main hub for North-South passenger traffic. The role of rail freight transport in Ireland is under review. Funding has been received under CEF for a study into the feasibility of reopening and upgrading a rail freight line from Limerick to Shannon Foynes Port.

Road projects, indicated in purple, are primarily addressing congestion issues within some of the central regions, including Antwerp, Brussels, Amsterdam and Rotterdam and increasing the capacity of motorways in the UK. These projects reflect the growth of traffic through the largest seaports and airports as well as population growth in the corridor's largest conurbations. In Ireland, where rail currently plays a minor role in freight transport, and where there are no commercial waterways, road projects are essential for maintaining accessibility to and from the seaports.

Maritime projects, indicated in light blue are primarily located amongst the continental northern-range projects between Calais and Amsterdam, and in Ireland, indicating the importance of the gateway and interconnecting roles played by the maritime sector in the NSMED corridor. Following the 2014 CEF Call, large port projects were financed in Calais, Dublin and Cork, along with the BRIDGE project connecting Dover and Calais. In 2016, the Breddieep project (part of the Rotterdam Mainport development) is being undertaken, widening the waterway from 75m to 300m to increase capacity for (mainly) inland waterway vessels. In the coming years, capacity extensions at the Port of Dunkerque will be undertaken.

Multimodal projects, indicated in red, generally refer to logistics platforms and intermodal terminals. These are the points of interconnection between freight modes, and therefore a crucial element in the strategy to develop truly multimodal networks. These are especially prominent in French cities including Paris, Lyon and Avignon, and along the Maas/Meuse branch of the corridor, e.g. Venlo. Developments in Paris include the Seine-Metrople projects, related to the Seine-Scheldt connection.

Airport and innovation categories only account for eight projects in total, all located in Belgium, the Netherlands or Ireland. The largest project in these categories is the Diabolo project improving access to Brussels airport by rail.



6 Financing issues and tools

The development of core Network Corridors requires, *inter alia*, a critical mass of investment to take place within a short time- framework. Therefore a careful examination of the potential financial sources has to accompany the corridor planning. Some key criteria to be appraised are reported in this section of the Work Plan.

The projects to be developed can be ranked in three different categories from the point of view of funding and financing needs:

a. For several revenue generating projects "closer to the market" in terms of development (technological components, including on large infrastructure of key European Interest, brownfield upgrade) or service provision (terminals for freight / passengers, enhancement of infrastructure capacity / performances), a substantial component of the project funding can come from own resources (e.g. equity) and financing resources gathered by the project promoters on the market (e.g. in the form of equity, loans or bonds). The private investors would need to recover their initial costs of capital and receive a reward for the risk born (the higher the risk the higher the return required).

The project may look at conventional lending from public and private banks, alternative financing from institutional investors (e.g. bonds) and at financial instruments for instance to cope with the imbalances of cash-flow during its construction and ramp-up phase until a sustainable flow of revenues is secured, and to address particular risks and market failures, and to secure lending with long maturity. Financial instruments could be provided in the form of credit enhancing and guarantees (be it a specific legal guarantee or a financial guarantee to ease access to financing).

b. Hard-infrastructure, greenfield, risky, long-term projects such as the majority of cross-border railway connections as well as inland waterways navigability improvements might require substantial public support through public funding, even if innovative approaches can apply to project development and/or to specific components of the investment. Public funding can be structured in different ways (also depending on the budgetary constraints of the public authorities) such as lump sum subsidy (grant), fiscal incentives, operational deficit coverage and availability payment schemes.

c. In a variety of intermediate cases, projects will require a more limited funding component in order to reinforce their financial viability – these projects could be supported through a blending of funding (e.g. grants) and financing.

In this respect, beside the national budget, the funding contribution can effectively come from the EU centralized managed funds, such as the Connecting Europe Facility (CEF) and from decentralized managed funds such as the European Structural and Investment Funds (ESIF) while the financing resources may come from the EU financial instruments, such as the CEF Debt Instruments and financial products available under the European Fund for Strategic Investment (EFSI).

For all these three different categories of projects the public intervention with the different degree of intensity is justified on the grounds that these projects of high socio-economic and EU added value, substantially address overall public service obligations, sub-optimal investment levels, market failures and distortion due to externalities (positive, for the projects supported, including in terms of strategic



added-value, and negative for competing modes), and therefore calls for the transfer of resources.

