European Commission

TEN-T
TRANS-EUROPEAN TRANSPORT NETWORK

Implementation of the Priority Projects
november 2012

Transport

Information contained in this report summarises the current state of play regarding the development of the priority projects, including the sources of financing and the annual activity reports. It was put together with the data provided by the Member States by using the online iReport module of the TENtec Information System of DG MOVE. Each Member State provided information for the sections of the priority projects located on its territory, whereas the cross border sections were reported on jointly by the countries involved. In addition, the European Investment Bank provided information on the loans given to priority projects and the Commission added the figures reflecting the grant allocation to individual sections. This information was subsequently revised and in some cases altered by the Member States.

Despite the attention given to the quality and reliability of data, some figures, especially on the sources of financing, may be missing. It should also be borne in mind that the data for the programming period 2007-2013 and 2014-2020 reflects intentions and plans of the Member States. In particular estimates of investment on TEN-T priority projects from cohesion policy funds are at this stage indicative. Information received may therefore naturally evolve in the future. The completeness of the information gathered in the table will be gradually improved since the process of data improvement based on further cooperation with Member States Authorities will continue.

The report includes statistical information on 30 TEN-T priority projects, including PP15 (Galileo) and PP21 (Motorways of the Sea). The priority projects listed in the financing tables are divided into sections in line with the definition in annex III of the TEN-T Guidelines. In case of some priority axes Member States provided additional information on sections of the axis that are not priority ones in the sense of annex III of the TEN-T Guidelines. These figures are not included in the total amounts illustrating the development of each priority axis.

Data cut-off: 31 October 2012 (please note that this report does not contain any financial data)

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Foreword

It is with great pleasure that I present the 2012 Progress Report on the implementation of the Priority Projects on the Trans-European Transport Networks (TEN-T). Of course, this report has to be seen against the background of the ambitious proposals to revise the current TEN-T framework which the Commission presented in October 2011.

The revision of the TEN-T guidelines together with the creation of a real infrastructure fund, the Connecting Europe Facility, will lay down the necessary conditions for connectivity throughout the European Union. It will thereby contribute to the development of the internal market, and lead to growth, jobs and competitiveness.

While the adoption of these initiatives by the Council and the Parliament is still on-going, the current framework is not neglected. The Commission continues to carefully manage today's funds and projects. This year has seen the completion of important sections in our transport network, such as the Diabolo project connecting Brussels airport to the long distance rail network, the Sankt Pölten-Wien rail connection, linking east and west directly together in the centre of Europe, or the Unterinntal, the first part of the Brenner Base Tunnel access routes.

In this Progress Report you will find reports by the nine European Coordinators who are working on specific Priority Projects and reports on all other Priority Projects. The reports give details about the progress made in these projects. Furthermore, the report focusses on the new financial instruments adopted by the Commission on 5 October 2012.

This fifth Annual Progress Report 2012 that I am presenting on the occasion of the TEN-T day 2012, held in Brussels on 28 November 2012, continues the well-established process of presenting in a transparent way, as accurately as possible, the current state of play of the implementation and development of TEN-T projects and provides for regular and comprehensive reporting.

This publication will show you the constant progress achieved in the field of Trans-European Transport Networks. I am convinced that with the adoption of the new framework, this progress will significantly speed up and contribute to EU's growth and competitiveness.

Siim Kallas

Vice-President of the European Commission

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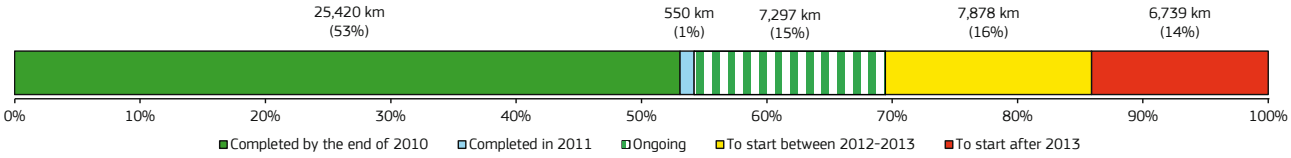
Section A - Basic statistics

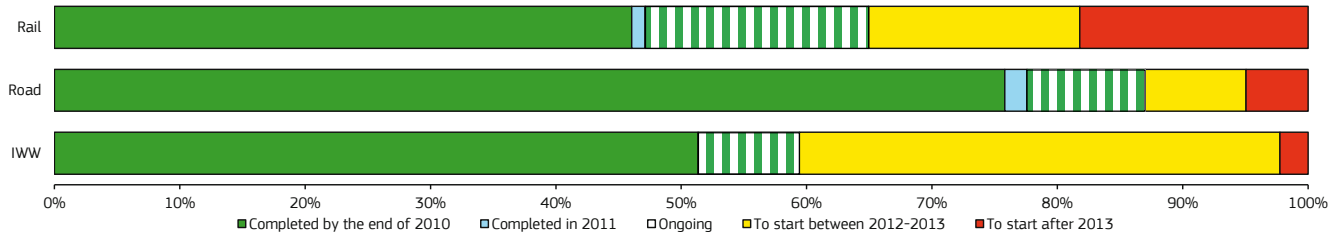
Completion status of works in TEN-T Priority Projects (km)

Total length = 47,884 km

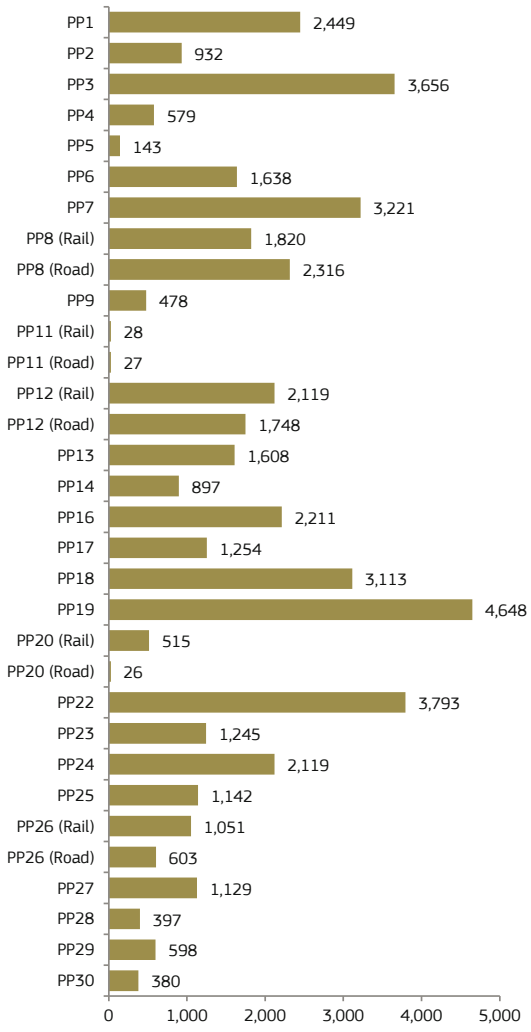


Completion status of works in TEN-T Priority Projects per mode (km)

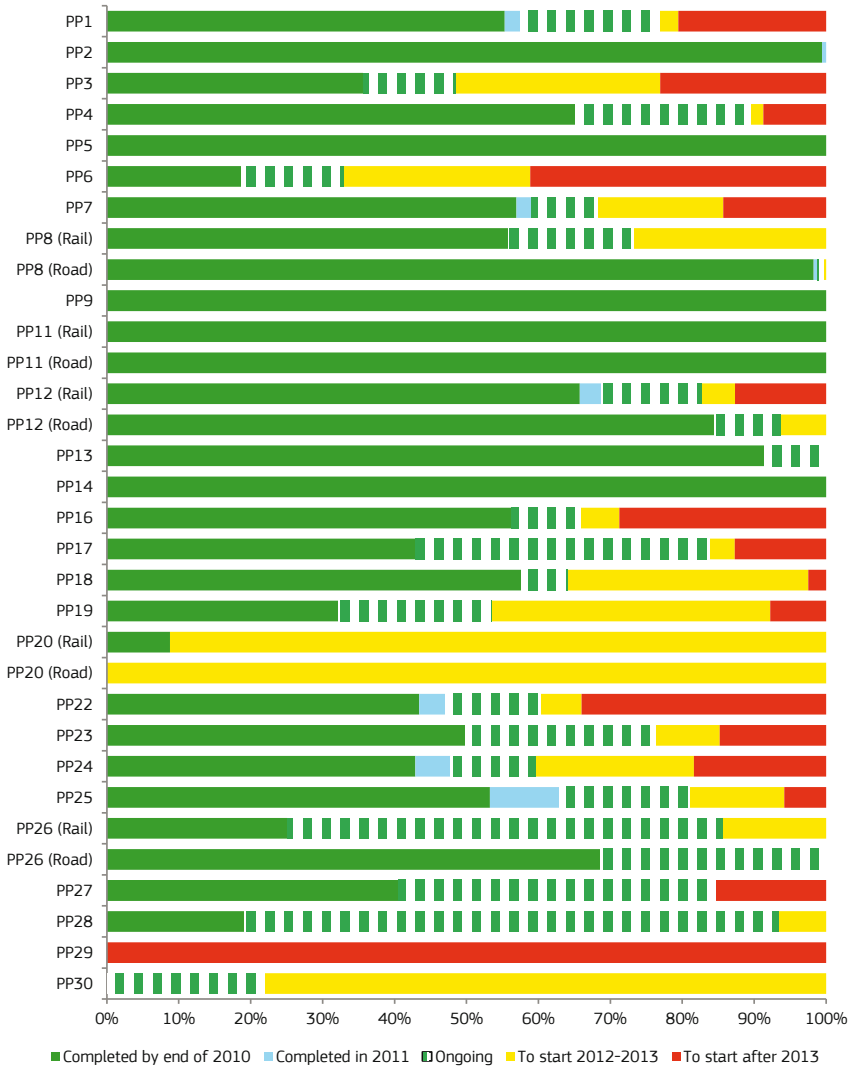
Total length = 47,884 km (Rail: 33,701 km, Road: 10,691 km, Inland Waterways (IWW): 3,493 km)



Length of TEN-T Priority Projects (km)



Completion status of TEN-T Priority Projects by works



Priority Project 1

Railway axis Berlin-Verona/Milano-Bologna-Napoli-Messina-Palermo

Trans-European transport network. Achievement of the Priority projects

0 150 300 km

Cartography: DG MOVE, October 2012
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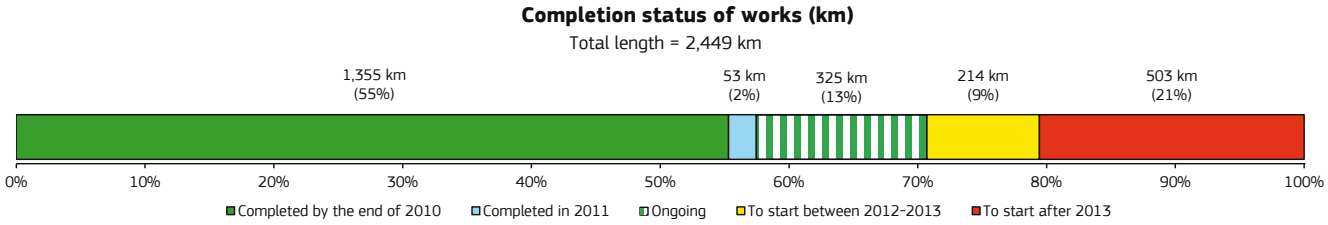
© EuroGeographics 2001 for the administrative boundaries

- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

- Completion Date
- Priority sections

TENtec

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
PRIORITY PROJECT TEN NO. 1 BRENNER BASE TUNNEL - WORKS	AT, IT	€592.7	Ongoing
PRIORITY PROJECT TEN NO. 1 BRENNER BASE TUNNEL - STUDIES	AT, IT	€193.4	Ongoing
Southern Access line to Brenner	IT	€58.8	Ongoing
Works for construction of new high speed line between Kundl/Radfeld and Baumkirchen	AT	€58.3	Ongoing
Verkehrsprojekt Deutsche Einheit (VDE) 8.2, Neubaustrecke (NBS) Erfurt - Leipzig/Halle, Abschnitt Erfurt- Halle bzw. Gröbers	DE	€57	Ongoing
Nodo di Roma, progetto prioritario n. 1, upgrading impianto ferroviario di Roma Tiburtina	IT	€7	Ongoing
Intermodales Terminal Wörgl (TEN-V Vorhaben Nr. 1 - Abschnitt Kufstein-Innsbruck)	AT	€5	Ongoing
VDE 8.1, 4-gleisiger Ausbau des Streckenabschnitts Eltersdorf - Paul Gossen-Straße	DE	€5	Ongoing
Verkehrsprojekt Deutsche Einheit (VDE) 8.1, Neubaustrecke (NBS) Ebensfeld - Erfurt; Planfeststellungsabschnitte Freistaat Bayern (BA 3121 EÜ Füllbachtalbrücke; BA 3122 EÜ Fornbachbrücke)	DE	€3.9	Completed
Intermodal hub project for Catania Fontanarossa International Airport	IT	€1	Ongoing
TOTAL		**€982**	



Priority Project 1
Railway axis Berlin-Verona/Milano-Bologna-Napoli-Messina-Palermo

Trans-European transport network. Achievement of the Priority projects

European Coordinator

Pat COX

1. Introduction

The over 2,000 km long high capacity north-south rail axis between Berlin and Palermo is one of the most significant projects of the Trans-European Transport Network (TEN-T). The centrepiece of this Priority Project 1 is the cross-border section between Munich and Verona, the so-called Brenner Corridor, including the Brenner Base Tunnel and the northern and southern access routes.

The Berlin-Palermo rail axis will deliver an important increase in rail transport capacity between northern and southern Europe and can make a significant contribution to the EU's policy goal of achieving modal shift from road to rail.

This in its turn can help address some of the key environmental challenges facing communities along the line especially in the ecologically sensitive Alpine regions encompassed by the Brenner Corridor where the quality of the environment is under constant pressure from the volume of road traffic.

The strategic significance of this project is underlined by the allocation of almost €1 billion in the 2007-2013 financial perspective for PP1, confirming its status as among the highest priority for the EU's transport infrastructure policy.

In June 2010, the European Commission appointed Pat Cox as the EU Coordinator for this project. From the start of his mandate Mr Cox declared the establishment of concrete financial capacity as a major priority, in particular for the financing of the Brenner Base Tunnel. This goal was reached on 18 April 2011, when Austria and Italy agreed on the total costs of the base tunnel. This official agreement launched the main construction phase of the Brenner Base Tunnel.

For the current reporting period, in addition to advancing the Brenner Base Tunnel, the Coordinator focused particular attention on the northern and southern access routes. Progress can be noted on all these fronts for the period under review:

- On the Brenner Base Tunnel, preparatory works for the construction of the two main tubes have started. Progress continues on the exploratory tunnel and access tunnels.
- On the northern access, the 40 km long Lower Inn Valley line from Kundl to Baumkirchen (Innsbruck) is near completion. The line officially will become operational on 9 December 2012.
- On 15 June 2012, the German Minister for Transport, Mr Ramsauer, and the Austrian Minister for Transport, Mrs Bures, signed a bilateral agreement in Rosenheim on the planning of the northern access route Munich-Rosenheim-Kiefersfelden-Kufstein-Kundl. On the basis of this agreement, Germany and Austria jointly will start planning this vital part of the northern access to the Brenner Base Tunnel.
- The southern access route between Fortezza and Verona is now also making good progress, in particular on the mission critical construction lot Fortezza-Ponte Gardena. The necessary financial commitments have been made and the planning phase has started.

For the next reporting period 2012-2013, the Coordinator will concentrate on securing current EU co-funding in the most efficient way and on preparing and optimising EU funding for the 2014-2020 period.

In parallel with the preparation for the future, funding work must also start on enabling a smooth transition from the current Berlin-Palermo Priority Project to the new TEN-T corridor Helsinki-Valetta.

Finally, the Coordinator will continue to focus his attention on the progressive identification and development of a comprehensive framework of accompanying policy measures to ensure that the necessary road/rail modal shift can be achieved as the new rail infrastructure comes on stream.

2. State of the Project

2.1. The Brenner Corridor (Munich–Verona)

The cross-border section between Munich and Verona, including the northern access route between Munich and Innsbruck, the Brenner Base Tunnel between Innsbruck and Fortezza and the southern access route between Fortezza and Verona is currently a major bottleneck of the rail connection between Berlin and Palermo. The removal of this bottleneck is crucial for the realisation of the entire project.

Moreover, the realisation of the Brenner Corridor will have an effect on other rail networks linking northern and southern Europe. Together with the Gotthard-Monte Ceneri axis in Switzerland and the Lyon-Turin rail connection, the Brenner Corridor will establish a complex of high-capacity rail links. Not only will they deliver a major contribution to the completion the Trans-European Transport Network but they will also help achieve the environmental objectives set by the European Union and ensure the modal shift from road to rail so necessary for the future of the ecologically sensitive Alpine region.

The Brenner Corridor bottleneck can only be removed if the tunnel and access routes are completed in parallel. It is clear that the added value of the new base tunnel can be optimised only if the new or upgraded access routes can cope with the same traffic capacity.

2.1.1. Brenner Base Tunnel

The most important decision for the Brenner Base Tunnel was taken on 18 April 2011 by Austria and Italy when both states agreed on the total cost for the project of €7,460 million (costs per 1 January 2010[1]). This agreement paved the way for main construction works on the base tunnel, the so-called Phase III, to be carried out by the project promoter BBT SE.

Since then the preparatory work for the construction of the two main tunnels has started. The first 160 m have been excavated. On 11 June 2012, the Supervisory Board of BBT SE approved the construction of some preliminary stretches of the main tunnel, namely approximately 1 km of tunnels towards the Periadriatic seam in Mules and minor parts of the tunnels interconnecting the bypass of Innsbruck. These projects will be realised in the forthcoming years. The full construction of the main tunnels will commence in 2016.

Due to the impact of the economic and financial crisis, early in 2012 the Austrian government announced a budgetary adjustment programme for the 2012-2016 period involving savings of approximately €900 million on rail infrastructure projects, including the Brenner Base Tunnel. As a result of the budget consolidation plan finally adopted by the Austrian government, the total flow of investment for the Brenner Base Tunnel will be reduced by approximately €330 million, to be covered by both Austria and Italy. The bulk of the savings will be achieved by shifting activities from the 2012-2016 period to the 2016-2025 period. A smaller part will come from technical measures, such as optimised construction methods. Notwithstanding these austerity measures, both the date of completion (2025) and the beginning of operation (2026) were confirmed by the Austrian and Italian governments. In addition, the Chairmen of Austrian railways (ÖBB) and Italian railways (FS) reached agreement in February 2012 confirming the target date of 2026 for the entry into service of the tunnel.

On 9 July 2012 the Supervisory Board of BBT SE approved a modified work programme which guarantees the continuation of the construction activities in the coming years. According to this programme, €1,227 million will be invested in the project up to the end of 2015, including €547 million of EU co-funding[2]. In the light of pressures on public finances in the states concerned, the Coordinator welcomes the on-going political and financial

1 Austria has added a risk precaution for unidentified risks of approx. €500 million to the total cost of the project.

2 €480 million from the current Multi Annual programme 2007-2013 and €67 million from the previous Multi Annual programmes up to 2006.

commitment to proceed with the project and the shared determination to complete all works by the deadlines originally agreed.

Tunnels: state of progress

Progress continues on the exploratory and access sections of the Brenner Base Tunnel. A short overview is provided below:

Mules-Aica (Italy)

The excavation of the 1.8 km long lateral access tunnel at Mules was completed in July 2009, earlier than planned. It facilitated the start of the works on the first construction lot of the section between Mules and Brenner, which was completed in April 2010 when excavation had progressed to 430 m.

The first construction lot of the Aica exploratory tunnel (10.5 km) has been completed. The mechanical excavation of the exploratory tunnel in Aica began on 28 April 2008. On 3 November 2010 the tunnel boring machine reached the cavern of Mules and made the breakthrough.

Periadriatic Seam (Italy)

In autumn 2011 excavating operations began on the Periadriatic seam. In this construction lot of 1.3 km in the direction of the Brenner Pass the fault zone will be excavated by blasting. At the same time, several preparatory works will be carried out, including the caverns for the assembly of the tunnel boring machine required for future excavation and the connection between the exploratory tunnel and the future main tubes will be made. The latter connection will be of particular importance in terms of logistics, since future spoil will be transported to the disposal sites through the exploratory tunnel by conveyor belt. To date, 473 m of exploratory tunnel as well as the entire connection tunnel of 419 m and parts of the caverns have been built.

Innsbruck-Ahrental (Austria)

The first construction site for the Brenner Base Tunnel in Austria is the exploratory tunnel between Innsbruck and Ahrental. Work on this 5.6 km long tunnel in the Sill gorge started in December 2009. The tunnel is being excavated by blasting with four to five blasts adding eight to ten metres per day depending on the geology. By the end of August 2012 the tunnel had reached a length of 4.36 km.

Excavation work on the exploratory tunnel moving from Innsbruck in a southerly direction will continue as soon as the Ahrental access tunnel is interconnected with it. This interconnection is expected to be completed in November 2012. The excavation works for the 700 m long pilot tunnel from the construction site in the Sill gorge to Innsbruck was finished in April 2012.

The lateral access tunnel of Ahrental which meets the exploratory tunnel coming from Innsbruck has been under construction since July 2010. By August 2012 the tunnel will have reached a length of 2.25 km of its total length of 2.4 km. The tunnel is expected to interconnect with the exploratory tunnel in November 2012.

Wolf (Austria)

Work has been underway in Wolf and Steinach am Brenner since April 2011. The Wolf section consists of three tunnels: the Wolf access tunnel, the Padaster tunnel and the Saxener tunnel. The Padaster and the Saxener tunnels are logistical tunnels serving traffic on the construction site.

The 700 m long Padaster tunnel is of particular importance since it allows excavated spoil to be brought directly from the main construction site to the disposal area thus avoiding burdensome heavy traffic operations for the host community. The Saxen tunnel will connect the A13 motorway directly to the construction site. Construction

material will come directly from the motorway to the site thus keeping heavy traffic off local public roads. Disturbance for both neighbours and the environment will be kept to a minimum. In early October 2011, the excavation works for the Padaster tunnel and for the first 200 m of the Wolf access tunnel were completed. The Saxen tunnel made its breakthrough in February 2012. Initially the spoil was temporarily stockpiled on the construction site. It is now transported to the disposal site in the Padaster valley through the Padaster tunnel. At the entrance of the valley the Padaster River has been redirected in order to build a sediment retention basin. Construction works are almost completed and at present the whole area is being 'greened'.

Ampass (Austria)

The construction works on the Ampass lateral access tunnel started in May 2012. The first 300 m of alternately loose and solid rock has required excavation to be carried out respectively with diggers and by drilling and blasting. At a depth of 300 m the tunnel reaches the Innsbruck Quartzphyllite, which can be excavated by conventional drilling and blasting. At the end of the lateral access tunnel, the rescue tunnel towards Tulfes and Bergisel will be built parallel to the Innsbruck bypass.Furthermore, a conveyor belt will be installed along the regional road to transport the spoil from the site to the Ampass South disposal.

Basic data Brenner Base Tunnel (www.bbt-se.com)

2.1.2. Northern access route

Austria: Lower Inn Valley line

As the Coordinator already noted in the 2010-2011 report, impressive progress has been made the 41 km long Lower Inn Valley line between Kundl and Baumkirchen. The project will be completed this year, becoming officially operational on 9 December 2012. The new line provides direct access to the Brenner Base Tunnel and will be used for freight and passenger rail transport.

Germany-Austria: Munich-Rosenheim-Kiefersfelden-Kufstein-Kundl

Making progress on the northern and southern access routes has been one of the main priorities of the Coordinator for this reporting period. In addition to the success of the Lower Inn Valley line in Austria, important progress can be reported as regards the German part of the northern access route.

Length of the new Brenner railway Munich-Verona	425 km
Total subterranean length from the Innsbruck bypass to Fortezza	64 km
Length of the base tunnel from the Innsbruck portal to the Fortezza portal	55 km
Longitudinal grade	4.00‰ – 6.70‰
Operating speed for goods trains	max. 120 km/h
Energy supply for railway electric traction	125 kV 50 Hz
Control and command system	ETCS Level 2
Elevation at the upper surface of the rails at the Innsbruck portal	608.80 m
Elevation at the upper surface of the rails at the highest point	794.00 m
Elevation at the upper surface of the rails at the Fortezza portal	747.20 m
Internal diameter of the main tunnel	8.1 m
Internal diameter of the exploratory tunnel	min. 5 m
Amount of rock in disposal sites as compared to excavated volume	ca. 75%
Expected amount of excavated rock to be placed in disposal sites	ca. 17 million m^3
Construction phase	2010- 025
Planning and construction phases:	
Phase I: preliminary project and prospection	1999-2003
Phase II: final project and environmental impact assessment	2003-2010
Phase IIa: exploratory section	2007-2018
Phase III: exploratory tunnel and main tunnel	2011-2025
Operational	2026

Priority Project 1
Railway axis Berlin-Verona/Milano-Bologna-Napoli-Messina-Palermo

Trans-European transport network. Achievement of the Priority projects

Until this year, the project on the northern access route between Munich and the Austrian border was merely conceptual. An examination of the German Requirement Plan for the Federal Railway Infrastructure 2010[3] proposed two additional tracks between Munich, Rosenheim and Kiefersfelden. The total investment cost of the project was estimated at €2.6 billion.

On 11 October 2011, the Coordinator met Mr Neiderhell, who, in his capacity as head of the Rosenheim district, plays a coordinating role for the other districts along the northern access route in Bavaria in the field of infrastructure planning. At this and several other meetings at federal, regional and local level, the Coordinator urged close cooperation during the infrastructure planning phase between the federal, regional and local authorities on both sides of the border. He also stressed the importance of clear and open communication with local communities and expressed his hope for an early agreement on planning of the northern access route between Germany and Austria. He stressed the need for progress in order to access available project finance.

On 15 June 2012, following several meetings between delegations of the German and Austrian ministries of transport, representatives of the railway infrastructure companies and the European Commission, Minister Ramsauer for Germany and Minister Bures for Austria officially signed the Inter-ministerial agreement on the northern access route. It will result in a coordinated planning for the section running from Munich-Rosenheim-German/Austrian border-Kufstein-Kundl. The agreement reiterates the commitment of both states to complete this part of the northern access route in due time through planning coordination and assures an open communication process with all affected authorities and citizens.

The signing ceremony was attended by the Coordinator, many local mayors and representatives of the infrastructure companies. In his speech the Coordinator noted that by signing the agreement the two states had taken a major step towards moving the project from concept to substance. He stressed the need to start the relevant planning studies to secure available co-financing as soon as possible. Minister Ramsauer underlined the importance of good communication, confirming a specific request from the Coordinator. He also announced that an agreement on the financing of planning costs had been found between the Federal government and Deutsche Bahn, including an increase of the financing of planning studies from 16% to 18% of the construction costs of the previous year. Mr Ramsauer concluded that the financing of planning studies for the northern access would be secured.

In her speech, Minister Bures expressed her commitment to the expansion of environmentally friendly rail transport and to the Brenner Corridor project in particular. She also repeated that the Brenner Base Tunnel will have no added value without access routes.

2.1.3. Southern access route

Like the northern access route, the southern access route between Fortezza and Verona is a crucial component of the Brenner Corridor.

The state of progress of the southern access route has been the subject of many meetings during this reporting period. The main interlocutors included the Italian Ministry of Infrastructure and Transport, Special Commissioner for the Brenner Base Tunnel and the southern access route, Mr Mauro Fabris, Governor Durnwalder of the autonomous province of South Tyrol, Governor Dellai of the autonomous province of Trento and the Italian railway infrastructure manager RFI.

Important progress has been made on the mission critical construction lot 1 - Fortezza-Ponte Gardena. Already in 2010, Italy committed a budget of €1,600 million to this lot. After the completion of the preliminary design, the

3 Ergebnisse der Überprüfung der Bedarfspläne für die Bundesschienenwege und die Bundesfernstraßen, Planfall 36: ABS München-Rosenheim-Kiefersfelden-Grenze D/A, Bundesministerium für Verkehr, Bau und Stadtentwicklung, 11. November 2010.

planning phase for this lot has now been set in motion. Contacts with regional authorities have been established. While some of the preparatory construction work will start in mid-2013, the main construction phase is expected to start in 2015. Construction of this lot will be completed in 2025 in parallel with the completion of the Brenner Base Tunnel.

The other three lots, including the Bolzano bypass, the Trento bypass and the access route to Verona, are facing considerable delays. However, since these lots require a planning and construction time of approximately 6-7 years, RFI guaranteed that it will be able to complete the entire project in parallel with the Brenner Base Tunnel by 2025.

The Coordinator notes nevertheless that, given the delays, at least part of the total budget of €58 million under the current EU funding Decisions will not be fully used and consequently will have to be recovered. The Italian government is aware of this and anticipates re-introducing the remaining lots under the new TEN-T rules in the 2014-2020 financial period. The Coordinator will maintain close contact with all the appropriate authorities and stakeholders to ensure progress.

2.2. Other sections

With a budget of almost €1 billion of EU co-funding, the Brenner Corridor can undoubtedly be considered as the centrepiece of PP1. However, on the total stretch between Berlin and Palermo other important projects have also been undertaken. In Germany, Austria and Italy new high capacity sections have been constructed and existing sections have been upgraded. Together they will ensure future passenger and freight movements between economic centres in northern and southern Europe.

2.2.1. The situation in Germany

Two sections of PP1 have already entered into service: Berlin-Halle/Leipzig and Nuremberg-Munich. Work is on-going on the two bottleneck sections between Halle/Leipzig and Erfurt and between Erfurt and Nuremberg. Halle/Leipzig-Erfurt is expected to be completed by the end of 2015. The Commission committed €57 million from the TEN-T budget up to 2014 for this section. Further EU support is to be obtained from structural funds. The section between Erfurt and Ebensfeld will be part newly constructed and part upgraded. This section, for which the Commission committed an additional budget of €4 million, is expected to be complete by the end of 2012. The complete upgrading of Ebensfeld-Nuremberg is expected after that.

2.2.2. The situation in Italy

The Verona/Milan-Bologna-Florence-Rome-Naples/Salerno railway axis is operational in its entirety. The Florence-Rome-Naples-Salerno section has been operational since 2006. The Milan-Bologna and Verona-Bologna sections entered into service in 2008. The section between Bologna and Florence became operational in 2009. Works on Rome Tiburtina station, which will become the gateway of Rome's high speed/high capacity rail system are expected to be completed in 2014; the underground bypasses of Bologna in 2012 and in Florence in 2015.

2.2.3. European Rail Traffic Management System (ERTMS)

On the Nuremberg-Naples section PP1 is overlapped by ERTMS Corridor B which aims to progressively implement ERTMS and to harmonise operational rules along the Stockholm-Copenhagen-Hamburg-Munich-Innsbruck-Naples corridor. The Munich-Verona section is to be equipped in 2015, according to Commission Decision (2009) 5607 of 22 July 2009. There are two on-going projects on trackside ERTMS deployment on this section with a total EU co-funding of €27 million. The Milan-Salerno section is already ERTMS-equipped. Verona-Bologna will be deployed progressively by 2020. With the opening of the Lower Inn Valley line between Kundl/Radfeld and Baumkirchen, the Austrian part of the corridor will be fully ERTMS equipped by December 2012.

In 2012, it was decided that the management and coordination of ERTMS Corridor B will gradually be integrated in the Rail Freight Corridor 3 (Stockholm-Malmö-Copenhagen -Hamburg-Innsbruck-Verona-Palermo). This point was discussed at the plenary meeting of the Brenner Corridor Platform on 5 July 2012 in Innsbruck. It was agreed that there should be a strong cooperation between the Rail Freight Corridor 3 and the Brenner Corridor Platform and that any duplication of effort should be avoided.

Priority Project 1
Railway axis Berlin-Verona/Milano-Bologna-Napoli-Messina-Palermo

Trans-European transport network. Achievement of the Priority projects

3. Funding Decisions and TEN-T Mid-Term Review

The TEN-T budget for the financial perspective 2007-2013 concentrates on cross-border sections and bottlenecks situated on the Priority Projects. Of the total TEN-T budget for this period, almost 20% has been committed to PP1. Overall, almost €1 billion has been committed to this project. The Brenner Base Tunnel accounted for €786 million of TEN-T co-funding. This underlines the strategic importance of this corridor.

The financial commitment is based on individual Decisions adopted by the Commission on 5 December 2008. Each Decision contains the terms and conditions for the project to be fulfilled. For PP1, the Commission adopted ten Decisions, following the approval of the European Parliament and the Member States. Two Decisions concern the Brenner Base Tunnel project. The first covers studies, including access and exploratory tunnels. The Decision runs from 1 December 2008 until the end of 2013. This project is supported by a TEN-T budget of €193 million at a co-financing rate of 50%. The second Decision covers the works on the main tunnel and runs from 1 January 2010 till the end of 2013. For this project a total amount of €593 million shall be invested in tunnel works at a co-financing rate of 27%.

Other decisions were taken on the northern access Kundl/Radfeld-Baumkirchen: €58 million, the southern access Fortezza-Verona: €58 million and on the German sections Halle/Leipzig-Erfurt: €57 million and Erfurt-Ebensfeld: €4 million. The latest Decision was adopted in 2012, €5 million for the section Eltersdorf-Paul Gossen-Straße.

In 2010, the Commission, in cooperation with the TEN-T Executive Agency, carried out a Mid-Term Review of the 2007-2013 multi-annual work programme. The aim of this review was to assess progress made in the implementation of the individual projects, as well as their future implementation plans. The review made clear that the set of measures taken at EU level, including the appointment of European Coordinators, the increased programme resources and the increased co-funding rates, in particular for cross-border sections, have had a positive impact on the implementation of the multi-annual work programme and, consequently, on the integration of the TEN-T. However, the review also made clear that due to delays in the planning and construction of the projects money from the EU co-funds had to be recovered. Consequently, funding decisions have been amended. During the 2011 and 2012 reporting periods the results of the review will be re-assessed and if necessary measures will be taken.

3.1. Overview of funding Decision and subsequent Mid-Term Review actions

Works for the construction of the section between Kundl/Radfeld and Baumkirchen (Austria):

This decision concerns the Lower Inn Valley line, a new 40 km long double track high speed rail line for freight and passenger traffic. The section includes 32 km of tunnels, walls, galleries and underground sections. The total costs of this project are approximately €2.38 billion. The EU allocated €58 million to this project for the 2007-2013 financial perspective. This project has made very good progress and will become operational on 9 December 2012. No further action is required.

Works for the construction of the Erfurt-Halle/Gröbers and Ebensfeld-Erfurt (Germany) sections:

For the 122 km long high speed rail section connecting Erfurt with Leipzig, Halle and the Leipzig/Halle airport, the EU committed a TEN-T budget of €57 million. Furthermore, on the 107 km long section between Ebensfeld and Erfurt the EU is contributing another €4 million from the TEN-T budget[4]. The total budget for both sections is €2.7 billion. The projects are making good progress. The activities funded by the TEN-T budget can be completed by 2013, whilst the entire project should be completed by the end of 2015 in line with the original planning if not before. No further action is required.

Studies on the Brenner Base Tunnel (Austria/Italy):

4 Other financial support comes from the ERDF: €50 million for Erfurt-Halle/Gröbers and €240 million for Ebensfeld-Erfurt.

This project covers the excavation of the access and exploratory tunnels. The studies also serve to assess the risks, costs and duration of the construction of the main tunnels. The EU contribution is €193 million. The Mid-Term Review concluded that the project overall has made satisfactory progress. No further action is required.

Works on the Brenner Base Tunnel (Austria/Italy):

With an EU contribution of €593 million and the construction of two parallel 56 km long and low gradient rail tunnels across the Alps, the Brenner Base Tunnel is the centre of PP1. At the time of the 2010 Mid-Term Review, the decision to start the main construction works (Phase III) had not yet been taken. However, given the maturity of project planning and its imminent capacity to start, the Commission agreed to extend the implementation period until 2015 subject to the condition that financial coverage for the global project be guaranteed, that the official authorisation to launch the works phase be given and that the national financial contributions be secured. These conditions have been fulfilled by the decision of 18 April 2011, following an agreement between Austria and Italy on the total cost of the tunnel and on the start of the main construction phase.

Studies/works on the southern access route (Italy):

This project includes funding of the final design and the initial working phase of four different sections on the Brenner railway corridor between Verona and Fortezza. The EU contribution from the TEN-T budget is €58 million. According to the funding decision, the implementation should end in December 2013. The 2010 Mid-Term Review concluded that the project had not yet started and that some activities were not expected to start before the end of 2015. Given this delay, it would not be possible to maintain TEN-T support for all the activities.

Meanwhile, the project has started and is making progress. However, still only three of the co-funded activities will be implemented (preliminary and final design of lots 1 and 4 and preliminary works on lot 1). Consequently, the EU funding decision will be amended. The implementation period will be extended until 31 December 2015 and the EU contribution will be reduced to €25.6 million. The Italian government plans to re-introduce the remaining lots under the new TEN-T rules in the 2014-2020 financial period.

4. Cross-Financing Mechanisms

4.1. Italy

The Italian government is applying a specific scheme to partly cross-finance the Brenner Base Tunnel and the southern access route.

This scheme consists of a cross-financing fund (“Railway fund”) derived from the road tolls collected by the A22 motorway concession. Until the expiry of the concession in 2014 the railway fund will collect €550 million. In July 2009 a resolution of the Inter-Ministerial Committee for Economic Planning (CIPE) specifically assigned the A22 railway fund to the financing of the Brenner Base Tunnel and the southern access route.

The current concession expires in 2014. Early in 2011, Italy’s national road agency, ANAS, announced that the new concession will be tendered. Since then, the concession holder Autostrada del Brennero SpA and its main shareholders, including the autonomous provinces South Tyrol and Trento, have been developing models that in practice would lead to a prolongation of the concession without tendering. Despite these efforts, in September 2011 ANAS announced a public tender for the new concession. The concession holder issued a legal complaint against this decision which led to the temporary suspension of the tendering procedure. However, in August 2012 ANAS confirmed that it will tender the concession later this year. The concession will be granted for a maximum period of 50 years.

Also under the new concession, cross financing of the Brenner Base Tunnel and the access route will be guaranteed. According to the Italian Budget Law 2010 regarding motorway concessions, the next A22 concessionaire has to reserve a minimum amount per year for cross-financing the Brenner Base Tunnel and southern access. The amount shall not be less than the average payment per year under the current concession, i.e. €34 million. Over a concession period of 50 years this would lead to a total amount reserved for the Brenner Base Tunnel and the southern access of approximately €1.5 billion.

A second potential source of finance for the Brenner Base Tunnel and the southern access route is the introduction of the Eurovignette cross-financing scheme. Italy has agreed to implement the Eurovignette system. No

decision has yet been taken on the specific application and modalities of this system.

4.2. Austria

In Austria, a Eurovignette cross-financing scheme is in place on the A13 motorway between Innsbruck and Brenner. The scheme has been approved by the Eurovignette Committee for a period of 65 years. In order to increase the cross-financing revenues, Austria decided early in 2012 to gradually extend its scheme by introducing a 25% mark-up on the A12 motorway between Kufstein and Innsbruck.

5. Cooperation Frameworks

5.1. Austria-Italy Intergovernmental Commission (CIG)

The Austria-Italy Intergovernmental Commission met on 15 May 2012 in Rome. At this meeting, the President of Ferrovie dello Stato, Mr Cardia, was elected as the new Chairman. The meeting was also attended by the new Vice-Minister for Transport of Italy, Mr Ciaccia.

The CIG was originally set up for the preparatory phase of the Brenner Base Tunnel project. This phase was completed by the Decision of 18 April 2011 to launch the main construction phase (Phase III). At the meeting on 15 May 2012, Italy and Austria agreed to extend the mandate of the CIG enabling it to deal with the main construction of the tunnel.

All parties present at the meeting agreed that the Brenner Base Tunnel project has become irreversible. The Coordinator noted that the commitment of the project partners is commendable and that the austerity programmes have not reduced the appetite to achieve progress and complete the project on time. He stressed the importance of investments at national level in order to attract the relevant EU co-funding.

5.2. Brenner Corridor Platform

The Brenner Corridor Platform (BCP) is a forum for cooperation among the three Member States (Austria, Germany and Italy), five regions (Bavaria, Tyrol, South Tyrol, Trento and Verona) and the rail infrastructure managers (RFI, ÖBB and DB). The BCP is chaired by the Coordinator, who can invite other interested parties as observers.
To ensure an integrated policy approach for the Brenner Corridor, the BCP created ten specific working groups covering subjects such as interoperability, infrastructure and capacity planning and terminals, but also environmental monitoring, accompanying policy measures, cross-financing schemes and the Green Corridor concept which brings together transport, environment and energy aspects.

On 5 July 2012 the Coordinator chaired the BCP plenary meeting in Innsbruck. The main themes of this meeting were the revitalisation of the BCP in anticipation of the new Core Network Corridor 5 Helsinki-Valetta as part of the revised TEN T policy and the future cooperation with Rail Freight Corridor 3. Each of the chairpersons of the working groups presented progress reports since the last plenary meeting on 19 April 2011. Very detailed reports were given regarding the ambitious targets of the Brenner Action Plan and revealing good progress on a number of fronts.

5.3. Aktionsgemeinschaft Brennerbahn – Comunità d'azione ferrovia del Brennero

In the Aktionsgemeinschaft Brennerbahn - Comunità d'azione ferrovia del Brennero (AGB-CAB), the provinces and regions along the Brenner Corridor cooperate with the Chambers of Commerce of Bavaria, Tyrol, Bolzano, Trento and Verona. The AGB-CAB focuses on improving rail traffic between Munich and Verona, both in its current and future setting to the benefit of the population and industry along the Brenner Corridor. Communication between the partners and with the European Union is also an important component of the AGB-CAB work. Members of the AGB-CAB meet regularly in the expert committee and at the annual Presidents' Conference. The AGB-CAB is currently chaired by the Italian autonomous province of South Tyrol. In 2013 the Austrian land of Tyrol will take

over the Presidency for a period of two years.

In 2011 the AGB-CAB created a permanent secretariat. One of the main tasks of this secretariat is to take care of the internal and external communication, a component which, in the view of the Coordinator, is crucial for the success of the project.

By the end of 2011 the AGB-CAB commissioned a study on the economic benefits of the Brenner corridor project to the Chamber of Commerce of Bolzano. The first results of this study will be presented at the AGB President's conference on 13 November in Bolzano in the presence of the Coordinator.

5.4. Alpine Convention

During this reporting period the Coordinator worked closely with the Secretariat of the Alpine Convention. The main focus of this cooperation was to seek to accelerate and support the ratification of the Convention's Transport Protocol by Italy. All the other Member States of the Alpine Convention already have ratified the Protocol. Ratification by Italy would pave the way for the EU to ratify the Protocol and consequently for its entry into force.

The Coordinator considers the Transport Protocol to be an important instrument - to protect the sensitive alpine environment, to promote sustainable mobility within the Alps and regarding access routes to and from the Alps. Once in force, the Transport Protocol could offer a template for effective international coordination and management of trans-alpine transport and could strongly support modal shift from road to rail. Specifically, it could provide a framework for accompanying measures to complement existing, new and upgraded transport infrastructure and contribute to lessening the fragmentation of pan Alpine transport policy.

On 15 May 2012 the Coordinator visited the chairman of the Italian Senate Foreign Affairs Committee, Senator Dini, and the President of the Italian Chamber of Deputies, Mr Fini. The Coordinator specifically urged the quick ratification of the Transport Protocol before Parliament's mandate ends, as expected, in 2013. Both interlocutors undertook to positively examine the matter of ratification.

On 10 July 2012 the Senate Foreign Affairs Committee unanimously approved the proposal for ratification of the Alpine Convention's Transport Protocol. Despite the unanimous approval by the Foreign Affairs Committee on 7 August, the plenary vote in the Senate was blocked and postponed until September 2012.

6. Activities of the Coordinator

- 11-12 October 2011, Munich-Prien-Innsbruck: meetings with President Platter of Tyrol, Mr Neiderhell (head of Rosenheim district), Mr Kuhn and Mr Josel (DB), Mr Herdina (ÖBB), Mr Fischer (Logistics Competence Centre) and Mr Bergmeister and Mr Zurlo (CEO's BBT SE). Main subject: Fact finding mission on the northern access route.
- 22 November 2011, Brussels: key note speech at SCANDRIA conference. Main subjects: state of progress PP1, TEN-T core network corridors and the position of the Scandria corridor.
- 23 November 2011, Brussels: hearing of the TEN-T Coordinators in the European Parliament (TRAN committee). Main subject: progress PP1.
- 29-30 November 2011, Antwerp: keynote speech at TEN-T Days plenary session, moderation of a workshop on cross-alpine corridors, bilateral meetings with MEP Cancian and a delegation from the Interporto Quadrante Europa Verona and with Mr Steinle of the German Ministry of Transport. Main subjects: Brenner corridor, northern access route, TEN-T revision.
- 13 February 2012, Brussels: conference call with Mr Kasser, Secretary-General of the Austrian Ministry of Infrastructure and Transport. Main subject: Austrian budget plan and consequences for the Brenner Base Tunnel.
- 14 February 2012, Strasbourg: visit to the European Parliament. Meetings with the rapporteurs and shadow rapporteurs MM Ertug, Koumoutzakos, Cramer and Zile. Main subject: revision of the TEN-T Guidelines and Connecting Europe Facility.
- 19-20 March 2012, Innsbruck-Brixen-Bolzano-Verona: meetings with MM Herdina (ÖBB), Onida (Alpine Convention), Special Commissioner Fabris, MEP Dorfmann, mayors of the Brenner Corridor in South Tyrol, MM Bergmeister and Zurlo and staff of BBT SE, Governor Durnwalder of South Tyrol, Mr Bocchimuzzo (RFI), management board of Interporto Quadrante Europa, dinner speech EP TRAN committee. Main subjects: Brenner corridor, access routes, use of the Brenner Base Tunnel for the transport and interconnection of electricity,

TEN-T revision.

- 2 May 2012, Leipzig: participation International Transport Forum.
- 14-16 May 2012, Rome: CIG meeting, separate meetings with Vice-Minister Ciaccia for Transport, Mr Costa (President Port of Venice), Senator Dini (Foreign Affairs Committee of the Senate), and President Fini (President of the Chamber of Deputies). Main subjects: PP1, progress Brenner Base Tunnel and access routes, ratification Alpine Convention Transport Protocol, TEN-T revision.
- 15 June 2012, Rosenheim: keynote speech at the official signing ceremony of the Inter-ministerial agreement on the northern access route between Germany and Austria.
- 4-5 July 2012, Brenner Corridor Platform plenary, Innsbruck: meetings with Mr Bergmeister (BBT SE), Vice-president Pacher of the autonomous province of Trento, mayors of the Wipptal and members of the organisation "Lebensraum für Generationen". Main subject: Brenner corridor, southern access, TEN-T revision.

7. Outlook: TEN-T Revision

On 19 October 2011 the Commission adopted a package of legislative proposals for a new Trans-European Transport Network (TEN-T). The package consists of new TEN-T Guidelines forming the policy basis for the new network and the Connecting Europe Facility providing the financial framework for the development of the network.

The review of TEN-T policy comes at a crucial time: Sound transport infrastructure is essential for a competitive internal market which is a basic requirement for sustainable economic growth and competitiveness, without neglecting the objectives of protecting our environment and reducing the carbon footprint of transport. The TEN-T policy review will establish the basis for a European mobility network that will guide investment decisions, will help properly interconnect national and trans-national networks and generate the infrastructure necessary for the Internal Market.

The new TEN-T will consist of two layers: the core network and the comprehensive network. The core network will serve as the backbone of the network, connecting the most important nodes and links with the highest European added value. It is to be completed by 2030. The comprehensive network will be a relatively dense network that feeds into and distributes from the core network. By 2050 it shall fully cover the EU and make the core network accessible to and from all regions. Both the core and the comprehensive network will be multimodal, including all transport modes: road, rail, air, inland waterways and maritime transport, as well as intermodal platforms. The TEN-T policy review must also be seen in the context of the preparation of the 2014–2020 Multi-annual Financial Framework. The Connecting Europe Facility proposes a total EU budget of €50 billion, aiming at accelerating infrastructure investments of high European added value in the field of transport, energy and telecommunications. Of this total budget, €31.7 billion is proposed to be allocated to transport to be invested in the core network.

As regards the implementation of the core network, the Commission proposes a corridor-based approach. Ten multimodal core network corridors covering the 27 Member States have been identified. In terms of scope, these corridors shall cover at least three transport modes, cross at least three Member States and include two cross-border sections. On these corridors Member States and other relevant stakeholders, including infrastructure managers and users, will cooperate with each other. The role of the Coordinator will be to facilitate the functioning of the core network corridors.