When considering the project funding structure in a comprehensive and multimodal setting, earmarking of revenues and cross-financing solutions, applying "polluter-pays" and "user-pays" principles ought to be duly explored.

A project can be fully developed through project financing if the revenue stream (secured by public and/or private funding), exceeds the investment and operational costs (CAPEX+OPEX). Such an approach calls for a careful risk sharing between the Member States (project management) and private partners.

Notwithstanding a given project's self-financing potential linked to user fees, a cautious and innovative approach is needed, aimed at exploiting the project's life-cycle, whilst defining clear responsibilities and risk sharing between project promoters, sponsors and implementing bodies, in order to deliver projects on time, cost and quality and to fully exploit the potential, while minimising future liabilities on public budgets.

A pre-condition for project financing is a conducive regulatory and legal environment, in order to set the incentives right to enhance the public and private sector involvement in the delivery of infrastructure investment and transport services.

7 Critical issues on the North Sea Mediterranean Corridor

Due to the very significant levels of economic activity generated by a highly urbanised central core of the corridor and the presence of large sea ports serving extensive hinterlands on the continental mainland and in Great Britain, the North Sea Mediterranean Corridor generates significant traffic volumes on its transport networks. Capacity bottlenecks on the rail and road networks are therefore a key critical issue for the Corridor, along with a current lack of cross-border interoperability on inland waterway and rail networks.

At the same time the Corridor's northern and western periphery incurs greater costs in trading with the economic core of the EU and has to rely to a greater extent than the rest of the Corridor on maritime links.

Given the high traffic volumes that are transported by road, there is a continuing need to encourage greater use of more sustainable modes such as rail, inland waterways and short sea shipping.

7.1 Cross-border issues

One of the foremost issues to be addressed is the need to link the three main French waterway basins, the Seine/Oise, the Rhône/Saône and the Escaut with each other via high-capacity, CEMT IV or higher class routes. The foremost missing link, the canal Seine-Nord-Europe, upon completion, links the Seine Basin with the northern-western waterways of the Benelux countries via Ghent/Terneuzen and Liège and encourages modal shift to inland waterway on the whole corridor.

The most advanced project is the Seine-Escaut, with its main component, the canal Seine-Nord-Europe. In 2015 it was announced that the Seine Escaut 2020²⁵ project would be the major recipient of CEF funding (to a value of €980 million) within the NSMED corridor.

Seine-Scheldt Missing Link

Figure 5: Location of Canal Seine-Nord Europe



The map shows how all the seaports in the range between Dunkerque and Amsterdam are connected to a dense network of rivers, canals, and associated inland ports and industrial areas. The Seine-Scheldt project aims to extend this network by completing the link between Paris and Belgium, thus also giving access to the Oise and Seine Rivers, as far as the port of Le Havre, and the Atlantic Corridor.

Solving this missing link also has implications for the connecting waterways. Capacity constraints exist, for example, on the Albert Canal, the main waterway of Belgium linking the Scheldt and the Port of Antwerp with the Port of Liege and the Meuse; bridge clearance needs to be harmonised to allow the passage of four layers of containers, lock capacity at Wijnegem (where the canal reaches the outskirts of Antwerp) needs to be improved and a navigation bottleneck in a section outside Antwerp needs to be removed. In 2015 the CEF provided some €74 million of funding for the lifting of bridges and an upgrade to Class VIb of a 9km section of the Albert Canal. Furthermore, the Bossuit-Kortrijk Canal, the Upper Sea Scheldt and the Brussels-Charleroi Canal still need to be upgraded to Class IV or Va. Finally, the quality of the waterway connection between the Port of Zeebrugge and the Seine-Scheldt also needs to be addressed.

²⁵ 2014-EU-TM-0373-M



Ghent-Terneuzen Canal Bottleneck

Related to this, there is an important bottleneck at the locks that allow access to the Ghent-Terneuzen Canal, and important cross-border link between Belgium and the Netherlands.

The canal is accessible through a lock complex situated in Terneuzen on Dutch territory, consisting of three locks chambers: one lock large enough for maritime navigation and two inland navigation locks. Due to the increase of inland navigation traffic at the lock complex, the maritime lock is also used for inland vessels. By replacing one of the smaller locks with a new bigger maritime lock, the existing locks can be used for maritime and inland navigation, thereby increasing capacity and reducing waiting time for both types of vessel.

In particular for inland vessels, improved capacity at the lock compound in Terneuzen will be increasingly important, as the canal is part of the Seine – Scheldt network. In 2015 it was announced that the New Lock Terneuzen project would be funded from CEF, with a grant value of €48 million.

Brussels-Luxembourg railway axis

Cross-border issues relating to other modes of transport have also been identified along the North Sea Mediterranean corridor.

The speed limitation on the Brussels-Luxembourg axis is considered as a bottleneck for passenger rail transport. A second issue on this section concerns specifically the passage to a modern 25 kVac electrical power supply system. This passage, which is also a condition for the increase in speed, must be realised in a coordinated way in order to guarantee the interoperability on this axis.

7.2 Related short-sea transport issues

While cross-border inland waterway transport offers great potential for modal shift and increased freight capacity in the central part of the corridor, short sea shipping has significant potential to increase accessibility to the centre from the more peripheral regions of the corridor. For the regions in question, especially in Ireland, Northern Ireland, Scotland and Northern England, lack of accessibility is seen as a barrier towards economic development and cohesion.

Accessibility to more peripheral regions by means of short sea shipping remains an issue on the corridor, but Dublin and Cork have launched projects to enhance their maritime access and Belfast and Cork have projects to enhance 'last mile' access by road. The focus in the North West of England is, at the moment, more on improving 'last mile' access by road and rail to Liverpool.

7.3 Port hinterland connections

In the continental ports, inland waterway connections are used to a large extent for moving seaborne traffic inland. However, rail connections are less well developed, and there are also serious issues of road congestion for most ports in their immediate catchment areas. For the two major United Kingdom container ports of Felixstowe and Southampton, inland rail links need to be improved by removing remaining bottlenecks on the main hinterland rail routes to the West Coast Main Line on the corridor. In Ireland and Northern Ireland, core and comprehensive road connections



inland are paramount, allowing the heavy goods traffic generated by the ports to bypass the immediate urban areas in order to reach the motorway network.

7.4 Interoperability constraints

In terms of rail transport, the difference of electrification systems between the countries of the corridor, in particular in the Benelux area, constitutes a key issue. Belgium uses 3 kV and 25 kV on some lines, but a large part of the Brussels to Luxembourg axis is planned to be equipped with 25 kV and this electrification system is already in use for the major cross border lines between France, Belgium, Luxembourg and the Netherlands.

In the United Kingdom, a significant part of the corridor is not electrified, and where it is electrified, different voltages may be used. Between London and the Channel Tunnel for example, the HS1 (high speed, mainly passenger) line uses an overhead 25kV power supply, while the conventional line uses third rail 650/750v DC.

Regarding signalling, ERTMS deployment aims to foster interoperability, facilitate increased capacity and improve safety and security. However, deployment is still at a low level in the countries of the corridor. The pace of ERTMS implementation differs depending on the country, creating possible future gaps in the deployment of ERTMS.

The ERTMS section of the Work Plan for the Corridor will be further developed in cooperation with the European Coordinator for ERTMS in his own Work Plan. The detailed planning for the first step began in 2015. The remaining sections (to be completed between 2020 and 2030) have been subject to discussion and detailed planning in 2016.

Regarding road transport, differences in road haulage regulations between the various countries of the corridor (in terms of the hours when vehicles can use the networks) currently lead to congestion and saturation at parking areas at the borders. This is a critical issue for the corridor that will need to be addressed and linked to other related issues such as Intelligent Transport Services and alternative fuels.

For inland waterways, it is important to highlight that the standardisation of infrastructure, especially in relation to maximum allowable ship dimensions is advantageous in terms of realising the sector's full potential. Standard lock characteristics as well as at nodes such as inland ports and seaports help to improve user friendliness for barge operators.

7.5 Intermodality constraints

Improved connectivity of seaports, inland ports and airports to European rail and road networks is crucial to fully exploit the potential for multi-modal transport within the corridor. Substantial growth in inland intermodal transport is expected for the future as a result of forecast growth in port volumes, which will require enhanced capacities from container transshipment terminals. Throughout the corridor, there is a need to match the growth in port-related traffic with the available capacities at inland ports and road/rail terminals, to improve last mile access to urban freight facilities, and to build up the supply of regular intermodal services.