In the future, PP1 will be integrated in this new corridor approach, mainly as part of the Helsinki-Valetta Corridor but also as part of the Warszawa-Berlin Amsterdam/Rotterdam-Felixstowe–Midlands Corridor. The future challenge for the Coordinator will be to coordinate the activities and investments along an extended corridor which is multimodal, has a larger geographical scope involving many Member States and different stakeholders, and that covers several important cross border sections, including the Brenner Corridor and the Fehmarn belt crossing.

8. Conclusion: Priorities of the Coordinator

The development of PP1 Berlin-Palermo is important in several respects. In the longer term the new rail axis will deliver an important contribution to the EU's goal of modal shift and the protection of the environment. Also by interconnecting national and trans-national networks PP1 will help to develop a European mobility network and thus provide an important stimulus to a competitive internal market.

One should recall that in the short and medium term during this period of economic crisis and budgetary rigour projects such as this offer a capacity to stimulate and leverage further investment and to create employment in the regions concerned, while simultaneously contributing to the fulfilment of long term policy objectives, as noted above.

The strong commitment of all parties involved is needed to ensure continued progress. Achievements to date include the completion of the sections Berlin-Halle/Leipzig, Nuremberg-Munich, Verona/Milan-Bologna-Florence-Rome-Naples/Salerno, the decision of 18 April 2011 to start the main construction phase of the Brenner Base Tunnel and the imminent entry into service of the Lower Inn Valley line on 9 December 2012. Many other steps are still needed not least the planning and construction of the northern and southern access routes to the Brenner Base Tunnel.

For the upcoming reporting period 2012-2013, the Coordinator wishes to emphasise the need to make the most of available EU funds for the benefit of the project itself and for its potential contribution to wider economic stimulus and growth. Additionally, in light of budget cutbacks, the best case that this project can make for optimal co-funding during the next financial perspective 2014-2020 is the effective use of the highest available funding possible under the existing EU budget perspective. This will assist in making a smooth transition to the new Trans-European Transport Network.

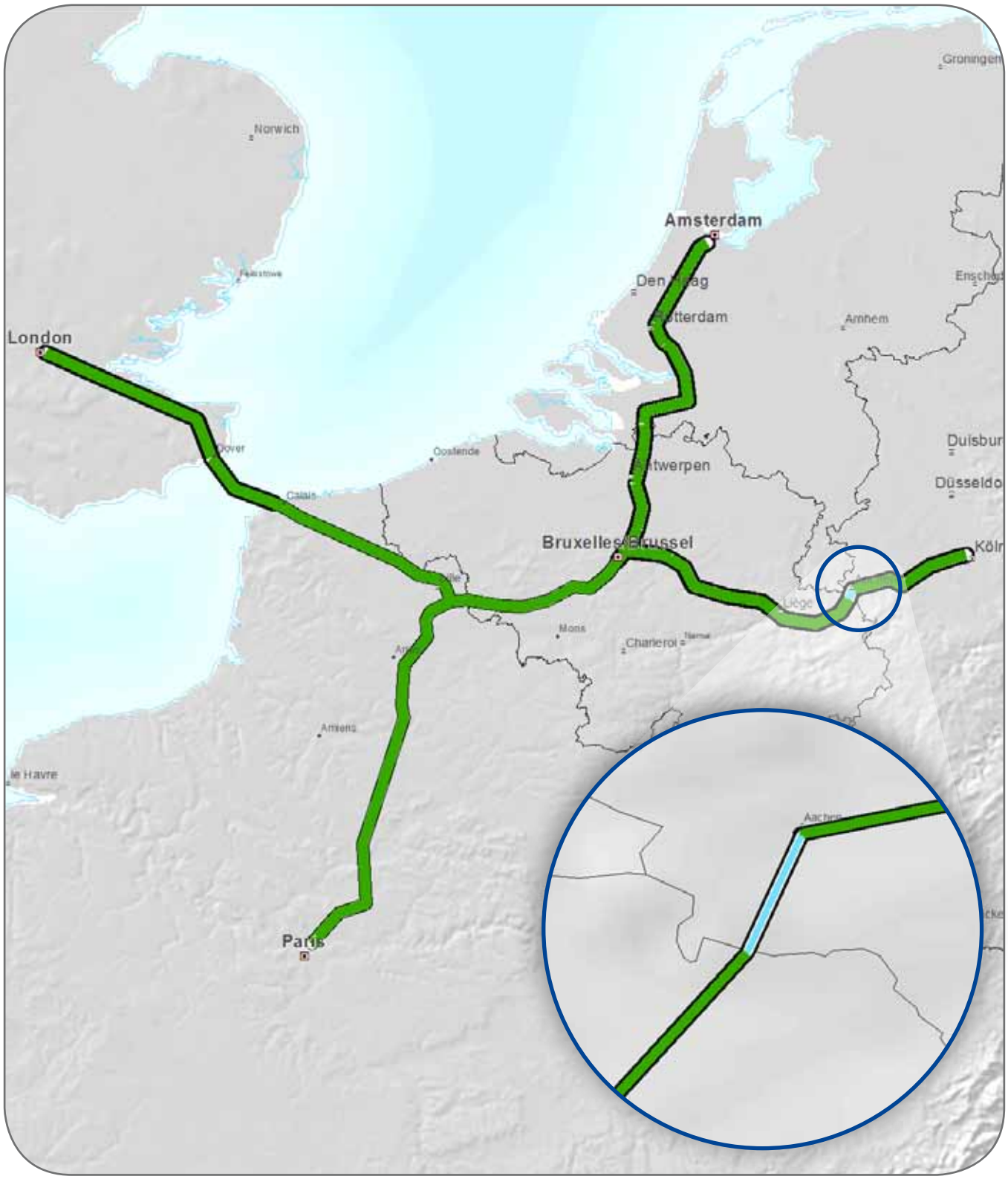
For PP1 the Coordinator also will continue to stress the necessity of developing a suite of supporting policy measures to complement and accompany the construction phase of the infrastructure covering areas such as environmental protection, cross-financing mechanisms, the internalisation of external costs and, for example, excise taxation and fuel pricing and their impact on modal choice and corridor selection.

Finally, the Coordinator would again like to underline the importance of an open and transparent communication policy. Clear communication creates a common sense of ownership of the project and stimulates the engagement of all parties among the community of stakeholders most notably local communities and their public representatives, indispensable to the success of long term projects such as this.

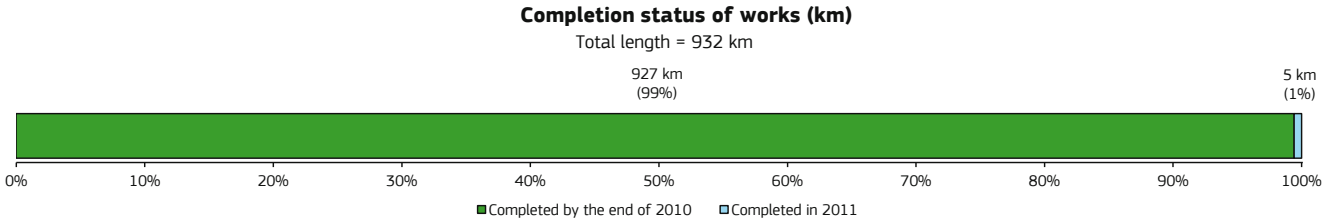
The current reporting period has marked a transition from planning to construction, in particular as regards the Brenner Base Tunnel. The Coordinator foresees that the next reporting period 2012-2013 will be marked by a further expansion of the planning and construction activities, showing sufficient progress to ensure future EU co-funding of the project during the 2014-2020 financial perspective as part of the new Trans-European Transport Network.

Priority Project 2
High speed railway axis Paris-Brussels-Köln-Amsterdam-London

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Diabolo - Raccordement ferroviaire de l'aéroport de Zaventem au réseau à grande vitesse Thalys	BE	€15	Ongoing
Aachen-Köln	DE	€14.8	Ongoing
PBKAL:F/B frontière Bruxelles-Liège, B/D frontière, Bruxelles B/NL frontière: partie belge du réseau à grande vitesse nord-européen	BE	€5.8	Completed
TOTAL		**€35.6**	



Priority Project 2
High speed railway axis Paris-Brussels-Köln-Amsterdam-London

Trans-European transport network. Achievement of the Priority projects

Summary

This is Europe's first cross-border high speed passenger rail project, linking major cities in France, Belgium, Germany, the Netherlands and the United Kingdom.

The PBKAL (Paris-Brussels-Köln-Amsterdam-London) network offers substantial reductions in journey times between the five countries and therefore provides passengers with a real alternative to air and road transport. It will also make a significant contribution to the promotion of intermodal air-rail journeys, in line with EU transport policy objectives. In addition, it enables improved connections between some of Europe's key airports - Brussels, Frankfurt, Cologne/Bonn, Paris Charles de Gaulle and Amsterdam Schiphol.

As with all other Priority Projects, the cross-border sections have proven to be the most difficult to realise. The Belgium-Germany section between Liège and Aachen has only been recently completed. Also, the BE-NL cross-border section has been experiencing great difficulties due to signaling problems between the various types of ERTMS equipment used on both sides of the border. This also led to problems of interferes between rail infrastructures, also leading to delays on the Liege-Aachen section.

With the Buschtunnel being completed, there are only minor improvements left, that will certainly bring important benefits, but not to the extent of the creation of the new high speed links that have been realized in the past decades.

PBKAL, a success story

PBKAL is currently used by three international operators: Thalys, Eurostar and ICE trains, as well as fast internal intercity services.

Eurostar has become the dominant operator in cross-channel intercity passenger travel on the routes that it operates, carrying more passengers than all airlines combined.

A large segment of Thalys's total sales and income comes from the connection between Paris and Brussels. Airline companies no longer provide this service, as taking the train is faster than flying.

Eurostar and Thalys yearly passengers (figures in millions)

	1996	2000	2005	2006	2007	2008	2009	2010
Eurostar	4.9	7.1	7.45	7.85	8.26	9.1	9.2	9.5
Thalys	1.54	5.50	6.19	6.56	6.20	6.36	6.08	6.45

General appreciation

The PBKAL is a Priority Project which has been completed with no outstanding financial or environmental problems. The high speed line drastically improved the connection between United Kingdom and the European mainland and significantly reduced journey times between the cities of the most densely populated area of Europe, the so-called "Blue Banana" and Paris. Furthermore, it also contributes to the promotion of intermodal rail-air journeys, and thereby helps achieve the EU's transport policy objectives.

1. Introduction

In 1985, the decision was adopted to create a high speed rail link between Paris, Brussels, Amsterdam and Cologne and in 1995 Westrail International created a Belgian cooperative company and joint subsidiary of SNCF and SNCB, which was joined by a subsidiary created specifically by the Dutch and German rail companies (Thalys Netherlands and DB AG respectively). The purpose of this company was to create and manage a high speed net-

work covering Germany, Belgium, France and the Netherlands.

The French section linking Paris, Lille and Calais and the Channel Tunnel is complete, and has been in service since 1993. The high speed Brussels-Paris line has been in full service since 1997, serving more than six million passengers a year and having attracted very large numbers from road and air, with certain air connections being taken out of service as a result.

Length of Railways Network (km)

2. Social-economic context

	Length of lines in use (km)	Of which electrified	High Speed Rail Network (km)
EU27	215,439	107,373 (49.8%)	5,764
BE	3,544	2,977 (84.0%)	320
DE	34,221	19,350 (56.5%)	1,300
FR	29,286	14,765 (50.4%)	1,893
NL	2,811	2,064 (73.4%)	120
UK	19,956	5,017 (25.1%)	109

Priority Project 2 runs through countries whose Gross National Income per inhabitant is more than 90% of the EU average. For this reason, the Structural and Cohesion Funds don't support actions in the framework of the convergence objective. In this context, TEN-T funds are the only remaining major EU source to co-finance projects in regions with normal economic performance.

The PBKAL network is largely reserved for passenger traffic, offering substantial reductions in journey times between the five countries and attracting passengers away from air travel and roads. This will make a significant contribution to the promotion of intermodal air-rail journeys, in line with EU transport policy objectives.

Gross National Income (GNI) per inhabitant

3. Infrastructure developments per country

	Area 1,000 Km2	Population (Millions)	GDP per capita
EU27	4,323	495.57	100
BE	30.5 (0.70%)	10.58 (2.13%)	120
DE	357 (8.26%)	82.31 (16.61%)	114
FR	544 (12.58%)	61.54 (12.42%)	111
NL	41.5(0.96%)	16.36 (3.30%)	131
UK	244.1(5.65%)	60.85 (12.28%)	118
EU5	1,217.1 (28.15%)	231.64 (46.74%)	

The status and the developments along PP2 are described as follows:
Most of the transport infrastructure has been developed under national policy premises.

PBKAL route sections	Section length (km)
Paris-Lille-Calais	333 (new and upgraded)
French border to Brussels (South)	88 (new line)
Brussels-Dutch border	87 (new and upgraded)
Brussels-Liège (Guillemins)	64 (new and upgraded)
London (St Pancras)- Channel Tunnel	109 (new line)
Belgian border -Amsterdam	125 (new and upgraded)
Liège (Guillemins)-German border	56 (new and upgraded)
Belgian border-Köln	70 (new and upgraded)

Priority Project 2
High speed railway axis Paris-Brussels-Köln-Amsterdam-London

Trans-European transport network. Achievement of the Priority projects

Cross-border and bottleneck sections

The Channel Tunnel

The Channel Tunnel is a crucial part of the PBKAL project, as it is the only means by which trains can travel between the UK and the European mainland. It links the LGV Nord in France and High Speed One in the UK.

The Channel Tunnel is a 50.5 km undersea rail tunnel linking Folkestone in the UK with Calais in northern France beneath the English Channel at the Strait of Dover. At its lowest point it is 75 m deep. At 37.9 km, the Channel Tunnel has the longest undersea portion of any tunnel in the world (although the Seikan Tunnel in Japan is both longer overall, at 53.85 km and deeper, at 240 m.)

The Channel Tunnel consists of two rail tunnels and a service tunnel. Tunnelling commenced in 1988 and the tunnel was fully operational in 1994.

The tunnel carries high speed Eurostar passenger trains, Eurotunnel roll-on/roll-off vehicle transport - the largest in the world - and international rail freight trains.

Both the freight and passenger traffic forecasts that led to the construction of the tunnel were largely and universally overestimatedEurotunnel's commissioned forecasts in particular were over-predictions. Although the captured share of Channel crossings (competing with air and sea) was forecasted correctly, high competition and reduced tariffs has led to low revenue.

The total cross-tunnel passenger traffic volumes peaked at 18.4 million in 1998, dropped to 14.9 million in 2003 and rose again to 16.1 million in 2008.

Cross-tunnel freight traffic volumes have been erratic. Freight traffic growth has occurred since opening the tunnel, with 6.4 million tonnes carried in 1995, 18.4 million tonnes recorded in 2003 and 19.6 million tonnes in 2007.

Eurotunnel Shuttle traffic and the number of Eurostar passengers showed a sharp increase in 2010. Eurotunnel carried in 2010, 2,125,259 passenger vehicles (11% more than in 2009) and 1,089,051 heavy goods vehicles (42% more than in 2009). Eurotunnel Shuttle traffic and the number of Eurostar passengers showed a sharp increase.

Buschtunnel between Aachen and the Belgian border

One bottleneck between Aachen and the Belgian border was the Buschtunnel. It is the oldest railway tunnel in Germany still in use, with some parts dating back to 1838. When the line was electrified, available space inside the tunnel mandated that the line was limited to a single track. Because of the tunnel's poor conditions, speeds had to be limited to 40 km/h. A parallel single-track tunnel has been completed and entered into service in December 2009.

On 8 June 2009, the old tunnel closed for renovation. The renovation works were completed on 23 October 2012. Both tunnels are now safe for 160 km/h and the last remaining bottleneck on PP2 has been eliminated.

Other sections

United Kingdom: The project consists of sections totalling 109 km, section 1 (Tunnel-Thames) is 70 km long and was built in 1998-2003, and section 2 (Thames-St Pancras) is 39 km long and was built in 2001-2007. The total cost of the project amounted to €5.8 billion, €3 billion of which was public sector contribution. The contribution of the TEN-T budget amounted to £138 million. The maximum speed is 300 km/h. The journey time from London

to the Tunnel is 35 min, to Paris 2h15min and to Brussels 1h51 min.

Channel Tunnel rail link

Belgium: The project consists of three axes totalling 314 km (200 km of new lines, 137 km with max speed of 300 km/h) and a total cost of €5 billion. TEN-T contribution amounts to €155 million. Work started in 1993 and was expected to be completed in 2008 except the Diabolo (2012) and Mechelen (2013) sections. 9 million people used the high speed line in 2007.

Western axis: High speed line 1 connects Brussels with the French border. At 88 km long (71 km dedicated high speed tracks, 17 km modernised lines), it began service on 14 December 1997 and reduced travelling time from Paris to Brussels to 1h22min. In combination with the LGV Nord, it has also impacted international journeys to France and London, ensuring high speed services by Eurostar, TGV, Thalys PBA and Thalys PBKA trainsets. The total construction cost was €1.42 billion.

Eastern axis: High speed line 2 runs between Leuven and Ans: At 95 km long (61 km dedicated high-speed tracks, 34 km modernised lines) it began service in 2002. High speed line 3 connects Liège to the German border. At 56 km long (42 km dedicated high speed tracks, 14 km modernised lines), it was completed in 2007, but the first Thalys and ICE trains used it as of 2009. When its extension to the German border is completed, the combined eastward high speed line will greatly accelerate journeys between Brussels, Paris and Germany.

Northern axis: High speed line 4, currently under construction, will connect Brussels to the Dutch border where it will meet HSL-Zuid. It is 87 km long, comprising 40 km dedicated high speed tracks and 57 km modernised lines. Mostly completed, the opening of the line has been delayed till mid-2009 due to problems with signalling. High speed line 4 is used by Thalys trains, as well as fast internal InterCity and NS Hispeed trains. Between Brussels and Antwerp (47 km), trains travel at 160 km/h on the upgraded existing line (with the exception of a few segments where a speed limit of 120 km/h is imposed). At the E19/A12 motorway junction, trains leave the regular line to run on new dedicated high-speed tracks to the Dutch border (40 km) at 300 km/h.

The Netherlands: The high speed line - Zuid line consists of the Dutch part of PP2. It is 125 km long, of which 85 km is new construction with 170 construction sites. Among them are a 2 km bridge and a 7 km tunnel with a 15 m diameter. The line uses existing tracks from Amsterdam Central to Schiphol Airport, where the line begins, and continues to Rotterdam Central and on to the Belgian border where it connects to high speed line 4. 160 km/h services on the high speed line - Zuid started in September 2009 between Amsterdam and Rotterdam. Thalys trains from Amsterdam to Brussels and Paris have been in service since lat 2009, and in late 2010, Fyra trains are foreseen to serve all stations between Amsterdam Central and Brussel-Zuid/Bruxelles-Midi. The total cost of the project amounts to €7.15 billion, and the total TEN-T contribution amounted to €194 million.

Germany: The Cologne-Aachen highspeed line is the German part of PP2. It is not a newly built railway line, but was a project to upgrade the existing railway line opened in 1841 by the Rheinische Eisenbahngesellschaft.
The line is about 70 km long, with the first 40 km from Cologne to Düren rebuilt. Since 2002, the line allows for speeds up to 250 km/h. Separate tracks have been built parallel to the high speed tracks for local S-Bahn traffic. The remaining line from Düren to Aachen allows speeds up to 160 km/h with some slower sections. Upgrades of Düren–Aachen are planned for the near future.

France: The LGV Nord is the French part of PP2. It is a newly built high speed railway line of about 333 km that connects Paris to the Belgian border and the Channel Tunnel via Lille, and was opened in 1993. With a maximum speed of 300 km/h, the line has appreciably shortened rail journeys between Paris and Lille. Its extensions to the north (Belgium and the Channel Tunnel) and the south (via the LGV Interconnexion Est) have reduced journey times to the UK and Benelux and for inter-regional trips between the Nord-Pas de Calais region and the southeast and southwest of France. As it is mostly built in flat areas, the maximum incline is 25 m per km (2.5%).

4. Financial aspects

The European Union supports the TEN-T implementation through several EU financial instruments and through loans from the European Investment Bank. Grants, in particular under the TEN-T budget line and the Cohesion and European Development Funds, play a major role in both project preparation and implementation phases.

Priority Project 2
High speed railway axis Paris-Brussels-Köln-Amsterdam-London

Trans-European transport network. Achievement of the Priority projects

Grants are allocated to studies (from feasibility studies to comprehensive technical or environmental studies and costly geological explorations), helping to overcome early stage project difficulties, and to the works phase. A key issue in relation to the implementation of TEN-T policy is to rationalise the allocation of grants and to link it to the projects' European added value so as to ensure the best value for Community money. PP2 is being taken forward in regions which don't benefit from the use of Structural Funds. Consequently, significant co-financing of this project is ensured by the TEN-T budget and will be used to co-finance some of the works relating to this project.

5. International operators

PBKAL is currently used by three international operators: Thalys, Eurostar and ICE trains as well as fast internal InterCity services. In 2010, the European Union initiated a liberalisation of international passenger rail services along the European rail network, allowing greater competition.

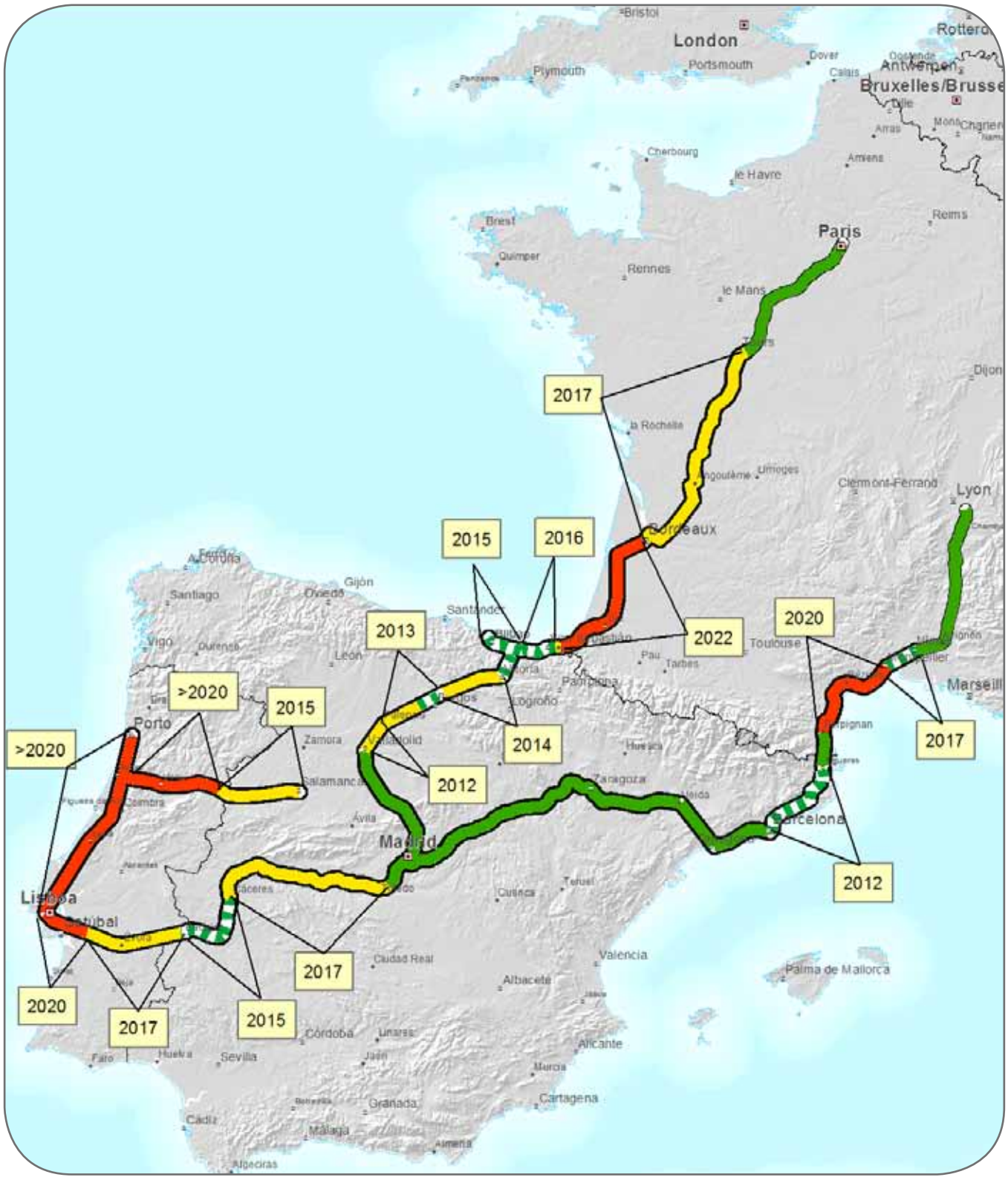
The Thalys high speed railway passenger service covers the same territory, Paris- Brussels- Cologne- Amsterdam, in which the first international railway lines were created 150 years before it. Thalys is the symbol of the interoperable European train network which has managed to bring four countries closer together and erase the psychological notion of borders. Thalys is not only a technological masterpiece; 10% of the European population is directly affected by it. The development of partnerships with public carriers contributes to Thalys' pivotal European role.

The Eurostar high speed railway passenger service connecting London with Paris and Brussels is operated by the national railway companies of France and Belgium, SNCF and SNCB, and by Eurostar (UK) Ltd (EUKL), a subsidiary of London and Continental Railways (LCR), which also owns the high speed infrastructure and stations on the British side. Eurostar has become the dominant operator in cross-Channel intercity passenger travel on the routes that it operates, carrying more passengers than all airlines combined (9.1 million in 2008).

The InterCityExpress (ICE) is a system of high speed trains predominantly running in Germany. It is the highest service category offered by Deutsche Bahn. Apart from domestic use, the trains can also be seen in countries neighbouring Germany. There are, for example, ICE3 trains that run to Liège and Brussels, Belgium.

Priority Project 3
High speed railway axis of southwest Europe

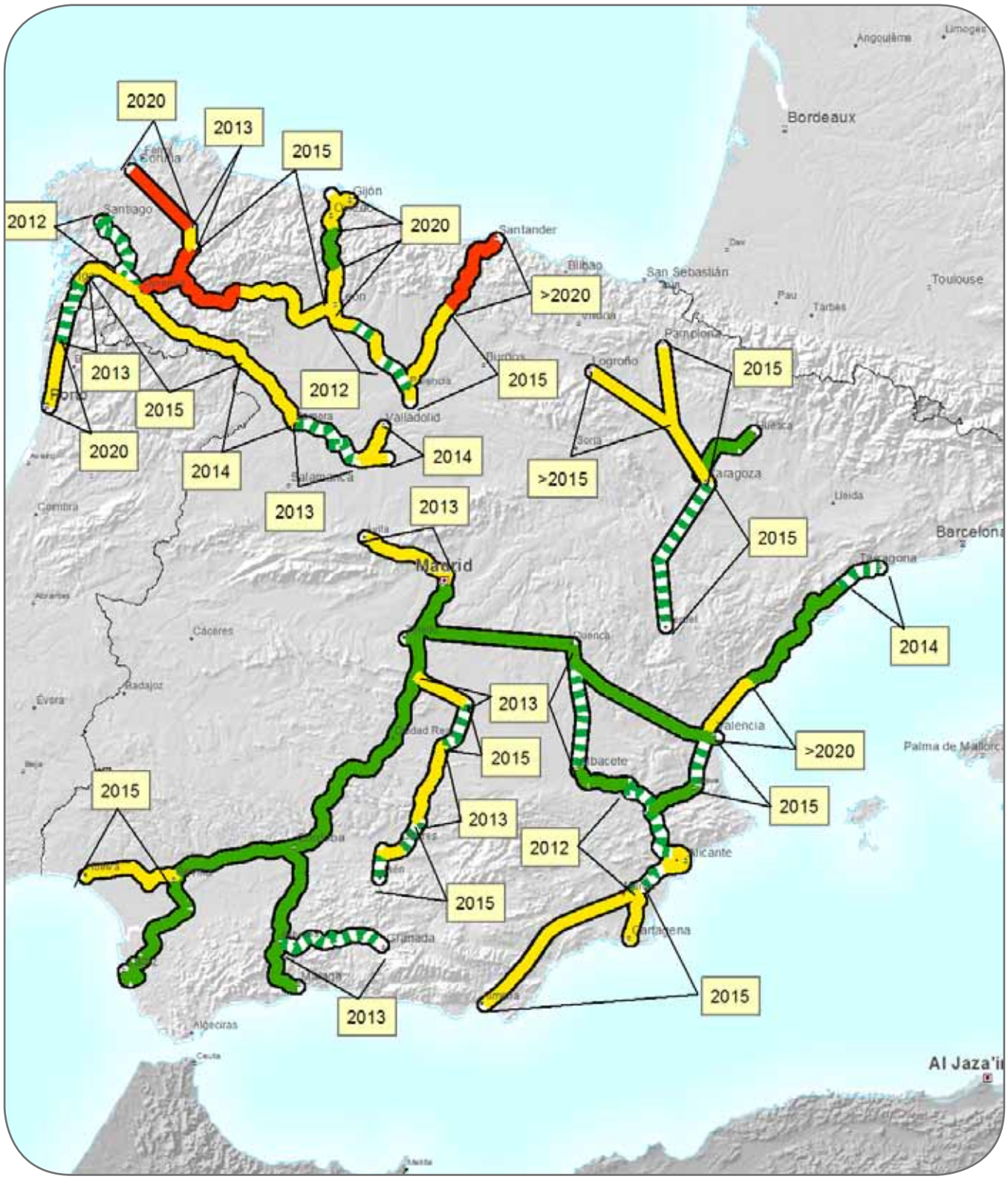
Trans-European transport network. Achievement of the Priority projects



Priority Project 19
High speed rail interoperability in the Iberian Peninsula

Trans-European transport network. Achievement of the Priority projects

PP 3



PP 19

0 125 250 km

Cartography: DG MOVE, August 2012
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- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

- Completion Date
- Priority sections

TENtec

Priority Project 3
High speed railway axis of southwest Europe

Trans-European transport network. Achievement of the Priority projects

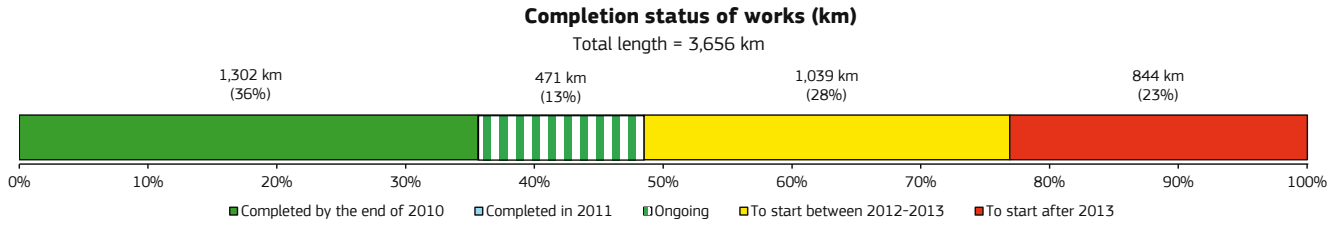
Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	Member State(s)	TEN-T support (in million)	Project status
Studies and Works for the High-Speed Railway Axis of South-West Europe (PP3) - Lisbon-Madrid Axis: Cross-Border Section Evora-Merida	ES, PT	€312.7	Ongoing
Atlantic branch of the international section of PP3 Vitoria-Dax (estudios y obras para la nueva linea de alta velocidad)	ES, FR	€70	Ongoing
Works for construction of a high-speed railway section between Perpignan and Figueres	ES, FR	€ 69.8	Completed
Contournement de Nîmes et Montpellier (Etudes et travaux)	FR	€56.3	Ongoing
LÍNEA DE ALTA VELOCIDAD MADRID – PAIS VASCO – FRONTERA FRANCESA. OBRAS DE PLATAFORMA DE LOS TRAMOS ARRAZUA/MONDRAGON	ES	€26.8	Ongoing
CONEXIÓN ESPAÑA - FRANCIA POR LA FACHADA ATLÁNTICA. LÍNEA DE ALTA VELOCIDAD MADRID - PAIS VASCO - FRONTERA FRANCESA. TRAMOS VALLADOLID - BURGOS - VITORIA. OBRAS DE PLATAFORMA VALLADOLID - BURGOS	ES	€ 25	Ongoing
Désaturation du noeud ferroviaire de Bordeaux	FR	€21.3	Ongoing
Etudes préliminaires et d'APS en vue de la construction d'une nouvelle ligne ferroviaire entre Bordeaux et la Frontière Espagnole	FR	€17.1	Ongoing
L.A.V. Valladolid-Burgos-Vitoria. Obras de Plataforma de los Subtramos: Nudo Norte de Valladolid-Cabezón de Pisuerga, San Martín de Valvení–Nudo de Venta de Baños y Torquemada-Quintana del Puente	ES	€15.4	Ongoing
ESTUDIOS PARA LA CONSTRUCCION DE LA LÍNEA DE ALTA VELOCIDAD MADRID - PAIS VASCO - FRONTERA FRANCESA. TRAMOS VALLADOLID - BURGOS - VITORIA.	ES	€14.7	Ongoing
Construcción de la Nueva Red Ferroviaria en el Pais Vasco (Y Vasca) - Tramo Guipuzcoano	ES	€7.1	Ongoing
Obras de adecuación de la línea Barcelona - Francia y accesos para su explotación en ancho internacional. Tramo: Gerona mercancías - variante de Figueras	ES	€6.2	Completed
Empreitadas preparatórias para a implementação da ligação entre a Terceira Travessia do Tejo e a Estação do Oriente-Lisboa, parte integrante do Eixo Ferroviário de Alta Velocidade Lisboa-Madrid (PP3)	PT	€5.4	Ongoing
L.A.V. Madrid – País Vasco – Frontera Francesa. Línea Vitoria – Bilbao – San Sebastián. Tramo Mondragón - Bilbao. Obras de plataforma del subtramo Mondragón – Elorrio	ES	€5.2	Ongoing
PP3 LÍNEA ALTA VELOCIDAD MADRID–LISBOA. TRAMO MADRID-OROPESA. ESTUDIOS (FASE I)	ES	€5	Ongoing
Track bed works of the sub-section Venta de Banos junction: Valladolid - Burgos and Leon - Palencia - Burgos connections and services for follow up works	ES	€5	Ongoing
Track bed works of the sub-sections Amorebieta/Etxano - Lemoa and Lemoa - Galdakao	ES	€4.8	Ongoing
Estudos relativos ao Projecto de Implementação da Rede Ferroviária de Alta Velocidade em Portugal (Projecto RAV) – PP3 e PP19	PT	€4.5	Ongoing
Track bed works of sub-section Durango - Amorebieta/Etxano and services for follow up of works	ES	€4.2	Ongoing
Studies and projects for the development of the rail section Talayuela-Cáceres	ES	€3.9	Completed
Track bed works and services for follow-up works of the sub-section Amorebieta/Etxano-Amorebieta/Etxano	ES	€3.3	Ongoing
Estudios y proyectos Tramo Talayuela-Cáceres (Fase II)	ES	€3	Ongoing
Contournement Ferroviaire de l'Agglomération Lyonnaise - Etudes préparatoires à la phase de Réalisation de la partie Nord	FR	€2.9	Ongoing

Priority Project 3
High speed railway axis of southwest Europe

Trans-European transport network. Achievement of the Priority projects

PP 3

Corridor linking Madrid-Zaragoza-Barcelona-Figueras-Perpignan-Montpellier-Nimes - Railway bypass of Figueras	ES	€2.8	Completed
L.A.V. Madrid - Pais Vasco - Frontera Francesa. Redaccion de proyectos constructivos.	ES	€2.4	Ongoing
Estudos relativos ao desenvolvimento do programa de PPP do Projecto de Implementação da Rede Ferroviária de Alta Velocidade em Portugal (Projecto RAV) – PP3 e PP19	PT	€1	Ongoing
Intermodal logistics platform Vilamalla/el Far d'Empordà: previous studies and projects for the establishment of an intermodal logistics platform at the south of the Spanish-French border	ES	€0.8	Ongoing
TOTAL		**€696.2**	

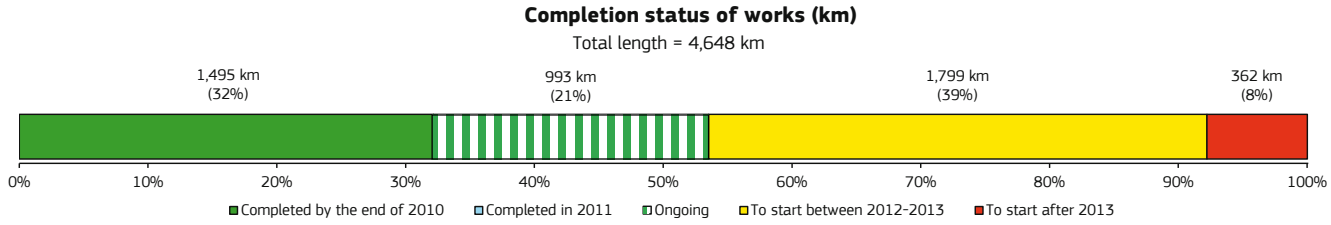


PP 19

Priority Project 19
High speed rail interoperability in the Iberian Peninsula

Trans-European transport network. Achievement of the Priority projects

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	Member State(s)	TEN-T support (in million)	Project status
Madrid-Galicia High-Speed mixed traffic Rail. Section: La Hiniesta-Perilla-Otero-Cernadilla	ES	€35.2	Ongoing
Obras en la Conexión ferroviaria Corredor Mediterráneo – Línea de alta velocidad Madrid-Barcelona-Frontera Francesa	ES	€22.9	Ongoing
High Speed Railway Madrid-Galicia-Portugal. Section: Olmedo-Pozal	ES	€4	Completed
L.A.V Bobadilla- Granada. Estudios y proyectos.	ES	€2.2	Ongoing
TOTAL		**€64.3**	



PP 3

PP 19

Priority Projects 3 and 19

- High speed railway axis of southwest Europe
- High speed rail interoperability in the Iberian Peninsula

Trans-European transport network. Achievement of the Priority projects

European Coordinator

Carlo SECCHI

1. Summary

Both PP3 (High speed railway axis of southwest Europe) and PP19 (High speed rail interoperability in the Iberian Peninsula) progressed during 2011-2012, achieving important milestones, in terms of operations, implementation, as well as corridor planning and development.

As far as operations are concerned, the Madrid-Barcelona connection set a new record - with more than 50% of the traffic flows between the two cities in 2012. Following further improvements on the line thanks to the deployment of level 2 of ERTMS, the journey time has now been reduced to 2h30'.

Furthermore, interesting developments have been taking place concerning freight transport and logistics in the Port of Barcelona, where the Port Authority is playing a proactive role in exploiting the potential of rail in medium to long–range transport. This is reinforcing the Port's connections with other logistic platforms along PP3 and PP19, both in France and in the Iberian Peninsula itself.

On the implementation side, works have started early in 2012 on the Tours-Bordeaux (which equals one-third of the Atlantic branch in length) and on the Nîmes-Montpellier by-pass (Contournement Nîmes-Montpellier). In the Spanish Basque country works are progressing steadily. The platform has been finalised between Barcelona and the cross-border section with France.

With regard to planning, the decisions to integrate PP3 and PP19 along the Mediterranean corridor using dual-gauge tracks will speed-up the deployment of interoperable flows, expected to reach Valencia by 2015.

Another success story, in spite of the restrictions due to the stringent economic and financial conditionalities, is the agreement to use a wise, phased approach to deployment the Iberian corridor which will allow substantial benefits to be generated in terms of connectivity by 2015.

As far as the technical side of TEN-T is concerned, the Spanish choice of deploying in a generalised way (up to metropolitan lines – "cercanias") the European standard for signalling and control ERTMS/ETCS at its advanced level (Level 2) is also a positive development. This choice highlights the crucial role of EU standards in unleashing the potential of TEN-T to foster the internal market. It also contributes to create a critical mass of demand required by the industrial sector to improve its supply processes.

2. Maximising the financial support of Priority Projects during the crisis

The current macroeconomic framework imposes serious constraints on public funding and on the financing of large infrastructure. Therefore, the Coordinator focused a large part of his action on this issue, in agreement with the Commission.

It is worth highlighting the Commission decision to launch the pilot phase of the Project Bonds initiative. This aims at assessing the potential of an instrument that can ensure a high leverage of the public (European) funds involved, a strong anti-cyclical nature, and improve the market performance in financing a targeted set of high

EU added-value infrastructure, in spite of the current economic turbulence.

An interesting event organised by the Danish presidency took place on 24-25 May 2012 in Copenhagen, at which a comparative analysis of the highly differentiated approach adopted by various Member States to finance large transport infrastructures were presented, as well as the points of view of interested parties.

PP 3

The outcome of the event showed that there is much room for a positive cross-contamination between Member States on the different schemes and potential return from Public-Private Partnerships (PPP). It also pointed out that fine-tuning and coordination of cross-border procedures is still far from being optimal; in fact, a European role is needed – and called for – by many Member States. These events, such as a public debate from the Committee of the Regions in Lisbon on 5-6 March provided the opportunity for a debate on the Connecting Europe Facility (CEF) and the revised TEN-T policy. A public conference on the development of the TEN-T Corridors, notably the Mediterranean one, also took place on 5-6 June in Barcelona, involving local and national Spanish authorities, local authorities of France, as well as transport operators – resulting in a good discussion among key stakeholders of the future Corridor Platforms.

With regards to PP3, valuable experience has been gained on Public-Private Partnerships, and enriched due to the launch of the Nimes-Montpellier bypass, the progressive development of Tours-Bordeaux, and the management of the existing schemes.

The cross-border section between Perpignan and Figueres can be undoubtedly seen as a good practice for project development, however there is room for further developments in its integration with a wide mixed corridor (along the future TEN-T Core Network Mediterranean Corridor).

3. Progress during 2011-2012

3.1. PP3 - Mediterranean branch

Barcelona-Girona-Figueres

A detailed onsite visit took place at this crucial section in June 2012.

The platform was completed except in the Sagrera area (some 500 m) and in the access to Sants station, which is a difficult urban construction site with traffic on-going on the upper level). Tracks were being laid on the last missing kilometre (tunnel underneath Barcelona and La Sagrera station), while the constructive structure of the station in Girona was in place.

PP 19

Implementation has kept up its impressive pace, with the following milestones achieved in summer 2012:

- Infrastructure construction works in the Mollet-Montonès section were finalized at the end of July.
- The contract for the Girona Station - Phase I works - to adapt the existing station to the future arrival of high speed trains was awarded 16 August.
- Works for the internal adaptation of the structure of the northern side of the Barcelona Sants Station were finalised at the end of August.
- Track installation in the Sants–Sagrera tunnel has been completed.

The high-speed line is therefore basically complete in terms of civil works except for few complementary works such as emergency exits. Electrification and signalling are being deployed along minor stretches. Notwithstanding the constraints of the national budget, the line is due to be operational in April 2013 following its commissioning. On the parallel conventional line, belonging to ERTMS Corridor D, further deployment of the third rail – making it dual-gauge, and therefore interoperable - are expected by 2015. ERTMS deployment is planned within the same timeframe.

These measures will lead to the final configuration of four interoperable tracks, two for passenger transport and two suitable for transport in Iberian gauge and which accommodate most of the freight traffic. Freight traffic between the Port of Barcelona and France has developed along two destinations - Lyon and Toulouse. These operations, although successful and using efficient 750m long trains, showed the incremental cost due to the current lack of harmonisation in terms of signalling (3 systems), electric power (3 tensions) and some constraints in gradients along one section.

Priority Projects 3 and 19

- High speed railway axis of southwest Europe
- High speed rail interoperability in the Iberian Peninsula

Trans-European transport network. Achievement of the Priority projects

The overall impact of these limiting factors can be assumed to add to the transport cost for rail freight by around 30%. However, this situation is set to improve in 2013-2014 with the direct connection in dual gauge to/from the new harbour "el Pratt", and the upgrading of the existing network within the Port, widening the scope for freight transport in UIC gauge. The first project is supported by TEN-T funding, while the second one is expected to be submitted for support through the 2012 TEN-T call.

In the coming months, with the completion of the high-speed line from Barcelona to the cross-border section, passengers will travel seamlessly between the French network and Barcelona Sants station and onwards to the rest of the Spanish high-speed network, with a meaningful time saving (1h30 plus the boarding time). The journey from Perpignan to Barcelona will then take just 50 minutes, in comparison with 2h30 of the provisional services.

Technical parameters and evolution over time of the lines from Barcelona to France –Perpignan on UIC-compatible lines

Section	Perpignan-Le Soler	Le Soler-Figueres	Raccord. Figueres-Girona	Girona-Mollet	Mollet-Barcelona Sants	Mollet-Port
Electric power	New HS line (2020) 25 kVAC Conventional line 1.5kV DC	New HS line: 25kV AC Conventional line – Port Bou (2015): 1.5kV+3kV DC	New HS line (2013): 25 kV AC Conventional line: 3kV DC	New HS line 25kV AC Conventional Line (2015): 3kV DC	New HS line (2013) 25kV AC Conventional line (2015) 3kV DC	- Conventional line 3kV DC
Signalling	KVB 2014-2020: ERTMS	New HS line: ERTMS Conventional line - Port Bou (2020?): ERTMS	New HS line: ASFA + ERTMS Conventional line (2015): ERTMS+ASFA	New HS line: ASFA+ERTMS Conventional line (2015): ERTMS	New HS line: ASFA+ERTMS	ASFA 2015:ERTMS +ASFA
Description / gauge	UIC gauge	(TP Ferro section) UIC gauge Conventional line - Port Bou (2015): dual gauge	New HS line (2013): UIC gauge Conventional line: dual gauge	New HS line: UIC gauge Conventional line (2015): dual gauge	New HS line (2013): UIC gauge Conventional line: Dual gauge	Conventional line: Dual gauge 2013: UIC plus Iberian gauge

Figueres-Perpignan

The 44.4 km long cross-border section was built by the concessionaire TP Ferro in UIC gauge with advanced standards – two tunnels (8.2 km), 350 km/h max speed, 25 kV electrification, ERTMS Level 2 signalling system. The section has been operational since the end of 2010 and hosts regular passengers (TGV) and freight services with 750 m long trains. Thus, it stands as the first interoperable connection between the Iberian Peninsula and the rest of Europe – a major breakthrough for TEN-T.

Contournement Nîmes-Montpellier (bypass Nîmes-Montpellier)

The final signature of the contract for the design, construction and operation (contrat de partenariat) of this section of the line took place in June 2012, while preliminary works had previously started under the management of RFF.

The railway connection will be implemented through a PPP with payments on availability - one of the largest in

2012, with around €1.5 billion of costs. The project of this section includes new stations in Nimes and Montpellier, linked with urban regeneration initiatives, as well as a double interconnection with the existing line.

The corridor will therefore benefit in this stretch from four tracks, two of which are fully interoperable and suitable for mixed traffic (high speed for passengers - up to 300 km/h, and freight – up to 120 km/h). This connection will substantially enhance the capacity of two of the three congested nodes in central and southern France (with Lyon).

PP 3

Complementary projects co-financed by the TEN-T concern the study to set up a PPP in order to build the new interconnecting poles of Nîmes and Montpellier and the northern bypass of Lyon, along the same corridor.

Ligne Nouvelle Montpellier-Perpignan (New line Montpellier-Perpignan)

Following the public debate procedure (Loi Barnier) in 2009, phase 1 of the studies was carried out, which identified the 1000m wide corridor for the development of the high speed mixed line coordinated with the Contournement Nîmes-Montpellier.

The studies were successfully carried out and their outcome was approved by ministerial decision on 14 November 2011, on schedule to launch the public enquiry (Enquête Publique).

The following steps of the studies will determine the decision for a pure high-speed line keeping the existing (refurbished) line for freight transport, or a high-speed – mixed line (as for CNM).

Three elements underline the challenges and opportunities linked to this section:

- The Montpellier-Narbonne stretch might become a bottleneck along the corridor once the high speed Barcelona-Figueres (-Perpignan) and the Contournement Nîmes Montpellier become operational.
- The whole section plays an important role in terms of territorial cohesion, not only improving the accessibility and the level of railway services for Languedoc-Roussillon, but it also integrates the region on a wide European corridor for freight and passengers, bringing it closer to important European centres.
- The cost of a fully-fledged high-speed mixed line is high (up to around €6 billion), notably under the current situation of public finances – it is therefore under scrutiny for compatibility with the budget consolidation constraints in France, which might lead to other alternatives in terms of maximal speed (220 km/h) or compatibility for freight traffic (pure AV line).

PP 19

The implementation of ERTMS Corridor D

ERTMS corridor D runs parallel and partly overlaps with the Mediterranean branch of PP3 from Tarragona to Nîmes and Lyon.

On a long term perspective, this international freight corridor will basically run through the conventional line, once its interoperability is ensured through the use of an ERTMS signalling system and a third rail to make it suitable for traffic in both Iberian and UIC gauge.