From a freight market point of view, there are two different segments for intermodal transport. The first is the maritime market along the Northern Range concentrated around Benelux and the southern range ports along the western Mediterranean coast with Marseille or Sète in France and also with the Spanish ports. The second is the continental market of north-south exchanges over long and even very long distances,



towards the Paris region, the UK, and also towards Mediterranean countries of the EU including exchanges between Spain and Northern Europe, where there are currently very low modal shares for rail and waterway (less than 5%). This potential has been clearly identified in the evaluation of the Montpellier/Perpignan rail project, as well as in Ferrmed, Amsterdam-Marseille, and Climat projects, all co-financed by EU.

In the continental branches of the corridor, intermodal cross-border volumes by rail are still remarkably low, in comparison to the adjacent Rhine-Alpine corridor, and in comparison to national rail volumes. Container services by inland waterway tend to be concentrated around Rotterdam and Antwerp, primarily oriented towards the Rhine. More potential can be realised by developing a landscape of rail and waterway connected inland ports along the arc of the Maas/Meuse. This area, between Nijmegen and Liège is well located for European distribution centres handling containerised imports.

Cross-border rail needs are focused on improving the cross-border routes between the Netherlands, Belgium, Luxembourg and France, creating a fully TEN-T compliant freight and passenger corridor from the Randstad region via Brussels to Luxembourg, Strasbourg and Basel. Towards this aim, the adoption of ERTMS signalling, the removal of bottlenecks such as the North-South link in Brussels, and the upgrade of the passenger line to Luxembourg and Bettembourg (EuroCap Rail) are necessary.

With the extension of standard gauge rail routes inside the Iberian Peninsula, greater potential will be realised for services connecting Spain towards Paris and the NSMED corridor towards the UK, Belgium and the Netherlands. Rolling motorway projects are also being developed on French cross-border routes.

In the United Kingdom Strategic Rail Freight Interchanges (rail-connected distribution parks) are crucial commercial developments that are supported by the UK Government in its National Networks National Policy statement; these allow for the efficient inland movement of freight to and from ports and for the growth in domestic intermodal traffic, but there is a lack of existing SRFI capacity in, in particular, the London/South East area. In addition, there is a risk that the general lack of network capacity in the UK may discourage developers from bringing forward and developing SRFI schemes.

Between the United Kingdom and France, since only the HS1 route is included on the corridor through Kent from the Channel Tunnel to London, it is most likely that capacity for freight services on the corridor will be limited to night-time services. However, the conventional route through Kent, which has sufficient capacity for freight services will be included on the North Sea Mediterranean Rail Freight Corridor, so it will therefore be necessary to assess the interoperability issues related to loading gauge and power supply on this line, in order to achieve the full potential for increased cross-border rail freight between France and the United Kingdom. This important rail link should be considered for inclusion in the core network corridor.

8 Outlook and recommendations by the European Coordinator

The transformation of the European transport system into a coherent network requires a combination of initiatives at all levels and for each transport mode. As restricting mobility is not considered to be an option, the implementation of this network should increase the competitiveness of transport in Europe, lead to global reductions of external and internal costs and facilitate increased use of more sustainable transport.

A way to broaden the perspective is to regard the corridor in terms of its economic functions, such as promoting trade, fostering economic development and encouraging environmental sustainability through the provision of enhanced services and by connecting centres of activity to improve territorial cohesion. In this way the corridor concept can be used to encourage greater collaboration across borders on planning for transport and enhanced levels of service for users rather than just focusing on developing and upgrading infrastructure.

The corridor network has relatively good infrastructure compared to other regions of Europe, developed over a long period of time. However, it experiences high and increasing demand, and in certain cases, suffers from ageing infrastructure that leads to persistent levels of congestion and a long list of bottlenecks. Renewal and modernisation are recurring themes.

It therefore continues to be crucial that investments are made on the North-Sea Mediterranean Corridor because they address present-day issues which are closely linked with the long term development of the European economy and employment and trade with the rest of the world. Although a full list of projects has been drawn up, given the size of all the investments necessary for the Corridor, circumstances dictate that I must therefore focus on the projects that can address the most critical issues on the corridor and guarantee the most positive results and impacts in the shortest possible time.

8.1 Expected compliance with TEN-T standards by 2030

Figure 6 (overleaf) shows the extent of expected compliance with TEN-T standards for the rail network by 2030, based on existing planned projects, in terms of:

- line speed,
- axle load,
- track gauge and
- electrification.