In addition, homogeneous standards in terms of axial weight, total weight, loading gauge and train length have to be achieved to ensure the effectiveness and competitiveness of rail freight transport. (This factor has significant implications on sidings, the basic infrastructure, bridges and tunnels)[1].

Bearing this perspective in mind, the Spanish authorities are planning the commissioning of ERTMS on the existing tracks from Barcelona to Port Bou, in order to progressively deploy Corridor D on the old route after the activation of the new line through the Perpignan-Figueres.

3.2. PP3 - Atlantic branch

The Atlantic branch of PP3, together with the so-called Iberian branch, will become part of the TEN-T Core Atlantic Corridor. Therefore, a continuity of support by the Commission is ensured in terms of political priority and coordination mechanisms, as well as financing. The Connecting Europe Facility will help to compensate the unavail-

1 At corridor level this is a long term perspective since it depends on strategic investments on the Lyon-Turin branch – nevertheless, since Lyon lies at a crucial north-south and east-west crossroad in rail transport, it is important to progressively develop the connections between this hub and the Spanish ports of Barcelona (and Valencia) from now.

Priority Projects 3 and 19

- **High speed railway axis of southwest Europe**
- **High speed rail interoperability in the Iberian Peninsula**

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ability of the Cohesion Fund for Spain during the 2014-2020 programming period, notably on this branch of PP3.

Main progresses were recorded along the Tours-Bordeaux and Y Basque sections, while the intermediate sections between Valladolid and Vitoria, as well as the Grand Projet de Sud-Ouest are currently confronted with potential delays notably due to economic constraints and local debate on its implementation.

In fact, the least mature components of the corridor are the cross-border sections, and the line Bordeaux-Dax reaching the cross-border section in Bayonne, which belongs to the "GPSO" (*Grand Project du Sud-Ouest*[2]). However, both sections were progressed during 2011-2012; notably, the ministerial decision approving the layout of the line for the GPSO was issued in March 2012.

Madrid-Valladolid

The line is already operational for high speed passenger transport. Valladolid/Olmedo is situated at an important crossroads in the Iberian rail network toward west/northwest (Salamanca/Portugal, Castilla y Leon, Asturias and Galicia). The upgrading of the Valladolid station is ongoing.

Valladolid-Burgos

Works are on-going on every section and have progressed in the last several years. The bypass in Burgos is ready and the whole section plans to be completed from Valladolid to Venta de Baños in the coming months. The entire platform from Valladolid to Burgos is expected to be laid down by 2014. (Currently, the average progress for the platform works is over 70%).

Burgos-Vitoria

Design phase has advanced, but works are lagging behind due to economic constraints – the definitive phasing of this section is currently being re-defined.

Y Basque

The Vitoria-Bergara-Bilbao section is progressing with works on-going on every branch in spite of the difficult morphology, except for a subsection close to Bergara towards Bilbao, and the access to Bilbao (informative studies). The Bergara-San Sebastian line, implemented under the responsibility of the Basque government, has significantly evolved during the year and all the sections are being implemented or finished (as far as the civil works are concerned). The good progress, in spite of the harsh crisis, is confirmed by the successful submission, in the last TEN-T call, of new projects for the completion of works in the sections connecting to Bilbao's access to Bergara.

Cross-border section

The European Economic Interest Group (EEIG) SEA Vitoria-Dax kept active and supported the Intergovernmental Conference. The EEIG was proactively involved in developing the transport market study for rail freight Corridor 4 (Portugal-Spain-France), largely overlapping with the future Core Network Atlantic Corridor.

The studies have highlighted the actions needed to connect the two networks with the new cross-border section, for an overall length of about 45 km and a total cost estimated at €1.250 billion. In addition, improvements to the existing Irun-Hendaye connection and interoperability deployment along the existing lines, to be functionally coordinated with the new ones are also seen as important.

The border of both interconnections lies at the Bidassoa River, which will be crossed via a bridge linked to tunnels on both sides, thus allowing continuity in high-speed services.

This section is located in an environmentally sensitive area, strongly affected by road congestion, and particular

2 See www.gpso.fr

care is required to meet safety requirements. Furthermore, its technical definition is affected by the exploitation model of the new line along the whole corridor. Hence, widening the scope for the EU and intergovernmental coordination is fundamental to define it by 2013-2014, in order to apply for potential EU funding and to achieve it by 2020.

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Bayonne-Dax-Bordeaux (part of GPSO)

The GPSO includes two branches with a common part: Bordeaux-Toulouse and Bordeaux-Spanish border, which encompasses the Bordeaux-Dax-Bayonne line. In March 2012, the ministerial decision approving the layout of the 427 km-long line (in its two branches with a common section) was adopted. Discussion on the potential reduction of the project for budgetary constraints is on-going. When considering the timing for the project implementation, the costs and benefits must be factored in, notably in terms of passenger transport (expected to exceed 20 million passengers on the branch to Spain). Moreover, the existing line Hendaye-Bayonne-Dax is progressively being upgraded until 2013 in terms of sidings, electrification (power capacity) and signalling system. This project, coupled with the improvement of the Irun-Hendaye section and the future deployment of the UIC gauge in the Iberian network could lead to the development of continuous cross-border traffic in the coming years.

Tours-Bordeaux

The 300 km long high speed line will be constructed and financed through a concession for its design, financing, building and operation, the first time that such a scheme is used on the French railway network. The total costs amount to around €7.2 billion. The 50-year concession was awarded in 2011 to a consortium led by Vinci. Following the signature of the contract on 16 June 2011, preparatory works started early in 2012. Civil works should be completed by 2014, followed by the superstructure and technologies, in order to start commissioning the line between 2016 and 2017.

The added value of this project lies both in the time savings for new high speed services (50 minutes for journeys to Paris), but also in the capacity that will be made available on the congested conventional line that is suitable for freight transport. Similarly to the GPSO, strong support at regional level (notably in Aquitaine) has facilitated the implementation progress of the line.

3.3. PP3 - Iberian branch

The Portuguese high speed network implementation was planned through an interesting PPP scheme: PP3 lines would be implemented through five different PPPs, four for the main lines, Lisbon-Caia(-Madrid) and Lisbon-Porto, and one for the signalling and control system. Following the economic turndown, Portugal called for a rescue plan under conditions detailed in the country's Memorandum of Understanding on Specific Economic Policy Conditionalities, which dealt widely with transport policy. The procedure previously launched to implement the high-speed network was repealed, but the importance of developing a long-distance freight corridor linking Sines, Lisbon and Setúbal with Spain and, further on, with the rest of Europe was highlighted as an important factor of competitiveness to exploit the maritime dimension of Portugal.

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Transport related measures foreseen by the Memorandum of Understanding concern in fact:

- unleashing potential of Portuguese ports, through labour reform, e-freight for administrative simplification, and better modal integration
- developing a rail freight corridor linking Portugal with Spain and France (a coherent framework with the Atlantic Core Network Corridor).

Accordingly, priority has been attributed to the missing link Evora-Caia, with a view to deploy freight services in the Iberian gauge in the short run and both in UIC and Iberian gauge in the future. The section should be suitable for freight and for fast passenger services – which is facilitated by the flat morphology of the area and the small number of intersections.

The Coordinator helped with the promotion of a series of bilateral and trilateral contacts involving the political and technical counterparts of the two Member States. Consensus was reached for the development of the corridor through a phased approach, in order to anticipate its benefits and to optimise the expenditure, as explained in the following sections.

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Lisbon-Poceirão

Lisbon-Poceirão was supposed to be implemented by a second PPP. Its total costs in the original design amounted to €1.6 billion, including the conventional rail and works in Lisbon Oriente station and the important third Tagus crossing - 7.2 km of bridge. The tender for the DBO scheme was awarded but then repealed, and the section has been set aside as a consequence of the crisis.

Poceirão-Caia

The contract signed for the implementation of the works on the line along this stretch has been repealed, and negotiations are on-going between the state and the concessionaire (Consortium Elos). With regard to the Portuguese side, the missing link needed to structure a corridor is the section between Évora and Caia (Spanish border), which constitutes an essential element for the connections between both countries. Following a series of exchanges with the representatives of the two Member States, different alternatives were developed in light of the economic constraints and the availability of funding and financing by the TEN-T, Cohesion Policy (ERDF and Cohesion Fund) and EIB financing. The hypothesis of a phased approach appeared to be the only way of optimising the available resources to deliver benefits in the short and medium term.

According to this perspective, in a first phase, a platform prepared for double track would be built between Évora and Caia. The construction works would be split in lots, the first of which would use the remaining EU funds for 2007-2013, optimising their co-financing rates. A single track with polyvalent sleepers in Iberian gauge would then be placed, in order to shift it to UIC gauge in the future.

This line would be connected in Évora to the existing conventional line that reaches Lisbon and Sines, and in Caia with the Spanish line to Madrid. This would ensure the functioning of the Sines-Madrid freight line, while allowing, at the same time, to connect Lisbon to Madrid (4.5 to 5 hours, with speeds up to 200 km/h in a provisional phase).

Electrification at 25 kV (an option already confirmed by Spain) and ERTMS would be put in place along the whole line in a synchronized way in the subsequent phase.

The platform between Évora and Caia could be mostly financed with the available Cohesion Fund earmarked for the financing of TEN-T railway infrastructure in Portugal. Works could start as soon as the contract is awarded after the necessary competitive process. This vision has recently been endorsed by both Member States, confirming a harmonious development along the corridor in order to improve substantially its operations by 2014-2015.

Caia-Badajoz cross-border section

This small part of the cross-border section Évora-Merida is managed by AVEP and has been delayed in its physical implementation. Once the project is resumed on the Portuguese side, it will be important to give priority, at a first stage, to the completion of the direct line to allow the start-up of long distance traffic, while proceeding in parallel with all the arrangements that will improve the accessibility of Extremadura cities.

Caceres-Mérida-Badajoz

No major problems are expected for this 76 km-long section, where works are at an advanced stage (railway bed completed) on the main line. A first track in Iberian gauge with polyvalent sleepers is being laid down on the platform (rail bed), suitable for two high speed tracks, to provide for the continuity of the services with the existing Portuguese network. The second line will be built directly in UIC gauge. The next steps foresee the electrification at 25 kV and the deployment of ERTMS Level 2, prepared at this stage. Once the full corridor will be implemented, the first tracks laid down would be shifted to UIC gauge, to allow traffic level of up to 250 trains aday.

Madrid-Cáceres

The design phase was completed and works have started in the sections close to Caceres - the only lots with a difficult morphology along the line). The new line will run along an existing one in Iberian gauge, which will be upgraded, and does not entail difficult works. Besides providing an access for freight to Madrid from the south, the line can be interconnected to the high-speed line Madrid-Andalucía, already operational, 70 km south of Madrid. This section could represent the future bottleneck in the UIC-gauge line, since it will serve three lines in the future: the Madrid-Cuenca-Valencia/Albacete line, the Madrid-Lisbon line and the Madrid-Cordoba-Seville/Malaga line. The quadruplicating of the section Madrid-Toledo is at an advanced stage of planning.

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3.4. PP19 – Southern corridor Madrid-Andalucía

The connection Madrid-Cordoba-Seville, the first high-speed line in Spain, is now complemented with a branch to Malaga from Bobadilla, in operation, and a new access to Granada, currently under advanced stage of construction.

This double line, 125 km long, has been completed or in works for around 100 km, with full EU high-speed standards being deployed:

- UIC gauge
- ERTMS-ETCS signalling and control system (complemented with ASFA)
- Electrification at 25 kV AC

Its implementation has benefited by a synergic concentration of EU resources: Cohesion Policy funding (both European Regional Development Fund (ERDF) and Cohesion Fund), grants by the TEN-T budget line and loans by the EIB.

Its completion is theoretically possible within the current multiannual framework (therefore expenditure within 2015), during which Andalucía falls under the "Convergence" objective, and therefore has a large amount of ERDF available, and Spain is still entitled to receive money from the Cohesion Fund.

A parallel line Madrid-Jaen is being upgraded and is partly in service at the present time (Alcazar-Jaen). A further Seville-Cádiz connection is being implemented in the first stage in Iberian gauge, with polyvalent sleepers. The line is partly operational while the Jeréz-Cadiz is under construction. With regard to the future developments, the Seville-Huelva line is designed as a new IC line linking Huelva to Faro. For the future cross-border link on PP8, a coordinated deployment should be planned on a long-term perspective. In the revision process of TEN-T, the direct link Seville-Antequera has been added, in order to ensure a fast connection between the regional capital and Malaga/Granada.

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Such an ambitious network will improve the region's accessibility and attractiveness. In order to be sustainable, it will require a strong stance in transport planning to ensure a wide development of highspeed rail through modal shift from air and road, as well as to generate additional demand.

3.5. PP19 – North-eastern corridor (Aragon)

This corridor is interconnected in Aragon with PP16, and its planned cross-border section: the Central Pyrenean Crossing. The planned re-opening of the Pau-Canfranc line, in UIC gauge, would provide this corridor with international traffic (albeit requiring the upgrading of the Huesca-Canfranc line). The Zaragoza-Huesca line is operational, but it has become a dead-end. The rest of the corridor is currently at a standstill in terms of implementation. While planning activities have progressed on the two east-west connections towards the Atlantic branch of PP3 and Navarra (Zaragoza-Pamplona – the future Core Network connection, and Zaragoza-Logroño-Miranda connections), no works are due to start in the short to medium term.

Discussion is on-going on how to connect Zaragoza with the corridors along the coastal regions to provide Zaragoza's important logistic platform PLAZA with freight access in UIC gauge. The speeding up of the deployment of the third rail – double gauge solutions along the Spanish network that took place in 2012 - highlights the most cost-effective way to achieve this goal in the short to medium term.

3.6. PP19 – Madrid-Levante-Mediterranean

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The most important section of this corridor – the high-speed line Madrid-Valencia, for exclusive passenger transport, has successfully entered into operations. Madrid-Valencia is the fastest high speed line in Europe, with a maximum speed of 350 km/h, and a commercial speed close to 300 km/h (station to station, direct services). The line to Alicante/Murcia-Cartagena has mostly been completed - Madrid-Cuenca-Albacete has been operational since December 2010.

The corridor provides for the deployment of UIC gauge on the main line Madrid-Valencia and Iberian gauge on most of the remaining sections (with polyvalent sleepers to allow the shift to UIC gauge in the future). In Albacete, a gauge-changing devise allows Talgo and CAF trains to shift from the high-speed network to the conventional one, partially benefiting from the time savings allowed by the new line.

The section from Albacete to Murcia and Alicante is in the advanced construction phase, while the connection Murcia-Cartagena is now in the public debate phase, following the completion of studies and preliminary design activities.

The corridor includes the fundamental section Valencia-Tarragona (connection to the Madrid-Barcelona high speed line), belonging to ERTMS corridor D and the future Core Network Mediterranean Corridor, which connects the second and third largest urban nodes of Spain, as well as four key Iberian ports (Barcelona, Tarragona, Sagunto and Valencia), that could potentially be connected to the rest of Europe through the Mediterranean branch of PP3.

It is therefore extremely important to foresee a gradual deployment of dual gauge or double tracks with UIC and Iberian gauge, in order to ensure a mixed traffic (freight /high speed passengers), thus allowing seamless mobility of goods and people in the long range. A critical single-track south of Tarragona represents a serious capacity constraint along the coastal corridor. Works are on-going to double this section.

According to governmental plans, priority will be given along the coastal sections, to the deployment of third-rail double gauge connections refurbishing the existing line to provide for the interoperability of this stretch of the Mediterranean Corridor down to Cartagena and, progressively, towards Andalucía (Almeria-southern edge of Rail Freight Corridor 6 and further south).

3.7. PP19 – North/North-Western corridor

The implementation of the line to Galicia has been endowed with almost €1.8 billion of further investments.
The line between Ourense-Santiago-A Coruña (155 km) has been operational since the end of 2011 with the new highspeed platform and 25 kV AC electrification, on a substantially new line between Ourense and Santiago, and a restructured section between Santiago and A Coruña.

Transport times have almost been halved thanks to the new infrastructure. The gauge is being adapted in the Galician network to UIC from the Iberian one. On the Atlantic coast, on the line Santiago-Vigo (94 km), works started in various sections, consisting of a substantial upgrade of the existing line to a full high speed one. Between Zamora-Ourense studies have been carried out and works have started in some sections. Operations will start in a provisional service through hybrid (diesel-electrified) locomotives for, the implementation of the new line between Ourense and Zamora.

On the Valladolid-Palencia-Santander line platform works started in 2010, while on the Palencia-Gijon line the main works are on-going. They consist of the large tunnel of Pajares (variante de Pajares including a 25 km-long

double tunnel), where a dual gauge line is being laid down. The tunnels will be suitable for operations at 250 km/h, thus dramatically changing travel time to Asturias. The high capacity line will also allow for an efficient freight transport, notably to and from the port of Gijon.

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Porto-Vigo cross-border link

The line to Galicia south of Vigo is connected to the Portuguese backbone (Linea do Norte, or future high speed Lisbon-Porto). The cross-border project originally conceived for this section consisted of a high speed line (250 km/h). This railway interconnects PP8 from Vigo to Santiago de Compostela and further north towards A Coruña, on one side, and PP3 stretching from Lisbon to Porto on the other.

Its cross-border section is Ponte de Lima-Vigo. Preparatory studies for the section were started but had to be abandoned due to the financial crisis, in spite of the high intensity of EU support, coming from a combination of sources, involving the TEN-T budget (co-financing of €244.14 million which is 25.5% of the total eligible costs), Cohesion Fund and EIB. In fact, according to the current regulations, this support imposed constraints on its implementation due to the tight deadlines for the use of the EU funding.

The two governments have resumed the dialogue, and now a revised project to improve the exploitation of the existing conventional line is expected to be launched. This option has been chosen due to the possibility to significantly improve the connection in the short term through limited investments, including the refurbishing of Vigo station and the coastal line in Portugal, as well as an integrated cross-border ticketing system.

4. Corridors development perspectives and priorities

4.1. The Mediterranean branch

Freight wise, the Mediterranean branch of PP3 (and notably Barcelona-French border section's new and existing line) and PP19 Mediterranean coastal line (Valencia-Tarragona and Cartagena-Murcia-Alicante-Valencia sections) belong to the backbone of the Mediterranean corridor, overlapping with ERTMS Corridor D and Rail Freight Corridor 6.

These sections connect the corridor with a series of important deep sea ports (notably Cartagena, Valencia, Tarragona and Barcelona, but also Alicante and Sagunto), with the second and third Spanish nodes and industrial areas, and connect the corridor with the line to Zaragoza (that hosts the largest logistic platform in Europe) and Madrid.

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Therefore, large logistics flows are expected along the corridor, including additional demand generated by the progressive deployment of the corridor in central and northern France and beyond. However, these flows require a high capacity for competitive and efficient logistics. Since the change of gauge along the Iberian conventional network will take place over the next decades, the choice of dual gauge lines (through the third rail) seems to be the optimal solution, notably south of Barcelona, to allow both Iberian and long-range transport, preferably along the conventional lines.

Form a technical point of view, standardisation is needed as foreseen by the proposed new TEN-T guidelines: appropriate sidings are needed to allow 750m long trains. This would require a relatively small investment, amounting to some tens of million euros. The situation is already optimal north of Barcelona. ERTMS-ETCS is supposed to progress along the Corridor on these sections from Lyon to Valencia, taking stock of the market progresses.
The electrification (3kV DC on Spain's conventional line, 1.5 kV DC on the French ones, and 25 kV AC on the HS network) impose in the provisional exercise three-tension locomotives. The deployment of dual gauge lines along the conventional network in Spain will restrict it to bi-tension DC trains, thus minimising the impact of this discontinuity.

With regards to passenger transport, the section (Paris-Lyon-)Nimes-Montpellier-Perpignan-Barcelona-Valencia has a very high potential for medium to long range transport. Yet, these services could be coupled with fast regional passenger services in Cataluña and, possibly in Languedoc-Roussillon in the long run. That would potentially imply the full exploitation of the potential of the high-speed line for passenger traffic, notably in Cataluña. Assuming this scenario determines the demand in terms of capacity of the infrastructure, and considers the achievement of the new high-speed line Barcelona-French border (beginning 2013 at the latest), Contournement

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Nîmes-Montpellier (completion date beginning 2017), and the start of works for the bypass of Lyon, the remaining critical steps for the development of the corridor in the coming years are:

- Upgrading the conventional line in Spain to a dual-gauge (third rail) high-capacity line by 2015, as recently announced by the Spanish authorities – which might imply tackling the issue of the status of the cross-border concession to TP Ferro.
- Speeding up the deployment of harmonised standards on the existing lines (notably train length and ERTMS) on both sides, thus improving the efficiency and competitiveness of the services along the corridor before the final implementation of a continuous new line; increasing the capacity along the stretches still on conventional lines and enhancing its interoperability.
- Optimising rail connections, notably to the key ports previously mentioned and to the main logistic platforms in the area. The connection to the Barcelona airport should be considered, in the completion of the corridor.
- Last but not least, anticipating the potential bottleneck on the Montpellier-Narbonne section (that would improve the connection Lyon / Marseille-PACA – Toulouse-Bordeaux as well), upgrading the existing line as indicated above and, potentially through a phasing of the works for the new line Montpellier-Perpignan.

4.2. The Atlantic and Iberian branches

These branches also have a complex, mixed function. As far as passengers are concerned:

- They play an important role in medium to long distance passenger traffic connecting the nodes of Madrid, the Basque capitals, Bordeaux and Paris. Impressive gains in time are expected, provided that a full high-speed line is deployed as shown in the previous reports.
- They provide the infrastructure for regional high-speed services connecting the three Basque capitals (Bilbao, San Sebastian and Vitoria).
- The existing cross-border connection will be used, once upgraded, to enhance the connectivity of the Basque Country with Aquitaine, and to improve the interoperability of the Spanish and French networks.

With regards to freight transport:

- The Atlantic cross-border section is the only alternative to the Mediterranean corridor for the Iberian Peninsula.
- It overlaps with Rail Freight Corridor 4 (the EEIG Vitoria-Dax is actively involved in it) and is the shortest route connecting Portugal to the rest of Europe, thus providing a rail connection to exploit the westernmost ports of the continent. Portuguese ports are the closest to the Panama Canal, currently doubled, and are strategically located along the route from Gibraltar to the northern EU ports.
- This corridor represents the most direct access to the rest of Europe for Madrid (and, therefore, Algeciras) and the Basque Country, including the important Port of Bilbao.

Its implementation is less mature than the Mediterranean branch, but the new lines between Tours and Bordeaux and in the Basque Country are progressing as planned, and an interoperable solution based on the upgrading of the existing line can be implemented in a relatively short time.

Therefore, the next steps for the development of the corridor in the coming years are:

- Upgrading the conventional line in Spain from San Sebastian to the French border to ensure a continuity of the network between the Y Basque and the French network (the Spanish authorities are actively working on it).
- Completing the upgrading of the signalling system for the French section south of Bordeaux to increase its capacity and performance. (The progressive deployment of ERTMS ought to be taken into account. RFF is already substantially improving the signalling of the section south of Dax, but the deployment of ERTMS-ETCS has not yet been scheduled).
- Setting up the corridor bodies (with reference to Rail Freight Corridor 4 and the future Atlantic Core Network Corridor) and exploiting their potential to identify bottlenecks and soft measures to increase traffic along the lines.
- Interconnecting the Atlantic and the Iberian branches in Madrid. Bridging these two branches - and three

national networks – will imply a coordinated approach on defining the slots and planning services. Effective final connections must be ensured to exploit the potential of the logistics centres around Madrid (Aranquez railway terminal can act as interface for flows to/from Algeciras and Portugal), as well as to allow through flows bypassing this node.

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5. Conclusions and Recommandations

The following main recommendations for the current period are highlighted, in order to allow these corridors to deliver their European added-value, which consists of bringing the rest of Europe closer to the Iberian Peninsula, enhancing the mobility of EU citizens and third country visitors, reinforcing the Internal Market, and making the EU transport system more sustainable, competitive and resilient.

5.1. Enhancing the governance of the corridors

Corridor governance has to be enhanced in two areas:

At international level:

- Ensuring the coordination of Member States in setting priorities for the corridor implementation, with the support of the international structures (EEIG and IGC) in place, as well as the European coordination.
- This requires an organisational framework such as the one foreseen for PP3 in the Memorandum of Understanding signed by the three ministerial representatives of France, Spain and Portugal on 8 June 2010, following a round table on TEN-T connections between the Iberian Peninsula and the rest of the EU.
- The Memorandum includes a formal statement on the setting up of permanent joint working groups at the highest level, with the involvement of the European coordination. This fundamental step needs to be undertaken so as to create the conditions for a common trust between the involved actors, a joint deployment of the project and a coordinated management of the corridors.
- Its timely implementation would anticipate problems and build up consensus over the most critical sections of the PP.
- Fine-tuning the infrastructure managers and structuring their cooperation to improve the capacity of the line and the quality of the slots along the line, as well as in managing the sections. Their role can be decisive in leading to an efficient process of homologation of the rolling stock, in preparation of an EU-level homologation. Such a homologation would substantially reduce costs and lead-time of rolling stock for international services, and contribute to the single railway area.

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Involving local stakeholders that play a decisive role in feeding - and thus financing - and implementing the corridor:

- Metropolitan areas crossed by the corridor. Urban access routes and integration determine the efficiency and effectiveness of the corridor, as well as passenger demand. For example, Barcelona and Nîmes, where the development of the high-speed line has been successfully coupled with urban regeneration and integration of the railways, provide a best practice to be carefully assessed.
- Ports and logistic platforms – beneficiaries and generators of freight traffic
- Airports (notably hubs) – the equivalent for passenger flows

5.2. Harmonising standards

The deployment of harmonised, efficient standards for the railway infrastructure:

- compatibility with UIC gauge
- freight train length of 750 m

ERTMS-ETCS signalling and control system - must be pursued not only for the new lines, but also for the existing ones, in order to allow efficient transport services to be deployed in the short run and enhance the capacity of the corridors. This effort is in line with the standardisation required by the proposal for revised TEN-T guidelines.

5.3. Creating a favourable economic environment for the development of these crucial interconnections and tap their economic potential

A favourable cycle able to trigger investment in growth-making infrastructure must be activated.
This will require:

- Sharing targeted political priorities among Member States, and thus prioritising the critical sections along the lines identified on a common ground as crucial,

- Involving all the actors that might maximise the flows of people and goods on the corridors (ports, airports, urban nodes, logistics centres and productive areas), in cooperation with the infrastructure managers and railway operators, in order to maximise transport demand and provide an attractive infrastructure offer.
- Ensuring that EU-level resources are effectively pooled: concentration is a key factor to succeed in implementing large transport infrastructures. This is fully in line with proposed new TEN-T Guidelines, where the Core Network is identified as a priority level of TEN-T, and the Connecting Europe Facility, where core projects are clearly identified with allocated concentrations of resources.
- Attracting private capital and other resources on these infrastructures, through the generation of additional demand, as mentioned before.
- Enhancing the revenues and attractiveness of the infrastructure/transport services through the internalisation of external benefits (and costs).

With regards to these points, it is worth recalling two elements highlighted in the past report:

- Capacity of the project to concentrate resources and attract private capital: delivering future results in terms of provision of new services, achieving a modal rebalance in the area and generating additional demand, thus contributing to further attracting private capital to the project, as happened so far (cross-border section Perpignan-Figueres, the Contournement Nîmes-Montpellier, and, in the classical form of a concession with traffic-related revenues, in the case of the Tours-Bordeaux high speed line).
- EU-co financing: Both PP3 and PP19 have benefitted enormously from the synergies and complementary support offered by the Cohesion Fund and ERDF, or from TEN-T, as well as from EIB financing. A coherent funding and financing framework, commonly accepted priorities, and a joint planning, shared by the Member States and the regions involved, are required for a coherent deployment of these large scale projects.

5.4. Consensus building

In order to smoothly implement these projects, and to get the best outcome from the transport operations, it is fundamental to ensure a continuous dialogue with the stakeholders, including local communities, as well as players from the key sectors (industry, logistics, but also agriculture), which might be interested in actively taking part in the process.

A proactive communication process is needed, to clearly show the positive outcome of these long-range projects which connect regions with the whole TEN-T and beyond, allowing the provision of long-range, efficient transport services.

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Synopsis of PP3 components and specific remarks

Section	Type	km	Start of operations	Journey time (pax) – stopping at the section	Gauge	Max gradient - Freight train length (LE: existing line)[3]
Madrid-Zaragoza-Barcelona	HSL	621	Operational (2007)	2h38 min	UIC	25 (30)‰ (LE: 1.9‰, 500m)
Barcelona-Figueras	HSL	132	2012	50 min Barcelona-Perpignan	UIC	15‰ 750 m
Figueras-Perpignan (TP FERRO)	(mixed) HSL	44	2008	See above	UIC	18‰ 750 m
Montpellier-Perpignan	mixed HSL	160	2020	40 min	UIC	12.5‰ 750 m (LE: idem)
CNM	mixed HSL	60 (+20)	2016	25 min	UIC	10‰ 750 m (LE: idem)
Madrid-Valladolid	HSL	179	Operational	56 min	UIC	26‰ (LE: 18‰ 480 m)
Valladolid-Burgos	HSL	135	2012	1h14 min (stop)/ 1h05 min (through)	UIC	25‰ (LE: 10‰ 480 m)
Burgos-Vitoria	HSL	99	2013		UIC	25‰ (LE: 15‰ 520 m)
Vitoria-Bergara	HSL mixed use	41	2013	Vitoria-Bilbao 28 min Vitoria-Astigarraga 32 min Bilbao-San Sebastián 38 min	UIC	18‰
Bergara-San Sebastián	HSL mixed use	61	Mid 2016		UIC	15‰
Bergara-Bilbao	HSL mixed use	48	2013		UIC	18‰
Astigarraga (San Sebastián)-Bayonne	Mixed (220 km/h)	45	2020	18 min (through services)	UIC	15‰ (18‰ except.) 750 m
Bayonne-Dax[4]	Mixed (220 km/h)	70 (95 km to Spain)	2020	18 min (through services)	UIC	12‰ 750 m
Dax-Bordeaux	HSL	155	2020	43 min	UIC	<25‰ LE: <15‰ 750 m
Bordeaux-Angouleme-Tours	HSL	303	2016	2h10min to Paris	UIC	25‰ LE: <15‰ 750 m
Madrid-Talayuela	Mixed HSL	140 km	(Partly Oper.) 2013	2h45min Lisbon-Madrid	UIC	15‰ (except. 17.5‰) 750 m (LE: 16 ‰ – 400m)
Talayuela-Cáceres		128 km	2013		UIC	
Cáceres-Mérida		40 km	2011		UIC	
Mérida-Badajoz		36 km	2011		UIC	
Badajoz-Caia		17 km	2013		UIC	12‰ – 750 m
Caia-Poceirão[5]	Mixed HSL	165 km	2013		UIC	12‰ – 750 m (freight on PP16)
Poceirão-Lisbon	HSL mixed (part.)[6]	41 km	2014		UIC	12‰ – 750 m (freight on PP16)

Notes:

3 For the sections expected to be completed after 2013, and/or sections for which freight traffic is planned to run through the existing / al alternative existing line, the latter is mentioned as: (LE:xxx)

4 From connection to connection

5 The use of PP16 section Sines-Evora is considered for freight transport upgraded to ...not electrified

6 Part of the line shares the platform with conventional lines suitable for freight transport

7 Third Tagus Crossing (TTT), worth €0.9 billion for an overall length of 14 km – 7 km of bridge including conventional rail

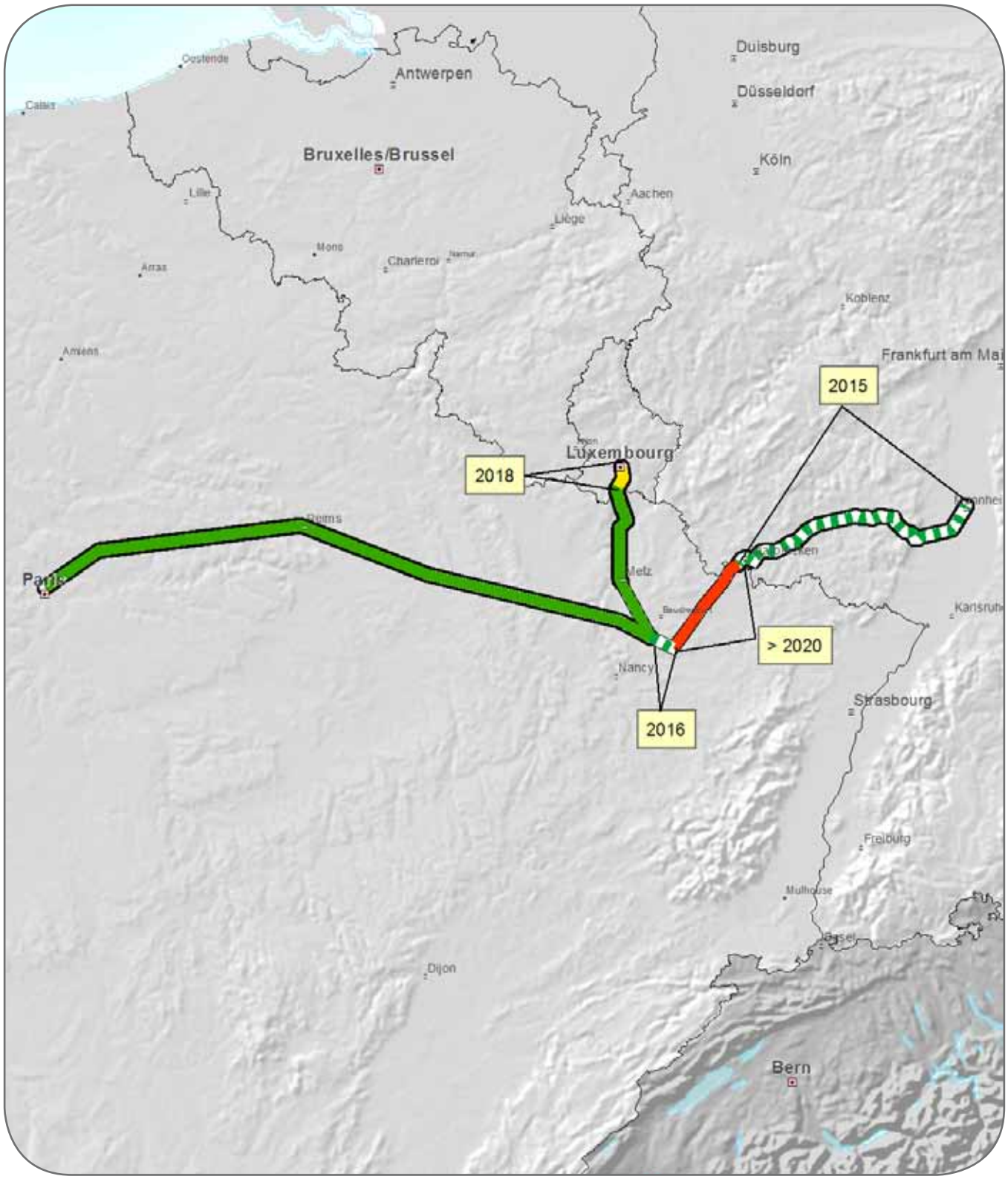
PP 3

PP 19

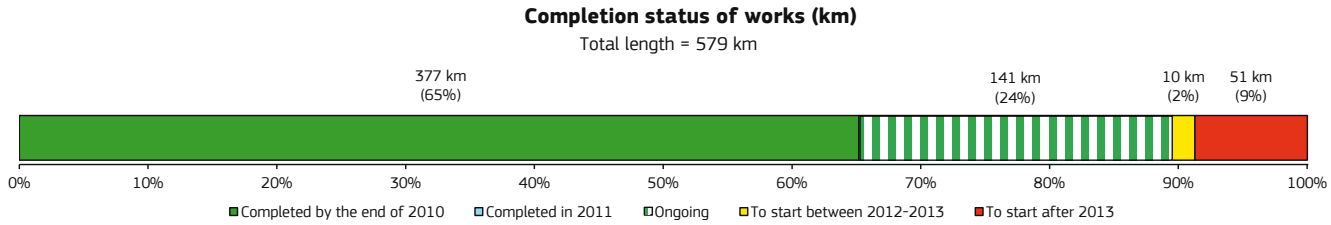
	Signalling and electrification	Future costs estimation	Specific remarks
	ERTMS lev. 1, 2 + ASFA 25 kV	0	(Tunnel Sants-Sagrera in Barcelona-Figueres section)
	ERTMS lev. 1, 2 + ASFA 25 kV	€365 million	Barcelona and Girona tunnels are the critical section of the critical path
	ERTMS 2.1 2x25kV AC	0	Operational - provisional link expected by 2010 Spanish side - ERTMS needed in future link to Perpignan
	ERTMS lev. 2 25kV AC (LE: KVB - 1,500 V DC)	€5.2 billion	Under definition – Montpellier-Narbonne potential bottleneck in the coming years
	ERTMS lev. 2 25kV AC (LE: KVB - 1,500 V DC KVB)	€1.4 billion	Important not to delay implementation further – existing line already congested
	ERTMS lev. 1, 2 25kV	0	
	ERTMS lev. 1, 2 25kV	€5.5 billion	
	ERTMS lev. 1, 2 25kV		
	ERTMS lev. 1, 2 25kV		
	ERTMS lev. 2, 25kV		
	ERTMS lev. 1, 2 25kV		
	ERTMS lev. 1, 2 25kV	€1.3 billion	Upgrading of Irun-Hendaye section in design phase - useful to boost freight traffic
	ERTMS lev. 2 25kV	€1.4 billion	
	ERTMS lev. 2 5kV	€1.9 billion	
	ERTMS lev. 2 5kV	€7.2 billion	
	ERTMS lev. 2 25 kV (LE: 3kV)	€2.7 billion	Madrid–Pantoja (52 km) operational
	ERTMS lev. 2 25 kV (LE: -)		Plus 14 km access to Cáceres – not on the critical path
	ERTMS lev. 2 25 kV (LE: -)		Plus 32 km access to Mérida – not on the critical path
	ERTMS lev. 2 25 kV (LE: -)		Plus 14 km access to Badajoz – not on the critical path
	ERTMS lev. 2, 25 kV (LE: -)	€0.2 billion (line)	Cross-border section managed by AVEP. Environmental permits procedure still ongoing.
	ERTMS lev. 2 25 kV	€1.4 billion by 2013 (ongoing)	Implemented through a PPP. Works as planned
	ERTMS lev. 2 25 kV	€0.9 billion (including TTT)[7]	One year delay in concession – call for tender under preparation

Priority Project 4
High speed railway axis east

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	Member State(s)	TEN-T support (in million)	Project status
Ausbaustrecke 23 (Grenze D/F) Saarbrücken - Ludwigshafen (POS Nord)	DE	€10	Ongoing
TOTAL		**€10**	



Priority Project 4
High speed railway axis east

Trans-European transport network. Achievement of the Priority projects

Summary

Priority Project 4, "LGV Est Européenne", the high speed railway axis east, comprises 579 km of high speed and upgraded rail lines between France, Luxembourg and Germany.

On a European scale, PP4 complements PP17, the Priority Project linking Paris to Bratislava. By making the regions of eastern France more accessible, PP4 also offers new opportunities for personal mobility and for economic development in the areas it serves.

PP4 is almost complete - in several sections the works have already been completed or are due to be completed by 2013 - except for the Baudrecourt-Saarbrücken section where it is considered too difficult to reduce journey times appreciably in a cost-efficient manner. No main studies and/or construction works are expected to be carried out as of 2015. By that date, the Priority Project could be considered finalised.

1. Introduction

PP4 is intended to speed up connections both between Paris and the regions of northern, western and southwestern France, and between north eastern France, Germany, Switzerland and Luxembourg.

By reducing travelling times and by improving the accessibility of the eastern regions of France, PP4 provides new opportunities for passenger mobility and the economic development of the regions served by the line.

The PP4 ("LGV Est Européenne" project) comprises:

- 300 km of new high speed line between Paris and Baudrecourt in the Moselle department;
- 179 km of line to be upgraded between Baudrecourt, Saarbrücken and Mannheim (on the Paris-Metz-Frankfurt-Berlin rail route);
- 100 km of upgraded line between Baudrecourt, Metz and Luxemburg.

Length of the rail network (km)

	Length of lines in use (km)	Of which electrified	High Speed Rail Network (km)
EU27	215,439	107,373 (49.8%)	5,764
DE	34,221	19,350 (56.5%)	1,300
FR	29,286	14,765 (50.4%)	1,893
LU	275	262 (95.3%)	0

2. Socio-economic impact of the project

The high speed railway line involves countries (France, Germany and Luxembourg) whose per capita gross national income is above 90% of the EU average. Therefore, the Structural Funds and the Cohesion Fund do not come into consideration in the framework of the Convergence objective. In this context, the TEN-T budget remains the most important source of co-financing for TEN-T projects in regions with a normal economic performance.

PP4 is a key factor in the development policies pursued by socio-economic players and local authorities. Being incorporated in regional projects along the line, PP4 accompanies and promotes the dynamic development of territories and regions which have undergone significant economic changes resulting from deindustrialisation and a rather negative brand image. PP4 will be a reserved for passenger traffic, offering substantial reductions in journey times between the three countries and regions concerned and attracting passengers away from air and road transport. Since the line became operational, travelling times for rail journeys between Paris and eastern France have been cut by an average of 50 % .

The project will also provide improved connections between some of Europe's key and secondary airports (Frankfurt, Paris Charles de Gaulle, Luxembourg and Strasbourg). This will make a significant contribution to the promotion of intermodal air-rail travel, in line with EU transport policy objectives. In addition to the benefits for the regions of eastern France, the economic knock-on effect spreads beyond the French borders. Indeed, PP4 opens new horizons towards Luxembourg, Germany and Switzerland.

	Area 1,000 Km2	Population (Millions)	GDP per capita
EU27	4,323	495.57	100
DE	357 (8.26%)	82.31 (16.61%)	114
FR	544 (12.58%)	61.54 (12.42%)	111
LU	2.6 (0.06%)	0.48 (0.097%)	266
EU3	903.6 (20.9%)	61.54 (29.12%)	

3. Infrastructure development by country

The state of implementation of PP4, the high speed railway axis east, is as follows:

PBKAL route sections	Section length (km)
Paris-Baudrecourt	300 (new line)
Baudrecourt-Luxembourg border	80 (upgraded line)
Baudrecourt-Saarbrücken	40 (line to be upgraded)
Saarbrücken-Mannheim	139 (line to be upgraded)
Luxembourg-French border	20 (line to be upgraded)

3.1. France

Paris-Baudrecourt section

Construction of the new high speed line between Paris and Baudrecourt was completed during the summer of 2006 and the line went into operation in summer 2007. The works, officially launched on 28 January 2002, initially comprised a civil engineering site to construct the 300 km track bed. The works included numerous embankments and cuttings (cuttings alone amounting to 64 million cubic meters) and the construction of 327 engineering structures, including five covered trenches.

The section was co-financed by the EU with €158.33 million under the 2001-2006 multi-annual work programme. France also obtained a loan of €300 million from the EIB for the works on this section. These contributions facilitated the rapid completion of the Paris-Baudrecourt section.

Baudrecourt-Luxembourg border section

The works on this section were completed and became operational in 2007 at the same time as the Paris-Baudrecourt line.

Baudrecourt-Saarbrücken section

The Baudrecourt-Saarbrücken section comprises an existing railway line between France and Germany. No improvement work is planned for this cross-border section before 2013 because it is considered difficult to appreciably reduce journey times on this section.

Nevertheless, in April 2009 responsible politicians in the regions concerned – Moselle, Saarland and Rhineland-Palatinate – signed a declaration to promote this northern route, calling for improved speed and frequency between Baudrecourt and Mannheim. According to the declaration, the improvement of this northern branch will be taken into account during the second phase of the high speed line in France (Baudrecourt-Strasbourg section). The financing agreement for the second phase of the high speed line east provides that the journey time between Baudrecourt and Mannheim via Saarbrücken is to be improved by 15 minutes in order for it to be competitive with regard to the journey via Strasbourg.

3.2. Germany

Saarbrücken-Mannheim section

Improvement and conversion works on the Saarbrücken-Mannheim section, to enable trains to travel at a speed

Priority Project 4
High speed railway axis east

Trans-European transport network. Achievement of the Priority projects

of 200 km/h, are due to be completed by 2013. The section was co-financed with €25.33 million under the 2001-2006 multi-annual programme and €10 million will be allocated in the 2007-2013 period.

3.3. Luxembourg

Luxembourg-French border section

The improvement and conversion works on the Luxemburg-French border section, to enable trains to travel at a speed of 200 km/h, are due to be completed by 2018.

4. Financial aspects

The European Union supports the implementation of the TEN-T projects through several EU financial instruments as well as loans from the European Investment Bank. The subsidies, in particular under the TEN-T budget line, the Cohesion Fund and Structural Funds for development play an important role in some European regions, both in the preparation of TEN-T projects and at the launching stage. Subsidies are allocated to studies (of feasibility, complete technical or environmental, and costly geological explorations), helping to overcome difficulties of the project during the first stage and the works phase. A key issue for the future, with a view to the implementation of TEN-T projects, will be to rationalise EU subsidies by allocating them to projects with high European added value. PP4 involves regions which do not benefit from support from the Structural Funds. Therefore, significant co-financing of the project is ensured by the TEN-T budget, which is used to co-finance some of the works under this project.

5. Technical and operational aspects

Operating speed

The new 300 km line (Paris to Baudrecourt) for the High Speed Railway Axis East is designed for a nominal (potential) speed of 350 km/h. Commercial services are currently being operated by TGV and ICE trains at a maximum speed of 320 km/h, being the highest speed for commercial trains. The world speed record on rail, with a speed of 574.8 km/h, was actually achieved on the High Speed Railway Axis East.

Interoperability

Interoperability is a system of standards (supported by infrastructures and rolling stock) that aims to allow any type of train meeting these standards to run on an interoperable infrastructure. The line is equipped with high frequency track circuits and track-train communication, the state-of-the-art version (TVM 430) being used. Moreover, it is fitted with ETCS level 2 and GSM-R, components of the European rail traffic management system (ERTMS). This makes the High Speed Railway Axis East an interoperable high speed line, enabling European high speed trains such as the TGV and the ICE3 to be operated. The line is also fitted with the conventional signalling system of French high speed lines, the TVM 430 SEI, which allows high-speed trains not fitted with the ERTMS system to operate on the line.

International links

Two services have been introduced between France and Germany:

- ICE from Frankfurt via Mannheim, Saarbrücken and Forbach to Paris, using Deutsche Bahn ICE3 trains ;
- TGV from Paris via Strasbourg to southern Germany: Karlsruhe central station, Stuttgart and Munich, using SNCF TGV POS trains.

Two additional services have been introduced for Luxemburg and Switzerland:

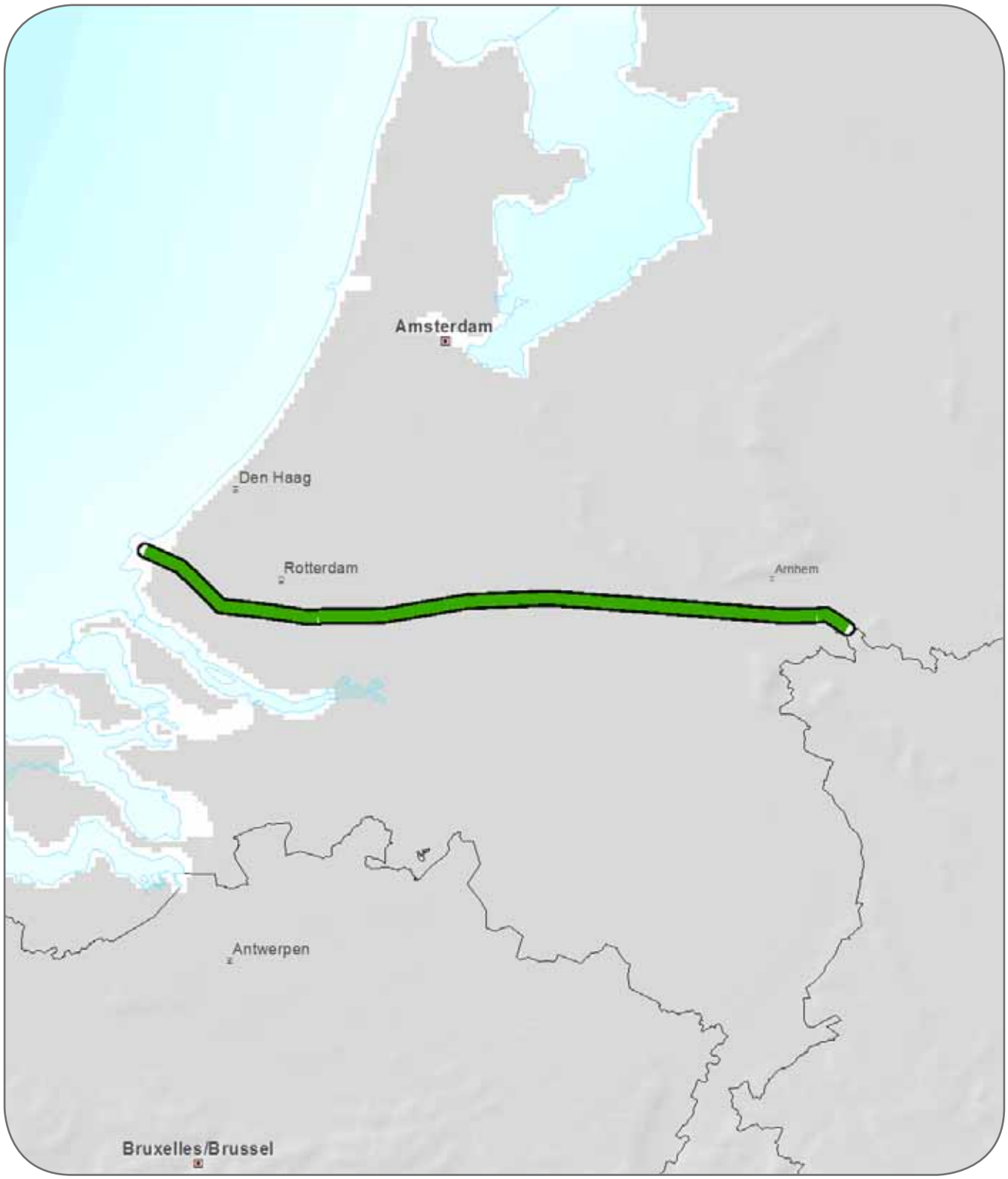
- Paris-Luxembourg, operated by SNCF;
- Paris, Basel and Zurich, operated by Lyria, a joint venture set up in 2002 between SNCF and SBB/CFF/FFS.

In 2008, 11.9 million passengers travelled on the High Speed Railway Axis East, 1.2 million of them headed for

Germany (56% towards Frankfurt and 44% towards Stuttgart), 408,000 to Switzerland and 366,000 to Luxembourg. By June 2009, the line had transported 12 million passengers during the second year of operation, reaching a total of 23.2 million since it went into service. The number of journeys between France and Germany increased by 15% compared to the first year. The High-Speed Railway Axis East showed a sharp increase in 2010, with a total of 13 million passengers travelling on the "TGV Est".

Priority Project 5
Betuwe Line

Trans-European transport network. Achievement of the Priority projects



0 20 40 km

Cartography: DG MOVE, October 2012
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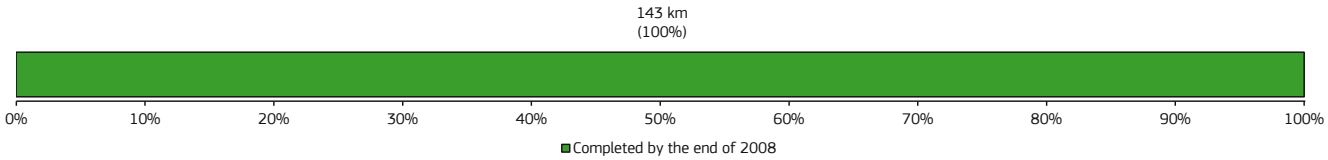
- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

- Completion Date
- Priority sections

TENtec

Completion status of works (km)

Total length = 143 km



Priority Project 5
Betuwe Line

Trans-European transport network. Achievement of the Priority projects

Introduction

The Betuwe Line is a 160 km long double track rail line which connects the Port of Rotterdam to the Dutch-German border at Zevenaar (Netherlands) and Emmerich (Germany). Dedicated to freight and ERTMS (European Rail Traffic Management System) equipped, the Betuwe Line was inaugurated in June 2007 and can be considered as broadly completed. The Betuwe Line is also a component of PP24 Railway axis Lyon/Genoa-Basel-Duisburg-Rotterdam/Antwerp and the ERTMS Corridor rail freight corridor A Rotterdam-Genoa.

Cross border sections and bottlenecks

Zevenaar/Emmerich

The cross-border section is split between 3 km in the Netherlands and 10 km in Germany. Three projects are currently ongoing and are expected to be completed by 2013: its equipment with ETCS (European Train Control System) level 2, the change of power supply system from 1.5 kV to 25 kV and the construction of a third track.

Other sections

Maasvlaakte 2

The extension of Rotterdam harbour encloses the construction of a 15 km long ETCS equipped double track line, and the construction of additional marshalling yards. The project, which is currently in the planning phase, is expected to be completed in 2016.

Kijfhoek

This project foresees the equipment of an 8 km long section with ETCS by 2013. At a later stage, the migration from 1.5 kV to 25 kV will be realised, after which the electric power supply will be harmonised from the harbour to the Dutch-German border.

Progress and delays

In 2010, an average of 55 southbound international freight trains are expected to use the Betuwe route between Kijfhoek and Emmerich daily, compared to 41 in 2008. A part of the increase is related to a shift of traffic from the Venlo route. Despite this increase, the Betuwe route remains currently underused. At the Emmerich border point - the outpoint of the Betuwe route - a joint calculation by ProRail and DB Netz forecasts an increase in demand for train paths by 50% to 120 paths daily in 2010 and by 80% to 144 paths daily in 2015. The aim of the line operator Keyrail is to reach 150 trains per day, for a capacity which reaches approximately 180 to 200 trains a day. In this perspective, in December 2009 Keyrail set up an incentive system that offers price reductions for any load additional to those already booked for 2010 and 2011. The five year operational contract between Keyrail and the Dutch Ministry of Transport foresees that Keyrail should break even by 2013.

General Appreciation

From an infrastructure point of view, the timely completion and the technically successful entry into service of the Betuwe Line undeniably counts among the success stories of TEN-T policy. The remaining projects have faced no major delay thus far. From an operational point of view, however, the Betuwe route is confronted with the general issue of rail competitiveness against road and, in the case of the Port of Rotterdam, against inland waterways. The further integration of services to customers along Corridor A Rotterdam-Genoa, as well as its full equipment with ETCS will nevertheless contribute to strengthen the position of this infrastructure for freight transport carried to and from Rotterdam.

Priority Project 6

Railway axis Lyon-Trieste-Divača/Koper-Divaca-Ljubljana-Budapest-Ukrainian border

Trans-European transport network. Achievement of the Priority projects

0 100 200 km

Cartography: DG MOVE, October 2012

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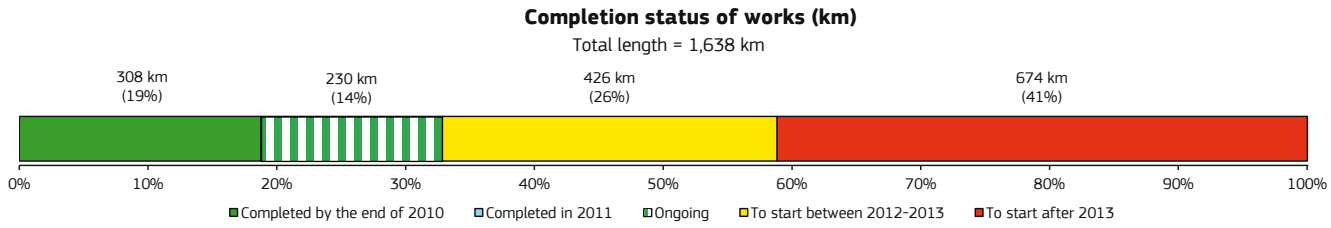
- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

- Completion Date
- Priority sections

TENtec

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Nouvelle liaison ferroviaire Lyon-Turin Partie commune franco-italienne de la section internationale	FR, IT	€671.8	Ongoing
Nodo di Torino, tratta Porta Susa-Stura, progetto prioritario n. 6, rimozione bottleneck	IT	€52.7	Ongoing
Crossborder Railway Line Trieste/Divaca : study and design of the Trieste-Divaca-Ljubljana-Budapest-Ukrainian Border	IT, SI	€50.7	Ongoing
Tratta Ronchi sud - Trieste: Progetto Prioritario 6 - sezione Nazionale	IT	€24	Ongoing
Studies for preparation of approval of the railway line section Budapest - Keleti - Miskolc - Nyiregyhaza	HU	€8	Ongoing
Projet Ferroviaire Lyon - Turin: Etudes des itinéraires d'accès français au tunnel de base	FR	€7.6	Ongoing
Completion of final design of the Treviglio–Brescia Section, on the Milano–Verona high speed/high capacity line	IT	€6.1	Completed
Projet ferroviaire Lyon-Turin: Itineraires d'accès français au tunnel de base	FR	€4.7	Completed
Elaboration of the Executive design for upgrading of the section of the railway line Poljčane - Pragersko	SI	€1.1	Ongoing
Working out of preliminary studies for the construction of the new line of high capacity/high speed line Ljubljana – Zidani most	SI	€0.4	Ongoing
Working out of preliminary studies for the construction of the new line of high capacity/high speed line Divaca - Ljubljana	SI	€0.4	Ongoing
TOTAL		**€827.4**	



Priority Project 6

Railway axis Lyon-Trieste-Divača/Koper-Divaca-Ljubljana-Budapest-Ukrainian border

Trans-European transport network. Achievement of the Priority projects

European Coordinator

Laurens Jan BRINKHORST

Summary

The railway axis from Lyon to the Ukrainian border is the main east-west passage south of the Alps, connecting the Iberian peninsula with the eastern part of Europe and beyond. The 1,638 km long railway axis is an important high capacity east-west connection crossing the Alps between Lyon and Turin. The project concerns four Member States (France, Italy, Slovenia and Hungary) and it will link important urban areas. It will also deliver an important increase in transport capacity, thus allowing a modal shift from road to rail to be realised in the sensitive mountainous regions it crosses.

Laurens Jan Brinkhorst is the European Coordinator for this Priority Project (hereafter referred to as PP6), succeeding Mrs Loyola de Palacio on 5 July 2007.

As was the case in the previous years the Coordinator's work and efforts concentrated on the cross-border sections of PP6, in particularly on the two projects involving the construction of a new high speed railway link partly in tunnels: Lyon-Turin and Trieste-Divača.

Both of these sections are still advancing rather slowly. However, some major milestones have been passed in the reporting period which will move both projects closer to their realisation. The progress achieved must be seen against the background of an increasingly negative and – in some regions – even hostile public opinion vis-à-vis new infrastructure projects as well as the dire state of public finances and the expanding European debt crisis, which are creating a difficult environment for governments to take decisions on major infrastructure investments.

Cross-border sections

PP6 includes three cross-border sections:

Lyon-Turin

The Lyon-Turin section, totalling 235 km, constitutes the core of the Lyon-Ukrainian border high capacity rail axis. This section comprises the 57 km long cross-border base tunnel, which starts at St Jean de Maurienne and exits in the Valley of Susa. It also comprises the access routes from Lyon and Turin. Civil works on the access routes and on the actual base tunnel have not yet begun. Progress on the base tunnel section differs between France and Italy. In France, the necessary authorisations for the construction of the base tunnel are in place. In addition, the three access tunnels on French territory have been completed.

After considerable delay, preparation in Italy of the construction site for the La Maddalena exploratory and access tunnel near Chiomonte started in June 2011 and was finished in March 2012. Excavation works are scheduled to begin in September 2012.

The efforts of the Italian authorities to engage with the local population of the Susa valley continued throughout the reporting period. Mr. Mario Virano, chairman of the Italian Observatory for the Torino-Lione railway link continued his valuable work in facilitating and organising a structured dialogue with all interested local and regional parties. The work of the Observatory has been instrumental in organising a transparent and democratic decision-making process in Italy. Without the unflinching efforts of the Observatory under the leadership of Mario Virano,

the entire project would not have reached the current momentum of support.

The European Commission earmarked €672 million for the studies and start of the civil works on the base tunnel, originally to start before the end of 2013. This deadline will be extended to 2015. Even with this extension the schedule is tight, and no further delays should be incurred to warrant the disbursement of the full amount by the Commission.

Trieste-Divača

After a first alignment proposed in 2008 had to be discarded for environmental reasons, agreement was found on a new alignment, the "high corridor". Three different solutions were studied on the Italian side and two on the Slovenian side, all running not far from the route of the existing railway line which connects Bivio di Aurisina to Opicina, Sežana and Divača. At the end of June 2011, Italy and Slovenia decided on one alignment for which the preliminary design will be elaborated.

The setting up of the organisational structure for the Triëste-Divača corridor has taken longer than originally foreseen mostly due to the change of Government in Slovenia. The structure was at last agreed on 3 July 2012 between Italy and Slovenia. This should now facilitate a more permanent momentum for supervising the agreed engagements on both sides with the active assistance of the European Commission.

Slovenia-Hungary

The cross-border section between Slovenia and Hungary lies between Hodoš and Boba. The section from Pragersko to Hodoš and further to the Hungarian border is not yet electrified. The electrification and reconstruction of the entire section of 109 km is scheduled for completion by 2015. The upgrade of the Hungarian section to Boba has been completed.

Both countries have resumed bilateral talks on how to improve the corridor, with a view to establishing a permanent cooperation structure.

Key developments in 2011/2012

Lyon–Turin

- The negotiations between France and Italy on a new agreement governing Lyon-Turin resumed after the summer of 2011. On 27 September 2011, France and Italy agreed on the distribution key for the works of the first phase (base tunnel, two stations and the interconnections).
- On 19 December 2011, the Coordinator met for the first time with the new Italian Minister for Economic Development, Infrastructure and Transport, Corrado Passera, and with the Vice Minister for Infrastructure and Transport, Mario Ciaccia. The Minister confirmed his Government's full support for the project.
- On 20 December 2011, the Intergovernmental Commission France-Italy approved the new agreement on Lyon-Turin which amends the 2001 Treaty of Turin.
- On 30 January 2012, the Transport Ministers of France and Italy signed in Rome the new Agreement on the realisation of the new Lyon-Turin railway link. This agreement (referred to from now on as "2012 Agreement") is the precondition for advancing the project from the study phase into the design and implementation phase.
- On 6 March 2012, the Lyon-Turin Corridor Platform held its second meeting in Chambéry, at the invitation of the Coordinator.
- On 26 April 2012, the Italian Transport Minister presented the latest cost benefits analysis for Lyon-Turin issued by the Observatory which establishes that the benefits of this new major infrastructure far outweigh its costs.
- At the beginning of June 2012, the historic line between Modane et Orbassano (Turin) was at last opened for the new GB2 loading gauge after the completion of works in the Mont Cenis tunnel and of all verification and safety procedures by the infrastructure authorities in charge.

Trieste-Divača

- On 10 February 2012, the new Slovenian government of Prime Minister Janez Janša took office.
- On 18 June 2012, the European Coordinator held a first meeting with the new Slovenian Minister of Infrastructure and Spatial Planning and the State Secretary, Mr Igor Šalamun.
- On 3 July 2012, Italy and Slovenia agreed on the statutes of the project promoter to be established as a Eu-

Priority Project 6

Railway axis Lyon-Trieste-Divača/Koper-Divaca-Ljubljana-Budapest-Ukrainian border

Trans-European transport network. Achievement of the Priority projects

ropean Economic Interest Grouping (EEIG).

1. Project overview

1.1. Introduction to the project

The previous annual reports[1] give a comprehensive description of PP6 and the progress made up to summer 2011. PP6 is the only east-west corridor south of the Alps which will be able to capture significant traffic from the Iberian Peninsula through the project countries France, Italy, Slovenia and Hungary and vice-versa. Its completion will also provide for fall back options for north-south and south-north rail traffic on several sections.

The underlying reason for PP6 is the necessity of a policy of co-modality, of using every transport mode to the best of its environmental and economic possibilities. The sensitive alpine environment and unsustainable growth of road traffic on this corridor make its realisation all the more urgent. Another argument for the project is the positive effect it will have on the employment in the regions it crosses, especially with Italy, just like France, now also having chosen an approach to the works that will maximise the benefits for the territories the line crosses.
For ease of reference this report distinguishes the following four sections in this order:

- Lyon–Turin
- Turin–Trieste
- Trieste–Divača/Koper–Divača
- Divača–Ljubljana–Budapest–Ukrainian border

At the TEN-T days in Zaragoza on 8 June 2010, France, Italy, Slovenia and Hungary signed a Memorandum of Understanding on the project. Vice President Kallas and the Coordinator signed a declaration of support on behalf of the European Commission. In the Memorandum, the countries reiterated the political priority they attach to the completion of PP6.
They equally undertook specific engagements to ensure progress on the project, especially on the cross-border sections. France and Italy reinforced their commitment to the project by signing, an amendment to the 2001 Treaty of Turin on 30 January 2012. This new agreement, established the public promoter for the works phase of the common section and laid down the alignment as well as the relative share of the costs to be borne by each country.
Italy and Slovenia have at last agreed on the statutes of the new project promoter for their cross-border section between Trieste and Divača. They have also nominated their first directors and agreed to seat the new promoter in Trieste.

1.2. Lyon-Turin – International section

1.2.1. The French section – access routes to the joint section

The French part of the international section[2] starts at Saint-Didier-de-la-Tour, outside Lyon, and ends at the approach of St Jean de Maurienne, where the common section – the base tunnel – starts. The state of play concerning the access routes is as follows[3]:

Starting from the eastern railway ring line of Lyon the new Lyon-Turin line will consist of a mixed line for freight (120 km/h) and passengers (220 km/h) up to Avressieux. From there the high speed line, exclusively for passengers, will continue to Chambéry. The freight line will depart in a south-easterly direction into the Chartreuse tunnel. In the Isère valley it will reconnect again with the line from Chambéry to Grenoble. The new line will continue in a south-easterly direction into the Belledonne tunnel coming out in the Maurienne valley. There it will enter the Glandon tunnel and exit at St. Jean de Maurienne to enter the base tunnel.

1 For a full history of the project please refer to the first Annual Reports 2005-6, 2006-7, 2007-8, 2008-2009, 2009-10 and 2010-11 available at http://ec.europa.eu/ten/transport/coordinators/index_en.htm

2 Art. 2 lit. a) of the 2012 Agreement

3 A detailed presentation of the French access routes can be found at http://www.lyon-turin.info

The Avant-projet sommaire (APS) for this alignment was approved in 2010. The time estimate for all necessary authorisation and tendering procedures up to the end of the works is roughly ten years. The goal is to complete a first phase of the access routes in parallel with the completion of the base tunnel. The total cost of the French access routes is estimated to amount to €6.7 billion (2010 prices).

The public consultation for the access routes took place in early 2012 and the final report[4] of the Public Consultation Commission was rendered on 2 July 2012, giving a positive opinion on the project.

1.2.2. Common Franco-Italian section – including the base tunnel Lyon–Turin

The common Franco-Italian section consists of the links with the historic line closest at both ends to the border, near St Jean de Maurienne in France and Bussoleno/Bruzzolo[5] in Italy. In 2001, Lyon Turin Ferroviaire (LTF), a 50/50% joint venture of Réseau Ferré de France (RFF) and Rete Ferroviaria Italiana (RFI), was created as promoter of the new railway link up to the start of the actual construction work. Works on the three access tunnels in France (St Martin La Porte, Modane and La Praz) totalling a length of 9 km have been completed.

Works on the access tunnel on the Italian side started at the end of June 2011. In a first phase, the future site of the entrance of the La Maddalena exploratory and access tunnel, near Chiomonte, was prepared. This included building a direct access to the motorway, which runs on bridges above the site, thus lorries will not need to pass the village of Chiomonte. The actual site of the tunnel portal lies on the northern side of the motorway in an uninhabited area. All seven hectares were acquired by LTF by February 2012.

Works to prepare the site of the tunnel portal started in spring 2012. These comprised geological probing of the first 65 m of the future tunnel and the reinforcing of the area around the portal. In addition, the site for the provisional deposit of the excavation material has been prepared as well as the basin for the cooling off of the mountain water. Actual excavation works are due to start in late autumn this year. The Maddalena tunnel will be 7,500m long and 6.3 m in diameter[6]. The first 250 m will be excavated by explosives making room for the assembly of the tunnel boring machine that will be used to dig the tunnel. The estimated duration of the works is four years.

On 3 August 2011, the Italian *Comitato Interministeriale per la Programmazione Economica (CIPE)* approved the Preliminary Project, thus paving the way for work to start at La Maddalena and the future design works for the access routes on the Italian side.

The base tunnel, with a length of around 57 km, will run between St Jean de Maurienne and Susa. It will be constructed from the French and Italian entrances to the future structure. Excavation will also be undertaken from the base of each access tunnel. This will allow simultaneous tunnelling at several places and shorten the deadline for completion of the base tunnel. Even before the closure of the civil engineering phase, works could begin on installing the tunnel equipment, followed by preliminary commissioning tests. Contrary to what was indicated in the funding application to the European Commission, the delays mentioned above will make it unlikely that construction works on the tunnel start by the end of 2013.

In December 2008, the European Commission decided to reserve €671.8 million for studies and works on the Italian-French common section for the 2007-2013 period. The actual payment of these funds depends on the capability of both beneficiaries to respect the project deadlines indicated in their submission for TEN-T co-financing. In order to carefully follow-up the spending of scarce resources of the present financial perspective, the Commission carried out a Mid-Term Review of all multi-annual co-funding decisions for 2007-2013. It was found that important delays occurred compared to what was foreseen in the Lyon-Turin co-funding decision. In view of this, conditions were formulated to extend the period of eligibility up to the end of 2015 in order to make use of the allocated budget (conclusion of a new treaty, approval of the preliminary design by both countries, and start of the works at La Maddalena). Given the very complicated situation, the Commission allowed additional time to

4 The full report is accessible under http://www.savoie.pref.gouv.fr/Les-politiques-publiques/Amenagement-du-territoire-et-construction/Deplacements-Transports/Lyon-Turin-Ferroviaire

5 Art. 2 lit. b) of the 2012 Agreement

6 A leaflet explaining the works at La Maddalena can be accessed under http://www.ltf-sas.com/upload/File/LTF%20brochure%20FR-b.pdf

meet the conditions.

Cooperation between France and Italy is gaining new impetus from the 2012 Agreement, signed by the two Governments on 30 January 2012 and amending the 2001 Treaty of Turin. This new agreement lays down the alignment as well as the relative share of the costs to be borne by each country. In addition, it also establishes detailed rules on the public promoter for the works phase of the common section. The Agreement is currently in the process of ratification in France and Italy.

1.2.3. Italian section – access routes from Turin to the common section

As provided for in the 2012 Agreement, the Lyon-Turin project will be implemented in phases in order to reduce costs. This means that on the Italian side, in the first phase only the base tunnel, the Susa station and a short stretch (2 km) of the Orsiera tunnel will be built. The new line will then exit the mountain and connect to the historic line at Bussoleno. The rest of the Orsiera tunnel would only be built at a later stage.

Cost savings for this phasing of the works range from 15% to 18% as compared to the original project with the complete Orsiera tunnel. The drawback of these solutions is the lower capacity of the existing line between Bussoleno and Avigliana, which is about 20% below the capacity of the new line.

1.3. The Italian Observatory

The work of the Observatory for the rail link Turin-Lyo' started in December 2006 in response to opposition to the project by citizens of the Valley of Susa. The Observatory, chaired by Mr Virano, was successful in establishing an inclusive process after a period of fierce confrontation. The Observatory Phase I ended its activities according to schedule at the end of June 2008 by proposing a new alignment in the Susa valley. In the following two phases the Observatory continued its technical work with representatives of all interested parties during the elaboration of the preliminary project. The third phase of the Observatory was concluded on 30 June 2010 with the handover to authorities of the preliminary project for the line on Italian territory up to Turin.

In the fourth phase (from July 2010 onwards) the Observatory developed the concept of phasing the works, i.e. postponing the construction of the Orsiera tunnel in the Susa Valley and instead interconnecting the new railway line with the historic line at Susa. Furthermore, the Observatory oversaw the elaboration of the cost-benefit analysis which was presented by the Italian Transport Minister on 26 April 2012.

In the reporting period, Mr Virano continued his efforts to communicate the project to the local population, notably the future works on the La Maddalena exploratory and access tunnel at Chiomonte. In the CIG on 6 July 2011, Mr Virano explained that of the 14 municipalities affected by the project, at present only four were opposed and ten were in favour of the project.

Despite this clear majority in favour of the project, a small yet determined group of opponents continued to stage violent protests throughout the summer of 2011, culminating at one point in leaving 200 hundred police injured. Criminal as well as civil liability charges have been brought against the demonstrators and are still pending in the courts and tribunals of Turin.

As the project stands now – further to the signing of the 2012 Agreement – the only two municipalities actually affected by physical changes (both by the project itself and the ensuing construction sites) are Chiomonte and Susa.

Chiomonte is the location of the Italian descending shaft, which will become one of the four access points of the base tunnel for safety and rescue purposes (the other three are in France).

Susa will serve as the exit/entrance point for the base tunnel on the Italian side and host the Italian construction site for the main works. This site is established on an area already affected by an Autoporto and a Drive Safe driving track. This area, once fully implemented, will house all the technical equipment (maintenance, control room, electrical substations, etc.) and the new international passenger station. These two municipalities, the only two truly touched by the new line, are two of the main towns and have always been present in the Observatory and have always been proponents of dialogue in all institutions.

1.4. Renewal of the Treaty of Turin

On 30 January 2012, after three years of intensive negotiations, France and Italy signed a new bilateral agreement on Lyon-Turin. This Agreement amends the Treaty of Turin of 2001 and provides rules on these matters:

- the future promoter of the civil works on the common section, who will succeed the current promoter LTF and whose seat will remain in Chambéry, with a branch office in Turin;
- the alignment of the new railway line, which takes into account the changes on the Italian side, as well as the phasing of the project;
- the distribution of costs between Italy and France as regards the works of the first phase, of which 42.1% will be borne by France and 57.9% by Italy, after deduction of the co-financing provided by the European Union;
- the principles of measures promoting modal shift in the Alps;
- the new governance structure of the project, including the role of the European Commission.

As regards the last point, in the new structure of the future project promoter the Commission will be represented in the Administrative Board where it will participate “de plein droit”, thus able to exert a level of control commensurate with the level of co-financing from the EU funds.

1.5. The Lyon-Turin Corridor Platform (CPLT)

At a stage when the project of a new railway link Lyon-Turin is entering into a new phase and with the historic line becoming fully operational after several years of renovation and up-grade, the time has come to step up the efforts to manage the whole corridor (existing line + new railway link + road passage). This is done by bringing together all stakeholders involved in the planning and management of this important transport infrastructure in order to plan, coordinate and supervise the actions to be taken in the coming years.

After the first meeting in Brussels on 19 May 2011, the second meeting of the CPLT was held on 6 March 2012 in Chambéry. Under the chairmanship of the Coordinator, the key players of the Lyon-Turin corridor discussed the state of the project, the progress made since the last meeting and agreed on the way ahead. The CPLT comprises the European Coordinator, the European Commission, the national, regional and local authorities of the two Member States concerned, France and Italy, the railway managers and operators, the current promoter LTF, the Observatory, and the organisations representing the interests of industry and of the future users, such as Transalpine and Transpadana.

The main points of the meeting were the adoption of the 2012 Agreement by France and Italy and the reopening of the Mont Cenis rail tunnel. The Coordinator called on the two Governments to swiftly proceed with the ratification of the Agreement and to quickly set up the new project promoter. The CPLT fully agreed with the Coordinator that all possible measures should be taken in order to use a maximum amount possible of the funding offered by the European Union.

As regards the historic line, the infrastructure managers RFF and RFI committed themselves to resolving all open issues in order to be able to assure the full reopening of the Mont Cenis tunnel by end of May 2012 at the latest. The CPLT’s main objective will be to establish an action plan and to coordinate and supervise its implementation over the coming years. The action plan will, first of all, list all measures necessary to complete the new railway link and to put it in operation. Furthermore, it should contain the measures necessary to ensure an optimal functioning of the existing line (combined transport; rolling motorway; passenger services).

The CPLT is presided by the European Coordinator. Working groups will be established as necessary in order to carry out the necessary technical work. These will work independently under the chairmanship of one CPLT member and regularly report to the CPLT.

Priority Project 6
Railway axis Lyon-Trieste-Divača/Koper-Divaca-Ljubljana-Budapest-Ukrainian border

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1.6. Existing line between Lyon and Turin

The historical line between Lyon and Turin is a piece of infrastructure dating back, for the largest part, to the 19th century. The main bottleneck is the 14 km long Fréjus railway tunnel (also called the Mont-Cenis tunnel), which opened in 1871. The antiquated gauge of the tunnel adds to a series of other challenges on this line, such as the high gradient, the high altitude and harsh meteorological conditions in winter and quick wear of wheels and brakes of rolling stock in all seasons.

Over the past few years extensive works have been carried out independently by Italy and France on their respective sections of the tunnel in order to enlarge the tunnel profile and to modernise the electrical installations, including communication and signalling. The works were completed in December 2010 and the tunnel was expected to reopen in January 2011.

Despite the efforts of both sides and after several meetings by the experts from both sides, the Italian infrastructure operator RFI, responsible for the operation of the entire tunnel, declared itself still unable to give the green light to a full opening of the tunnel.

Only later and after the commitment of RFI and RFF at the Corridor Platform of 19 May 2011, was the root of the problem analysed, which lies in the different approaches applied by France and Italy when renovating the tunnel. The Italians had lowered the tunnel base by 50 to 80 cm in order to achieve the new profile plus a comfortable margin. This was done on the basis of a detailed plan with exact geographic coordinates (base absolue). The French had lowered the tunnel base to a much smaller extent, but had enlarged the upper part of the tunnel where necessary and moved the two tracks closer together. At critical points the tracks were realigned to achieve the required profile. This was done on the basis of locally defined markers and reference points (base relative). For RFI, responsible for the maintenance of the whole tunnel, it was impossible to carry out this work without having the exact coordinates of the newly aligned tracks.

On 27 July 2011, the two sides agreed to a pragmatic solution: SNCF would take over responsibility from RFI for the maintenance of the tracks on the French part of the tunnel until the complete technical documentation is submitted to, verified and approved by RFI. This solution was formalised by all parties on 5 September 2011 through signing an amendment to their Agreement of 2007. On 15 September 2011, the tunnel was provisionally reopened to two-way traffic at reduced speed.

During the following months the verification was carried out, which required a realignment of certain parts of the tracks. These works, partly delayed by the meteorological conditions of the winter months, were only finished in spring 2012.

Since the beginning of June 2012 the whole section of the historic line between Lyon and Turin is open to two-way traffic using the enlarged gauge at normal speed.

1.6.1. Development of the Alpine rolling motorway

At the end of 2003, France and Italy started an experiment with a rolling motorway service of 175 km between Aiton (FR) and Orbassano near Turin through the Fréjus tunnel. The service is operated by Autoroute Ferroviaire Alpine/Autostrada Ferroviaria Alpina - AFA, a subsidiary of SNCF and Trenitalia.

This service transports lorries and semi-trailers by rail. It differs from other rolling motorway services in that every wagon is loaded individually, allowing the transport of unaccompanied semi-trailers. Due to the limited profile of the Mont-Cenis rail tunnel, the service could only be used for certain types of semi-trailers, especially

tankers, in the past. With the works to widen the profile of the Mont-Cenis tunnel complete, the transport potential of the AFA has been doubled and the operator plans to increase the number of vehicles from 25,000 in 2010, to 100,000 by 2015. This would include the setting up of new services possibly reaching even the Paris region. However, in the current climate of the economic crisis these plans have been put on hold for the time being.

AFA is thus the first and main beneficiary of the full reopening of the Fréjus rail tunnel. Two months after the relaunch of the service for the wider loading profile, GB1 semi-trailers requiring this profile account already for 25% of all transported units. The overall loading factor for the period January to September 2012 has been 84%.

1.7. Turin-Milan-Trieste section

The sections along the Turin-Milan-Trieste part of the project are either in advanced stages of construction or planning. The high speed Torino-Milan section is complete and has been operational since 2008. Work on the upgrading and new construction of rail lines between Milan and Venice is proceeding. The Milan-Treviglio section is in operation, as is the Padova-Venice section. The Brescia-Verona section is still in the phase of preliminary design and is not expected to be complete before 2020. The other sections are in varying stages of planning.

Works on the section between Treviglio and Brescia started in May 2012 and are expected to finish in 2016. Concerning the Venice-Trieste section, the preliminary project for the four sub-sections was published at the beginning of 2011 and has since been in public consultation. Obviously, east-west traffic is just as vital as north-south and south-north traffic and both can serve as back-up options for each other. It is therefore important that this section does not fall behind schedule for the competitive position of the Italian north Adriatic ports (Venice, Monfalcone and Trieste among others) and of course for their hinterland which is much broader than the Veneto and Friuli Venezia Giulia regions.

1.8. Trieste-Divača/Koper-Divača

1.8.1. Trieste-Divača

Currently, there is no credible rail alternative in the east-west direction on this part of the Priority Project. Its development is fundamental to enable a decrease in growth of freight traffic by road, and increasingly to capture a significant part of the traffic that is handled through the ports of Trieste and Koper, but equally of other north Adriatic ports.

The Italian and Slovenian governments jointly set up an Intergovernmental Commission for the Trieste-Divača section, which met for the first time in December 2007. In December 2008, the European Commission decided to allocate nearly €51 million for the study and design of the Trieste-Divača section. As proposed in the Mid-Term Review of 2010, the project documentation should be finished by the end of 2015, after which construction works on the optimum alignment can start.

It is essential to establish a common Italian-Slovenian structure for the cross-border section between Trieste and Divača. On 12 October 2010, Italy and Slovenia formalised their agreement to obtain the project documentation for the new Trieste-Divača railway link and on the modalities to be applied, notably the establishment of a common promoter for the project with its seat in Trieste. The statutes setting up the future promoter in the form of an EEIG (European Economic Interest Grouping) were at last agreed on 3 July 2012 between Italy and Slovenia. They provide for the seat of the promoter in Trieste and for two directors, one nominated by Italy and one by Slovenia. The statutes also provide for the European Commission to take part in the meetings of the Members' Assembly.
Concerning the alignment the situation is as follows: A first alignment parallel to the coastal line was developed at feasibility study level in 2008. However, the study showed that this alignment would have resulted in a considerable impact as far as karst geology and hydro-geology were concerned and, for this reason, Italy proposed to abandon it. In January 2011, agreement was found on a new alignment which runs through the karst highland in places where the presence of underground caves is comparably lower compared to the 2008 solution.
For this new alignment, known as the "high corridor", three different solutions were studied on the Italian and Slovenian side, all running not far from the route of the existing railway line which connects Bivio di Aurisina to Opicina, Sežana and Divača. At the end of June 2011, Italy and Slovenia decided on one optimised alignment for which the preliminary design will be elaborated by the new project promoter.

It needs to be pointed out at this stage that the Trieste-Divača project has considerably fallen behind schedule.

Priority Project 6
Railway axis Lyon-Trieste-Divača/Koper-Divaca-Ljubljana-Budapest-Ukrainian border

Trans-European transport network. Achievement of the Priority projects

The delay occurred in 2011 (compared to the timing agreed between Italy and Slovenia in October 2010) was further exacerbated by the lack of cooperation between the two countries following the de facto resignation of the former Slovenian Government in September 2011. It will thus be necessary to revise the Commission's Financing Decision, given that not all the activities originally planned can be carried out by the end of 2015, and the eligible costs will be reduced.

1.8.2. Koper-Divača

The modernisation of the existing track is in the implementation phase, for which EU funding out of the Cohesion Fund has been obtained. Works are underway and expected to be finished by mid-2015. For the new line, the project documentation and studies have been prepared, with funding out of the TEN-T budget. Currently, the acquisition of land is almost finished and the environmental impact assessment is on-going. The construction of the first phase is envisaged to be financed with support from the Cohesion Fund. The operational phase of the entire new section is expected to start in 2018.

1.9. Divača-Ljubljana-Budapest-Ukrainian border

1.9.1. Divača-Hungarian border

The Slovenian authorities have an extensive plan for upgrading the railway lines along the path of PP6. They are considering several alternatives to realise these investments. A study by the European Investment Bank from spring 2008 seems to advocate a prudent approach and a progressive phasing in network upgrades to accommodate higher speeds and higher capacity.

Divača-Ljubljana; Ljubljana-Zidani Most

The feasibility study on the improvement of these sections is being prepared and is expected to be finished in 2013. The budgetary previsions have been made and the study is receiveing co-financing from the TEN-T budget. The Slovenian authorities and railway companies are working seriously on preparatory works for the Ljubljana railway hub. The feasibility study for this node was finished in 2009. The spatial documentation is under preparation and is expected to be completed by 2015. The Ministry of Environment has been asked to elaborate a national spatial plan.

Works are underway on this section near Košana, where around five km of track, including three tunnels, is being modernised. The works should be finished by the end of 2015.

Zidani Most-Pragersko

On the Zidani Most-Pragersko section the following projects are in implementation phase:

- Upgrade of the Poljčane railway station: this project comprises the upgrade of tracks and catenaries, renewal of the safety signalling and telecommunication devices, construction of new passenger platform including out-of-level access to the new platform. The project started at the end of 2009 and is expected to be finished by the end of 2013.
- Upgrade of the Dolga Gora-Poljčane railway line: the design documentation has been prepared. The tender documentation for the contractor is currently being elaborated. Works will start in the first half of 2013. The project covers the radical upgrade of the section over a length of 7.5 km, including upgrading of tracks, renewal of the safety signalling and telecommunication devices, modernisation of the catenary, sanitation of dyke and retaining wall, settlement of out-of-level crossings, etc. The implementation is envisaged to be financed with support from the Cohesion Fund.
- Upgrade of the Poljčane-Pragersko railway line: the design documentation for the upgrade of the section is being prepared. The project is co-financed by the TEN-T budget and will be finished in 2012. Upgrading work will begin after the preparation of the design documentation.

Pragersko-Hodoš

The line from Pragersko to Ormož has now been upgraded, with modernised safety and signalling installations, allowing speeds of up to 120 km/h. The section from Pragersko to Hodoš and further to the Hungarian border has not yet been electrified. The electrification and reconstruction of the entire section of 109 km is scheduled to be completed by the end of 2015.

On the Pragersko-Hodoš section a wide range of investments is under implementation and is expected to be finished by 2015. The following investments have already been accomplished: the renewal of the safety signalling and telecommunication devices and the upgrading of some railway stations on the Pragersko-Ormož section; the upgrading of the railway line on the Ptuj-Mekotnjak section of a length of 24 km and the reconstruction of the Hodoš railway station, which includes the building of a new track and platform with out-of-level crossings. Various reconstructions on this section are in progress, such as the upgrading of the Pragersko-Ptuj and Mekotnjak-Murska Sobota sections, totalling a length of 35 km. Five other reconstruction projects on this section are in the public procurement stage with a view to increasing the train speed, including the electrification and the renewal of out-of-level crossings on the above-mentioned section.

Investments are envisaged to be co-financed by European funds. After conclusion of this investment cycle in 2015, the line will ensure inter-alia the increase of train speed up to 160 km/h.

1.9.2. Slovenia-Hungary cross-border cooperation

Following the Coordinator's intervention, the ministers responsible for infrastructure in the two countries met in late November 2010 to discuss their cooperation on this cross-border section. Several meetings at expert level have taken place since then. A first common project is the electrification of Hodoš station, which will allow use of the electric traction systems of both countries.

Despite these first signs of cooperation between Hungary and Slovenia on this cross-border section, there is still no structured cooperation between the two countries. When meeting with the Slovenian State Secretary in May 2012, the Coordinator pointed this out as a vital component of the efforts to revitalise this part of the corridor. On the technical level, discussions between the two sides have started on how to improve the section in order to allow increasing volume of cargo and passenger traffic. These talks should form the basis for a Letter of Intent signed by the two governments. The Coordinator will follow developments on this point with close interest.

1.10. Developments in Hungary

In November 2010 and again in February 2011, the Coordinator met with the Hungarian authorities and with representatives from the railway infrastructure company.

The Hungarian authorities pursue their prudent and pragmatic policy to save time and money on the upgrading of the alignment of PP6 in Hungary, by phasing in the various works as necessary. Upgrading existing tracks and phasing in new equipment that will allow for higher speeds and higher capacity have priority over immediately constructing new infrastructure.

The official alignment of PP6 in Hungary runs via Hodoš-Boba-Székesfehérvár-Budapest-Miskolc-Záhony. No new infrastructure is needed to complete PP6 in Hungary at this stage. The upgrade of existing tracks and adaptations to superstructure would make PP6 a viable route for the medium term at least. East of Budapest there is an alternative to this alignment, running southeast via Szolnok-Debrecen and Nyíregháza to Záhony.

The Coordinator is of the opinion that an official alignment should not be a straitjacket for any Member State or neighbouring country. He would show well pondered flexibility towards temporary solutions that might be considered for the sake of expediency and costs that would be temporarily too heavy for an economy like Hungary's to bear. Of course, this flexibility would exclude leniency for temporary solutions which, for any reason, are impractical solutions for market players.

On the western side of the Hungarian part of PP6, the upgrade of the section between Hodoš and Boba is now finished. Also in this part of PP6, the Boba-Győr-Budapest line is an alternative to the official alignment Boba-Székesfehérvár-Budapest. The official alignment runs through hills and needs expensive upgrading work to arrive at a speed of 160 km/h.

Priority Project 6

Railway axis Lyon-Trieste-Divača/Koper-Divaca-Ljubljana-Budapest-Ukrainian border

Trans-European transport network. Achievement of the Priority projects

2. Conclusions and priorities

While important progress was made in 2011/2012 on the two key sections of PP6, the project overall fell even further behind compared to the schedule which Member States committed themselves to in the Memorandum of Zaragoza in June 2010.

Regarding the cross-border section between Lyon and Turin, the long-awaited conclusion of the new Agreement is the most positive development to be reported from PP6 in this period. However, there is the danger that the momentum gained by signing the 2012 Agreement is being lost or at least not fully utilised by the incoming new administration. Important next steps, such as the ratification of the Agreement by the Parliaments of both countries, and the decision by France to start works on the base tunnel at Saint-Martin-la-Porte seem to be held back, to be taken only after the next Franco-Italy summit scheduled for early December 2012. This is a most deplorable situation which leads the Coordinator to conclude that the Lyon-Turin project is not yet beyond the point of no return. The picture is only brightened a bit by the fact that the Enquête Public in France on the access routes has been concluded positively.

The new Italian alignment in the Susa valley is now approved. However, works at the La Maddalena tunnel only progress slowly; partly due to the still fierce opposition manifested at the construction site.

On the historic line, the progress made now with the full opening of the Mont Cenis tunnel for trains using the enlarged loading gauge needs to be translated into a tangible improvement in the operation of the line. To this end the work of the High Level Group should be continued and possibly merged with the work of the newly created Corridor Platform.

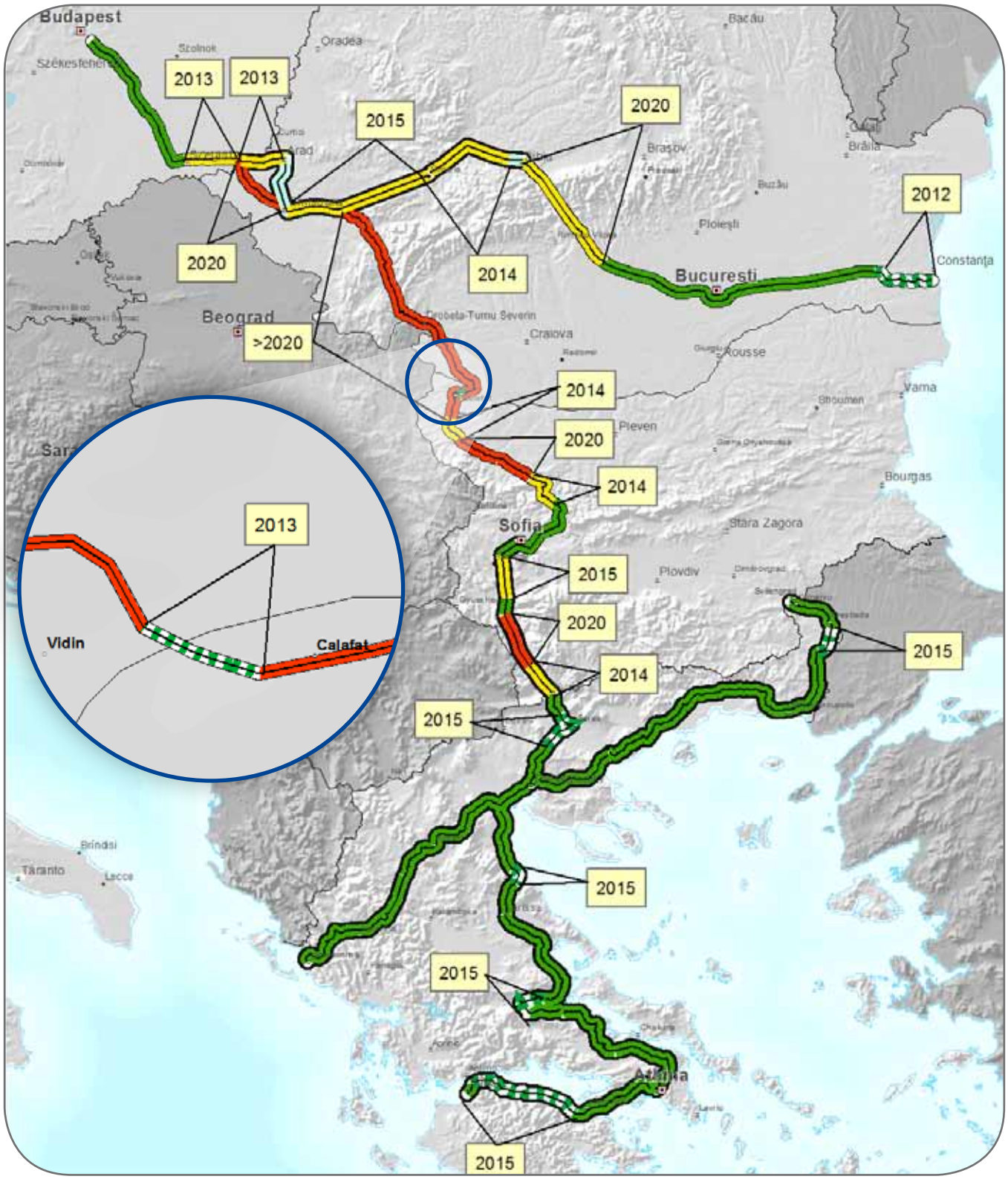
On the Italian-Slovenian side, the project is now under way with the adoption of the alignment by both parties, which will be the basis for the preliminary project. Italy and Slovenia have at last agreed on the structure of the EEIG which will manage the project. The elaboration of Preliminary Design needs now to be started without further delay in order not to jeopardise the ambitious timetable of the Commission funding decision.

Events during the reporting period have again shown the considerable difficulties which cross-border sections present for the governments of the Member States concerned. These sections involve a high financial burden while usually having a lower political priority than domestic projects. They also require the cooperation of two countries with often diverging priorities, and there are no predefined structures for cooperation available.

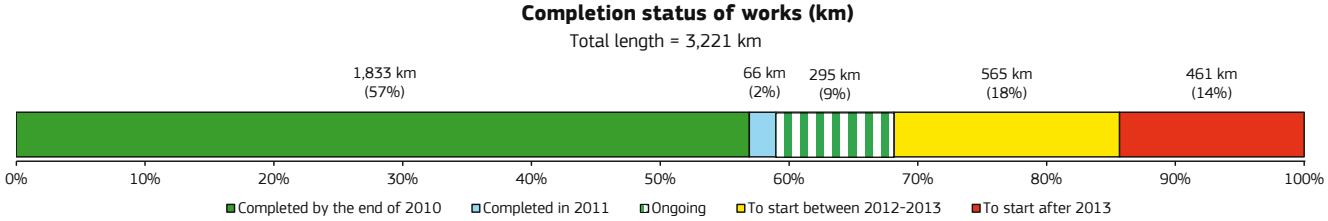
Against this background, the role of a European Coordinator has proven useful and conducive to facilitating communication and cooperation between the countries involved in PP6. The different governments have expressed at numerous occasions their gratitude for the Commission's involvement in this way. It thus became again apparent in this reporting period that a structured approach is the most promising one when dealing with complex infrastructure projects.

Priority Project 7
Motorway axis Igoumenitsa/Patra-Athina-Sofia-Budapest

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Studies for the upgrading of sections on the Vertical Axis Thessaloniki - Serres - Promachonas	EL	€2.4	Ongoing
Studies for the development of the Motorway-project of PP7 (Igoumenitsa/ Patras-Athens-Sofia-Budapest Motorway Axis)	BG, EL, HU, RO	€1.1	Ongoing
TOTAL		**€3.5**	



Priority Project 7
Motorway axis Igoumenitsa/Patra-Athina-Sofia-Budapest

Trans-European transport network. Achievement of the Priority projects

Summary

This Priority Project will provide significant improvements to the road network of south-eastern Europe by linking the main cities in the region. It will also connect the ports of Patras, Igoumenitsa, Athens (Piraeus), Thessaloniki and Constanta to the heart of the enlarged European Union.