The map shows that many sections of the rail network either are already compliant or there are projects that are being implemented to move towards compliance by 2030. The main exception is the route between the deep sea container port of Felixstowe and the West Coast Main Line at Nuneaton in the UK, for which there are no current plans for full electrification by 2030.

The map also highlights the capacity bottlenecks on the rail network close to many of the major cities in the North Sea Mediterranean corridor and issues in relation to line speeds.

Figure 6: Status of rail network towards 2030

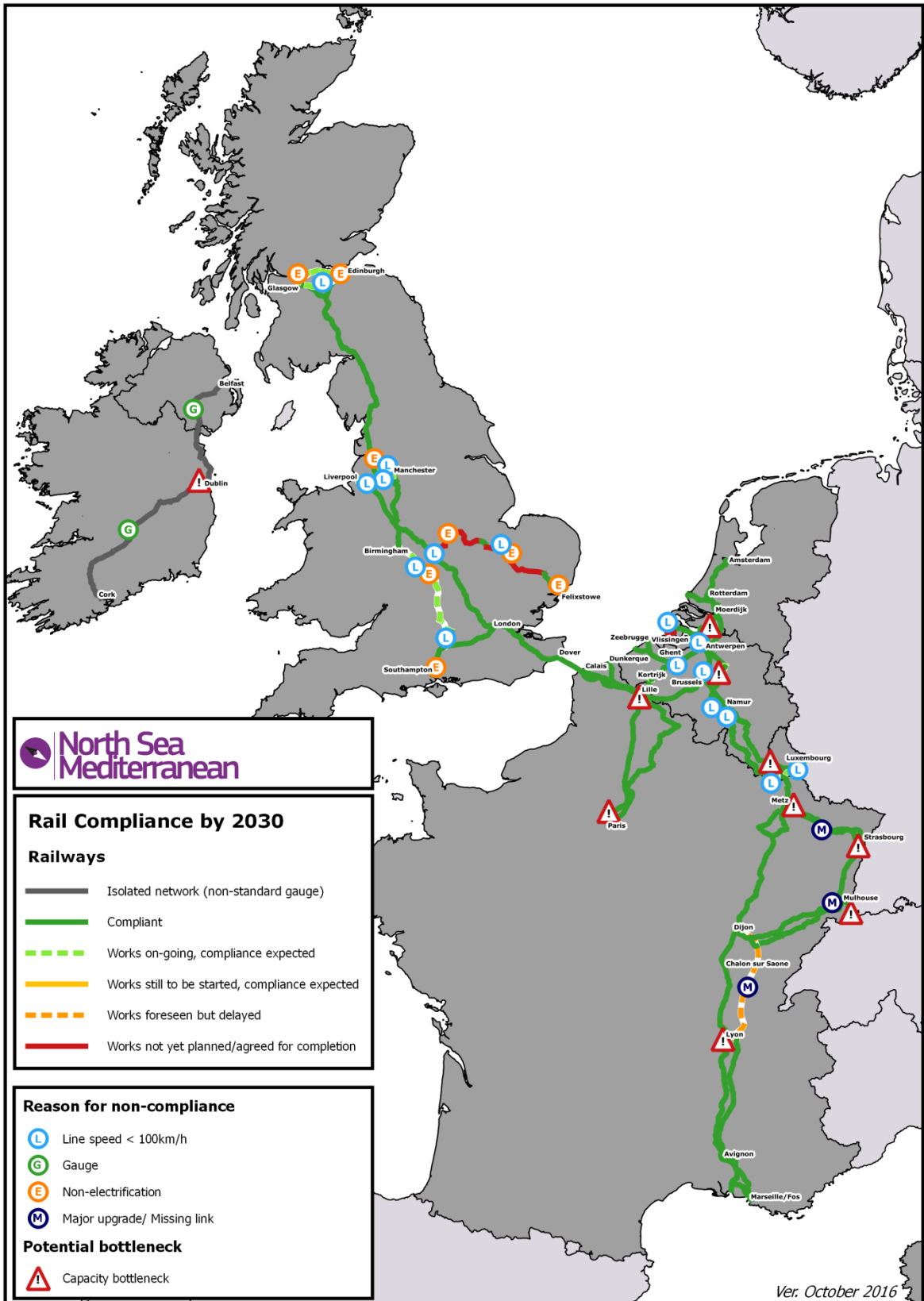




Figure 7 (overleaf) shows the extent of expected compliance with TEN-T standards for the inland waterway network by 2030, based on existing planned projects, in terms of:

- CEMT class IV or higher,
- 5.25m bridge height and
- 2.5m available draught.