Priority Project 7 is being taken forward in regions which benefit from the use of Structural Funds. Consequently significant co-financing of this project is ensured by the Structural Funds and the Cohesion Fund. Financial support from the TEN-T budget will be used to co-finance some of the studies relating to this project.

The various cross-border sections are progressing relatively well. The cross-border section between Greece and Bulgaria, Promaxonas-Kulata has been completed. The Calafat-Vidin road and rail bridge on the Danube, which forms part of the Bulgarian-Romanian border, is under construction, with financial support from the ISPA Fund. Finally, the Romanian-Hungarian cross-border section will be completed during the 2007-2013 programming period.

General appreciation

Progress on Priority Project 7 is uneven. Some sections have been commissioned, important sections will be completed by 2015, but some crucial sections will not be completed until 2020 or even later. The chances of a timely realisation of the entire Priority Project are unfortunately low. A lack of cooperation between the Member States can be observed. Bulgaria and Romania are investing in projects outside of PP7 that serve national interests.

1. Introduction

The initial plan for this Priority Project involved the construction of two new motorways across Greece. The first, which runs from east to west following the route of the Via Egnatia, will connect the port of Igoumenitsa to Kipi on the Greek-Turkish border (680 km). The second road consists of the modernisation of the existing 800 km Pathe road (Patras-Athens-Thessaloniki and Evzoni), which runs from Southern Greece to the north, connecting Patras to Promahon on the Greek-Bulgarian border.

Extensions to this axis were adopted in 2004, adding connections from the north of Greece towards neighbouring countries, and from there towards Central Europe.

The first branch of these extensions runs along pan-European corridor IV from the Greek-Bulgarian border at Promahon to Nadlac on the Romanian-Hungarian border, linking Thessaloniki to Sofia and to Budapest.
The other branch runs from the Romanian-Hungarian border in the direction of the port of Constanta, via Bucharest.

2. Social-economic context

This axis runs through countries whose Gross National Income per inhabitant is less than 90% of the EU average. The Structural and Cohesion Funds serve to reduce their economic and social shortfall, as well as to stabilise their economies. It supports action in the framework of the Convergence Objective. In this context, both the Cohesion Fund and the Structural Funds are a major source of funding for TEN-T projects in these regions.

Construction of the Priority Project will drastically cut journey times by car. It will directly benefit most of the population living in cities along the axis, accelerating economic and regional development. For freight on longer distance journeys, the new roads will improve links to central Europe and the rest of the EU and provide more reliable transport for the whole region.

The upgrade of the roads to motorway standard is also expected to significantly reduce road accidents along these axes. Furthermore, the project will provide considerably faster connections between neighbouring countries in the region – Albania, the former Yugoslav Republic of Macedonia, and Turkey. Considerable effort has been made at design stage to minimise the environmental impact of construction.

Length of road network (Km)				
	Motorways	Main or national roads	Secondary or regional	Other roads
EU-27	63,400	5,000,000		
BG	394 (0.62%)	2,969	4,021	11,989
EL	1,056 (1.66%)	10,189	30,864	75,600
HU	785 (1.24%)	6,734	23,539	158,760
RO	228 (0.35%)	15,755	63,969	

3. Infrastructure developments per country

The status and the developments along PP7 are described as follows:

Cross-border sections

Greece-Bulgaria: The cross-border section Promaxonas/Kulata is completed.

Bulgarian-Romanian: The Calafat-Vidin road and rail bridge on the Danube is under construction, with financial support from the ISPA Fund. Some problems and delays appeared after the signature of the contract but it is still expected to be completed before the end of 2011.

Romania-Hungary: The section will be completed during the 2007-2013 programming period.

Other sections

Greece: The Via Egnatia section (680 km) is already completed. It is a four-lane motorway, with a cross section width of 24.5 m (or 22 m at mountainous adverse sections), with two traffic lanes, a hard shoulder per direction and a central reservation separating the two lanes of traffic. Construction of the project presented particular difficulties, as the road crossed the mountains of Pindos, passing from areas of fauna and flora of particular environmental importance, the most important of them being the brown bear habitat. The diverse terrain crossed by the Egnatia motorway, together with the special environmental conditions encountered, required

- Construction of a large number of bridges with a combined length of 42 km (measured as single carriageway). This means that 6% of the road axis length runs over bridges, and
- Construction of 73 twin-bore road tunnels of an overall combined length of 100 km (measured as single carriageway) measured at 50km of single carriageway. This means that 7% of the road axis length is carried through tunnels, the construction cost of which corresponds to 30% of the total motorway construction cost.

On the Ardanio-Ormenio-Bulgarian border section of 124km, around 72km have already been completed. The remaining 52 km is under construction. On the Pathe road, the Korinthos-Athens-Thessaloniki section (600 km) has already been completed. The remaining section Korinthos- Kiato-Patra (130 km) is under construction. The work is due to be completed in 2015. On the Thessaloniki-Promaxonas-Bulgarian border section of 96 km, around 65 km has already been completed. The remaining 31 km is under construction.

Bulgaria: Bulgaria intends to invest an important part of its Cohesion Fund 2007-2013 on the Sofia-Kulata motorway route (the Stuma motorway). In May 2011, a 19 km long motorway, the Ljulin motorway, financed by the ISPA Fund, was completed. It connects the Sofia ring road with the Struma motorway. Currently, project preparation for the Struma motorway is at an advanced stage .Basic project preparation activities were finalised at the end of 2010. However, serious environmental constraints have led to delays on the 61 km Blagoevgrad-Kresna section (section 3), including the “Kresna Gorge”, where construction works will not start until 2014. Work on sections 1 and 4 (32 km in total) started in October 2011 and in April 2012 respectively. Work on section 2 (34 km) will start in early 2013. Regarding the Vidin-Sofia road, the Sofia-Botevgrad section has been completed. Work on two sections, Mezdra-Botevgrad and the Montana bypass (55 km in total) will start in autumn 2012. Work on

Priority Project 7
Motorway axis Igoumenitsa/Patra-Athina-Sofia-Budapest

Trans-European transport network. Achievement of the Priority projects

the remaining sections will start gradually after 2013.

Romania: Romania has already carried out a number of important investments on the northern branch of PP7, notably the Nadlac-Bucuresti-Constanta section. Certain sub-sections have already been completed (Pitesti-Bucuresti-Cernavoda). The 14.5 km long Sibiu bypass was completed in July 2011 and the 38km long Arad-Timisoara section was completed in 2012. The Cernavoda-Constanta section and the Costanta ring road are under construction and are expected to be complete in 2012. Projects concerning the Nadlac-Arad and Timisoara-Lugoj-Deva-Sibiu sections, are on-going or were contracted in 2012. These projects will gradually be completed by 2015. Revision of the study concerning the difficult and expensive Sibiu-Pitesti section will be completed in 2012. Romania is not planning to invest heavily in the Arad-Calafat section towards Bulgaria and Greece. Only a few minor rehabilitation projects are envisaged. However, they intend to make preparatory studies by 2013 so that they can start work immediately afterwards.

Hungary: The M5 road link from Budapest to Szeged was completed in 2006. Work on the remaining section from Szeged to the Romanian border is in preparation and is due to be completed during the 2007-2013 programming period, using support from the Cohesion Fund.

4. Financial aspects

The European Union is supporting the TEN-T implementation through several Community financial instruments and through loans from the European Investment Bank.

Grants, in particular under the TEN-T budget line and the Cohesion and European Development Funds, play a major role in both project preparation and implementation. Grants are allocated to studies (from feasibility studies to comprehensive technical or environmental studies and costly geological explorations), helping to overcome early stage project difficulties, and to the actual construction phase. A key issue for the future implementation of TEN-T policy is to rationalise the allocation of grants and to link it to the European added-value of a project so as to ensure the best value for EU money.

Eropean Cohesion Policy 2007-2013 (in million €)			
Transport infrastructure	**EU contribution**	**National contribution**	**Total public contribution**
BU	1,624	379	2,003
EL	3,700	1,276	4,976
HU	6,223	1,098	7,321
RO	4,566	1,131	5,697
EU-4	16,113	3,884	19,997

5. General appreciation

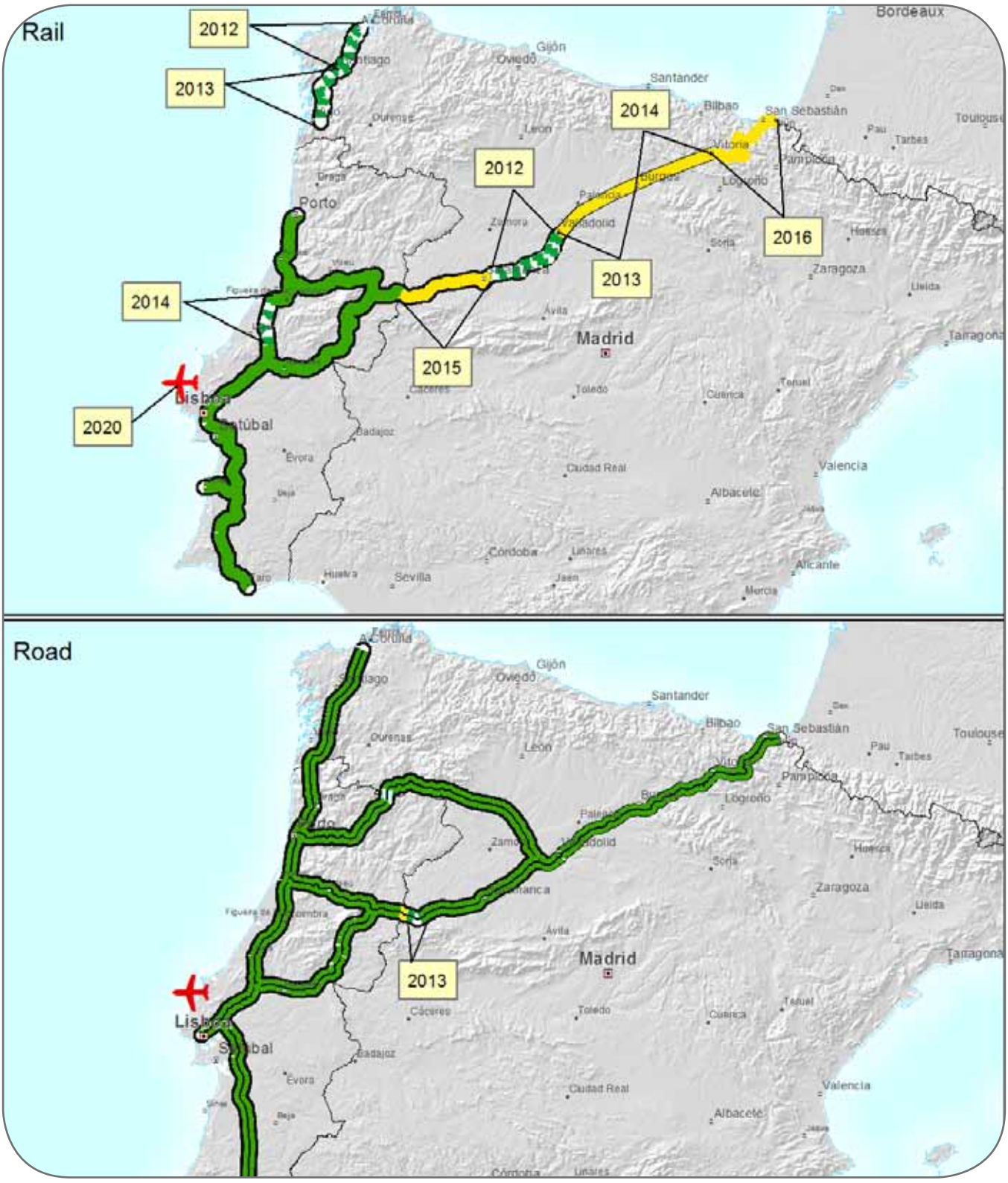
Progress on PP7 is uneven. Some sections have been commissioned, important sections will be completed by 2015, but some crucial bottlenecks will be only completed by 2020 or even later. The chances of a timely realisation of the entire Priority Project are unfortunately low.

A lack of cooperation between the Member States can be observed. Bulgaria and Romania are investing in projects outside of PP7 that serve national interests.

Priority Project 8

Multimodal axis Portugal/Spain-rest of Europe

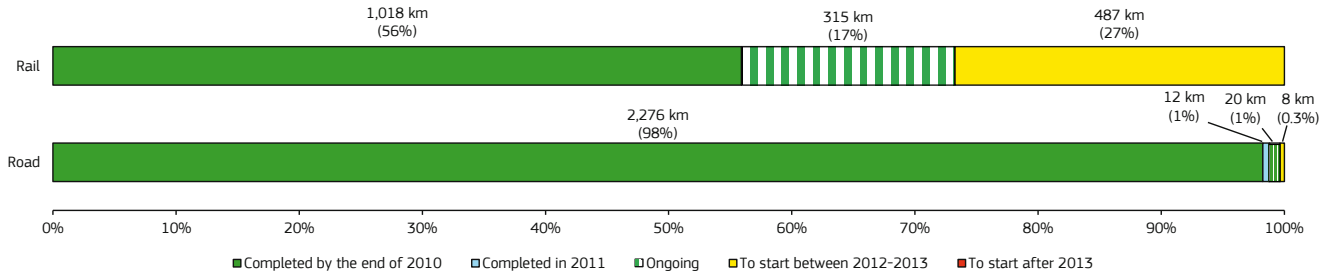
Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Express Route SE-40 (Sevilla). Section Coria del Rio-Dos Hermanas (North and South tunnels)	ES	€24	Completed
Faro Airport Development Plan - Phase 1	PT	€6	Ongoing
Estudos relativos ao desnivelamento ferroviário de Alcântara - PP8	PT	€1.6	Ongoing
TOTAL		**€31.6**	

Completion status of works (km)

Total length = 4,136 km (Rail: 1,820 km, Road: 2,316 km)



PP 8

Priority Project 8
Multimodal axis Portugal/Spain-rest of Europe

Trans-European transport network. Achievement of the Priority projects

1. Introduction

General description

The project consists of a series of interventions enhancing the accessibility of the Iberian Peninsula, notably from the French Atlantic side and along the Atlantic coast, as well as Portugal accessibility by air.

Its overarching goal is to better connect the centre of the EU and Spain and Portugal, thus strengthening its role as a western European gateway.

PP8 includes sub-projects to improve routes across the Spanish-Portuguese border, linking Spanish cities such as Valladolid, Seville, Vigo and La Coruña with Portu¬gal's principal sea ports and airports, and its large urban centres - Porto and Lisbon in particular. As part of wider infrastructure investments, it complements existing rail, road, maritime and air routes in the west of the Iberian Peninsula, and will link together the main Portuguese and Spanish sections of the Trans-European Transport Network. Among the sub-projects is included the con-struction of the new Lisbon airport. The motorway infrastructure has been completed.

The rail infrastructure still requires the removal of bot¬tlenecks (around €1.1 billion is still needed), and is being implemented with polyvalent sleepers (unless direct UIC gauge is used), as the aim of PP8 is to lead towards interoperable lines which will require future upgrading according to the development of the network in UIC gauge (and ERTMS signalling) in the Iberian Peninsula.

Overall, the axis involves the construction of 2,265 km of new motorways, upgrading of 1,067 km of conven-tional rail lines, and the upgrading and construction of Atlantic ports and a key airport.

Cross-border sections

The project includes three cross-border sections:

- between Norte and Castilla y Leon
- Norte and Galicia
- Algarve and Andalucía

Railway sections

The Valladolid-Portugal rail line that is being upgraded to a high performance line progressed markedly during 2009. Construction works are close to completion.

The Valladolid-Portugal rail line is being upgraded to a high performance line and is close to completion on the Valladolid-Salamanca section and on the junction with the Madrid-Galicia line.

The design phase is nearly finished for the Salamanca-Portugal section, electri¬fication at 25 kV has advanced from Valladolid to the Portuguese border but still needs completion on the Spanish side, representing the main obstacle for an efficient rail transport.

For the Salamanca-French border sub-project, it coincides de facto with the upgrading of the corridor including in PP3 (Atlantic Corrido") on the Valladolid- Burgos- Basque Country- France line.

Detailed information is provided in the section of the report concerning PP3. The Faro-Huelva cross-border link still needs to be planned. For the Santiago-La Coruña section, a gauge change to UIC has been planned; Santiago-Vigo is still in Iberian gauge with polyvalent sleepers in place. Works for the new line between Vigo and Santiago started with the same parameters. On the Portuguese side, the rail project has progressed quickly. The sections earmarked to apply for EU funding are the Trofa bypass (started in 2009), the quadrupli¬cation of the line be-

tween Contumil and Ermesinde in northern Portugal, and the freight railway line of port of Aveiro, which started in 2009 and should be completed by the end of 2012. Minor actions concern complementary upgrades.

The total investment foreseen is €198 million and the co-financing envisaged is €96 million. Polyvalent sleepers are foreseen for all of the lines. The tension across the whole Portuguese network - except for a local line - is 25kV, and therefore satisfying the highest EU standards.

In addition, Portugal is proceeding with the upgrade of the northern line (four sections, the last one to be opera¬tional by 2014) with national funding, as well as the Beira Baixa Line (four more sections, two operational within 2010, one in 2011 and the last one in 2012), for two of which works started in 2009. With regards to the Lisbon-Faro-Huelva-Seville railway, on the Spanish side the Huelva-Seville section is includ¬ed in PP19 and is in design phase.

General appreciation

The motorways included in PP8 have been achieved – they will benefit from to the impres¬sive Iberian motorway network that now allows seam¬less road mobility.

The need to ensure financial stability for these infrastructures in the Iberian Peninsula requires a revision of some of the PPP (payment through shadow tolls) and the concentration of further road development to a very limited set of missing links.

As regards the railway projects, these are addressing many bottlenecks, notably in national sections. Most sections are being implemented and the design phase has been completed for all of them.

As a general perspective, the sub-projects must be seen and implemented within the overall framework of the other Priority Projects of the region - notably PP3 and PP19. Together they will create a single Atlantic line from Faro to La Coruña, and eventually will provide a real al-ternative to road routes for east-west freight flows on the Iberian peninsula and towards France.

Links that are still missing have to be completed and full interoperability must be ensured in order to allow new cross-border services to be generated.

As of print, the new Lisbon airport – synergic with a potential high-speed railway connection to Madrid and Lisbon now postponed (PP3) - has been set aside following the start of the financial crisis.

2. Project components

2.1. Rail

This project will reinforce the multimodal corridors link¬ing Portugal and Spain, helping to connect the two countries with the rest of Europe:

- La Corunã-Lisbon-Sines (Northern Line, Minho Line, Freight Railway Line to the Port of Aveiro)
- Lisbon-Valladolid (Northern Line, Beira Baixa Line, Beira Alta Line)
- Lisbon-Faro (Southern Line)

Portuguese sections

Interoperability ensured through the use of polyvalent sleepers is foreseen; the main lines of the Portuguese network are electrified at 25 kV (the only exception among the electrified lines is Lisbon-Cascais at 1.5 kV DC). REFER manages the implementation of the conventional rail projects which are supported by EU funding as part of PP8. They basically consist of:

1) Minho line (about €200 million investment, 50% of which from the Cohesion Fund)

- Trofa bypass (3.5 km, in the Norte region): elimination of bottlenecks on the single track Tofa cross¬ing, with the aim of providing increased ca¬pacity and ultimately improving supply and services on the Minho, Guimarães and Braga line. Characteristics of the line: polyvalent sleepers, with Iberian gauge in a first phase, double track, electri¬fied (25 kV), completed.
- Quadruplication of the line between Contumil and Ermesinde (10 km, Norte region): objective: in¬creased

capacity; ensuring an intermodal connec¬tion with Metro do Porto and individual transport. Together with the Trofa bypass, this section will be syner¬gic with the high speed link Porto-Vigo (PP19). Characteristics of the line: four tracks, electrified (25 kv), polyvalent sleepers with Iberian gauge in a first phase. The project is on-going.

- Port of Aveiro freight railway line (second phase) (9 km + 6 km inside the port, Centro region): objec¬tive: expansion of the hinterland of the Port of Aveiro with the aim of enhancing the multimodal transport of goods. The line is operational with the following characteristics: single track, electrified (25 kV), polyvalent sleepers, with Iberian gauge in a first phase – Axial weight of 25 tonnes.

2) Northern line (in synergy with the progressive devel¬opment of PP3 Lisbon-Porto)

Modernisation of this line is indispensable to ensure the ef¬ficiency of freight and passenger services, considering that the northern line is the backbone of the Portuguese railway network (40% of all freight and passenger serv¬ices use this line), linking Lisbon to Porto. The maximum speed of most of the line equals or exceeds 160 km/h.

Completion of the modernisation of the northern line will take into account the construction of the new high speed line between Lisbon and Porto (which will run parallel to this line and enhances its capacity) ensuring safety and reliability, and ensuring the homogeneous diffusion of the maximum speed of 160 km/h. Two thirds of the line is currently modernised.

As for the on-going projects:

- Modernisation of the Ovar-Gaia section (33 km) - civil works concluded, the tender for the signalling was launched in 2012.
- Modernisation of the Alfarelos-Pampilhosa section (27 km) – currently in design phase
- Modernisation of the Mato Miranda-Entroncamento sec¬tion (16 km) – the public tender was successfully issued and works are supposed to be completed by 2014.
- Santarém Bypass (26 km), following preliminary studies the tendering process has been postponed according to the contingency economic plan.

3) The Beira Baixa Line (about 250 km)

The whole line is being upgraded with the goal of ensuring more favour¬able conditions for passengers and goods, allowing an alternative route for the traffic of goods from the centre and southbound for the lo¬gistics platform of Guarda and the Vilar Formoso border.

The works concern, among other things, the comple¬tion of electrification, the upgrading of the signalling and control systems (the latter consisting of CONVEL) and the removal of level crossings. For these upgrades, the line is split into four sections, three of which are completed (Mouriscas A-Castelo Branco, Castelo-Braco-Covila and Covilhã-Guarda), while the last one is at the works stage and is due to be operational soon.

Lisbon-Valladolid-French border

This international itinerary is being developed along the existing Linha do Norte, before bending eastwards to the Beira Alta Line (or Beira Baixa alternative line, notably for freight), passing through Alfarelos to Guarda, Vilar Formoso, Fuentes de Oñoro, Salamanca, Valladolid and finally to France.

Most of the Linha do Norte between Lisbon and Alfarelos has high quality standards and the maximum speed is at least equal to 160 km/h. It is double track and electri¬fied at 25 kV AC, and equipped with an advanced signal¬ling and control system (CONVEL). The Spanish section is completed but not yet electrified.

Nevertheless, construction works are very advanced on the Valladolid-Salamanca section (being upgraded to

create a high performance line) and on its junction with the Madrid-Galicia line; the design phase has been completed for the missing sections on the Salamanca Fuentes de Oñoro line. The Medina del Campo-Salamanca-Fuentes de Oñoro section is being upgraded –deployment of 25 kV electrification is planned.

The connection from Valladolid to the Basque Country and then the French border is ensured by two existing lines in Iberian gauge, 3 kV DC with CTC, and a maximum speed between 160 and 200 km/h.

In addition, a gauge changeover facility provides for the interoperability for passenger traffic with the high speed Atlantic branch of PP3, which is currently being built from Valladolid northwards (Valladolid-Burgos, including the Burgos bypass, Burgos-Vitoria and the "Y Basque").

This link runs through the Atlantic branch of PP3 (Valladolid-Burgos-Basque Country- Bordeaux-...) which will become part of the TEN-T Core Atlantic Corridor and will provide an interoperable alternative with the same tension as in Portugal.

In these stretches, works are close to completion on the Y Basque. With regards to the future developments, continuity of support by the Commission is ensured in terms of political priority and coordination mechanism, as well as on financing. The Connecting Europe Facility will help compensating the unavailability of the Cohesion Fund for Spain during the 2014-2020 programming period.

La Coruña/Lisbon/Sines

This important Atlantic axis consists of the cross-border high speed Porto-Vigo line (PP19), the high speed Vigo to Santiago de Compostela and La Coruña line (250/300 km/h - PP8), and by the Porto-Lisbon section (PP3). All the line has double (or four in some congested sec¬tions) tracks, and is electrified (or being electrified) with 25 kV. In Portugal, the key sections that are upgraded along the line in the framework of PP8 are the Northern Line (to high capacity standards), the Minho Line north of Porto, and its freight link to the Port of Aveiro (see Portuguese sections).

In Spain, the Atlantic coastal line in Galicia is being up¬graded to a high speed line with polyvalent sleepers, 25 kV electrification, and a centralised traffic control system based on ASFA. For its northern section, Santiago-La Coruña, the gauge change to UIC has already been planned, while the Santiago-Vigo section is still in Iberian gauge but is being upgraded and equipped with polyvalent sleepers – works are on-going on four sections starting from Vigo. The Spanish section is suitable for high speed in its northern section, but, due to its morphology, not for freight transport.

Lisbon-Faro-Huelva (southern line)

This planned line will substantially improve the accessi¬bility of the Algarve. It leads to the future cross-border section of Huelva-Faro and will, in synergy with the Seville-Huelva high speed line (currently in the design phase, EIA already ap¬proved) of PP19 provide a southern link between Spain (Andalucía) and Portugal (Algarve). This bears a high potential for tourism as it connects the main airports of these regions. The link to Faro will benefit from the third crossing of the Tagus belonging to the Lisbon-Poceirão section of PP3.
A coordinated deployment ought to be put in place for the future deployment of the cross-border section.

2.2. Roads

PP8 includes three international road (highway) axes whose level of implementation is very advanced:

- Lisbon-Valladolid-Irun/Hendaye (whose alignment is very close to railway line of PP8)
- La Coruña-Lisbon
- Sevilla-Lisbon

These three axes cover three out of four cross-border corridors that account for the bulk of the traffic flows between Portugal, Spain and the rest of Europe (Minho-Galicia, Al¬garve-Andalucía, Porto/Aveiro-Salamanca, Lisbon-Extre¬madura). Each of these connections is already crossed by several thousands of vehicles per day; at Valencia and on the southern coastal line between the Algarve and Andalucía those flows average more than 10,000 vehi-cles per day. The entire road infrastructure in Portugal is operational. As a consequence, the overall completion status of PP8 roads is very advanced, as shown above.

Priority Project 8
Multimodal axis Portugal/Spain-rest of Europe

Trans-European transport network. Achievement of the Priority projects

2.3. Lisbon new airport

The Portuguese authorities give high priority to the con¬struction of the new Lisbon airport. The project aimed to solve a bottleneck due to the shortage of capacity of the old airport in Lisbon, located within the borders of the city, and already unable to meet peak demands.

Estimated total cost: amounted to €3.3 billion (including a dedicated high speed shuttle from Lisbon to the airport whose cost amounts to €1.3 billion), most of which would be incurred in the programming period 2007-2013. The airport implementation was planned to be delivered under the Public-Private Partnership scheme, with only limited Structural Fund contribution foreseen (i.e. €170 million earmarked in the operational programme).

So far neither works nor the detailed design and authorisa¬tion phase for the new Lisbon airport are underway and the project has been set aside following the economic crisis. A solution for exploiting a nearby military airport as low-cost terminal is now being explored. In the meanwhile, substantial upgrading of the existing station took place, including the airport terminals and fingers, and the airport has been connected to the metro network (just two stops from Oriente station).

3. Focus on cross-border sections

Cross-border and bottleneck sections

In Portugal, the motorway works have all been complet¬ed. Regarding the railways, substantial works on electri¬fication, track doubling and other upgrades have already been carried out on the main railway lines in Portugal. The upgrading involves some modifications to the layout of the line.

The Valladolid-Fuentes de Oñoro rail line is also being upgraded to create a high performance line. The Medina del Campo-Salamanca-Fuentes de Oñoro section is in the pre-construction phase.

Regarding road connections, the routes from Lisbon to La Coruña and Lisbon to Seville have been completed. The Valladolid-Porto motorway section has nearly been completed, with the final section from Verin to the bor¬der under construction.

The southern motorway from Valladolid to the Portuguese border is also progressing well and is close to completion. Works between Valladolid and Ciudad Rodrigo have been completed recently and the Ciudad-Rodrigo to Fuentes de Oñoro section is already operational.

The only remaining section on this line is the small stretch from Fuentes de Oñoro to the border with Portugal, where works have already started.

On the Spanish side a substantial upgrade is taking place between La Coruña (Ferrol) and Vigo - close to the Portuguese border to create a high performance line.

Most of the line is under construction, and some sec¬tions have been completed. The upgrading involves some modifications to the layout of the line. As a consequence, cross-border sections will mostly be completed within PP8 in the forthcoming years. However, some of the lines included in PP8 are linked through cross-border sections included in PP19 (Porto-Vigo), which is delayed and could negatively affect the results of PP8 and postpone some of its cross-border results.

4. General appreciation and open issues

The implementation of PP8 is at an advanced stage - no major issues concern its road routes, which are close to completion. Their cross-border links are all to be completed within the coming months. This part of the project

is already delivering, as better infrastructure is provided for large traffic flows both in terms of passengers and freight, notably for long haul.

As regards the railway lines included in PP8, the activation of the Lisbon-Valladolid-French border line requires completing the upgrade of its central part (Portuguese border-Valladolid), which is on-going. In the forthcoming years, cross-border services will potentially benefit from these improved connections, but a coordinated and synergic exploitation of the corridor needs to be put in place.

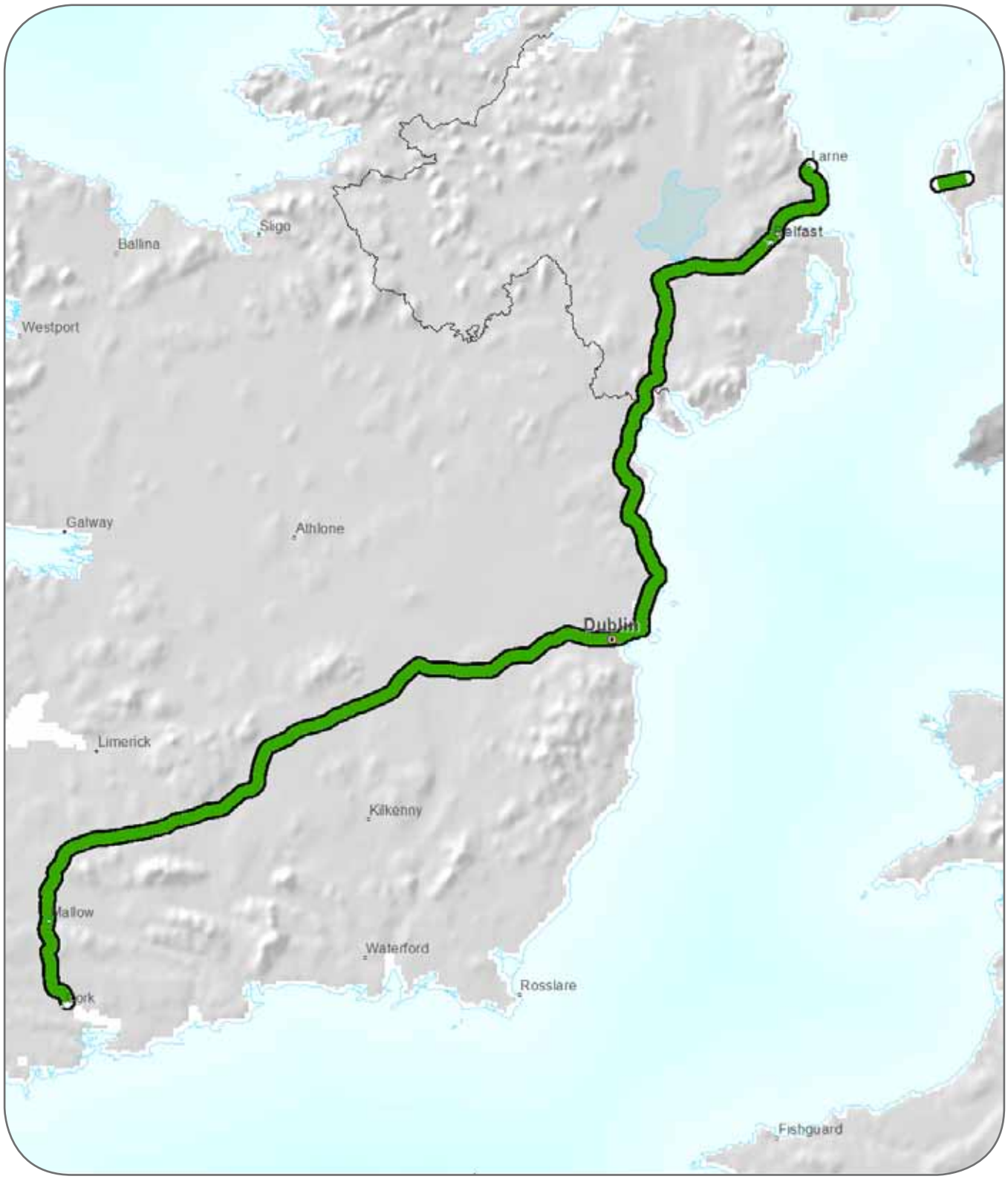
PP8 substantially boosts the railway network on the north-south Atlantic coast. However, in order to provide a real pan-European added value, the completion of PP19's Porto-Vigo cross-border section is needed (this milestone has so far been delayed until 2015).

Further improvements can be provided in the medium to long term following the harmonisation of the techni¬cal standards of the lines.

The project of a new airport for Lisbon awaits the official launch of the tender for the Public-Private Partnership that will have to design, build and operate it. The project will have to be assessed within the framework of the implementation of PP3, both in terms of links to the high speed line and in terms of potential spare capacity induced by the high speed network.

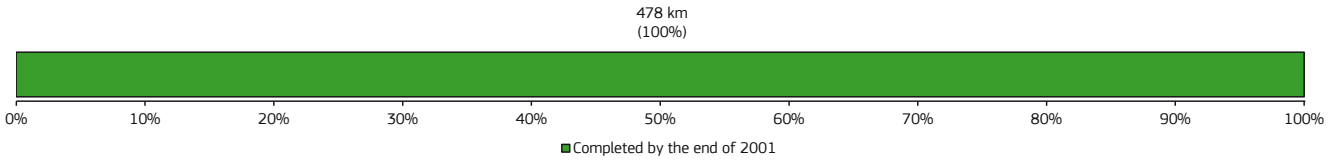
Priority Project 9
Railway axis Cork-Dublin-Belfast-Stranraer

Trans-European transport network. Achievement of the Priority projects



Completion status of works (km)

Total length = 478 km



Priority Project 9
Railway axis Cork-Dublin-Belfast-Stranraer

Trans-European transport network. Achievement of the Priority projects

Summary

Priority Project 9 concerned the upgrade of the rail link between three largest cities on the Irish island – Cork, Dublin, and Belfast. It forms the backbone of the island's rail network. From a TEN-T point of view, the project was completed in 2001. It resulted in a substantial reduction of journey times between the three main agglomerations on the island for both passenger and freight services. It is used for commuter trains as well as for intercity links. Increased frequency and upgraded rolling stock turned rail into an attractive alternative to car transport, thereby facilitating modal shift for cross border journeys in particular. The project improved the connectivity with the rest of Europe because ferry links between Larne in Northern Ireland and Stranraer in Scotland got better, addressing the geographic peripherality of the Irish island. In the framework of Priority Project 26, the connection between Larne and Belfast was improved and further bottlenecks will be removed which will reduce journey times for passengers even further.

1. The project

In the 1980s, about a third of the Irish rail network was older than 80 years. Parts of the signalling system were so old that components were no longer manufactured and could not be replaced, causing a lack of spare parts.

Confronted with this situation, Iarnrod Eireann (IE), the Irish rail company, and Northern Ireland Railways (NIR) decided to upgrade the rail route between Dublin and Belfast, the two major agglomerations. Despite the difficult political climate on the island in the 1980s and the early 1990s, the two rail companies agreed on a joint development plan to explore the possibilities of upgrading the line. The political will to upgrade the line and improve the connection between the two countries became manifest at the Anglo-Irish Conference of 1992 where it was announced that the entire cross border network would be treated as a single entity.

In 1996, Decision 1692/96 defined the project as one of the first 14 European Priority Projects. The strong political will that became evident in the Anglo-Irish Conference and its definition as a European Priority Project, helped overcome obstacles common for cross-border projects and played an important role in bringing the two operators together. Prior to the Anglo-Irish Conference, the operators had focused on their own networks, leaving the cross border sections to decay and reducing cross border lines on the fringes of their own network to single track in order to reduce costs.

The decision to upgrade the line was preceded by a comprehensive impact assessment and a cost-benefit analysis. Eight options were presented of which option five was chosen in 1992 as the most cost-efficient solution. It consisted of upgrading the entire line to a double track, non-electrified line that allows for speeds of 145 km/h. Faced with the decision of upgrading the line gradually in order to reduce the initial investment costs, it was decided to renovate the entire line at once in order to reduce maintenance costs and unavailability times due to construction works. Except for this major upgrading of the track, option five also included new rolling stock and better services.

2. Investment and construction period

Works on the line commenced in 1993. Many sections were completely rebuilt, such as the Lisburn to Belfast track. Accommodation crossings were improved and the track re-fettled between Belfast and the border in order to allow higher speeds. Furthermore, bridges were renewed and the old signalling system was replaced by a new centrally controlled colour light system along the entirety of the line. The upgrade of the 266 km line between Cork and Dublin, the so called Premier Line, was completed in 1996 and an upgraded express line for the operation of the enterprise service between Dublin and Belfast was put into service in 1999. In addition to these investments into infrastructure, EU-assisted investment in new rolling stock took place.

The total cost of the investment was nearly €595 million. €18.1 million was co-financed from the TEN-T budget and €38.7 million came from cohesion and structural funds for which Ireland was eligible at the time. EU funds were considered extremely valuable and significantly contributed to the realisation of the project.

3. Impacts

The renewed railway line drastically increased intercity passenger flows on the island. In 1972, only 270,000 cross border trips were made between Dublin and Belfast. This number rose to 800,000 in 2004. This increase is primarily due to tremendously improved services and the peace process in Northern Ireland. After the stabilisation of the political situation in the North made train journey safer and more reliable, ridership increased rapidly, exceeding predictions by more than 65% in 1995. At the same time the new track allowed the reduction of journey times to 2h05min between Dublin and Belfast and eight departures daily. Journey times between Dublin and Cork could be reduced by 30 minutes to 2 h30min. The upgrade of the Bleach Green-Whitehead section in Northern Ireland to modern standards and the subsequent removal of speed restrictions brought further reductions in passenger journey times. All in all, the renovation of the line increased capacity by 50% and frequency by 33%. This improved service led to an increase in demand of 31% between 1996 and 2000.

PP 9

The impact was beneficial from an environmental point of view. It facilitated a modal shift from road to rail. Also in economic terms the project had a beneficial impact as it helped connect the two economies and facilitated trade, the movement of workers and stimulated cross border tourism.

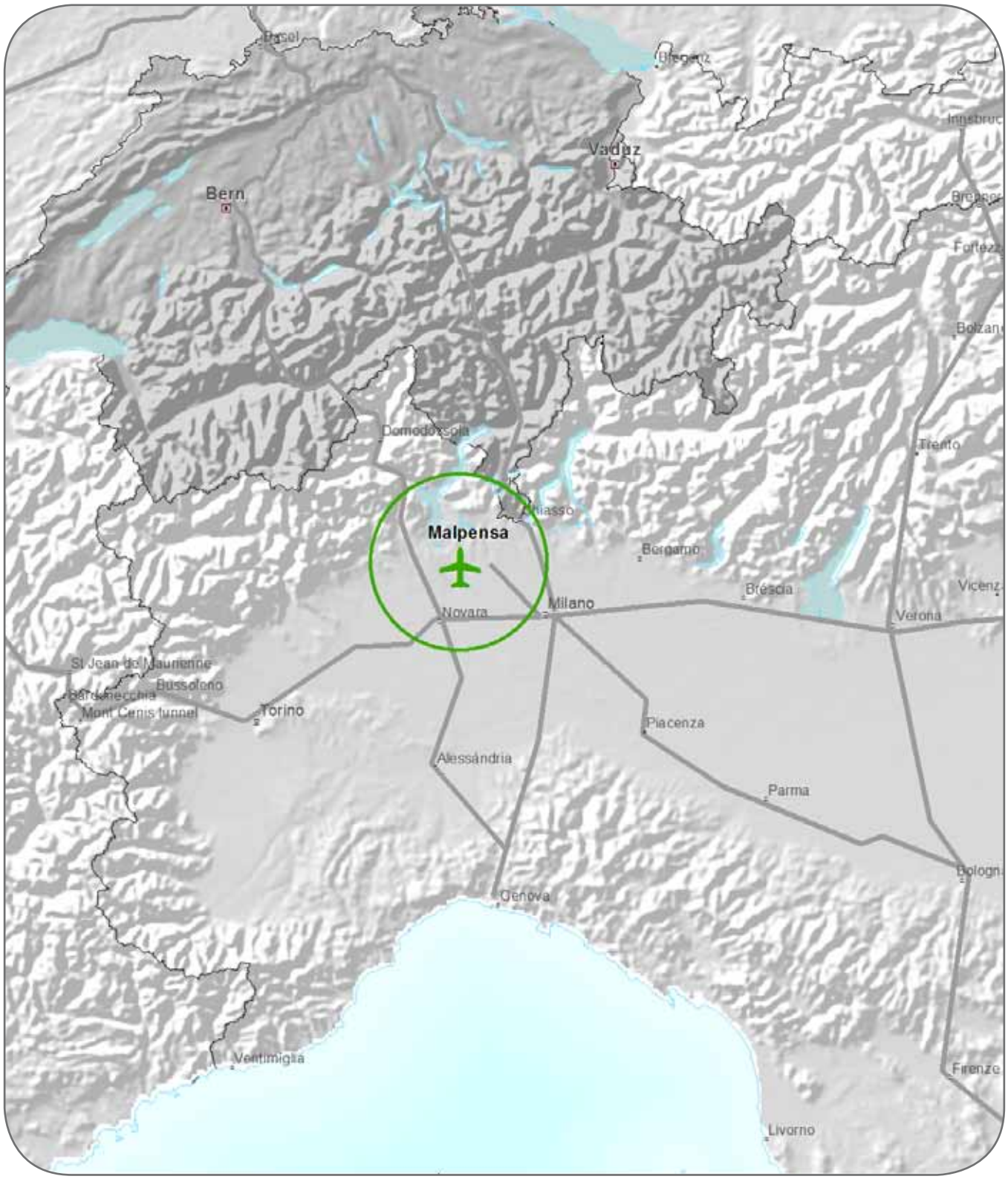
4. General appreciation

The project was completed successfully in 2001. Several lessons can be learnt. In this project, EU funding proved to be of critical importance for the realisation of the project. It became also evident that cooperation is needed on several levels: rail operators need to cooperate and coordinate the works and their timetables, and governments need to cooperate, as major infrastructure investments always require the backing of a strong political will. EU coordination can be helpful especially for the second point.

The impact of the investment is positive. The higher quality of service, the reduction of travel times and the increased frequency led to a modal shift for passenger traffic. The project also stimulated cross border linkages and helped meet the demand for cross border travel that emerged once the political situation in Northern Ireland changed for the better due to the peace process. These linkages were beneficial for both countries. Their economies grew closer creating new opportunities for both sides. Tourism and cultural links were also furthered. These results are in line with the European objective of completing the Single Market. The new train line in combination with the improved ferry service from Larne to Stranraer increased the connectivity between the Member States involved and their connectivity with the rest of Europe, thereby addressing the peripheriality objective of the European Union.

Priority Project 10
Malpensa Airport

Trans-European transport network. Achievement of the Priority projects



0 50 100 km

Cartography: DG MOVE, October 2012
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- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

- Completion Date
- Priority sections

TENtec

Introduction

Malpensa Airport is strategically located in Italy's Lombardy region northwest of Milan at a crossroad of road and rail links between Milan, Varese, Novara-Torino and Switzerland. The airport, which opened in 1998, employs some 19,000 people and has a direct highway connection and a rail link to Milan.

Malpensa has become a primary gateway for international and intercontinental traffic in southern Europe, and has attracted 86 major carriers that operate to 176 destinations worldwide. Following a slow start up, in 2004, the airport handled 18.5 million passengers and 347,000 tonnes of freight. Passengers grew steadily until 2007, when more than 23 million people flew to and from Malpensa. While the TEN-T priority project was completed in 2001, development at Malpensa is continuing, notably with the progressive improvement of its rail and road links in order to widen the "catchment area" of the infrastructure that includes Piedmont, Lombardy, Liguria and southern Switzerland.

Notwithstanding the Alitalia crisis that pushed the Italian company to limit activity to Linate airport, Malpensa has been able to attract new carriers, notably Lufthansa, that has located a fleet in the infrastructure, as well as new low-cost companies, and developing new services to/from Asia.

The total cost was €1.344 billion, including state grants (18.5% of the total), and loans from the European Investment Bank and other financial institutions (23.1%). Between 1995 and 2001, the EU provided €26.8 million from the TEN-T budget in the form of interest rebates. A further €1.6 million has been provided for the logistics park.

Airport infrastructure

The existing international airport has been developed into a modern hub, with increased runway capacity, a brand new passenger terminal (Terminal 1), a new control tower, new aircraft parking areas (apron), a new cargo centre and a new aircraft maintenance hangar whose apron can host up to 117 parked aircraft. The baggage handling system is capable of 100% hold baggage screening, and airport security and safety have been enhanced.

A third module for Terminal 1 is planned, and the new cargo city can process more than 600,000 tonnes of freight. A new hotel has been built, and further investment on a logistics park in the cargo area, more car parking facilities, and improved airport access (road and rail) are ongoing.

Link to the airports

Malpensa has a direct access to Gravellona-Toce highway linking directly southern Switzerland, Milan, Varese and Liguria, and is also linked with Milan-Turin and Como-Chiasso (Switzerland) routes.

A rail shuttle service to Milan Cadorna and Switzerland is operational, and a more effective link to Milano Centrale and the high speed station in Milan has almost been completed and will be operational in 2010.

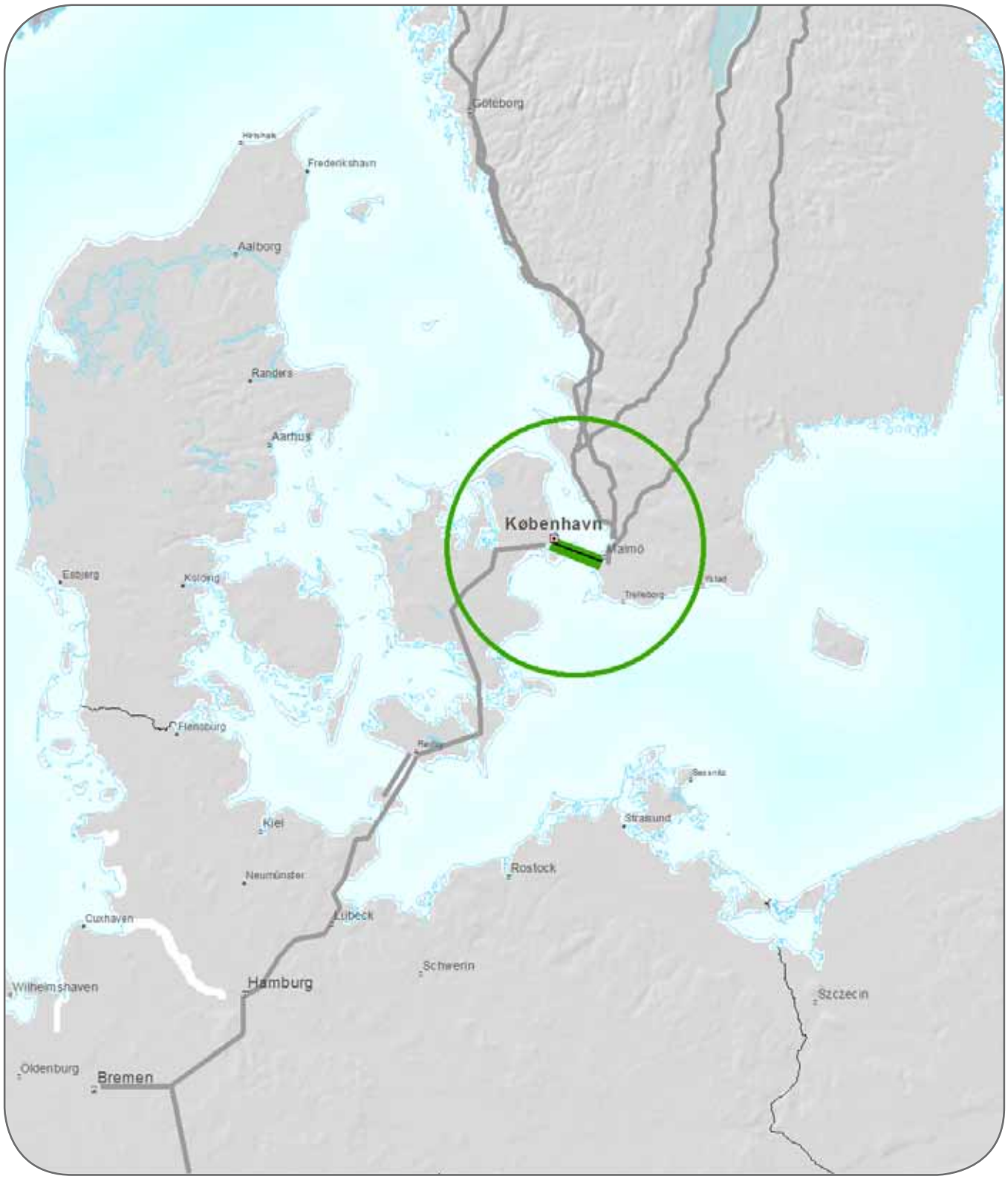
General appreciation

The project has been timely implemented - in spite of the harsh times following the loss of Alitalia operations. The airport has proven to be an high potential air hub thanks to its capacity and the services provided, thus attracting important new international operators and increasing its overall amount of passengers.