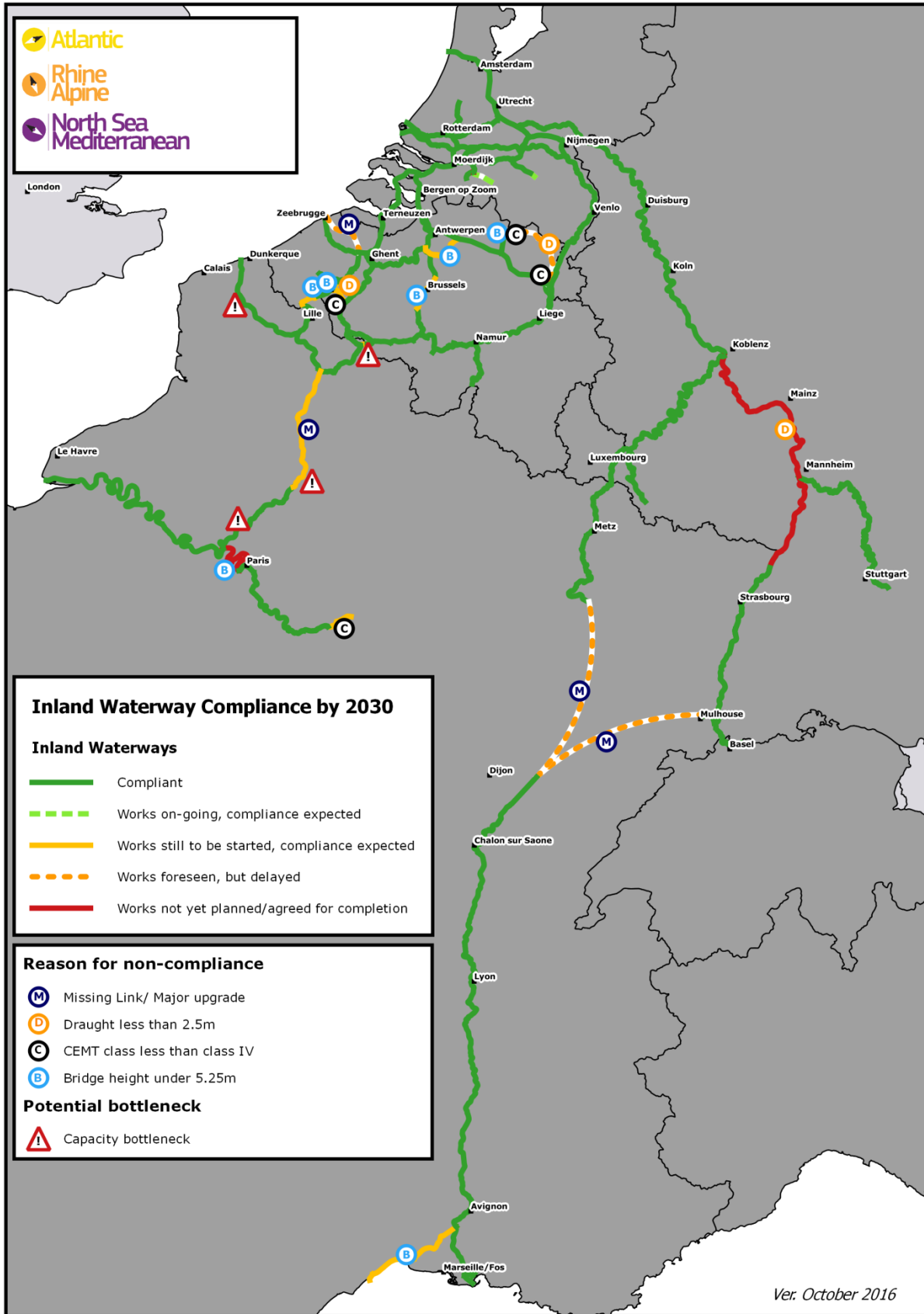
Major projects (amongst which missing links), and potential capacity bottlenecks are also highlighted.

This map includes waterway sections for three corridors, the NSMED, the Rhine Alpine, and the Atlantic, so stretches of the Seine and the Rhine are included here.

The map shows that most sections of the network are already compliant or that there are projects being implemented to ensure compliance by 2030. Although there are plans to solve some of the missing links, and remove many bottlenecks, some non-compliant sections remain, such as on the Seine downstream of Paris, which has bridge height limitations, and there are no current plans to achieve compliance here by 2030. The TEN-T core network and the NSMED corridor also include the Saône-Moselle and Saône-Rhine missing links that could potentially extend the range of waterway connections for the corridor, by bridging the gap between the northern and southern river basins. These, and their regional significance have been discussed at the most recent working group for regions, held in Metz and Strasbourg.

In practice, a large part of the NSMED waterway network is being developed to accommodate vessels of CEMT Va or Vb standard. While CEMT IV capacity is sufficient for TEN-T compliance, in reality higher capacities are necessitated by the ambitions of the Work Plan. Higher technical targets for waterways are incorporated in the corridor-specific KPIs.

Figure 7: Status of inland waterway network towards 2030





8.2 Recommendations

We have now reached a crucial point. We have established the legislation, the TEN-T guidelines, the Connecting Europe Facility and the funding. We have implementation instruments clearly defined via the corridors, European Coordinators and corridor work plans setting out the perspectives for the coming years, and focusing on the critical issues and possible solutions to overcome them. It is important to acknowledge that my proposed Work Plan reflects the contributions of the Member States and other stakeholders and is based on a revised version of the corridor study. You are now being asked to approve this Work Plan in the coming months which will enable us to move from studying the corridor to further implementation. The realisation of the North Sea Mediterranean corridor will contribute to the strengthening of the social and economic cohesion between all the regions of the EU and to the development of a high-quality transport network throughout the European Union. It will benefit all EU citizens, businesses and make Europe stronger and more competitive. It is now time to move forward together.

Key themes for the future

As work is carried out on the projects that will lead to compliance with the TEN-T standards by 2030, consideration will need to be given to the extent to which the existing **corridor alignment** is sufficient to meet the future needs of passenger mobility and freight transport. Some stakeholders, particularly in the north and west of the corridor, are suggesting that the corridor should be extended to include additional infrastructure on the TEN-T core network and to make allowance for connections to the TEN-T comprehensive network. Others are highlighting the need to ensure consistency between the TEN-T status of ports, and the status of the routes, via different modes, serving those ports.

Given the high volumes of traffic and the great reliance on road transport on the corridor, as well as the need to increase the sustainability of freight transport and passenger mobility, there is a clear need to focus on **developing infrastructure for inland navigation and rail** in the future. It seems to me that there is a clear case for inland waterway and railway projects to be given the greatest priority on the corridor on the continental mainland, including to and from the main sea ports. Given its geography and the lack of inland waterways on the TEN-T, railway projects will remain a key priority for Great Britain as well. In Northern Ireland and Ireland, which also have no TEN-T inland waterways and lack the longer distances to allow rail freight to be cost-effective for much of the island, maritime connections and road connections to ports will remain a key focus.

While road freight traffic can generally cross borders without any significant administrative burden there remain **additional procedures and practices for rail freight and short sea shipping** that hinder their development as an alternative to road freight transport. Despite the significant progress made on the North Sea Mediterranean Rail Freight Corridor, for example, there should be a continuing focus on reducing the administrative burden and facilitating more efficient practices for international rail, inland waterway and short sea shipping services.

I believe that the work of the North Sea Mediterranean Corridor and the Rail Freight Corridor has already helped to increase the extent of collaboration between the Member States on planning cross-border transport infrastructure and services, but more could be achieved in this area in the future. This is a sensitive area of policy because national transport and spatial planning remain the prerogative of the Member States under the subsidiarity principle, but I believe that the North Sea Mediterranean Corridor forum and working groups can be used increasingly as a means to improve



the **coordination of national transport development plans**, particularly for cross-border projects, to help ensure that a more cohesive and integrated pan-European network can be developed in the future.

Fostering greater use of **multimodal transport** is a key priority for the corridor, given the existing reliance on road transport and the increasing demands that will be placed on the network from the forecast volumes of port-related traffic. This includes the development of inland ports, road rail terminals and multimodal connections at sea ports for freight and there are a number of such projects included within the latest project list. In addition, while most airports located on the corridor are already connected to mass public transit systems seven of the core network airports, including Dublin, Glasgow and Luxembourg, still require fast and high capacity connections to city centres.