The key factor for its future development will be the upgrade of the rail links to Milan, Switzerland and Piedmont, potentially linking the infrastructure with the high speed line Milan-Torino.

Priority Project 11
Øresund fixed link

Trans-European transport network. Achievement of the Priority projects



0 50 100 km

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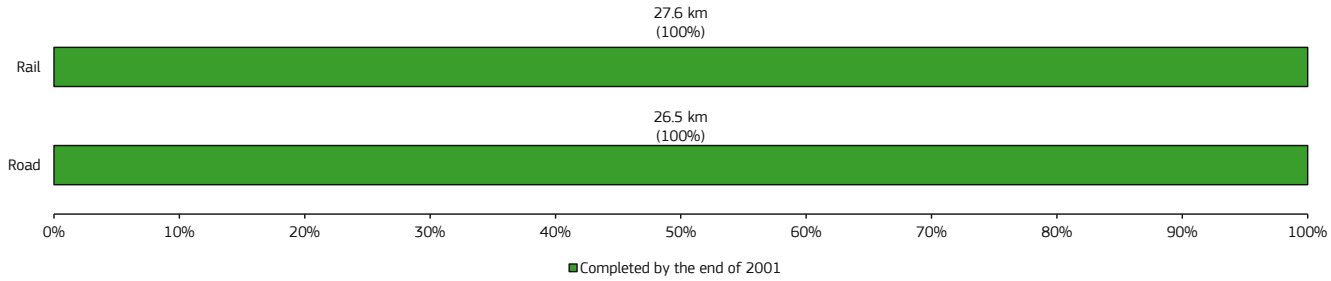
- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

- Completion Date
- Priority sections

TENtec

Completion status of works (km)

Total length = 54.1 km (Rail: 27.6 km, Road: 26.5 km)



Priority Project 11
Øresund fixed link

Trans-European transport network. Achievement of the Priority projects

Summary

On 23 March 1991, the governments of Sweden and Denmark signed an agreement for a fixed link across the Øresund in order to improve traffic communications between the two countries. This project also connected the Nordic Triangle road and rail links (PP12) via Denmark and the Fehmarn belt (PP20) with Germany and Central Europe.

The project

The Øresund Bridge is a combined two-track rail and four-lane road bridge-tunnel across the Øresund straight, and the longest combined road and rail bridge in Europe. The bridge is 7,845 m long, 23.5 m wide, its longest span is 490 m and it has a clearance below of 57 m. The bridge joins the Drogden tunnel at an artificial island, Peberholm, which is 4 km long and has an average width of 500 m. The tunnel itself is 4,050 m long.

Financing

All funds for planning, designing, building and operating the Øresund link are covered by road and rail fees. A special entity, the Øresundsbro Konsortiet, was founded and commissioned to plan, build, own and run the link. This entity received the right to lend funds with joint governmental guarantees for financing. The entity was also responsible for repaying these borrowed funds in full through the derived traffic revenue. Investment costs amounted to €1.6 billion, which increased to €1.9 billion (1990 prices) to take account of environmental concerns. Taking account of inflation and interests the final cost is considered to be €2.7 bn. Annual operating costs are about €20 million and the repayment period is estimated between 30 and 45 years, based on an “optimal” or a “stagnation” scenario of traffic development.

The direct grant under the TEN-T budget of €127 million contributed to finalising the project on time without budget overruns.

Traffic

Today, train traffic across the Øresund Bridge is well integrated in local and regional public transport. Transit, normally including three trains per hour, has gradually expanded. Rail travel has developed quickly. The possibility to continue this positive development for the region and the environment lies in the ability to eliminate bottlenecks in the traffic system, both with regards to train capacity, as well as connecting rail capacity. The construction of Citybanan in Malmö will help achieving this objective.

In 2009 and 2010, seven million vehicles crossed the Øresund Bridge. This corresponds to an average of 19,500 vehicles every 24 hours. The average number of vehicles fell slightly to 19,150 in 2011. 92% of vehicles were passenger cars. The high increase in traffic is mainly a result of increased integration between the areas of Greater Copenhagen and Malmö/Scania.

Traffic across the bridge has increased 10-16% each year since opening, except for 2008 (5% increase), 2009 and 2010 (zero growth) and 2011 (1% decrease). During the last few years, the recession has had a considerable impact on traffic growth rates .

Impact on the region

An important aspect of the Øresund regionalisation is that an increasing number of businesses have activities on the other side of Øresund. At the same time, the region has attracted foreign businesses. Even before the Øresund Bridge was finished, cooperation between a variety of Danish and Swedish businesses and organisations was established.

Some of the most successful are the Øresund University and the Øresund Science Region which has been acknowledged by the OECD as a unique co-operation and "a new approach to achieving competitive regional development outcomes in a global environment".

1. Introduction

On 23 March 1991, the governments of Sweden and Denmark signed an agreement for a fixed link over Øresund. The background to this government agreement was the political ambition to create improved traffic communications between the two countries, thus creating better conditions for enhanced and extended cultural and economic cooperation. The development of a joint labour and housing market in the Øresund region would also serve the interests of both states.

The agreement stipulated that the link should be built as a combined railway and road communication. It should stretch from the coast near Copenhagen Airport via an immersed tunnel, an artificial island and a bridge to the coast just south of Malmö. A further stipulation was that the final design should consider what was ecologically motivated, technically possible and financially reasonable.

Furthermore, the agreement stated that all funds for planning, designing, building and operating the Øresund link as a whole should be covered by road and rail fees. A special entity, Øresundsbro Konsortiet, was founded and commissioned to plan, build, own and run the link. Through the agreement, this entity received the right to lend funds with joint governmental guarantees for financing. The entity was also responsible for repaying these borrowed funds in full through the derived traffic revenue. With respect to road traffic, the fees are set by the entity, whilst the agreement established a yearly fee (€40 million, price position January 1991) as compensation to the entity for providing an appropriate and rational rail infrastructure.

PP 11

Some basic estimates for the agreement were:

- Investment cost in price position July 1990: €1.6 billion
- Traffic volume, opening year between 8,000 and 10,000 vehicles per 24 hours
- Rail travel, some years after opening, about 18,000 travellers per 24 hours
- Average fees opening year in price position July 1990, passenger car: €21, lorry: €108. Fee levels had current ferry fees as starting point.
- Financing costs responding to real rate of interest 4-5%
- The link opens for traffic in 2000
- Annual operating costs about €20 million
- Repayment period approximately 30 years. This figure corresponds to the "optimal" of the three scenarios developed for traffic growth. For the "stagnation" scenario, the repayment period can be up to 45 years

The future Øresund project was considered to be one of the key missing links in the Trans-European Transport Network. Today, this link is complete. The direct grant under the TEN_T budget, (€127 million in total, amounting to approximately 5% of the total project cost) contributed to finalising the project in time without budget overruns.

2. The project

The Øresund Bridge is a combined two track rail and four lane road bridge-tunnel across the Øresund Straight. It is the longest combined road and rail bridge in Europe.

The bridge is 7,845 m long, 23.5 m wide, its longest span is 490 m and it has a clearance below of 57 m. The structure has a mass of 82,000 tonnes and supports two railway tracks beneath four road lanes in a horizontal girder extending along the entire length of the bridge.

The bridge joins the Drogden tunnel in an artificial island, Peberholm, which is 4 km long and has an average width of 500 m.

The connection between the artificial island and the artificial peninsula at Kastrup on Amager Island is through the Drogden tunnel. The reason for choosing the more expensive solution of the tunnel was to avoid obstructing

Priority Project 11
Øresund fixed link

Trans-European transport network. Achievement of the Priority projects

aircraft from the nearby Copenhagen Airport and to provide a clear pass for shipping.

The 4,050 m long tunnel comprises a 3,500 m undersea tube tunnel plus two 270 m entry tunnels at each end. The tube tunnel is made from 20 prefabricated reinforced concrete segments – the heaviest in the world at 55.000 tonnes each – interconnected in a trench dug in the seabed. Two tubes in the tunnel carry railway track, two more carry roads while a small fifth tube is provided for emergencies.

3. The investment and construction period

The project was developed between 1992 and 1994 to meet functional, aesthetic and environmental demands within technically possible and economically reasonable limits. The environmental tests, which were executed according to both Danish and Swedish environmental laws, brought about adjustments in the intended execution as well as very rigorous demands on the execution of the work. These adjustments resulted in an increase of the estimated investment cost of €1.6 billion to a budgeted investment cost of €1.95 billion (price position July 1990). By adding €0.45 billion for inflation and €0.3 billion for interest during the construction period, the final cost was calculated at €2.7 billion. A master time plan for the project was established at the same time as the budget and indicated opening for traffic in October/November of 2000.

The government agreement gave the company freedom of responsibility. By applying a project management approach and working together with professional entrepreneurs and consultants, it was possible to complete construction work without complications several months before the specified time and within budget. All strict environmental demands were also met and ended without any disputes or outstanding claims. Problems associated with rail travel between the two countries had also to be solved.

Øresundsbro Konsortiet's double track railway is directly linked to the Danish and Swedish rail networks at the abutments: one railway, two systems. System borders had to be established – one which divides the interlocking and the related ATC system, and one to provide a neutral section separating the catenary system. Today, the railway is functioning well across these technical limits and constitutes an important motor for the development in the Øresund Region.

Today, rail traffic across the Øresund Bridge is well integrated in the local and regional public transport system. Transit, normally with three trains per hour, has gradually expanded – first as a commuter train between Copenhagen and Malmö, then into Scania and onto Zealand, and thereafter through Scania and further on. Transportation should be easy and comfortable, with an integrated price and ticket system for journeys between any destination of choice on both the Swedish and the Danish sides.

Rail travel has developed quickly, with a growth of 230% since 2001, and amounted to 11.2 million passengers in 2009. The number of rail passengers decreased slightly in 2010 and 2011.

The Øresund Bridge has strongly contributed to the development of both regional and local train traffic in Scania where public transport has grown most in all of Sweden. To be able to continue this positive development for the region and environment, future challenges lie in the ability to eliminate bottlenecks in the traffic system, both with regard to train capacity as well as the connecting rail capacity. This becomes particularly relevant bearing in mind Swedish plans for high-speed trains in the future.

4. Environment

4.1. Conditions and concerns

The Øresund fixed link project had been subject to substantial environmental concern. An important reason for this is that the environmental conditions in Øresund are important not only locally but for the whole Baltic Sea

area.

Several environmental impact assessments were made before and during construction and many areas of concern were listed. The potential permanent impact on the Baltic Sea ecosystem was among the main environmental concerns of the project due to a blocking of the water flow through Øresund. Special attention was also given to the aspect of sediment spill. During dredging and reclamation, fine-grained sediment is lost and carried away by the currents. The spilled sediment could have a severe impact on the local marine habitats of sea grass and mussel beds.

4.2. Impact

The construction of the fixed link only had very limited impact on the local marine environment. Through an optimised physical design and compensatory dredging, the so-called zero solution was achieved. This means that the fixed link has no blocking effect on the water, salt and oxygen flow through Øresund. In conclusion, the Øresund fixed link was constructed with only very limited temporal and permanent impacts on the local and regional environment. This general objective was achieved despite the considerable size of the project and its location in an environmentally important and sensitive area. The generated traffic has an environmental impact and the main factors are emissions, noise and waste. The discharges from traffic on the bridge are, however, still far beneath the level of pollution that continued ferry traffic would have led to.

5. Traffic

The inauguration of the Øresund Bridge in July 2000 led to a boom in traffic across the entire Øresund area. In the 1990s, two to three million cars and 18 to 19 million persons per year crossed Øresund. In 2009, 9.4 million vehicles and 36 million passengers crossed Øresund by car, train or ferry. The corresponding figures for 2010 are 9.2 million vehicles and 34 million passengers.

Following a small decline in traffic in the early 1990s, traffic across Øresund rose by approximately 10% per annum from 1995 to 1999. New routes, more departures, lower prices as well as high economic growth were the reasons behind this growth. The opening of the Øresund Bridge resulted in a further traffic increase of 43%.

In 2009 and 2010,seven million vehicles crossed the Øresund Bridge. This corresponds to an average of 19,500 vehicles every 24 hours. 92% of the vehicles were passenger cars. In 2011, the total number of vehicles decreased by 1%. The decrease was more important in commuter traffic. Lorry traffic and leisure traffic increased slightly. The high increase in traffic is mainly a result of increased integration between the areas of Greater Copenhagen and Malmö/Scania: more commuters across the Øresund Bridge as well as more Danes and Swedes doing business, shopping, and making cultural and leisure trips to the other side of Øresund.

Commuter traffic has been the fastest growing form of traffic in all years except for 2009 2010 and 2011, where the recession had a significant impact on development. More commuter traffic is a result of the increasingly integrated labour and housing market that is emerging around Øresund. Many Danes have settled in Scania but continue to work in Denmark, and more Swedes have taken up work in the Copenhagen area. Since autumn 2008, another trend in traffic has dominated. As a consequence of the recession, the Swedish kronor lost value compared to the Danish kroner. An increase in leisure travel from the Danish side of Øresund to the Swedish side occurred during 2008 and 2009 and still continues, because more Danes have taken advantage of the financial situation and have travelled to Sweden in order to save money on their shopping – be it everyday commodities or specialities.

As integration between Copenhagen and Malmö increases, integration based traffic, that is business and commuter traffic, will increase more rapidly than other types of traffic. These two segments will therefore account for an increasingly large slice of the traffic pie. In 2001, commuting only accounted for 5% of passenger car traffic. By 2015, commuter traffic will account for 44%.

6. The effects of the Øresund Bridge on the region

The Øresund Bridge differs from other bridges in that it connects two countries. The Øresund Region, consisting of one Swedish and one Danish, part is unique. The number of travellers across a country border is usually

Priority Project 11
Øresund fixed link

Trans-European transport network. Achievement of the Priority projects

much lower than the number of domestic travellers. This is also the case with Øresund. However, traffic across the bridge has increased by 10-16% each year since the opening except for 2008 which saw a 5% increase and 2009 with zero growth. During the last two years, the recession has had a considerable impact on the growth rates in traffic.

Four circumstances have been the drivers behind the Øresund integration:

- A change in moving patterns over Øresund
- An increase in commuter traffic
- An increase in businesses with activities on both sides of Øresund
- An increase in leisure travelling on the other side of Øresund

The incentives of private economy include price and salary differences, which influence the increased commuter traffic. Another important aspect of the Øresund regionalisation is that an increasing number of businesses have activities on the other side of Øresund. A study among decision makers in the Øresund region just before and two years after the opening of the Øresund Bridge shows that nearly everyone believes that their organisation has been influenced by the decision to build the bridge. For most, it has led to increased co-operation across Øresund. At the same time, the region has attracted foreign business. Between 2000 and 2005, ten Nordic headquarters were located in Scania, whereas the corresponding number before 1999 was two. During the same period, 18 Nordic headquarters were located in Copenhagen, compared to nine in the period 1995 to 1999.

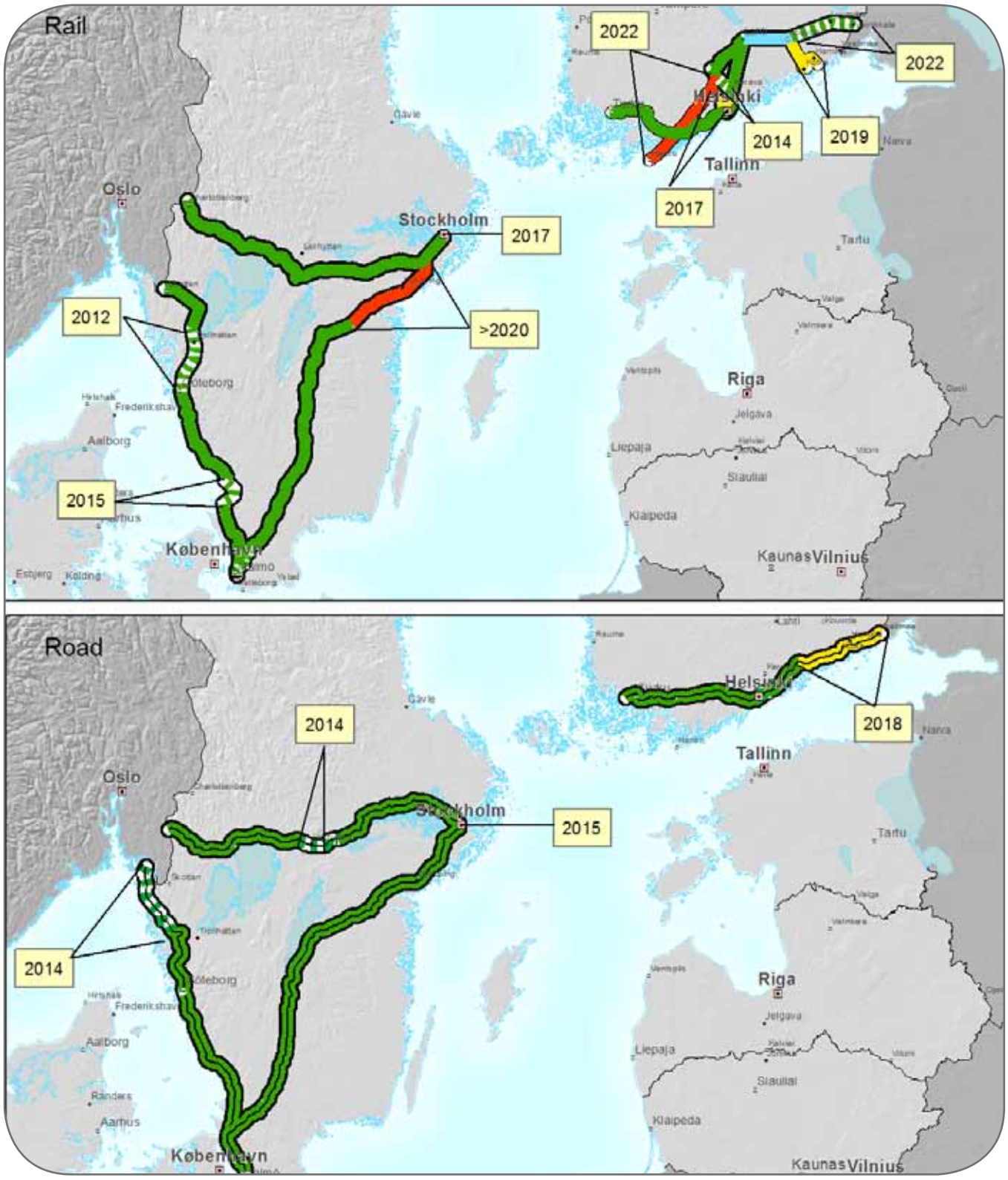
Before the Øresund Bridge was finished, a number of cooperations between Danish and Swedish businesses and organisations were established. Among the most successful are the Øresund University and the Øresund Science Region, which has been acknowledged by the OECD as a unique cooperation and "a new approach to achieving competitive regional development outcomes in a global environment". Furthermore, in 2008, Øresund Science Region received a RegioStars award in the "supporting clusters and business networks" category in recognition of the project's impact.

7. General appreciation

The Oresund fixed link is a Priority Project completed without budget overruns or environmental problems. It has contributed to a great increase of traffic and it has had a very important positive impact on the development of the Copenhagen and Scania regions. It also contributes to the better connection of the Nordic countries with Central Europe.

Priority Project 12
Nordic Triangle railway/road axis

Trans-European transport network. Achievement of the Priority projects

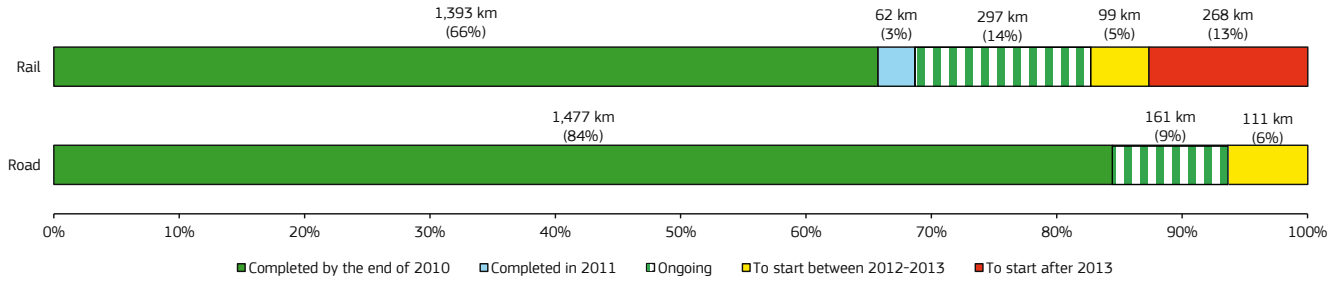


Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Works for construction of the road section Norra Länken	SE	€56.2	Ongoing
Works for construction of Malmoe - Citytunnel project	SE	€51.8	Completed
Main railway connection to Russian border , works for development of railway section between Lahti and Vainikkala	FI	€23.2	Ongoing
Works for the development of the railway connection between Helsinki airport and the PP12 lines	FI	€17.8	Ongoing
Works for the construction of the Road E 18 Muurla - Lohja	FI	€7.8	Completed
Rail connection from Kouvola to Kotka/Hamina ports, works for improving and costruction of a new railway yard	FI	€6.6	Ongoing
Studies for Upgrading of E18 Road	FI	€5.5	Completed
Works for the upgrading of the Road E6 Trelleborg-Vellinge	SE	€5.3	Ongoing
Nordic Triangle - Reconstruction of Malmö Central	SE	€5	Completed
Nordic Triangle - Malmö C- completion works	SE	€4.6	Ongoing
National Railway Yard (Ilmala)	FI	€3.9	Ongoing
Road E18 Helsinki - Vaalimaa studies	FI	€1.3	Completed
Nordic Triangle: Götaland Line - (Borås-Jönköping-Linköping) - High Speed Line	SE	€1	Completed
Norrkoping Intermodal Infrastructure Package - Road Bypass Norrköping, Study	SE	€0.8	Completed
TOTAL		**€190.7**	

PP 12

Completion status of works (km)

Total length = 3,868 km (Rail: 2,119 km, Road: 1,748 km)



Priority Project 12
Nordic Triangle railway/road axis

Trans-European transport network. Achievement of the Priority projects

Summary

The Nordic Triangle links the Nordic countries of Sweden and Finland and their capitals to each other and improves passenger and freight transport from the region to central Europe, the Baltic countries and Russia.

Sweden

The Nordic Triangle in Sweden extends from the Øresund fixed link to Stockholm and the Swedish-Norwegian border, and from Stockholm to the Swedish-Norwegian border east of Oslo.

Roads

Work on the Nordic Triangle routes are progressing well, with a number of projects newly completed. The main problems to be addressed in the future are near or in the cities of Stockholm and Gothenburg. The 470 km long E6 Trelleborg-Malmö-Gothenburg-Norwegian border section will probably be finalised in 2014. The 19 km Trelleborg-Vellinge section was completed in 2011.

On the E18 from Stockholm to the Norwegian border, a number of projects are ongoing, between Stockholm and Karlstad. The Karlstad-Norwegian border will remain a two-lane road.

The 560 km long E4, Helsingborg-Stockholm, is finalised as a four-lane motorway, except for 30 km at Ljungby in the southern part, which is a three-lane high quality road with inter-changes. Preparations for a bypass (22 km) in Stockholm are ongoing.

Rail

The Nordic Triangle in Sweden consists of 1500 km of railway, mostly double track. The lines to the Norwegian border from Karlstad or Trollhättan will remain single track. A number of major projects are in the construction phase. In Malmö, a double track tunnel below the city centre opened in December 2010. It has greatly facilitated traffic in the city and connections with the Øresund Bridge. Double-tracking exists on the main Malmö-Gothenburg-Norwegian border line to help with bottlenecks. The 8.7 km Hallandsås Tunnel project faced geological problems, but now is advancing according to plan and will be completed in 2015. The 75 km Gothenburg-Trollhättan section is also running according to plan and will be completed in autumn 2012.

Finland

The Nordic Triangle in Finland covers road and railway connections from Turku through the Helsinki metropolitan area to the Russian border.

Roads

The Nordic Triangle road connection in Finland consists of the 350 km long E18 from the ports of Turku and Naantali, via Helsinki to the Russian border. The 180 km Turku-Helsinki section was completed as a four-lane motorway in January 2009.

Two motorway sections (85 km in total) between Helsinki and Vaalimaa (Russian border) and the Hamina bypass are expected to be completed by 2016. Important upgrading work on a busy section of Ring Road III in the Helsinki metropolitan area started in 2009, and will be completed in 2015. The 55 km long Koskenkylä-Kotka motorway will be constructed in 2011-2015.

Rail

The 800 km long Nordic Triangle railway network in Finland consists of passenger connections from Turku to the Russian Vainikkala border crossing via Helsinki and Lahti, of two urban rail lines in the Helsinki metropolitan area and of freight connections to the ports of Vuosaari (near Helsinki), Hanko (in the west) and Kotka/Hamina (in the

east). Most of the network is double track. Construction of the new 18 km Ring Rail line started in 2008 and work will last until 2014. The project will connect Helsinki airport to the city centre and to the rail network. It includes an eight km long tunnel under the airport. The Lahti-Luumäki rail line was completed in 2011. The Luumaki-Vainikkala and Kouvola-Kotka/Hamina lines will be completed progressively by 2019.

In both countries, projects are financed from public funds from the government and the regional public authorities. Financial assistance from the TEN-T budget has already been received and is envisaged for the future. At present, only Finland plans to implement a road project between Helsinki and the Russian border with a PPP.

1. Introduction

The Nordic Triangle is a multimodal transport corridor of major importance in providing high-class transport infrastructure for all transport modes in the corridor. The Nordic Triangle trans-port corridor links the Nordic countries and their capitals to each other and improves passenger and freight transport from the region to central Europe, the Baltic countries and Russia.

The development of the Nordic Triangle is in progress and further development is planned. The goal is that the most important Nordic Triangle projects will be implemented by 2018. The Nordic Triangle will contribute to sustainable development through a safer, more efficient and environmentally-friendly transport system.

The Nordic Triangle is closely interconnected to other Priority Projects: the Motorway of the Baltic Sea, the Øresund fixed link and Fehmarn Belt, as well as to the Helsinki-St. Petersburg-Moscow transport corridor (Corridor 9A) leading outside of the EU and to the Helsinki-Tallinn-Riga-Kaunas-Warsaw corridor (Via Baltica and Rail Baltica).

2. Progress of the Nordic Triangle projects in Sweden

The Nordic Triangle in Sweden extends in the south from Malmö and the Øresund fixed link for rail and road transport to the Swedish-Norwegian border and to Stockholm in the east. The third side of the triangle runs from Stockholm to the Norwegian-Swedish border in the direction of Oslo.

The network consists of 1,600 km of roads and 1,700 km of railways. Ports, airports and in-termodal nodes also form important parts of this transport infrastructure.

The long-term infrastructure investment plan in Sweden for the 2010-2021 period was adopt-ed by the government at the beginning of April 2010. An amount of about €42 billion was allocated for all kinds of transport infrastructure projects and maintenance. An additional €8 billion is expected from other sources of financing and from road and rail charges etc.

2.1. Road infrastructure

The road infrastructure of the Nordic Triangle in Sweden consists of the following three road sections:

- E 4, Helsingborg-Jönköping-Stockholm
- E 6 Trelleborg-Malmö-Gothenburg-Swedish-Norwegian border
- E 18 Swedish-Norwegian border-Örebro-Stockholm-Kapellskär

The intention is to upgrade most of the sections of the Nordic Triangle to motorway or similar standard in order to achieve a road network of satisfactory standard from international and national perspectives.

The E4, Helsingborg-Stockholm (560km long), is constructed as a four-lane motorway, except for 30 km at Ljungby in the southern part, which is a three lane high quality road with interchanges. There are plans to upgrade it to motorway in the future. Preparations for an ex-ternal bypass (22 km, including 17 km of tunnels) west of Stockholm are ongoing. Some bot-tlenecks remain on the section between Södertälje and Stockholm. Action on this part of the road is planned in the Master Plan for Infrastructure 2010-2021, in order to increase the capacity of the road.

The E6, Trelleborg-Malmö-Gothenburg-Norwegian border (540 km long), will be finalised in 2014, although the date is approximate due to the ongoing and planned road projects from the north of Gothenburg to the Nor-

wegian border. The 19 km long Trelleborg-Vellinge (near Malmö) motorway was completed in 2011. Close to Gothenburg, the existing motorway will get increased capacity with the construction of a tunnel and an improved connection to the port. These road projects close to Gothenburg will start after 2014 and are included in the Master Plan for Infrastructure 2010-2021.

The E18, Swedish-Norwegian border-Örebro-Stockholm (500 km long), has a number of on-going and planned road projects, between Stockholm and Karlstad. The Hjulsta-Kista road project, a bypass in Stockholm for the E18, and the Västerås-Enköping motorway project are examples of these road projects. However, shorter sections of the road will still need upgrad-ing even after the Master Plan 2010-2021, on the E18. The Karlstad-Norwegian border section is a two-lane road. No projects are planned, since traffic is very low.

In the Stockholm Metropolitan Area, the E20 Norra Länken project is under construction and work will be completed by 2014. It will open to traffic in late 2015. It is part of the bypass route (planned or already implemented) around the inner city of Stockholm. Norra Länken, a 5 km long double tunnel, is a route of national and international importance through its con-nection to the ports of Värtahamnen and Frihamnen near Stockholm, which are the most im-portant ports in Sweden for freight and passenger traffic to the Baltic States, Russia and Fin-land. It provides a valuable link from these TEN-T ports to the Nordic Triangle.

Table 1 shows the ongoing and planned major Nordic Triangle road projects in Sweden. In addition to the major road projects named in table 1, investments for traffic flow separation (through median safety barriers) have been made and are still being made on some parts of the E18.

Road section	Status	Cost estimate (€ million)
E4, Stockholm bypass	In preparation	3,300
E4, Stockholm-Södertälje	In preparation	60
E6, Trelleborg-Vellinge (south of Malmö)	Completed	40
E6, Rabbalshede-Värmlandsbro (north of Gothenburg)	Under construction and partly completed	390
E6, Connection to Gothenburg harbour	Under construction	380
E18, Karlstad	In preparation	32
E18, Köping-Västeras W	Pre-study	100
E 18, Västerås-Sagån	In preparation	30
E18, Hjulsta-Kista in Stockholm	Under construction	430

Table 1. Ongoing and planned major Nordic Triangle road projects in Sweden (estimated costs at 2009 prices)

2.2. Rail infrastructure

The Nordic Triangle in Sweden consists of 1,500 km of railway, mostly double track. The line to the Norwegian border from Karlstad or Trollhättan will remain single track, as there is not much traffic using the line.

The rail infrastructure of the Nordic Triangle in Sweden is defined in three sections: Stock-holm-Katrineholm-Laxå-Swedish-Norwegian border (Charlottenberg), Katrineholm/Järna–Norrköping–Malmö (Øresund fixed link), and Malmö-Gothenburg-Swedish-Norwegian bor-der (Kornsjö), as well as links to ferry ports in Trelleborg (in the south), Gothenburg and Stockholm.

Upgrading on the Stockholm–Swedish/Norwegian border rail section is almost complete with the exception of the planned railway tunnel in Stockholm (Citybanan), which is well advanced and will be completed in 2017. Stock-

holm Citybanan is designed to increase the capacity of the trains through Stockholm and to facilitate commuter travel in the city.

Most of the Katrineholm/Järna–Norrköping–Malmö rail section has been upgraded. Due to heavy traffic, a project is planned to have four tracks in the 20 km Arlöv (near Malmö)-Lund section. Work is planned to take place during the period 2014-2018. Studies concerning the construction of a new high speed line, max speed 320 km/h, 260 km long between Stockholm and Linköping, have been completed. The high speed line would continue from Linköping to Gothenburg. Nevertheless, in the new Master Plan 2010-2021, the project was not endorsed and it was considered that more detailed studies are necessary.

Several double-tracking projects are under construction or in preparation on the Malmö-Gothenburg-Swedish/Norwegian border rail section. In Malmö the construction of a double track line, 17 km long with a 6 km tunnel under the city centre of Malmö (City Tunnel) has been completed and it opened for service in December 2010. It will greatly facilitate traffic in the city and connections with the Øresund bridge.

Double-tracking, due to severe bottlenecks, is taking place on the main Malmö-Gothenburg line. The 10 km Ängelholm-Förlöv section was completed in 2010. The adjacent 8.7 km Hallandsås Tunnel project, which is facing some geological problems, is now continuing to plan and will be completed by 2015. A project Angelholm-Maria (near Helsingborg) is under preparation. North of Gothenburg, the Gothenburg-Trollhättan section is also running accord-ing to plan and several sub-sections have been completed. The entire section will be completed in 2012. A number of projects to reduce bottlenecks and increase capacity are in the prepa-ration phase. Examples of such projects are the 2 km double track in Varberg (south of Gothenburg) and a new big double track tunnel under the city of Gothenburg to facilitate traf-fic and to better connect the rail line with the port. The project is planned for the 2016-2025 period. The rail connection to the port of Gothenburg will also be upgraded, including a new bridge, crossing the Göta Alv River.

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Rail section	Status	Cost estimate (million €)
Malmö City Tunnel	Completed	1,275
Malmö Yard	Completed	109
Malmö-Flackarp	In preparation/under construction	260
Ängelholm-Maria	In preparation	130
Ängelholm-Förslöv	Completed	87
Förslöv-Båstad (Hallandsås tunnel)	Under construction	1,083
Varberg	In preparation	230
Gothenburg-Trollhättan	Under construction (completion by the end of 2012)	712
Port of Gothenburg	Under construction	300
Stockholm Citybanan	Under construction	1,800

Table 2. Ongoing and planned major Nordic Triangle rail projects in Sweden (estimated costs at 2009 prices)

3. Progress of the Nordic Triangle Projects in Finland

The Nordic Triangle in Finland consists of the road and railway connections from Turku through the Helsinki Metropolitan Area to the Russian border. The Nordic Triangle network in Finland consists of about 350 km of roads and about 800 km of railways. In addition, ports and intermodal nodes constitute an important part of this network.

3.1. Road infrastructure

The Nordic Triangle road connection in Finland consists of the E18 road from the ports of Turku and Naantali via Helsinki to the Russian border (Vaalimaa border station). The 180 km Turku-Helsinki section was completed as a four-lane motorway in January 2009, when the last 50 km road section, Muurla-Lohja, was opened to traffic.

Important upgrade work on a busy section of Ring Road III in the Helsinki Metropolitan Area started in 2009. The first phase will be completed in 2012. The second phase is scheduled for 2013-2017 (preliminary decision stage).

Priority Project 12
Nordic Triangle railway/road axis

Trans-European transport network. Achievement of the Priority projects

The 55 km long Koskenkylä-Kotka motorway started in 2011 as a PPP project. Construction work is scheduled for 2011-2015. The 15 km long Hamina motorway bypass will be constructed in 2011-2015. Construction on the last motor-way section between Hamina and Vaalimaa (30 km long) is expected to start in 2013 and to be completed by 2018 (preliminary decision stage). A project for a lorry parking area at the Vaalimaa border will start by 2016 (preliminary decision stage).

Road projects	Status	Cost estimate (€ million)
Koskenkylä-Kotka	Under construction as PPP	650
Koskenkylä-Kotka, separate project	Under construction	33
Hamina bypass road	Under construction	180
Ring Road III, part II	In preparation/preliminary decision stage	150
Hamina-Vaalimaa	In preparation as PPP/ preliminary decision stage	240
Vaalima border lorry parking area	In preparation/preliminary decision stage	25

Figure 4. Planned implementation schedule for the Nordic Triangle road projects in Finland

3.2. Rail infrastructure

The 800 km long Nordic Triangle railway network in Finland consists of the connections from Turku, through Helsinki and Riihimäki/Lahti to the Vainikkala border station with Russia, of two urban rail lines in the Helsinki Metropolitan Area, and of the connections with the ports of Vuosaari (near Helsinki), Hanko (west) and Kotka/ Hamina (east). Most of the network is double track.

The Vuosaari harbour line, including a tunnel, was completed in 2008. The Kerava-Lahti rail section was completed in 2006.

Construction of the new 18 km Ring Rail line started in 2008 and will last until 2014. The project will connect Helsinki airport to the city centre and to the rail network, and includes an 8 km tunnel with two tubes passing under the airport.

The double track Lahti-Luumäki line was completed in 2011. Work on the Luumäki-Vainikkala section (apart from a minor part implemented in 2009-2011) is scheduled to start after 2020. Work is on-going on the Kouvola-Kotka/Hamina section. There will be also im-provements in future years on the Turku-Helsinki, Helsinki-Riihimäki and Hyvinkää-Hanko lines. Projects will be completed progressively by 2022.

New investment is planned for the Helsinki Central Railway yard. There are also plans to make a loop rail under the city center. The City Rail Loop will make it possible to increase rail traffic capacity between Helsinki and Pasila, improving the reliability of railway traffic and reducing its sensitivity to disturbances.

ERTMS in the Nordic Triangle in Finland has progressed with GSM-R installation. Wider ETCS implementation will start in the late 2010's at the earliest.

Rail projects	Status	Cost estimate (€ million)
Imala rail yard	Under construction	120
Kouvola-Kotka/Hamina	Under construction	35
Lahti-Luumäki-Vainikkala	Under construction	240
Airport rail line	Under construction	640
Helsinki-Riihimäki, part I	In preparation/preliminary decision stage	150
Helsinki-Riihimäki, part II	In preparation	200
The City rail loop, Helsinki	In preparation	750
Helsinki Central railway yard	In preparation	100
Vainikkala railyard	In preparation	50
Kuovola railyard	In preparation	50
Hyvinkää-Hanko	In preparation	50
Lappävaara-Espoo	In preparation	260

Figure 6: Planned implementation schedule for the Nordic Triangle rail projects in Finland.

4. Financing

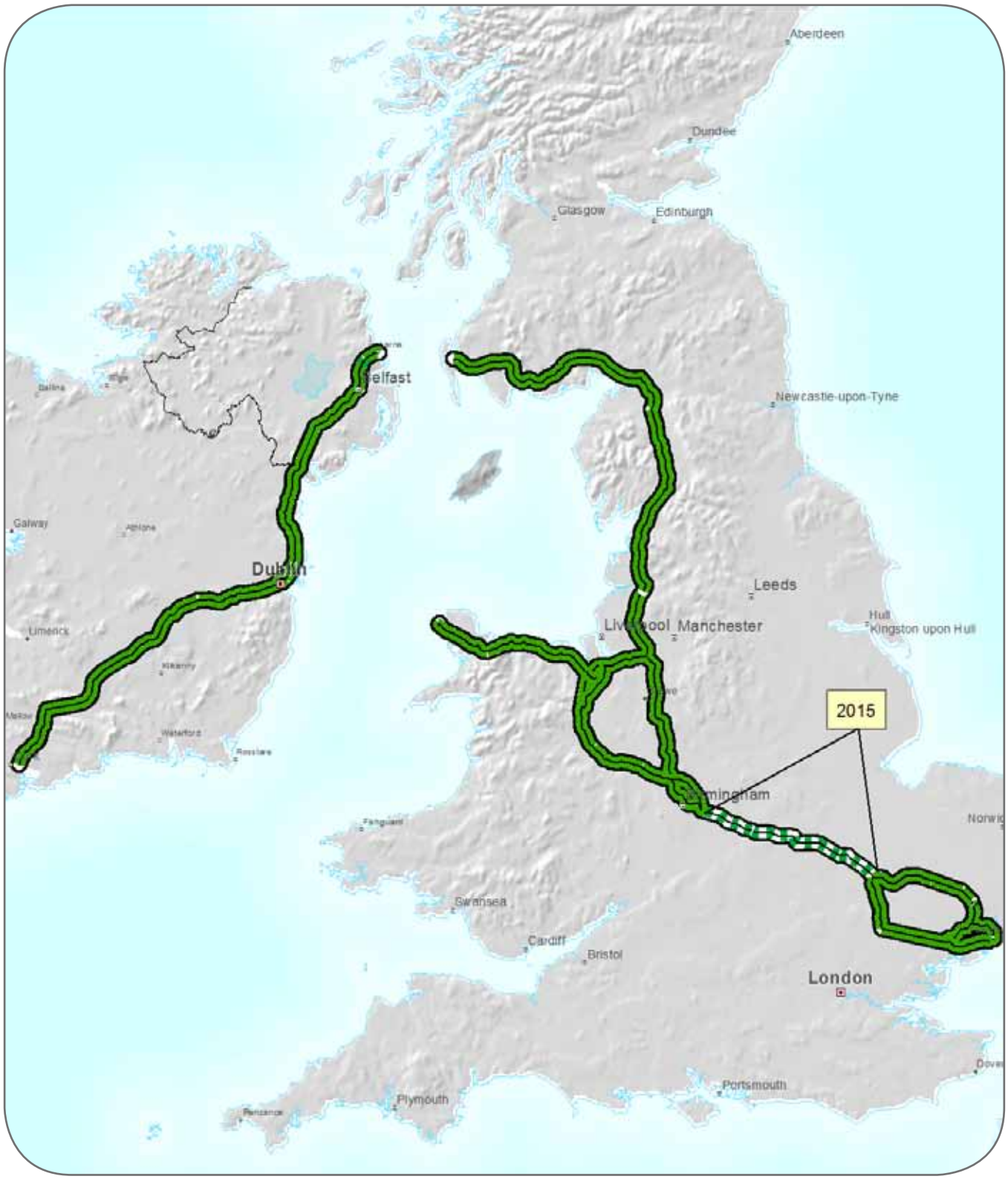
In both countries, projects are financed from public funds from the government or regional or public authorities. Financial assistance from the TEN-T budget has already been received and is envisaged for the future. Sweden does not envisage any PPP schemes for the moment. Finland, however, intends to implement the 55 km long Koskenkylä-Kotka road (€650 million), between Helsinki and the Russian border, through a PPP.

5. General appreciation

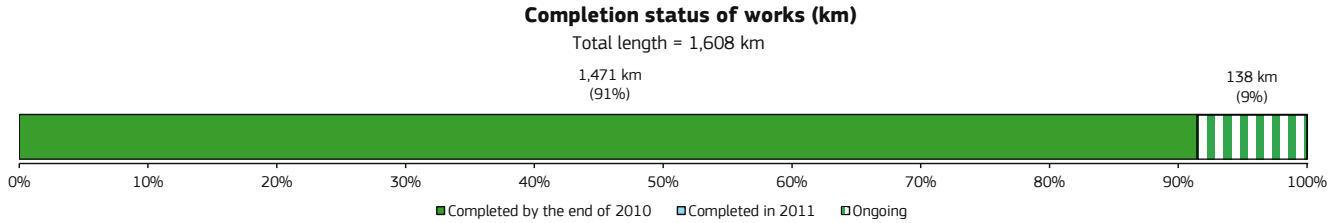
Several road and rail projects are ongoing in Sweden and Finland to improve the situation of the Nordic Triangle. There are no particular financial or other problems or delays. The most important ongoing or planned projects concern the areas near or in the big cities of Stockholm, Gothenburg, Malmö, and Helsinki, as well as the improvement of road and rail connections from Helsinki to the Russian border. The decision for the construction of a high speed rail link in Sweden will be taken after further studies.

Priority Project 13
Road axis United Kingdom/Ireland/Benelux

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Package for improvements and upgrade of road infrastructure on Priority Project 13: Sections of A14, M6 and A1	UK	€80.7	Completed
A14 Corridor Traffic Management Scheme	UK	€11.7	Completed
A8 Belfast to Larne (Coleman's Corner to Ballyrickard Road)	UK	€2.2	Completed
TOTAL		**€94.5**	



PP 13

Priority Project 13
Road axis United Kingdom/Ireland/Benelux

Trans-European transport network. Achievement of the Priority projects

1. Background

Priority Project 13 aims to improve the links between Britain and Ireland on the one hand, and the Benelux states and Western Europe on the other. For this purpose, new roads are being constructed – in particular in Ireland – and existing roads upgraded to motorway, dual and single carriageway standards. Outside of the TEN-T programme some stretches of the route will be equipped with traffic management systems. Taken together, these schemes should lead to shorter journey times between mainland Europe and the islands, increase capacity, reduce bottlenecks, reduce accidents and reduce negative environmental impact.

The route will link the English North Sea ports of Felixstowe and Harwich with Anglesey in North Wales, with Liverpool in north west England and with Stranraer in Scotland. Ferry links connect the route to Northern Ireland, where it continues from Larne in the north east and travels south via Belfast across the border to Dublin and then on to Cork. It complements the east coast rail line, PP9.

2. United Kingdom

In England, Scotland, Wales and Northern Ireland, the scheduled works are gradually being carried out along the entire route and the project is advancing correctly. Investment on the axis has focussed on projects which specifically target safety, congestion, environmental issues, and bottlenecks.

Expenditure in the United Kingdom (£ million in financial years – April-March)

	Up to 2006	2007	2008	2009	2010	2011	2012	2013
England	178.1	87.9	14	135	82.9	29.6	58.20	139.5
Wales	236.6	1.2	1.6	3	10	8.3	4.90	10.1
Scotland	5.4	10.84	0.9	13.2	9.5	0	1.50	28
Northern Ireland	138.3	76.27	60.35	105.35	4.08	24.85	54.0	41.4
Total	558.4	176.21	202.85	256.55	106.48	62.75	118.6	219

2.1. England

Sections

The following table gives a breakdown of the different elements that make up the road axis in England:

Route	From	To	Length (km)	Status
A14	Felixstowe	Catthorpe [M6 Jct]	211.8	Predominantly 2-lane dual
A120	Harwich	Bishop's Stortford [M11 Jct]	71.5	Predominantly 2-lane dual
A12	Colchester [A120 Jct]	Ipswich [A14 Jct]	27.4	Predominantly 2-lane dual
M11	Bishop's Stortford [Jct 8]	Girton [A14 Jct]	42.7	All 2-lane dual
M6	Catthorpe [A14 Jct]	Birmingham [Jct 11]	119	Predominantly 3-lane dual
M6	Birmingham [Jct 11]	The Scottish border	300	Predominantly 3-lane dual
A5	Chirk [A483 Jct]	Telford [M54 Jct]	23	Predominantly 2-lane dual
M54	Telford [M54 Jct]	Featherstone [M6 Jct]	36.1	All 2-lane dual
M56	Dunkirk [A5117 Jct]	Jct with M60	54.2	Predominantly 3-lane dual

A5117	Dunkirk [M56 Jct]	Jct with A550	5.2	Predominantly 2-lane dual
A55	M53 [Jct 12]	The Welsh border	12.3	All 2-lane dual
A483	M53 [Jct 12]	The Welsh border	4.2	All 2-lane dual

Schemes since 2007

As part of the 2007 multi-annual programme three key road projects in England were supported by TEN-T funding. These were:

- A14 – Haughley New Street to Stowmarket (€2 million)
- Upgrading M6 Carlisle to Guards Mill (€8.5 million)
- Improvements to A14 Ellington to Fen Ditton (€57 million)

A14 – Haughley New Street to Stowmarket

The A14 is a strategic road of international and national importance. It is an all-purpose dual carriageway running from Felixstowe docks to the M1/M6 motorway junction, a distance of approximately 210 km. It is designated as the main east-west strategic route between the east coast ports and central England. The project improved a 3.7 km section to the west of Stowmarket. It also provided local benefits, as the exisiting westbound carriageway given over to use as a local road, with an underbridge to cater for continued access for local traffic along Haughley Road. The exisiting eastbound carriageway has been modified for use by pedestrians, cyclists and equestrians. The scheme cost €50 million and was opened in January 2009.