Significant investments are planned by the Member States, with EU financial support, in new and upgraded infrastructure across the corridor up to 2030 and it is important that **project evaluation** is carried out on a consistent basis to ensure that the best possible value for money is secured for the taxpayer in each Member State.

The maps showing the forecast compliance with TEN-T standards by 2030 on the rail and inland waterway networks provided in Chapter 7 highlight the extent of **actual and potential bottlenecks** that will adversely affect user costs in the future and generally reduce the efficiency of the corridor's transport networks. Many of the capacity bottlenecks on the rail network are found close to the major conurbations and therefore tend to reduce the efficiency of long distance freight and passenger services. On the inland waterway network they often relate to the lack of continuity within the network, especially for larger, more cost effective vessels.

The North Sea Mediterranean Corridor provides **connectivity from Europe to the rest of the world**, via its many major ports. The port of Marseilles-Fos, in particular, offers access by means of short sea services to the rest of the Mediterranean, including North Africa and the East Mediterranean, and the major deep sea container ports located across the corridor offer access to global markets. I believe that, although additional infrastructure is unlikely to be required to improve links between the corridor and third countries, greater consideration should be given in the future to measures required specifically to improve maritime links between ports on the corridor and third countries, mainly in the Mediterranean.

The wider economic benefits from any new or upgraded infrastructure will only be secured if end users are able to secure direct benefits. For this reason there is clear need to **promote and communicate** the availability of the opportunities that the infrastructure offers to develop new services.

It is only by means of close collaboration between the Member States that cross-border infrastructure projects can be implemented and we already have excellent examples of such cooperation in the development of the Terneuzen Lock project, the Seine-Escaut project, the upgrade of the Maasroute, Albert Canal and the investments of Belgium and the Netherlands for the new lock in Ternaaien. Furthermore, on-going cross-border coordination is required to ensure that efficiency gains are secured and maintained; once again, the success of the North Sea Mediterranean Rail Freight Corridor demonstrates the benefits of such an approach.

Finally, it should always be borne in mind that the long term efficiency of transport infrastructure relies on the organisation and financing of **on-going maintenance activities**. While this Work Plan tends to focus on the new infrastructure and major upgrades that are required up to 2030, considerable attention needs to be paid to



maintaining the existing infrastructure to ensure that the user benefits are secured in the longer term.

Recommendations

Rail improvements

I recommend that, in the coming years, projects are developed and implemented to address the key bottlenecks on the rail network to allow efficient long distance freight and passenger services to operate despite often rising demand for commuter services to and from major conurbations.

There is also still a significant amount of work to be done to achieve fully interoperable technical standards and to address all of the issues identified by the Rail Freight Corridor. ERTMS deployment, for example, is currently low on the North Sea Mediterranean Corridor and therefore I recommend that it should be pursued with urgency by the Member States.

Finally, I recommend that projects continue to be developed to provide capacity at railroad terminals (particularly with associated warehousing) as this rail-connected terminal capacity will help to develop demand for rail freight.

Seaport improvements

On the continental mainland I recommend that emphasis is placed on ensuring that the growth in traffic that is forecast for the corridor's seaports can be accommodated on the rail and inland waterway networks. In the north and the west of the corridor, where accessibility from the island regions is the critical issue, I recommend that projects should be implemented to develop Motorways of the Sea services, and to improve hinterland connections at the seaports.

Inland waterways improvements

Some significant investments are planned for the inland waterway network on the North Sea Mediterranean Corridor and I continue to recommend that these projects are pursued to provide high capacity cross-border links for freight movements.

Airport intermodality improvements

There is a continuing need to improve the multimodal connections between airports on the Corridor and their catchment areas and I recommend that projects are implemented that improve accessibility. These should generally be by rail and other mass passenger transit systems, but could also involve upgrades to road infrastructure.

Road project improvements

While the focus on the Corridor should be on rail, inland waterway and maritime projects, there is also scope for the implementation of road projects, which may in certain contexts, such as isolated regions, be the only realistic solution. I recommend that these projects are focused generally on links to and from sea ports and airports to improve their last mile accessibility, and projects that upgrade and increase the capacity of existing road links rather than the construction of new road links.

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Corridor website:

http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/northsea-med_en.htm

Useful links

(available here: http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/corridors/corridor-studies_en.htm)

- Corridor Study
- List of projects
- TENtec maps
- Critical issues map



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