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M6 Carlisle to Guards Mill (link from England into Scotland)

The A74 was the main route between England and Scotland, carrying a heavy traffic load of 42,000 vehicles per day, nearly a quarter of which were heavy goods vehicles. The scheme has removed bottlenecks and optimised the capacity of the network. Upgrading this stretch has also significantly improved the access along this TEN-T corridor. The new section is known as the A74(M) and joins the M6 on the north-south axis, providing a link from London to north west England (via the M40) and onwards to Glasgow. It is the missing link in the motorway network between London and Glasgow. The route also has a multimodal dimension in enhancing connections with the ports of Stranraer, Belfast and Dublin. The project cost around €108 million and was opened to traffic in December 2008.

A14 - Ellington to Fen Ditton

This proposal looked at improving the congested Camdridge-Huntingdon section of the A14 where north-south traffic from the M11 and A1(M) join the road. Significant local and strategic through traffic, which includes a high proportion of heavy goods vehicles from the UK and continental Europe, create a bottleneck on this section.
Following a UK government review of spending priorities in 2010, the £1 billion scheme was found to be unaffordable under any reasonable funding scenario and the scheme was withdrawn. TEN-T funding allocated to this project has been de-committed and will be used in future calls for TEN-T funding.

The UK Department for Transport launched the “A14 Challenge” in 2011 which brought together interested parties from across the regions to look at alternative approaches to resolving issues along the A14 corridor. The Department announced proposals for the A14 Corridor on 18 July, including: a tolled road scheme to upgrade the capacity and performance of the A14 in Cambridgeshire to address the bottleneck section, support for a package that would move some freight off the road and onto rail, and local public transport improvements. In the interim, the Department is making small improvements to the A14 in Cambridgeshire, which was not included in the A14 Corridor Traffic Management Scheme, as it was expected that the Ellington to Fen Ditton scheme would address this section.

As part of the 2009 EERP call the following project was selected for co-funding:

A14 Corridor Traffic Management Scheme

The A14 is a crucial link between the port of Felixstowe and industrial centres in the midlands of England. Some sections of the A14 suffer from unreliable journey time, bottlenecks and congestion affecting international and national traffic flow. This scheme uses innovative detection technology to provide drivers with journey time information; warnings of upcoming congestion and advice on potential alternative routes consisting of automatic in-

Priority Project 13
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cident detection sensors to address three congested locations totalling 100 km of road. The scheme cost around €95 million and has been in operation since spring 2012.

Future Schemes

Following the publication of the National Infrastructure Plan in 2011 a number of schemes have been identified which will remove bottlenecks on this priority.

On the M6 there are two managed motorway schemes: Junction 5-8 and Junctions 10a-13. Both schemes are designed to make journeys more reliable by controlling traffic flows more effectively through the use of technology such as overhead gantries, lane specific signals and driver information signs.

Managed motorways use two main elements: variable speed limits and hard shoulder running. Variable speed limits keep traffic moving by controlling the flow of vehicles using computerised systems when the route is congested. Hard shoulder running is used as an additional live traffic lane during periods of congestion. When traffic builds up road users will be instructed to use the hard shoulder as an extra traffic lane, increasing the motorway's capacity, reducing congestion and keeping traffic moving. These schemes provide real benefits to road users and are less expensive to implement than traditional widening schemes.

The M6 Junctions 5-8 scheme began in 2012 and is due to complete in spring 2014. This section of motorway suffers from heavy congestion, unpredictable journey times and higher than average accident rates. The project will relieve congestion and smooth the flow of traffic, improving safety and journey times. These benefits will also support economic development in the region. The M6 Junctions 10a-13 scheme is due to start in 2014 and will relieve congestion and smooth the flow of the traffic, improving safety and journey times. Both of these projects support economic development in the region. Other schemes due to commence in 2013/14 are the A14 Kettering Bypass improvement and the M1 Junction 19 improvement.

2.2. Wales

Sections

The following tables give a breakdown of the different elements that make up the road axis in Wales:

Route	From	To	Length Km	Status
A55	Deeside Park	Holyhead	136	Dual carriageway

Projects undertaken since 2000

Year	Project name	Purpose	Cause	Length of carriageway improved	Cost (£ million)
1996 to 2001	A55 dualling	Dual A55 from Chester to Holyhead	Upgrade from single carriageway to dual carriageway	85 miles	£101
1996 to 2003	A494/A550 Deeside Park to Drome Corner	Increase safety and capacity	Upgrade trunk road corridor into North Wales	2.4 km	£10
2004	A494/A550 Deeside Park to Drome Corner	Increase safety and capacity	Upgrade trunk road corridor into North Wales	2.4 km	£5

Improving the junctions at the A5117 and A550

The improvements to the A5117/A550 junction at Deeside Park consisted of providing dual carriageway throughout with two lanes in each direction. The scheme involved grade separation at three junctions at Woodbank, the A540 and M56. This has reduced delays for users along the 5 km route at peak times and improved safety and

facilities for non-motorised users.

Future schemes

Options are being considered to upgrade the three major tunnels on the A55 in line with European Directive 2007/1520, Road Tunnel Safety Regulations. The costs of the options have yet to be determined. There are a number of potential future proposals on the axis that are recognised as providing improvements:

Project name	Purpose	Cause	Length of Carriageway improved	Cost (£ million)
A55 Britannia Bridge	Increase the capacity of the existing crossing to Anglesey	Safety/bottleneck	Additional bridge crossing (3 km including approach roads)	£108.5
A55 / A494 Ewloe Interchange	Increase the capacity of the network to relieve congestion	Safety/bottleneck	1 km	£103.1
A55 Ewloe to Northop	Increase the capacity of the network to relieve congestion	Safety/bottleneck	3.2 km	£26.0
A55 Junction 15+16 Improvements	Remove at-grade junctions to improve safety and relieve congestion	Safety/bottleneck	Improvement to junctions	£37.5
A55 Abergwyngregyn to Tai'r Meibion	Improve road alignment and remove junctions to improve safety	Safety/bottleneck	2.5km	£13.7

PP 13

2.3. Scotland

Sections

The A75– Stranraer connects the ferry terminals at Loch Ryan to Northern Ireland with the A74 (M) and onwards to England and beyond. The following table gives a breakdown of the different elements that make up this axis in Scotland:

Route	From	To	Length	Status	Demand	Capacity (vpd)
A75	Gretna – Dumfries	Stranraer (and Loch Ryan ferry ports)	155 km	A single carriageway road with a few very short sections of dual carriageway. Currently, 18.8 km is of WS2+1 standard.	Between 5000 and 11,000 vehicles per day, of which 18% of traffic comprises HGV's.	Most of the road functions within its traffic capacity for most of the day.

The absence of safe overtaking opportunities on sections of the route means that slower moving HGVs travelling to and from the ferry ports at Loch Ryan tend to create blocks of traffic, causing delay and driver frustration. The provision of further safe overtaking opportunities and of driver information facilities (ITS) would be the key investments needed to ensure this route's enhanced operational safety and effectiveness.

Projects undertaken since 2000

Year completed	Project name	Purpose	Cause	Length of carriageway improved	Cost (£ million)
2008	Barfil to Bettyknowes	Overtaking opportunity (WS2+1) Westbound	Safety	0.875 km	Total cost of £9.2 for these three schemes which were a combined contract
2008	Newton Stewart (DAL)	Overtaking opportunity	Safety	0.375 km	
2008	Planting End to Drumflower	Overtaking opportunity (WS2+1) Eastbound	Safety	1 km	
2010	Cairntop to Barlae	Dual carriageway overtaking opportunity	Safety/bottleneck	2.5 km	

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Safety improvements and the removal of bottlenecks have also been carried out at the Gretna Interchange, the Collin Bypass, The Glen, the Twynholm Bypass, the Gatehouse of Fleet Bypass and the Glenluce Bypass.

Future projects

Project name	Purpose	Cause	Length of carriageway improved	Cost (£ million)
Dunragit Bypass	Bypass and overtaking opportunity (WS2+1) east and westbound.	Safety/bottleneck	5.3 km	20
Hardgrove to Kinmount	Overtaking opportunity (WS2+1) east and westbound	Safety/bottleneck	3.6 km	14

The future transport investment in Scotland is set out in the Strategic Transport Projects Review (STPR) which reported in December 2008 and sets out 29 investment priorities over the period to 2032 which will be delivered, subject to the transport allocation within future Spending Reviews and affordability.

Intervention 11 – Improving links to the Loch Ryan ports from the Trans-European Network aims to ensure that there are efficient and effective transport links to the port facilities at Loch Ryan.

This intervention will include measures such as: works aimed at providing safer overtaking opportunities (Wide Single 2+1 (WS2+1) carriageway, climbing lanes and overtaking lay-bys and improvements to the operation of junctions around Dumfries), improvements to the A751 at Stranraer and the introduction of intelligent transport systems (ITS) to provide driver information on the A75.

These measures would be expected to improve journey time reliability, resulting in efficiency gains for freight traffic travelling to and from the Loch Ryan ports. The works would also contribute towards the need to maintain and safely operate the network. The cost estimate for these measures is £10-£50 million.

2.4. Northern Ireland

Sections

The following table gives a breakdown of the different elements that make up the axis in Northern Ireland: Connecting the Port of Larne through Belfast to the border at Newry leading on to Dublin.

Road	Length (km)	Status	Current demand	Capacity
A8 from Larne Port to B100 Ballyrickard Road	6	Dual carriageway	18,000 vpd	39,000
A8 from Ballyrickard Road to Colemans Corner roundabout	14	Single carriageway	18,000 vpd	13,000
A8 from Colemans Corner to Sandyknowes roundabout	5.2	Dual carriageway	18,000 vpd	39,000
M2 from Sandyknowes Roundabout to York St junction	10	Motorway (part three-lane)	65,000 vpd	67,000
A12 West Link from York St Junction to Broadway underpass	3.5	Three-lane dual carriageway	64,000 vpd	54,000

M1 from Broadway underpass to A1 off slip	13.5	Three-lane motorway	64,000 vpd	67,000
A1 From Sprucefield roundabout to Beech Hill	28	Dual carriageway	37,000 vpd	39,000
A1 Beech Hill to Cloghogue	12	Dual carriageway	20,000 vpd	39,000
A1 Cloghogue to Border	4.3	Dual carriageway	20,000 vpd	39,000

Projects undertaken since 2000

Year Completed	Project name	Purpose	Cause	Length of carriageway improved	Cost (£ million)
2004	A8 Belfast to Larne - Dualling between Doagh Road and Hillhead Road	Upgrade to dual carriageway	Safety/bottleneck	2.2 km	8
2006	A1 Loughbrickland to Beech Hill	Upgrade to dual carriageway	Safety/bottleneck	9 km	25
2007	A1/N1 Newry to Dundalk	Upgrade to dual carriageway	Safety/bottleneck	4.3 km	33
2009	M2 Widening Sandyknowes to Greencastle	Widening motorway to provide three lane	Safety/bottleneck	5.6 km	20
2009	M1/West Link	Widening dual carriageway/Motorway to provide three lanes	Safety/bottleneck	6.6 km	104
2009	A1 Junctions at Hillsborough, Banbridge, Loughbrickland and Dromore.	Provide 4 no grade separated junctions	Safety/bottleneck	Four no junctions	30
2010	A1 Beech Hill to Cloghogue	Upgrade to dual carriageway	Safety/bottleneck	12 km	152
2012 – 2015	A8 Belfast to Larne (Coleman's Corner to Ballyrickard Road).	Upgrade to dual carriageway	Safety/bottleneck	14 km	110

The Northern Ireland section of this axis received a total of £3.75 million of funding from the 2000 to 2006 TEN-T Programme in support of road improvement schemes such as:

- A1 Loughbrickland to Beech Hill
- A1/N1 Newry to Dundalk.
- A8 Belfast – Larne, Doagh Road to Coleman's corner Dualling

As part of the 2007 multi-annual programme, the A1 Beech Hill to Cloghogue (photo below) project was supported by TEN-T funding (£9 million). This is the final section of A1 (link between Belfast and Dublin) in Northern Ireland to be considered for dualling. The cost of the project was £152 million. The project is now complete and opened in July 2010. This complements and extends the 14 km dual carriageway between Newry and Dundalk which opened in August 2007.

Projects currently under construction

A8 Belfast to Larne (Coleman's Corner to Ballyrickard Road)

This section of the A8 TEN-T road is the final piece of PP13 in Northern Ireland still to be upgraded to at least dual carriageway standard. The A8 provides a particularly important link between Northern Ireland and Scotland, via the port of Larne, for passengers and freight. The existing single carriageway road, which has limited overtaking opportunities and a high number of side road junctions and accesses, suffers from safety problems, congestion and unreliable journey times especially during peak periods.

A study relating to the development and assessment of a project to upgrade this road was awarded €2.16 million

Priority Project 13
Road axis United Kingdom/Ireland/Benelux

Trans-European transport network. Achievement of the Priority projects

funding in the TEN-T 2009 annual call. This action has been successfully completed, resulting in the decision to proceed with the construction of a new dual carriageway in accordance with the preferred route.

The project has now moved into the construction phase with work commencing on site during August 2012. The scheme cost is £110 million and the construction phase is expected to last for approximately 34 months. The scheme involves upgrading the existing single carriageway road to provide 14 km of new dual carriageway with minimal junctions and no gaps in the central reserve.

Future projects

There are also a number of future proposals on this axis included in the Roads Service forward planning schedule which contains schemes which could be started within the next 10 years or so subject to clearing the statutory procedures, having a satisfactory economic or other appraisals and the availability of funding.

- A8 Belfast to Larne (Coleman's Corner to Ballyrickard road). This will be last section of the PP13 corridor in Northern Ireland to be upgraded to at least dual carriageway standard. The scheme is currently under development and delivery is dependent on progression through statutory procedures and the availability of funding. A study for this project was awarded €2.16 million funding in the 2009 annual call.
- York Street Interchange. The construction of a grade separated interchange to allow free flowing traffic between the M1/Westlink and the M2 and M3. The scheme is currently under development and delivery is dependent on progression through statutory procedures and the availability of funding. A study for this project was awarded €1.26 million funding in the TEN-T 2011 annual call.
- M2 Junction at Sandyknowes. The construction of a direct link between the M2 and A8 (M) allowing strategic traffic to avoid the congested Sandyknowes junction.
- M1/A1 Sprucefield bypass. The construction of approx 4 km of dual carriageway to link the M1 and the A1 bypassing the congested Sprucefield junction
- A1 Junctions Phase Two. The construction of four grade separated junctions to enhance safety on the busy dual carriageway between Sprucefield and Loughbrickland.

The aim of these schemes is to further improve safety, remove bottlenecks, enhance the environment, reduce congestion and delays and improve journey times along this important cross-border strategic transport corridor.

3. Republic of Ireland

The route runs from Larne in Northern Ireland to Cork in the Republic of Ireland. Both towns are major transhipment ports in their own right. Prior to its development, the route mainly comprised single carriageway with poor alignments, inadequate capacities, safety hazards and numerous traffic bottlenecks.

The Irish section of the route stretches from the border with Northern Ireland – approximately 10 km north of Dundalk – to Cork, via Dublin on the M1, the M50, the N/M7 to its junction with the M8, then continuing along the M8 to its junction with the N25, six kilometres east of Cork city centre.

It is considered the most important arterial road route on the island, linking its three largest cities, sea ports, airports, and industrialised hinterlands. The total route length in the Republic of Ireland is 360 km. Total expenditure on the development of this section was around €4 billion between1996-2010.

€510 million in EU assistance has been provided since the mid-1990s to upgrade the route, including €5 million from ERDF, €390 million from the Cohesion Fund and €45 million from TEN-T. Many of the motorway works along the route were advanced to the construction stage with TEN-T support.

Generally, the ERDF and Cohesion Fund assisted the construction of the larger schemes, while the main focus of the TEN-T assistance was on the progression of large schemes through the pre-construction phase, including corridor and route selection, environmental impact assessments, preliminary and detailed design, public inquiries and public procurement. The construction of the immediate physical cross-border link itself, comprising the new road between Newry in Northern Ireland and Dundalk in the Republic, was assisted by TENT-T funds.

An integrated approach was followed at national level in deploying the various forms of the EU assistance and the matching national finances to the most advantageous combined effect.

Sections

The road axis linking Dublin with Cork and Northern Ireland (PP13) is complete. The following table gives a break-down of the different elements that make up the axis in the Republic of Ireland:

Route	Project	Road type	Length (km)	Year	Cost (€ million)
M1	Balbriggan Bypass	Motorway	13	1998	59
M1	Dunleer/Dundalk	Motorway	17	2001	138
M1/N2	Dunleer/Ardee link	Single	8	2001	€12.4
M1	Cloghran/Lissenhall MIU	Motorway	6	2003	1,583
M1	Lisenhall/Balbriggan	Motorway	10	2003	72
M1	Drogheda bypass MIU	Motorway	22	2003	262.4
M1	Dundalk Western bypass MIU (PPP)	Motorway	11	2005	€24.1
M1	Drynam Interchange	Interchanges	1	2006	-
M7	Newbridge bypass/ Kilcullen link	Motorway	18.5	1994	83.7
M7	Portlaoise bypass	Motorway	14	1997	62.8
M7	Kildare bypass MIU	Motorway	12	2003	160.8
M7	Monasterevin by-pass MIU	Motorway	17	2004	132.8
N7	Newlands Cross to Rathcoole	Dual	5	1998	20.4
N7	Rathcoole Inter-change	Interchange	-	1998	16
N7	Kingswood Inter-change	Interchanges	1	2005	-
N7	Naas road widening MIU	Dual	15	2006	229.3
N8	Cork Southern Ring Road	Dual	8	1996	79.9
N8	Jack Lynch Tunnel	Dual	1.9	1999	158.4
N8	Watergrasshill bypass MIU	Dual	10	2003	125
N8	Cashel bypass MIU	Dual	7	2004	48.6
N8	Fermoy-Water-grasshill MIU (PPP)	Motorway	18	2006	133.1
N8/N73	Mitchelstown West-ern Relief Road	Single	4	2006	25.1
N8	Cullahill-Cashel	Motorway	40	2008	434.3
N8	Cashel Mitchelstown	Motorway	40	2008	454
N8	Mitchelstown-Fermoy	Motorway	16	2009	174

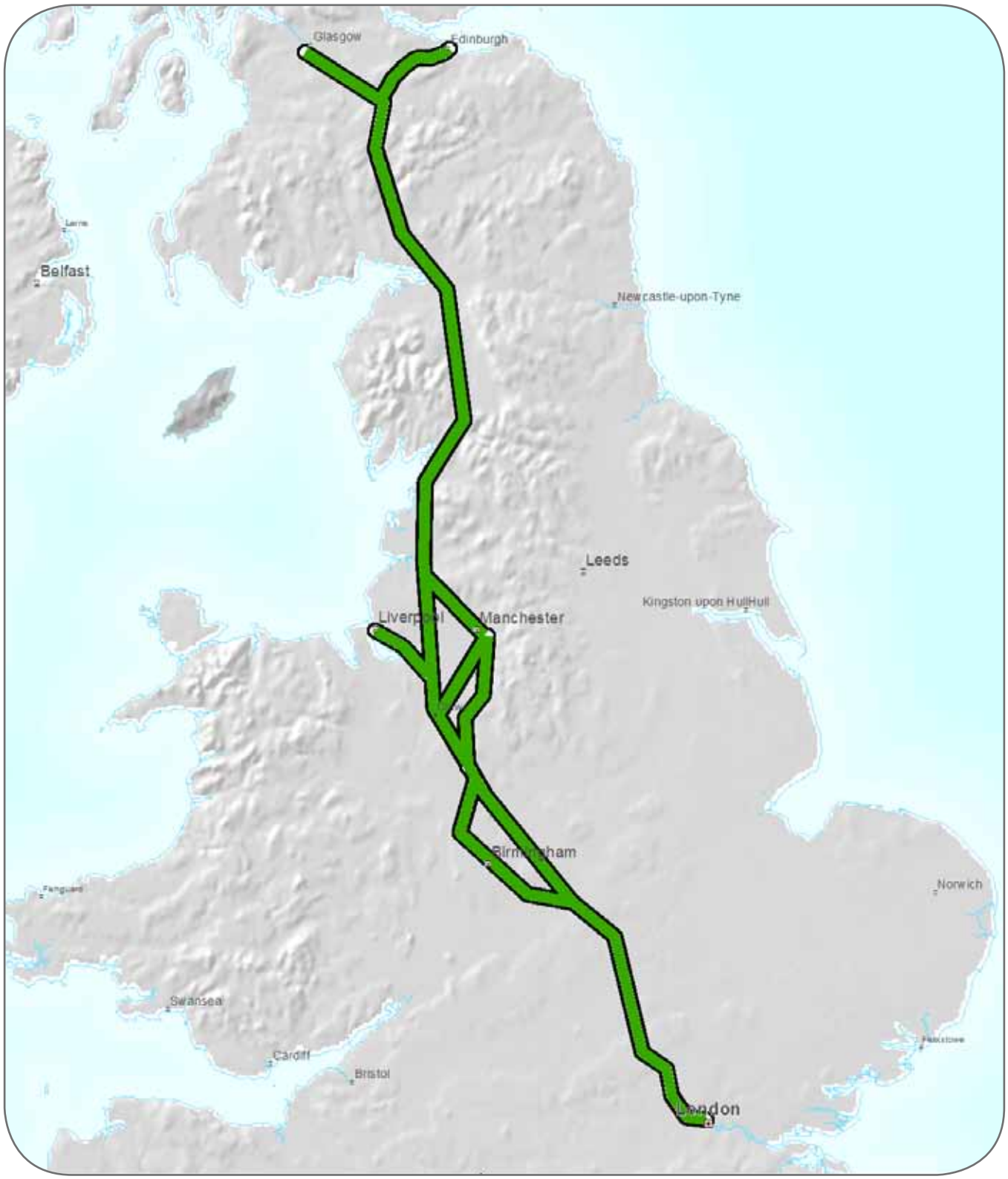
Priority Project 13
Road axis United Kingdom/Ireland/Benelux

Trans-European transport network. Achievement of the Priority projects

M50	Northern Cross Route	Motorway	11	1996	90.9
M50	Northern Cross Route Extension	Single	2.5	1997	5.7
M50	Free Flow Slips	Single	13.5	2000	8.3
M50	Southern Cross Route	Motorway	9	2001	147.3
M50	2nd Westlink Bridge	Motorway	.4	2003	-
M50	Dublin Port Tunnel	Motorway	6	2006	751.2
M7/8	Portlaoise to Cul-lahill/Castletown (PPP)	Motorway	40	2010	198
		TOTAL	**397.8**		

Priority Project 14
West Coast Main Line

Trans-European transport network. Achievement of the Priority projects



0 50 100 km

Cartography: DG MOVE, October 2012
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© EuroGeographics 2001 for the administrative boundaries

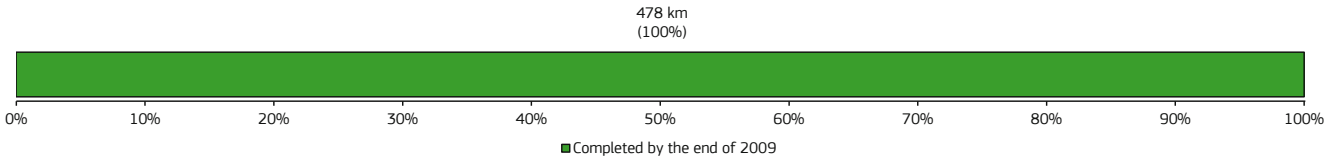
- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

- Completion Date
- Priority sections

TENtec

Completion status of works (km)

Total length = 478 km



PP 14

Priority Project 14
West Coast Main Line

Trans-European transport network. Achievement of the Priority projects

Summary

The West Coast Main Line is a complex railway system linking London with major agglomerations in the West Midlands, the North West, North Wales and Scotland, covering a distance of 850 km. With more than 2,000 train movements daily, it is the most important trunk route in the UK. It serves as a main route for long distance passenger traffic and absorbs significant commuter flows around London, Birmingham, Manchester, and Glasgow.

In addition roughly 43% of all UK rail freight uses the line at least partly on its journey, making the West Coast Main Line one of the busiest freight corridors in Europe. Dating back to Victorian times and having been most recently modernised in the 1970s, it became clear in the early 1990s that the line was in need of a major overhaul. It has become one of the biggest civil engineering enterprises in the UK for a decade.

1. The project

PP14 aimed at upgrading the existing West Coast Main Line. The section projects focused on the removal of bottlenecks, increasing the speed of the line and augmenting its capacity, along with improved performance (better punctuality). To this purpose, new signalling systems were installed, new tracks laid in the Trent Valley, old tracks upgraded to allow higher speeds of up to 200 km/h (125 mph), stations refurbished, platforms extended and GSM-R installed. Although ERTMS compatible, the introduction of the system is not envisaged. Completion of the project has also improved the connection between the port of Southampton and parts of the railway system whose gauge has been adapted to the use of high cube shipping containers.

The project makes rail journeys more competitive with other modes of transport by reducing long distance journey times for both passenger and freight traffic. It improves international connections between Ireland, Scotland, England on the one hand, and France, Belgium, The Netherlands and Germany on the other.

Although minor improvements to the line, for instance in Stafford, Bletchley and Reading, are scheduled to continue into 2013, the project is regarded as successfully completed from the point of view of TEN-T policy. Eventually parts of the West Coast Main Line could also be linked into the proposed high speed rail link between London and Birmingham. Such a project is estimated to bring substantial economic benefits and would be in line both with TEN-T policy and with Britain's long term strategy on inter-urban transport. However no final decision has yet been taken.

2. The investment and construction period

The project was planned by Railtrack, the private British network operator, in the mid-1990s. However, costs for the modernisation of the West Coast Main Line soon exploded, attributing its share to the collapse of Railtrack. In 2002, the British government took over management of the project, working in close cooperation with the private sector. This partnership proved to be successful with works being completed in time and costs staying within the budget.

The construction period was difficult as rail services had to continue on the most important north-south connection of the country. Much of the work was done on weekends, leading to significant delays and disruption. In spite of frustration on the part of many leisure travellers during the weekend, the fact that the lines could continue to operate during the construction phase can be regarded as a success. Keeping the tracks alive during construction was a complicated endeavour however, and approximately 50% of time was taken with setting up and closing down the construction site in the mornings and evenings.

The transport operator, Virgin Trains, also upgraded its rolling stock. In the summer of 2002, 53 new Class 390 Pendolino trains were introduced on the route. These tilting trains consist of 9 cars each (some extended to 11

cars), have a top speed of 225 km/h and travel at 200 km/h on the West Coast Main Line, a route that was not originally designed as a high speed link. This also led to an increase in passenger capacity. Other recently acquired trains for intercity routes are a number of diesel powered Class 221 SuperVoyagers, and a fleet of four car electric Desiro trains for regional routes.

3. Impacts

The renewal led to a higher than anticipated increase in efficiency. Journey times between the major agglomerations were reduced significantly (see table below). Between London and Manchester they were reduced to 2 hours, and between London and Glasgow to 4 hours and 15 minutes, thus significantly increasing the competitiveness of rail on these routes. At the same time, capacity was increased by roughly 70%, allowing the introduction of new timetables. Significantly more trains are running at a higher frequency between big cities. During the whole working day there is, for instance, one service every twenty minutes between both London and Birmingham and London and Manchester. The capacity for freight has also been increased, nearly matching the increase in passenger capacity.

This has created substantial economic benefit. The completion of the southern part of the route in 2004 led to a growth in business in excess of 30%.

The improved rail service also had a beneficial impact on the environment. After completion of the southern part of the axis, rail has regained a significant market share from air for journeys between London and Manchester. Between 2004 and 2005, rail has increased its market share from 41% to 59% in a growing market. This trend has continued subsequently.

PP 14

4. Concerns

The upgrade of the West Coast Main Line significantly reduced travel times between the large agglomerations in the United Kingdom. The introduction of the new very high frequency timetable by the transport operator, Virgin Trains, has significantly increased the number of services between major cities. One factor necessary to decrease travel time, however, was reducing the number of intermediate stops. As a result some, poorly used and smaller stations receive fewer fast intercity services, although no journey opportunity from such points has been lost. Whilst some travel times between smaller stations have increased, the number of journey opportunities from such points has increased.

Route	Main Improvement
Glasgow-North West England	Increase in capacity. 30% reduction of journey time
London-Manchester	Frequency increased from 2 to 3 services per hour
London-Liverpool	25 minute reduction of journey time. Increase in peak services for business traffic
London-West Midlands	Frequency increased from 2 to 3 services per hour
Manchester-Scotland	Frequency increased from 7 to 9 services a day
Birmingham-Scotland	20-30 minute reduction of journey time

5. Overview of Sections

There are many projects along the entire line, but the key projects are:

EE36: Platform extensions (Euston-Rugby)
Providing 12 car train length for additional capacity on regional and commuter trains - completed

EE09: Watford Junction-Bletchley
Tring turnback (outer suburban trains) - completed
Ledburn crossover (increased capacity) - completed
Bletchley remodelling - to be completed

EE29: Northchurch Tunnel
Providing extra ventilation shaft - completed

Priority Project 14
West Coast Main Line

Trans-European transport network. Achievement of the Priority projects

EE11 Nuneaton Remodelling
Providing new platforms and flyover for increased capacity - completed

EE12/EE22: Trent Valley Four Tracking and Line Speed Works
Increase capacity - 22 km (14 miles) of four tracking - completed

EE27: Abolition of crossings (West Midlands)
Completed

EE30: Banbury Lane crossing
Improvements to intermediate stations between Coventry and Birmingham International - completed

EE35: Platform extensions (West Midlands)
New platforms at Birmingham New Street and Wolverhampton - completed

FF22 Wigan–Springs Branch remodelling
Increased capacity - completed

W123: Sandbach-Wilmslow remodelling
Completed

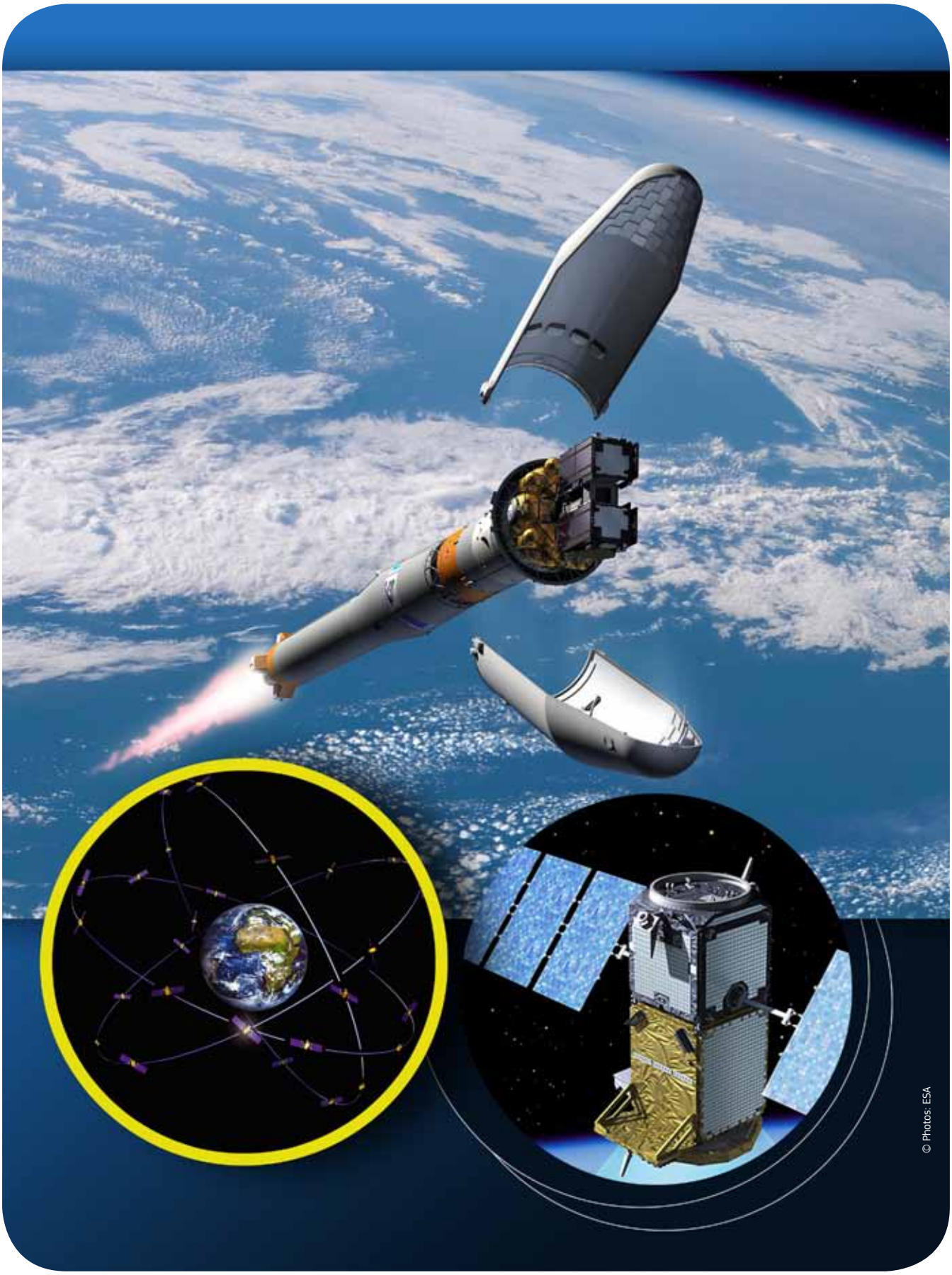
FF17: Line speed enhancements (north of Crewe)
Completed

W058: GSMR installation
Completed

PP 14

Priority Project 15
European satellite navigation programmes: Galileo and EGNOS

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
TransEuropean Satellite Navigation System (Galileo): Development and validation phase	All	€190	Ongoing
TOTAL		**€190**	

PP 15

Priority Project 15
European satellite navigation programmes: Galileo and EGNOS

Trans-European transport network. Achievement of the Priority projects

Introduction

Galileo is Europe's initiative for a state-of-the-art global navigation satellite system, providing a highly accurate, global positioning service under civilian control. While providing autonomous navigation, positioning and timing services, Galileo will at the same time be interoperable with GPS and GLONASS, the two other global satellite navigation systems. The fully deployed Galileo system will consist of 30 satellites and associated ground infrastructure.

The EGNOS infrastructure improves the accuracy of GPS by means of differential corrections and implements warnings of system malfunction (integrity) of the GPS constellations.

Description of the European GNSS programmes Galileo and EGNOS is available on: http://ec.europa.eu/enterprise/policies/space/galileo/index_en.htm

Milestones achieved in 2012

In 2012, the European Union consolidated its position in satellite navigation by:

- declaring EDAS, the third EGNOS services, designed for the dissemination of commercial data, in July
- launching, on 12 October, the second pair of a quartet of satellites that will serve the validation of the Galileo system, concluding the In-Orbit Validation phase (IOV)
- ordering in February 2012 eight additional satellites to bring the total to 26 satellites (including the four which have been launched). 18 satellites are now scheduled to be deployed in orbit by end 2014. Two other contracts were signed in February 2012 related to the booking of three Ariane 5 launches and the ordering of the adaptation of Ariane 5 to enable it to carry four Galileo satellites at a time

Galileo is thus becoming a reality, and the recent considerable progress has been made possible by a constant monitoring of the implementation of the programme, its cost-efficiency and its schedule. Building on the consolidated deployment plan of the constellation, the objective is to deliver early Galileo services by end of 2014, well in advance of the full deployment of the Galileo constellation. There is now a clear path to reach this objective.

On the legislative front, a broad consensus on the Commission legislative proposal for the programmes over the period 2014-2020 has emerged, in particular on the future governance.

The Transport Council adopted on 7th June 2012 a partial general approach to the Commission's proposal for a new GNSS regulation. This constitutes the basis for negotiations which are on-going after the ITRE Committee votes on the Commission proposal which took place in September.

The Commission has also submitted a revision of the GSA Regulation to outline how the independence of security accreditation should safeguarded in the future and to ensure that the GSA will be endowed with appropriate resources to allow it to take on board the responsibility as exploitation entity. Entry into force of all these initiatives will of course depend on the future multi-annual financial framework.

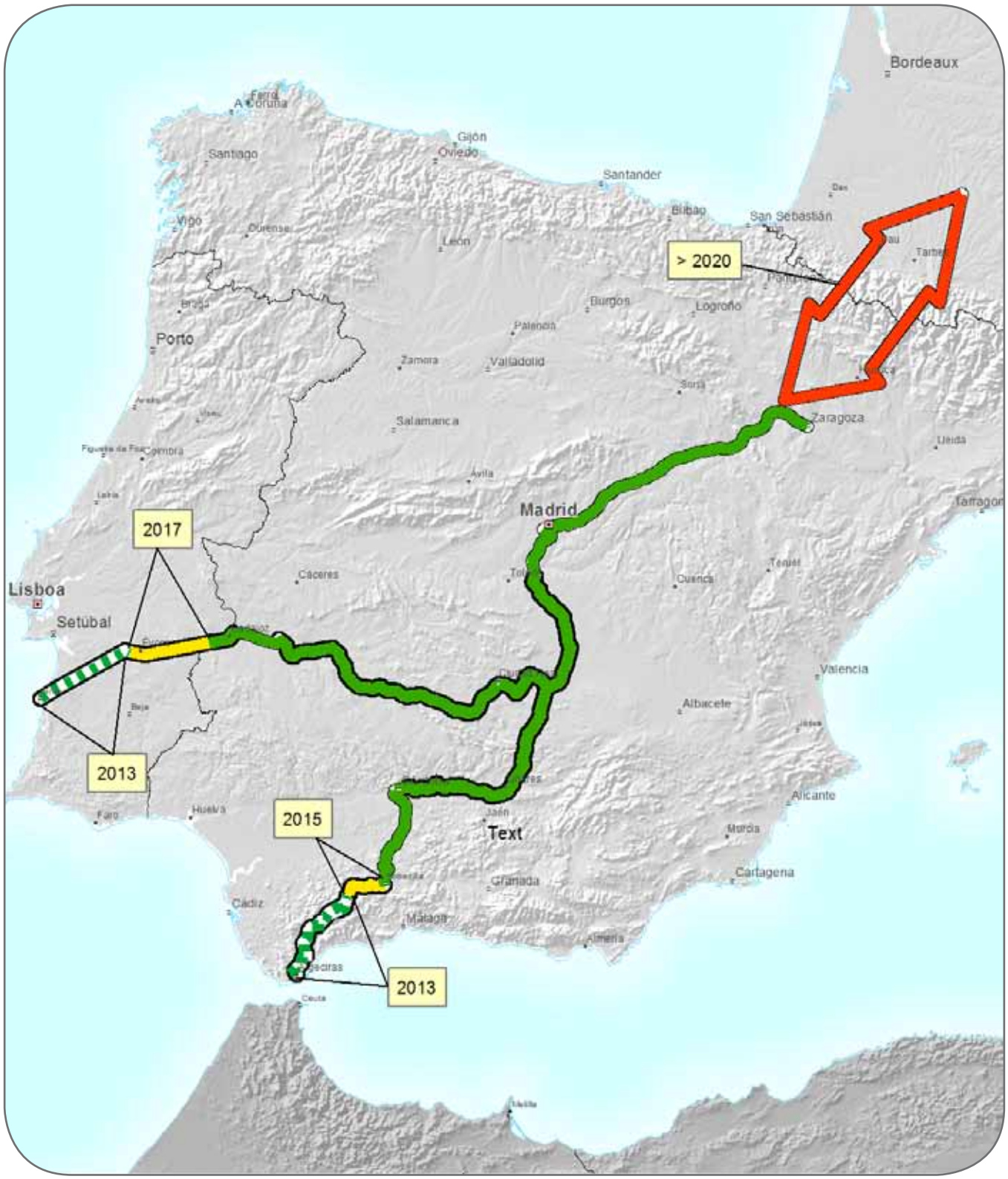
Outlook

- In 2013, the Commission will negotiate to get the adoption of the proposal for a Regulation on the further implementation of the programmes, including elements on financing and governance.
- In 2013, the first FOC satellites will be launched.
- In the years to come, the Commission shall also ensure that EGNOS open service and safety of life service continue to be provided to users.

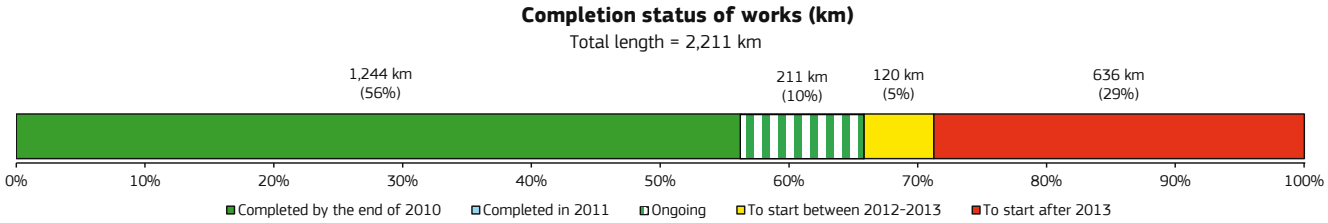
PP 15

Priority Project 16
Freight railway axis Sines/Algeciras-Madrid-Paris

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Studies for the construction of the new high capacity line through the Pyreneans	ES, FR	€5	Ongoing
REDACCIÓN DE PROYECTOS DE ADECUACIÓN EN LAS TERMINALES: VALENCIA FUENTE DE SAN LUIS, MADRID - VICÁLVARO Y OTRAS ACTUACIONES. DRAFTING PROJECTS IN RAILWAY FREIGHT TERMINALS	ES	€2.6	Ongoing
TOTAL		**€7.6**	



PP 16

Priority Project 16
Freight railway axis Sines/Algeciras-Madrid-Paris

Trans-European transport network. Achievement of the Priority projects

1. Introduction

This Priority Project aims to develop a high capacity freight railway axis linking the two key ports of Algeciras, in southern Spain, and Sines, in south-western Portugal, with the centre of the EU.

With the doubling of the Panama Canal foreseen in 2014 the strategic importance of EU's Atlantic ports, notably Sines, will be enhanced. On the other hand, Algeciras is located exactly on the Suez-Gibraltar line where most of the EU-Asia freight flows are currently routed.

So far, these port infrastructures were mostly used for transhipment or transfer to road, but weren't suitable for becoming an efficient terminal due to the lack of adequate connections to the hinterland.

In Portugal, the line links the main logistic platforms of Sines, Lisbon, Setúbal, Poceirão and Elvas/Caia. In Spain, it reaches Spain's major port (Algeciras) and Spain's main logistic platform (PLA.ZA) – the largest in Europe in terms of surface.

The access line to the ports will be built, in first stage, in Iberian gauge with interoperable sleepers so as to allow continuity with the current conventional network in the area, while a future conversion to UIC (standard) gauge will take place once international, interoperable corridors connect these logistics platforms with the rest of Europe.

in order to be effective, the Priority Project requires a high capacity rail link for freight across the Pyrenees, connecting the French and Spanish networks, to provide freight flows to/from the Iberian Peninsula with rail access to the whole TEN-T.

Consequently, the project includes the construction of a long-distance tunnel through the Pyrenees, to eventually link it with the French network – potentially to the branch of the "Grand Projet du Sud-Ouest" towards Toulouse, on to other conventional lines in France.

This ambitious infrastructure is still at the preliminary stage, and several potential alignments and alternatives are being considered. When finished, it will complete a European trade route from Portugal and Spain to the rest of Europe with a potential large traffic flow. The construction of this new line, in European gauge, is expected to enable rail to achieve a 30% share of the land transport market across the Pyrenees.

As a direct result of this framework, this infrastructure will foster traffic between Lisbon, Setúbal, Sines and Algeciras, central Spain, including Madrid's dry port and the important logistic platform of Zaragoza, and the rest of Europe.

Due to the progress on the parallel coastal corridors, provisional solutions involving these routes ought to be implemented in order to exploit the potential of the port connections provided by PP16 advanced branches.
The new Sines/Elvas/Badajoz and Algeciras/Bobadilla lines, as well as the third crossing of Pyrenees, are the priority sections of PP16. The line is already operational from Bobadilla/Badajoz to Madrid and Zaragoza.

2. Project components

2.1. PP16 Sines/Poceirao-Madrid

The Portuguese sections of PP16 (blue line, new sections in bold) is being upgraded to provide additional capacity for at least 24 trains per day and direction, substantially reducing the length of the route (from 425 to 280 km) and the time needed (from 8 to 4.5 hours). The project foresees two totally new sections and the upgrade of an existing section. These projects will be supported by the Cohesion Fund and ERDF with about €309 million.

Interoperability will be ensured through the use of polyvalent sleepers (for future shift to UIC in coordination with Spain), 25 kV electrification and ERTMS-ETCS level 1[1]. Sidings suitable for 750 m long trains will be provided for.

Sines-Grândola (including Raquete station at Sines): Raquete station (terminal in Sines) is being upgraded and works are being completed, while the new line Sines-Grândola (40 km) is at the design phase.

The Alcácer bypass, consisting of 29 km of new line, was mostly implemented in 2009 and has been in operation since December 2010, thus providing an access to Poceirão and a substantial reduction in journey time.

The modernisation of Bombel-Casa Branca-Evora (66 km) has been completed, revising its alignment I critical sections, reinforcing the rail bed, providing for a full electrification at 25 kV, and an advanced signalling and control system (Convel), although not compatible with ERTMS-ETCS (which might cause further investments in the future). Level crossings on the section were suppressed.

As a consequence, both the commercial speed and the capacity of the line have been enhanced.

2.2. Evora-Mérida Portugal-Spain

This section, belonging to the critical PP16 section Sines-Badajoz, shares its alignment (and the railway bed) with the PP3 high speed line, which in the original plans consisted of a third track in Iberian gauge (with Polyvalent sleepers), running parallel to the two high speed ones in UIC gauge and sharing their rail bed.

The Portuguese side of the line in this section, supported by the Cohesion Fund, is entirely included in the Poceirão-Caia section, awarded to a consortium (Public-Private Partnership) at the end of 2009 whose contract was signed in May 2010, but then repealed.

Evora-Caia

The contract signed for the implementation of the works on the line along this stretch (Poceirao-Caia for passengers, Evora-Caia for the freight corridor) has been repealed, and negotiations are on-going between the state and the Concessionaire (Consortium Elos).

Following a series of exchanges of information with the representatives of the two Member States, different alternatives were developed in light of economic constraints and the availability of TEN-T funding, Cohesion policy (ERDF and Cohesion Fund) financing and financing by the EIB.

The hypothesis of a phased approach appeared to be the only way to optimise available resources and to deliver benefits in the short-medium term. According to this perspective, in a first phase a platform prepared for double track would be built between Évora and Caia. The construction works would be split into lots, the first of which would use the remaining EU funds for 2007-2013, optimising their co-financing rates. A single track with polyvalent sleepers in Iberian gauge would then be placed, in order to shift it to UIC gauge when required in the future. This line would be connected in Évora to the existing conventional line that reaches Lisbon and Sines, and Caia, with the Spanish line, to Madrid. This would ensure the functioning of the Sines-Madrid freight line. It would allow, at the same time, a connection from, Lisbon to Madrid (some 4.5 to 5 hours, with speeds up to 200 km/h in a provisional phase).

Electrification at 25 kV (option already confirmed by Spain) and EU signalling and control system (ERTMS) would be put in place along the whole line in a synchronised way in the subsequent phase. The platform between Évora and Caia (border) can be supported at very high co-financing rates by both the Cohesion Fund (2007-2013 and 2014-2020) and by the future Connecting Europe Facility. Works could start as soon as the contract is awarded after the necessary competitive process.

Caia-Badajoz cross-border section

1 As for the Signalling and Telecommunications Systems, Installation of ETCS level 1 is foreseen in Vendas Novas/Casa Branca/Évora and Évora/Elvas-Caia new sections within 2013, implemented by an ad hoc Public-Private Partnership in charge of implementing and maintaining the signalling and telecommunications systems for the whole high speed network ("PPP6").

Progressive migration from Convel system to ETCS for the remaining sections of the PP16 corridor, concerning existing lines, will take place in accordance with the rail undertakings programme to install ETCS equipment aboard trains

This small part of the cross-border section Evora-Merida is managed by AVEP and is delayed. Once the project is resumed on the Portuguese side, it will be important to give priority, at a first stage, to the completion of the direct line, so as to allow the start-up of the long distance traffic.

Existing route to Madrid

A freight line between the border, Badajoz and Mérida is already operational as a non-electrified, single track railway. The route reaches then Puertollano, where it becomes electrified at 3 kV DC, in Iberian gauge (without polyvalent sleepers). The same conditions apply to the remaining sections, towards Ciudad Real, Alcazar de Sant Juán and eventually Madrid. From Puetrollano the line runs parallel to the high speed and high capacity connection Madrid-Andalucía included in PP19 (double line electrified at 25 kV in UIC gauge).

Once the traffic flows catch up, harmonised ambitious standards will have to be deployed along the corridors (for instance, the present maximum train length is limited to 400 m, which limits the competitiveness of the freight transport along the line), unless most flows are shifted on the new high speed, high capacity line Madrid-Cacéres-Badajoz.

New corridor Caceres-Mérida-Badajoz

This 76 km section is close to completion over the entire line. On the platform (rail bed) suitable for two high speed tracks, which are already completely in place, a first track in Iberian gauge with polyvalent sleepers is being laid down, to provide for a continuity of service with the existing Portuguese network. The second line will be built in UIC gauge.

The following steps of the development of the Corridor foresee electrification at 25 kV and the deployment of the signalling and control system (ERTMS, directly at level 2), prepared at this stage. Once the full corridor is implemented, the first tracks laid down will be shifted to UIC gauge, to allow traffic level of up to 250 trains perday.

Madrid-Cáceres

The design phase is over and works have started in the sections close to Caceres (the only one with a difficult morphology along the line). The new line will run along an existing one in Iberian gauge, which will be upgraded, and does not entail difficult works. In addition to providing an access for freight to Madrid from the south, it will be interconnected both with the line from Puetrollano (originally included in PP16, in Iberian gauge) and to the 70 km high speed Madrid-Andalucia line, already operational in UIC gauge. This section could represent the future bottleneck in the UIC-gauge line, as it will serve three lines in the future: the Madrid-Cuenca-Valencia/Albacete line, the Madrid-Lisbon line and the Madrid-Cordoba-Sevilla/Málaga line. The quadruplicating of the Madrid-Toledo section is in an advanced stage of planning.

2.3 Madrid-Algeciras

Bobadilla-Algesiras

The strategic role of Algeciras and its potential generation of rail traffic is shown by the new terminal (about 25.000 m²) and by an ambitious investment plan for the port area, amounting to €155 million. The southern branch of PP16 (Madrid-Algeciras) includes the critical Bobadilla-Algeciras section, where the former line (still operational in part of the lots) consists of a single, non-electrified track in Iberian gauge. Further constraints are due to its strong gradients and a maximum possible train length of 500 m. In order to provide this strategically-located deep-sea port with adequate rail services, the new line is being developed in double gauge (through a third rail).

The infrastructure, which is 176 km, is currently under implementation to become a high capacity (línea de altas prestaciones), double track line (except for one sub-section), electrified at 3 kV, In order to improve its capacity new sidings are foreseen so as to make it compatible for 750 m long freight trains.

This section is split into three sub-sections:

- Antequera/Bobadilla-Ronda: pre-design studies are being completed for a 70 km long double line suitable for high speed services and freight transport.
- Ronda-Algeciras: detailed studies have been prepared and works already started on the sections of Ronda-Cortes-San Pablo for the new double-tracked line. The line is being equipped with polyvalent sleepers plus a third rail so as to allow operations with trains both in Iberian and UIC gauge from the start. The section is provided with remote control CTC.
- Entrance into Algeciras is still at pre-design studies (a single non-electrified track is currently being exploited). Doubling of track was foreseen, but judged impossible on the southern section for environmental concerns. Capacity will be improved through upgraded signalling.

Antequera-Cordoba-Linares-Alcazar de Sant Juán-Madrid

The line then continues northward along the existing Antequera-Cordoba-Linares line and reaches the other branch in Manzanares (→ Alcazar de Sant Juán and Madrid).

2.4 Madrid-Zaragoza-Central crossing of Pyrenees

Madrid-Zaragoza

Four lines link Madrid to Zaragoza, two of which in UIC gauge at 25 kV AC (belonging to the high speed Madrid-Barcelona line, where freight transport is limited by the steep gradients), while the remaining two are in Iberian gauge and are electrified at 3 kV DC.

Zaragoza-Huesca

The 80 km long Zaragoza-Huesca high capacity line (Línea de altas prestaciones) is a component of PP19, and has been operational since 2005 with a maximum speed of 220 km/h, in Iberian gauge with polyvalent sleepers and a third rail, thus allowing traffic for both trains in UIC gauge at 25kV and Iberian gauge at 3 kV DC. The slopes are relatively smooth (gradients compatible with high capacity lines, <1.2%). These features of the line provide the technical capacity for any potential flows to and from Huesca at the southern access to the Pyrenees along this line.

PP 16

Cross-Border section

In Huesca, a bypass leads the line towards the Pyrenees (Canfranc), avoiding the town. The current line beyond the bypass is not electrified, but the modernisation of the Huesca- Canfranc line was launched at the end of 2010. An EEIG, whose scope is to perform preliminary studies on a high capacity crossing of the Pyrenee,s has recently been set up by France and Spain. Its studies are supported by TEN-T funding (€5 million out of a €10 million budget) - see TCP organisation in Section 3.

Currently, no specific hypotheses of routes through the Pyrenees have been made available by the EEIG, whose start was agreed in Paris on 25 March 2010 and actually took place on October 2010 with the appointment of the representatives of Member States and Infrastructure Managers (RFF and ADIF).

3. Focus on Pyrenean cross-border section

The France-Spain cross-border section consist of the ambitious Central Pyrenees Crossing between Spain and France (TCP – Travesía central dos Pirineos/Traversée à haute capacité des Pyrénées). The Spanish and French governments have been monitoring traffic flows through the Pyrenees, and the permeability of the Pyrenean region is discussed at the regular summits on regional cooperation in the Pyrenees area.

For this trans-Pyrenean link, some feasibility studies and cross-border surveys have been carried out by the neighbouring regions (Aragon, Aquitaine, Midi-Pyrénées) working together through a TCP umbrella organisation. In order to identify potential routes for this section, studies have to be developed in synergy with the connections between the new railway, Huesca and the Grand Projet de Sud Ouest Bordeaux-Toulouse branch in France (see “connection to the French rail network” hereafter).

EEIG activities: At the Spanish-French Summit held in January 2008, both countries ratified a Joint Studies Plan. In October 2009, Spain and France created the EEIG, and have recently appointed its Directors. Preliminary stud-

ies are currently being launched. The goal is to finish the studies and launch the consultative procedures for the project by 2015. Within the framework of the 2007-2013 multi-annual work programme, preliminary studies of the TCP are co-financed at 50% by TEN-T funding.

The Pau-Canfranc line

The Pau-Canfranc line was a 94 km long, single track railway, crossing the Pyrenees in UIC gauge, starting from Canfranc, 136 km north of Huesca, to which it is linked with a single track railway in Iberian gauge.

The line was dismissed in 1970 following an accident with the destruction of a bridge, with the exception of a 36 km section in France, from Pau to Oloron, which used to be the only electrified – 1.5 kV DC – section. Parts of the remaining section have been converted to road (galleries included), and are characterised by very abrupt slopes that would make it unfit for freight transport in its central part.

Consequently, the line would need a substantial upgrade and partially a new alignment including a new tunnel to be viable for freight transport. Studies are ongoing to assess new routes and tunnels along this former railway as an alternative to a completely new Pyrenean section. Beyond rail transport, some neighbouring regions have shown their interest in the potential operation of the line for tourist purposes.

Connection to the French rail network

PP16 does not include any lines on the French side but of course its long term objectives can only be achieved if the Trans-Pyrenean section is adequately linked to the French network.

Two ongoing French projects contribute to this connection:

- The GPSO (Grand project du Sud-Ouest) includes two branches with a common part: Bordeaux-Spanish border (belonging to PP3) and Bordeaux-Toulouse, that will reach Toulouse with two additional high speed lines. This new infrastructure will free a large amount of capacity on the existing lines, potentially for freight transport. The technical body involving local stakeholders (Comité de Pilotage) defined a 1000 m wide corridor at the beginning of the year. Following public consultations, this 1000 m corridor has recently (1 May 2010) been confirmed and sent forward for ministerial approval.
- The upgrading of the network on the Aquitaine/Midi Pyrenees line to Pau: complementary actions to improve, among other things, the existing railway connection between the Atlantic line and Béarn (Pau) were included in the framework of the GPSO. In the medium term these actions will provide an improved conventional railway from Pau to the Atlantic axis of PP3, where the railway corridor runs close to Bayonne. By 2020, this branch of PP3 will consist of four lines (two high speed ones and two traditional ones currently upgraded in signalling, loading gauge and electric traction).

4. General appreciation

The progressive implementation of PP16 will improve the efficiency, effectiveness and sustainability of freight flows from the Iberian Peninsula to the rest of Europe. One of its cross-border sections is synergic with the Iberian branch of PP3.

Its strength is to provide a direct link to important logistics platforms (among which are PLA.ZA in Zaragoza, and the ports of Algeciras and Sines), without the need for reloading operations.

The project is progressing well on the two critical sections, Sines-Badajoz and Bobadilla-Algeciras, where works are still on-going, but speeded up in 2009. Substantial increase in capacity and reduction of journey time to and from the ports will take place in 2011.

Further improvements can be provided in the medium to long term through an upgrade of the existing sections in order to harmonise technical standards throughout the line (see section 5).

The Iberian components of PP16 have recently been included, following a proposal from the Council of the EU, in one of the routes of the "European rail network for competitive freights" (route n°4 Sines-Lisboa/Leixoes/Sines-Elvas/Algeciras-Madrid-S. Sebastian-Bordeaux-Paris-Metz), showing its synergies with the Atlantic branch of PP3. On the third crossing of the Pyrenees, a technical structure for the development of the project (preliminary studies) was set up in 2009 – studies have to catch up with the scheduled timetable.

The feasibility of this ambitious cross-border section will depend on the alignment chosen in relation with the new line to Huesca (its southern access) and the GPSO project to Toulouse.

5. Open issues for PP16

Objectives to meet

The main objectives for the future development of PP16 can be summarised as follows:

- In the short term, to provide better rail connections for freights from Algeciras and Sines (/Lisbon/Poceirao) to Madrid, the rail freight network of the Iberian Peninsula and its main logistics platforms (including PLA.ZA). This could imply both the line through Puertollano and the new high capacity/high speed line from Badajoz-Caceres-Madrid.
- In the short to medium term, to establish a link from the centre of the Iberian network (Madrid/Zaragoza) to the rest of the EU in European gauge (see the reference to the rail freight corridors in section 5).
- In the long term, to provide a seamless freight-oriented high capacity connection from the ports, to and from Madrid and Zaragoza (PLA.ZA) and the rest of the EU network across the Pyrenees.

The implementation of these structural improvements would strongly help to rebalance the modal split across the Pyrenees, with railways catching 30% of the demand (the current, very poor, baseline is around 5%). The achievement of this strategic goal will probably require, in the long term, the upgrading of the whole corridor to UIC gauge, an operation to be considered in the framework of a future conversion of the gauge of freight-oriented railways in the Iberian Peninsula.

The way to deliver: Harmonisation of standards

In order to establish competitive and effective rail connections along PP16, further harmonisation will be required throughout the lines (from the terminals to the main inland logistic platforms, dry ports and the cross-border sections), notably in terms of:

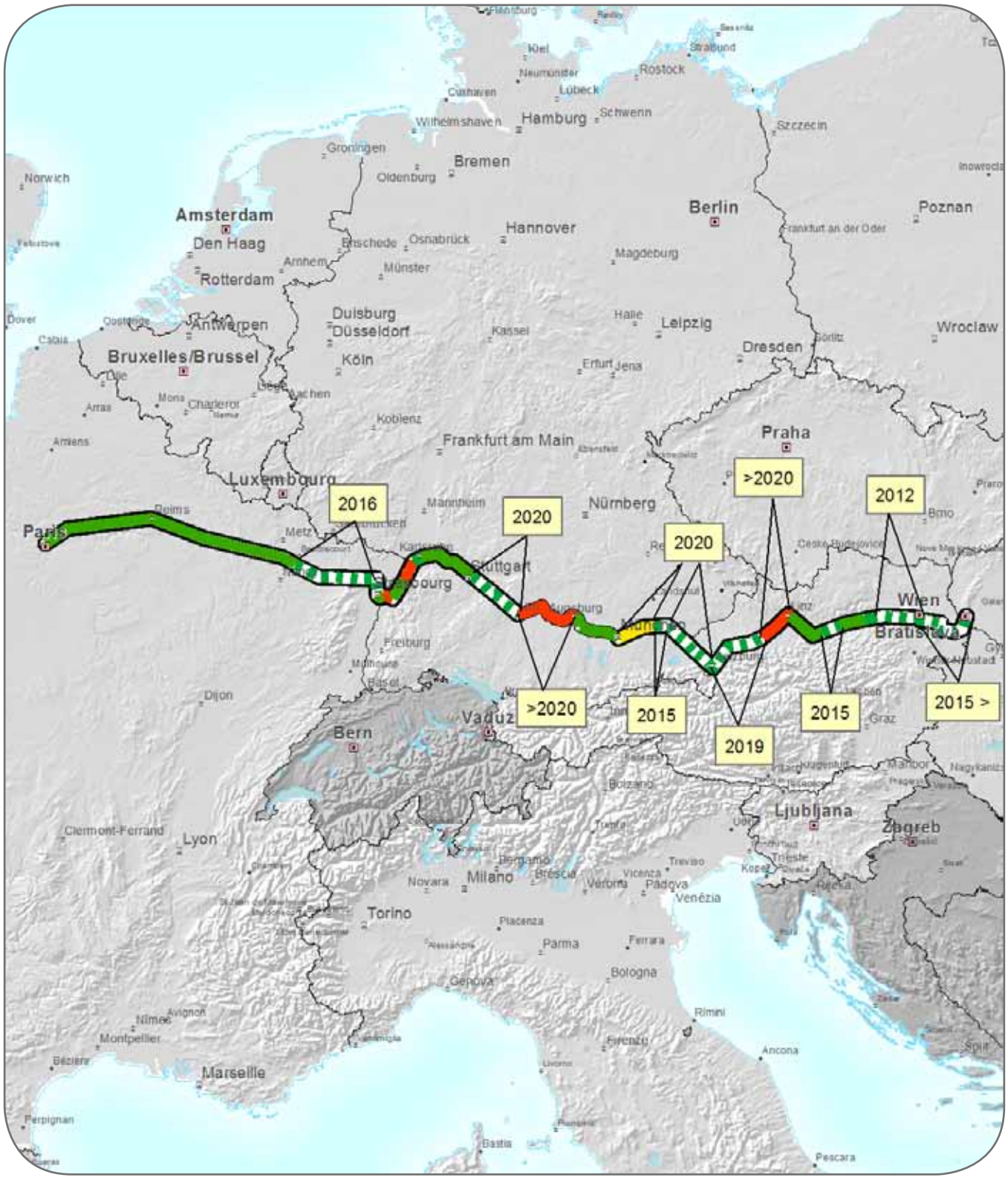
- Electricity supply: it has to be progressively extended to all the sections (either in 25 kV AC or in 3kV DC along the Iberian branches, 25 kV being the standard in Portugal and for the high-speed and some high capacity lines in Spain, while 3 kV is the standard for the Spanish conventional lines. Electrification has implications in terms of rolling stock as well: new bi-current or, for future cross-Pyrenean flows, three-current locomotives will have to be available in the Iberian Peninsula (the French southern network being electrified at 1.5 kV DC).
- Signalling and control system: ERTMS/ETCS is progressively deployed on the new tracks, but in many sections ASFA or Convel are still exclusively used.
- Train lengths: length of trains is a key factor for the competitiveness of rail transport. Constraints to 500 or even 400 metres of total length will have to be progressively overcome providing adequate sidings, terminals and avoiding / eliminating excessive slopes (indicatively > 15 ‰) to enhance it.

No major obstacles are present as far as axial weight is concerned (both the Portuguese and the Spanish network are suitable for standard D4 / axial weight of 22.5 tons).

Priority Project 17

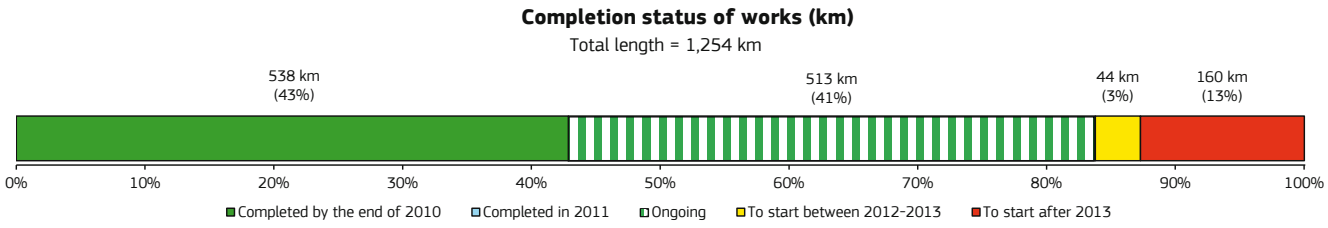
Railway axis Paris-Strasbourg-Stuttgart-Wien-Bratislava

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Works and Studies for upgrading the Wien-Bratislava railway line (6 sub-projects)	AT	€129.9	Ongoing
Aus- und Neubaustrecke Stuttgart-Wendlingen einschl. Stuttgart 21	DE	€114.5	Ongoing
Neubaustrecke Wendlingen - Ulm	DE	€101.5	Ongoing
Seconde phase de la LGV Est Européenne entre Baudrecourt et Strasbourg - Réalisation du génie civil de la LGV	FR	€76	Ongoing
Works for upgrading of the cross-border section Salzburg- German border	AT, DE	€37.9	Ongoing
Ausbaustrecke 23 Kehl - Appenweier (POS Süd)	DE	€27	Ongoing
Ligne à grande vitesse (LGV) Est Européenne - Seconde phase, section Baudrecourt- Vendenheim (Etudes et travaux préparatoires)	FR	€18	Completed
Ausbau des Abschnittes Freilassing-Grenze D/A (Salzburg) des TEN-Korridors Paris - München - Bratislava	DE	€8.5	Ongoing
Vorplanung für die Elektrifizierung Markt Schwaben - Tüßling - Freilassing	DE	€8	Ongoing
TEN-Vorhaben Nr. 17 (PP17), Paris – Bratislava, Abschnitt Salzburg – Wien, Ausbau der Westbahn zur Hochleistungsstrecke, Güterzugumfahrung St. Pölten – Bau	AT	€5	Ongoing
TEN-Vorhaben Nr. 17 (PP17), Paris – Bratislava, Abschnitt Salzburg – Wien, Ausbau der Westbahn zur Hochleistungsstrecke, Lückenschluss östlich vom Bahnhof Amstetten	AT	€4.8	Ongoing
TEN-Vorhaben Nr. 17 (PP17), Paris – Bratislava; Abschnitt Wien – Salzburg, Viergleisiger Ausbau der Westbahn, Bauvorhaben Ybbs – Amstetten, Burgstallertunnel (Rohbau)	AT	€3.4	Closed
TEN-Vorhaben Nr. 17 (PP17) Paris – Bratislava; Abschnitt Wien – Salzburg; Viergleisiger Ausbau der Westbahn Wien – Linz; Bahnhof Melk	AT	€3.4	Ongoing
TEN-Vorhaben Nr. 17 (PP17), Paris – Bratislava, Abschnitt Salzburg – Wien, Ausbau der Westbahn zur Hochleistungsstrecke, Linienverbesserung Lambach – Breitenschützing, Bau	AT	€2.8	Ongoing
TEN 17 Strecke Paris-Bratislava; viergleisiger Ausbau der Westbahn Wien – Salzburg; Lückenschluss St. Pölten – Loosdorf (GZU) Brückenbauarbeiten	AT	€2.6	Completed
Terminal Wien Inzersdorf – Planning, (PP 17 – Section: Vienna-Salzburg)	AT	€2.1	Ongoing
TOTAL		**€545.4**	

PP 17



Priority Project 17
Railway axis Paris-Strasbourg-Stuttgart-Wien-Bratislava

Trans-European transport network. Achievement of the Priority projects

European Coordinator

Peter BALÁZS

Summary

Priority Project 17 Paris-Strasbourg-Stuttgart-Vienna-Bratislava (PP17) is an east-west oriented railway axis crossing very densely populated areas in the centre of Europe. It stretches over 1,382 km and touches upon four Member States: France, Germany, Austria and Slovakia. It was designated in 2004[1]. PP17 is one of three east-west axes in the EU.

After the signature of a declaration of intent by the ministers for transport of the four Member States on 9 June 2006 and several bilateral treaties on cross-border sections, the implementation of PP17 made good progress on most segments. Important sections have been opened or are on their way to completion during the next five years:

- In France, the works on the section Baudrecourt-Vendenheim started in October 2010. The viaduct crossing the river Sarre at Sarraltroff was inaugurated on 25 July 2012. The whole section shall be in service by 2016.
- Works on Stuttgart-Ulm started in 2010 and the section shall be fully operational by December 2020.
- Munich-Salzburg: The planned three track Freilassing-Salzburg section and the dual track section between Mühldorf and Tüßling are expected to be completed by 2015/2016. Construction of the Saalach Bridge is foreseen for completion in 2015 as long as the joint environmental impact assessment is issued by 2013.
- Works on the Wels-Linz section are on-going and expected to be finished by 2021/2025. The four-track Linz-Vienna section (including the St. Pölten freight rail bypass) shall be in operation by 2017.
- The St. Pölten-Vienna section will be finished by 9 December 2012, allowing a 15 minute reduction in travel time.
- Vienna-Bratislava: The new Vienna Station will be partly opened in December 2012.

The development along the axis and related projects are co-funded by the European Commission with €682.89 million (1995-2015) through the TEN-T budget (€597.5 million), the European Recovery Plan (€85.4 million) and – in the Slovak Republic – also from the Cohesion Fund. Even though progress along this railway axis is good, it should be pointed out that there are still problems to be tackled:

- Works required to finish the Kehl-Appenweier section were stopped after the inauguration of the bridge in 2010. Further planning steps are not in sight yet.
- The preliminary planning for further improvements between Munich and Salzburg depend on contributions still due from Deutsche Bahn in order to proceed.
- Intermodality: Since there are numerous TEN-T airports and waterways along this line, it is recommended that they are linked at intermodal terminals for passengers and/or freight. With regard to the new TEN-T guidelines certain core network, airports[2] should be connected to the rail network by 2050. This includes Paris CDG, Stuttgart, Munich and Vienna. Paris CDG already has a national rail connection; in Vienna it will be realised by 2014; in Stuttgart it should be realised by 2020.

1. Introduction

In July 2005 the European Commission designated a group of six Coordinators to evaluate progress on certain

1 Decision No 884/2004/EC of the European Parliament and of the Council of 29 April 2004 on "Community guidelines for the development of the trans-European transport network", http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:167:0001:0038:EN:PDF

2 indicated in Part 1b of Annex I of the TEN-T Guidelines i.e. exceeding 1 % of the total annual passenger volume within the EU

TEN-T Priority Projects and to make recommendations for the effective implementation of these projects. In 2007 the Commission decided to nominate two further Coordinators for Motorways of the Sea and Inland Waterways. In July 2009 and June 2010 the Commission adopted two further decisions launching a second mandate of four years and designating three new coordinators. Nine European Coordinators are now responsible for promoting 11 Priority Projects.

In 2005, Péter Balázs was appointed European Coordinator for TEN-T Priority Project 17 (Paris-Stuttgart-Vienna-Bratislava), a role he held until April 2009 when he became Minister for Foreign Affairs in Hungary. In June 2010 he was re-appointed by the European Commission to continue his coordination of the development along the axis.

In general the implementation of PP17 made good progress on most sections. Starting from political commitments in 2006 and 2007, at the end of 2011 about 43% of the project was in service. Works were ongoing along 513 km (41%) of the axis.

The European Union has contributed, and continues to contribute, financially to several projects with grants of up to 50% for studies in all four States and up to 25% for works in France, Germany and Austria. The contribution totals up to €682.89 million for the period up to 2015: €597.5 million from the TEN-T budget and €85.4 million from the European Recovery Plan (EERP). Investment of about €91 million attributed to the high speed axis east (PP4) and some €100 million attributed to investments in the European Railway Traffic Management System (ERTMS) along different axes touching upon PP17 also positively affected the development of the railway axis.

Between 2007, the start of TGV services, and June 2012[3] more than 6 million travellers used the TGV-Est, 3.6 million of them on the TGV Paris-Frankfurt and 2.7 million on Paris-Stuttgart-Munich. On the Paris-Strasbourg and the Paris-Stuttgart connections, TGV gained market leadership with respectively 90% (2007: 30%) and 56%. In parallel, the number of passengers going to Paris from Stuttgart and Strasbourg airports declined. Germanwings and Lufthansa left the remaining business at Stuttgart to Air France. TGV-Est is going to replace the existing 19 TGV PSO trains by Euroduplex trains by the end of 2012[4].

The White Paper "Roadmap to a single European Transport Area" presents a vision for the transport system of 2050, and includes ten goals for competitive and resource efficient transport. Connecting the core network airports to the rail network by 2050, preferably using high speed links is one of the top priorities. On 19 October 2012 the Commission proposed new TEN-T guidelines to take this on board.

In 2011, the Coordinator considered that the most important implementing steps for the entire Priority Project were:

- The referendum in Stuttgart on the partial financing of the "Stuttgart 21" project in the State of Baden-Württemberg, allowing the continuation of works to overcome the bottleneck between Stuttgart and Ulm.
- The opening of Munich-Augsburg allowing higher speed on this section.
- The start of works at the "Klederinger Scheife" in Vienna to allow a direct airport connection from other Austrian cities by 2014.
- The inauguration of the new TGV service Marseille-Frankfurt-Marseille proving the demand for international rail services.

2. Cross-border sections

2.1. Strasbourg-Kehl-Appenweier

The Kehl Bridge crossing the river Rhine was opened in December 2010. The realisation of the Kehl-Appenweier subsection as a whole is going to be postponed beyond 2015, even though the technical decision on the Karlsruher Kurve was taken. The building of a non-level-crossing is planned to facilitate connections with the Rhine axis in times of a growing number of regional, national and international trains along the upper Rhine valley. The final building permission (Planfeststellungsbeschluss) and a financial agreement are nevertheless missing. The Investment Framework Plan 2011-2015 classifies this section as "other important project" to be implemented

3 Stuttgarter Zeitung, 09 June 2012 (http://www.stuttgarter-zeitung.de/inhalt.von-stuttgart-nach-paris-der-tgv-hat-das-flugzeug-abgehaengt.e172b638-b541-4af6-bb0d-be84bc453766.html#)

4 Ville, Rail & Transports, le magazine des nouvelles mobilités, 10 July 2012

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Trans-European transport network. Achievement of the Priority projects

not before 2015. Given the reduced scope of action the EU contribution to this section from the TEN-T budget was reduced to €13.6 million instead of €26.95 million planned to be spent up to the end of the current financial perspective.

2.2. Munich-Salzburg

In July 2007, the German and Austrian ministries of transport agreed on developing the cross-border section together to improve the capacity of the Munich-Mühldorf-Freilassing-Salzburg alignment (about 150 km). This agreement included the commitment to build a new bridge over the river Saalach by 2012 at the latest. Despite this political commitment the beginning is delayed on the German side (see table). The Saalach Bridge will not be finished before December 2015.

Raising the capacity is not only important for passenger transport along the line but also of high importance for freight transport to and from the "Chemdelta Bavaria" around Burghausen, Gendorf, Trostberg and Mühldorf: 25,000 people work in the chemical industry in this region and an additional 50,000 jobs are indirectly connected to the regional chemical industry. Today's single track line between Markt Schwaben, Mühldorf and Tüßling handles more than 1% of Germany's total rail freight tonnage. The yearly freight volume is expected to rise from 3

Section	Length	Line	Status
Truderinger Kurve		1 track, electrified	study
Munich-Markt Schwaben	20 km	2-tracks, electrified	in service
Markt Schwaben-Ampfing	46 km	2-tracks, electrified	study
Ampfing-Altmühldorf	7 km	2-tracks, non-electrified 2-tracks, electrified	in service study
Altmühldorf-Mühldorf	2 km	2-tracks, non-electrified 2-tracks, electrified	2015 study
Mühldorf-Tüßling	8 km	2-tracks, non-electrified 2-tracks, electrified	2016 study
Tüßling-Burghausen	25 km	1 track, electrified ESTW Burghausen	study in service
Tüßling- Freilassing incl. Kirchweidach-Tittmoning-Wiesmühl (rd. 11 km)	60 km	1 track, electrified 2-tracks, electrified	study study
Freilassing-Salzburg • Saalach bridge • Liefering Station • Salzburg main station • Salzach bridge, Aiglhof, Mülln-Altstadt and Taxham stations	7 km	2-tracks, electrified 3-tracks, electrified	in service 2015 2015 2013 2015 in service

million tonnes in 2010 to 6 million tonnes in 2017. A second track between Mühldorf and Tüßling has been requested by 2016 at the latest, followed by an upgrade and complete electrification of the whole Munich-Salzburg section.
The Investment Framework Plan 2011-2015 classifies Altmühldorf-Tüssling and Freilassing-border as projects to start and further sections as "other important project" to be implemented not before 2015.

In May 2012, the federal government and Deutsche Bahn AG agreed on a new arrangement to finance the planning costs: the basic and preliminary design will be financed by the federal government. In a new agreement on the pre-financing of planning the electrification and other sections of the ABS Munich-Mühldorf-Freilassing shall

be included. The agreement is expected to be completed by end 2012 and shall be updated annually. On the Austrian side, the bulk part of works is already finished and overall completion shall be realised by 2013. The EU contribution (from the TEN-T budget) will add up to €57.9 million by the end of the current financial perspective. The delays do not have an impact on the completion in due time of the works on the Austrian side.

2.3. Vienna-Bratislava

In July 2007, the Austrian and Slovakian ministries of transport agreed to develop the cross-border section together. The declaration included several projects and dates for their finalisation, such as the Filialka railway station (2013), the new main station in Vienna (2013), railway connections in Bratislava (2015) and the airport connections in Bratislava and Vienna (2015/2016).

Works on the new Vienna main station are on-going. It is planned to put the station partly into service in December 2012, with completion by 2015. On 16 April 2012, works started at "Klederinger Schleife" which will connect the new Vienna Station with the airport. The works are is expected to be completed by the end of 2014. The planned works at the connection going east from the airport ("Götzendorfer Spange") did not start because of problems receiving a final building permission and because the alignment was put into question. Also the projects in Slovakia will be changed and/or their implementation delayed due to discussion on their economic feasibility. The three neighbouring Member States of Austria, Slovakia and Hungary want to study alternatives to connect the rail lines and the airports with a view to the future TEN-T Core Network Corridor "Strasbourg-Danube".
The EU contribution to this section from the TEN-T budget will add up to €135.9 million – about €125 million thereof in Austria - by the end of the current financial perspective.

3. Bottlenecks

3.1. Baudrecourt-Strasbourg

In France, works on the Baudrecourt-Vendenheim section started in October 2010. The viaduct crossing the river Sarre at Sarraltroff was inaugurated on 25 July 2012. The whole section should be in service by 2016, bringing a 30 minutes reduction in travelling time between Paris and Strasbourg. The EU contribution to this section from the TEN-T budget will add up to €94 million up to the end of the current financial perspective.

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3.2. Stuttgart-Ulm

After more than 20 years of debate and spatial planning, a political agreement was signed between the German Minister of Transport, Deutsche Bahn AG and the regional authorities on 19 July 2007. The financial agreement followed in April 2009. The project incorporates the construction of the new Stuttgart central railway station, the complex new planning of the surrounding Stuttgart railway junction and a new high speed line to connect the two cities of Stuttgart and Ulm. The works for the new station have been on-going since 2010, and the works for the new high speed line to Ulm started on 7 May 2012. In March 2012, eight out of 15 final permits were issued by the responsible authorities:

Stuttgart-Wendlingen

PFA	1.1	1.2	1.3	1.4	1.5	1.6a	1.6b
	Talquerung, Gleisvorfeld	Fildertunnel	Flughfn.	Filderbereich bis Wendlingen	Feuerbach/ Bad Cannstatt	Ober-/Untertürkheim	Ober-/ Untertürkheim, Abstellbhf.
PFB	OK	OK	NO	OK	OK	OK	NO

Wendlingen-Ulm

PFA	2.1a	2.1b	2.1c	2.2	2.3	2.4	2.5a1	2.5a2
	Albvorland			Alp-aufstieg	Alphoch-fläche	Alp-abstieg	Knoten Ulm, Donaubrücke	
PFB	NO	NO	OK	OK	OK	OK	NO	OK

PFA = Planfeststellungsabschnitt (planning section) / PFB = Planfeststellungsbeschluss (final permission)

All works are expected to continue until the end of 2020 instead of December 2019. The EU contribution to this section from the TEN-T budget since 1997 will total about €238 million by the end of 2015.
The project – especially the new underground railway station at Stuttgart "S21"- was heavily under discussion

since the end of 2009, because of increasing cost estimates, doubts concerning the benefits and expected geological problems. After a public conciliation in 2010, in July 2011, the results of the stress test concerning the railway junction's capacity were presented. In November 2011, the new green-red government of Baden-Württemberg held a referendum on the financial participation of the "Land" in "Stuttgart 21", in which the majority was in favour of continuing the financial engagement of the "Land". Even in Stuttgart, 52.9% voted in favour of the new station[5].

Works continued, accompanied by some protests but also several public debates on the options for the development of Stuttgart and communication activities on the on-going works. During the EU Coordinator's visit to Stuttgart in March 2012, the Mayor of Stuttgart emphasised the importance of a transparent dialogue and efficient communication with citizens and stakeholders when it comes to works in the city which will last for the next 10-15 years affecting the daily life of inhabitants and commuters around the station. A "Bürgerforum" was established to discuss the steps of the works.

In the "Filder-Dialog S21" the different options of how to connect the airport, the trade fair center and the "Filder" region in the most optimal way with the national rail system were discussed. The Stuttgart 21 project partners agreed to verify the possibilities of improved noise protection and of extended regional train services on specific sections of the existing infrastructure. Both were suggested within the public participation process. The feasibility of the concept for a modified and more attractive airport train station is due to be examined in more detail during the third and fourth quarter of 2012.

The main preconditions of "Stuttgart 21" persist: the connection of the airport to the national rail system and the direct routing of the "Gäubahn" (i.e. Singen-Zürich) via the airport. Meanwhile, in autumn 2011 local authorities decided to build the new coach terminal for the Stuttgart area at the airport. This project with a scheduled opening in 2015 will contribute to the set-up of an additional intermodal node in passenger traffic.

Finally, it was agreed to examine more deeply the option to build the new airport station beneath the airport road (feasibility, costs, financing) to avoid mixed use of tracks by urban trains (S-Bahn) and (inter)national services with their different platform heights.

3.3. Wels-Vienna

The former dual track line has been modernised to a four track high capacity axis for east-west traffic which is already in service in important sectors: about 46% of the stretch has already been completed, 43% is under construction, and 11% is in the planning stage. Important milestones have been achieved on this section and the current works are progressing according to schedule:

- Lainzer Tunnel: works on the 12.8 km long Lainzer Tunnel are on-going and will be completed by December 2012.
- Vienna-St. Pölten: works are on-going (Wienerwald incl. Wienerwaldtunnel, Tullnerfeld and Westabschnitt) and will be completed by December 2012.
- St. Pölten-Loosdorf (rail-freight bypass): some bridges have already been finished to close the gap. Construction works for the so-called Pummersdorfer tunnel started in January 2012. The whole section should be finished in 2017.
- Melk Station: the two-track-section was realigned in order to reach 120 km/h and the station relocated. The opening of the station took place on 28 November 2011. This project has been co-financed by the European Economic Recovery Plan (EERP) since 2009 (€3.4 million).
- Ybbs-Amstetten: works started at the end of 2008, including the "Burgstallertunnel" between Hubertendorf and Blindenmarkt. Along the line, 16 railway bridges and nine road bridges will be built and the railway sta-

5 Only the voters in Karlsruhe, Heidelberg, Mannheim, Freiburg, Lörrach, Breisgau-Hochschwarzwald and Emmendingen were not in favour of the project. Final results in annex and in detail: http://www.statistik-bw.de/Wahlen/Volksabstimmung_2011/Grafiken

tions adapted. Construction of part of the Burgstallertunnel has been financed by the European Economic Recovery Plan (EERP) since 2009 (€3.4 million). Parts of the alignment are planned to be finished by March 2012, together with the new Vienna-St. Pölten line and the Lainzer Tunnel. Works at Amstetten Station shall be finished by 2016. The overall commissioning is scheduled for 2014 increasing freight and passenger capacities and allowing speeds up to 250 km/h.

In the annual TEN-T call 2011, some Austrian proposals successfully applied for funding for works at Amstetten Station, along Lambach-Breitenschützing and at the Pölten-Loosdorf freight railway bypass, adding up to about €63 million eligible costs and up to €12.6 million EU contribution by the end of December 2014.
The EU contribution to this section from the TEN-T budget will add up to €102.3 million by 2015, €9.4 million out of it from the EERP.

4. Other sections

4.1. Germany

Important sections between Appenweier-Karlsruhe and Stuttgart have already been completed, except a 10 km section south of Karlsruhe and the Rastatter Tunnel which obtained all the necessary permissions in 1998. The permits now need to be adapted to the 2008 rules on tunnel safety[6]. The project is included into the 2011–2015 national investment plan. A financial agreement between the federal ministry and Deutsche Bahn AG was signed on 22 August 2012. Some preparatory works have been on-going since May 2012 to improve the knowledge about the geology and the groundwater flows for the more detailed planning ahead. Preparatory measures are expected to start by 2013, and the excavation works for the tunnel in 2015. The works should last about seven years.

During the inauguration of the new TGV service Marseille-Frankfurt-Marseille via Strasbourg and Karlsruhe on 23 March 2012, the Presidents of TGV Rhine-Rhone and TGV-Est and the President of the initiative "Main Line for Europe" handed over the "Strasbourg declaration" to the EU-Coordinator and to the CEO of Deutsche Bahn AG. This declaration pleads for further investment into high speed rail and the development of international rail services between Germany and France, including better coordination of investments and services along the lines. The signatories request the modernisation of the Kehl-Appenweier rail section and the building of the Rastatter Tunnel.

After the launch of Stuttgart-Ulm, Ulm-Augsburg now needs to be studied in detail. The Neu-Ulm-Augsburg section will be further examined during the updating of the next federal transport plan ("Bundesverkehrswegeplan 2015"). In particular, the upgrade of the Dinkelscherben-Augsburg section has to be tackled in order to provide appropriate line parameters for efficient services in the future.

The Augsburg-Munich section (61 km) was put into service on 10 December 2011 allowing 230 km/h along this four track section after 13 years of work and an investment of €620 million (see photo). The EU contribution for this section adds up to €21.26 million. In Augsburg, works to improve the connection between rail and urban transport at the main station and at nearby Königsplatz will be finished in 2019.

At the beginning of 2010, the Bavarian government and the parliament (Landtag) agreed on a development concept for Munich ("Konzept zum Bahnknoten München"). This project has been set up to improve:

- Local and regional transport in Munich by building a new tunnel in the city centre (2. Stammstrecke);
- Connection to the airport with two additional tracks east of Munich (Johanniskirchen-Daglfing);
- Connections at Pasing;
- Connections west of the airport by building a new alignment (Neufahrner Kurve);
- Connection to south-east Bavaria (PP17): Erdinger Ringschluss and Walpertskirchner Spange[7].

The investment needed to implement these measures adds up to about €3.5 billion, about half of which is directly related to PP17 and/or the airport connection. Several financial agreements are currently missing. The partial upgrade and complete electrification between Markt Schwaben and Freilassing is also part of the concept but is not included in the cost estimate.

6 2008/163/EC „Commission Decision of 20 December 2007 concerning the technical specification of interoperability relating to 'safety in railway tunnels' in the trans-European conventional and high-speed rail system", http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:064:0001:0071:EN:PDF

7 The federal ministry for transport reported not to see a positive CBA for the "Walpertskirchener Spange"

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It was reported by the federal ministry that they have also studied the Munich rail node including the airport connection in 2010. The following measures with relevance for PP17 received a positive CBA and will cost about €370 million:

- 4-track-upgrade of Daglfing- Johanniskirchen
- expansion of Pasing railway station
- connection between regional and urban railway tracks (Pasing – 2. Stammstrecke)
- 2-track "Truderinger Spange" (connecting Brenner northern access with Daglfing)
- "Daglfinger Kurve" including further connection to Mühldorf

The Investment Framework Plan 2011-2015 classifies the Munich rail node as "other important project" to be implemented not before 2015. A specific timetable for implementation is missing.

4.2. Austria

Some further improvements along the Westbahn between Salzburg and Linz (125 km) are planned, and include the following:

- Adding two new tracks between Linz and Wels by 2025 and making improvements along the Salzburg-Wels section (95 km).
- A short gap closure and upgrade (230 km/h) south-west of Wels (Lambach-Breitenschützing). In the annual TEN-T call 2011 a proposal was submitted and obtained funding up to 31 December 2014 for up to €2.8 million EU contribution.
- Along the Salzburg-Neumarkt-Köstendorf section (22 km) planning is on-going and should be finished by 2014.

4.3. Slovakia

A new discussion about the projects in Bratislava is on-going. Several assessment studies will be carried out as a basis for the implementation in the years to come. The Slovak authorities informed the Coordinator that they are currently carrying out a feasibility study to analyse several options for possible projects in Bratislava. The study is expected to be finalised in September 2012.

5. Activities in 2011/2012

Peter Balázs' participated in several meetings and conferences:

- Chair of TEN-T days workshop on "A network for passengers: High-speed rail and airport connections" with MEP Mathieu Grosch (EP Transport Committee), Dr. Michael Kerkloh (CEO, Munich Airport), Joachim Fried (Deutsche Bahn AG), Vincent Coste (KLM-Air France), Ivan Thielemans (Infrabel), Ron Nohlmans (Brainport Eindhoven) and Mikhail Goncharov (JSC Russian Railways) (29 and 30 November 2011). In the workshop some experiences were presented which airports, infrastructure managers and service providers made with the interfaces between airports and land access via rail but also missing links. There is no inter-modality if passengers are not informed, tickets are difficult to purchase, schedules not coordinated, signposting is poor and luggage and passengers with reduced mobility are not taken into consideration. (see ANNEX for details)
- Press conference in Strasbourg and inauguration of the new Marseille-Frankfurt TGV service (23 March 2012) with CEO Mr. Grube (DB AG). During the inauguration the "Strasbourg declaration" was handed over. It pleads for further investments into high speed rail and the development of international rail services between Germany and France including better coordination of investment and services along the lines. The signatories request the modernisation of the Kehl-Appenweier rail section and the building of the Rastatter Tunnel along PP17.
- Meeting with Minister Hermann in Stuttgart (9 March 2012) to discuss the state of play along PP17 especially

concerning the Kehl-Appenweier and Rastatter Tunnel sections where the minister expected the works to start in due course.

- Visit to "Turmforum" and meeting with Deutsche Bahn AG (9 March 2012) to discuss the state-of-play.
- Meeting with the Mayor of Stuttgart, Mr Schuster (9 March 2012) to discuss the state of play especially the lessons learnt from the process of involving the local population; signature in the visitors' book[8].
- Participation at the conference "EU-36 Extending the Trans-European Networks" in London, chaired by the European Bank for Reconstruction and Development (EBRD). As far as transport was concerned, the workshop mainly dealt with the importance of infrastructure for accessibility and territorial cohesion, location quality, internal market and jobs, as well as with the impact on the environment and climate. The geographical focus was on the Western Balkans and Turkey.
- Meeting with Minister Počiatek (Minister of Transport, Construction and Regional Development of the Slovak Republic) in September 2012 in Bratislava to exchange views on the projects of the new government and the feasibility study for projects in Bratislava.

6. TEN-T Revision and Connecting Europe Facility

On 19 October 2011 the Commission adopted a package of proposals, made of the Connecting Europe Facility (€50 billion), the revised TEN-T guidelines, as well as a proposal to launch a pilot phase of the Project Bonds initiative. The TEN-T network consists of two layers: a Core Network to be completed by 2030 and a comprehensive network feeding into this, to be completed by 2050. The comprehensive network will ensure full coverage of the EU and accessibility of all regions. The aim is to ensure that progressively and by 2050 the great majority of Europe's citizens and businesses will not need more than 30 minutes' travel time to access this comprehensive network. The Core Network will prioritise the most important links and nodes of the TEN-T. Both layers include all transport modes: road, rail, air, inland waterways and maritime transport, as well as intermodal platforms and ports. Implementation of the Core Network will be facilitated using a corridor approach. Corridors will provide the basis for the coordinated development of infrastructure within the Core Network. Covering at least three modes, three Member States and two cross-border sections, these Corridors will bring together the Member States concerned, as well as the relevant stakeholders, for example infrastructure managers and users. European Coordinators will support the coordinated implementation and bring together all the stakeholders. Ten Corridors were identified.

PP17 will be mainly integrated into the new Strasbourg-Danube Corridor from Strasbourg to Sulina at the Black Sea with one branch following PP17 (Stuttgart, München) and a second via Frankfurt-Nürnberg-Regensburg following Main and Danube (now PP18) both arriving at Vienna. The shorter part Paris-Metz-Strasbourg will be part of the Lisboa-Strasbourg-Corridor. Along these corridors, pre-identified rail projects[9] and projects[10] along the Main, the Main-Donau-Canal and the Danube but also port interconnections at Constanta can be co-financed from the Connecting Europe Facility (CEF) by up to 40% for cross-border works and up to 50% for studies.

The Core Network Corridors will be multimodal. It will be a major challenge for future management to coordinate the activities and investments along road, rail, inland waterways and/or ports with regards to the needs and obligations of the different modes.

7. Conclusions and recommendations

The development of an international rail axis like PP17 serves different goals in order to bring the greatest benefit: Going beyond national borders (EU and neighbouring countries), beyond rail (intermodality) and connecting with other international axes (such as PP1 and PP2). Thus, its implementation needs the support of all Member States affected. With the signature of a declaration of intent in 2006 this commitment on PP17 was given. Each Member State is not only responsible for the development and financing on its own territory, but they also take responsibility for the implementation of the axis as a whole for the benefit of all the countries and regions affected. France and Austria are very consistent in their efforts to develop the line on their territory and to the neighbouring countries. In Germany, especially the cross-border sections to France and Austria, and Slovakia

8 Text: "Nach wichtigen Entscheidungen wünsche ich eine zügige Fortsetzung des Projekts "Stuttgart 21" als Teil und zugleich wichtigem Knotenpunkt der europäischen Linie PP17."

9 including Baudrecourt–Strasbourg, Strasbourg-Kehl-Appenweier, Karlsruhe-Stuttgart-München, München-Mühldorf- Freilassing-Salzburg, Salzburg-Wels, Nürnberg-Regensburg-Passau-Wels, Wels-Wien, Wien-Bratislava/Wien-Budapest/Bratislava-Budapest

10 studies and works on several sections and bottlenecks; inland waterway ports:multimodal interconnections

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(Bratislava) connections are facing severe delays compared with the original plans.

Progress on PP17 is good in general, but there are still problems which have to be tackled:

- The planned upgrade at Kehl-Appenweier is delayed.
- The implementation of the cross-border Munich-Salzburg section is delayed.
- Intermodality: Since there are numerous TEN-T airports and navigable waterways, including the Rhine and Danube, along this line, it is recommended that they are linked to the railway axis. For passenger transport, innovative mobility patterns such as smart inter-modal ticketing can also facilitate travel and transport in the future. In some Member States or neighbouring countries, special tickets have been introduced to combine rail and air transport. A conference on intermodality at airports is planned in order to exchange experiences and present services and products related to intermodality, their benefits and challenges (including contracting and consumer protection).

With regards to the new TEN-T guidelines, the mandate of the European Coordinator will be changed mainly in

Section	Type	km	In service	Travelling time (2010)	Future travelling time
Paris-Strabourg	High speed line	300	Paris-Beaudrecourt: 2007 Baudrecourt-Vendenheim: 2016	140 min (2006: 240 min)	110 min
Strasbourg station-Kehl bridge	Upgrade (160 km/h)	15	2010	54 min	25 min
Kehl bridge	Upgrade (160 km/h)	150	December 2010		
Kehl bridge-Appenweier	Upgrade (160 km/h)		unclear		
Karlrsuhe curve	180 km/h		unclear		
Karlsruhe-Stuttgart	High speed line		In service	42 min	42 min
Stuttgart-Wendlingen (incl. Stuttgart 21)	New station, high speed line	86.6	2020	54 min	28 min
Wendlingen-Ulm	High speed line				
Ulm-Augsburg	Upgrade (200 km/h)	94	unclear	24 min	21 min
Augsburg-München	Upgrade (230 km/h)	61	in service	37 min	32 min
München-Mühldorf-Freilassing	Upgrade (160 km/h)	141	After 2015	82 min	74 min
Freilassing-Salzburg	Upgrade (160 km/h)		DE: 2015, AT: 2014 2015: Salzburg Station		
Salzburg-Attnang	Upgrade (160 km/h)	121	After 2025	77 min	70 min
Attnang-Wels	Upgrade (200, partly 230 km/h)		Lückenschluss Lambach-Breitenschützing: 2013		
Wels-Linz	Upgrade to 4 tracks (200 km/h)		2025		
Linz-St. Pölten	Upgrade (200, partly 250 km/h)	130	St. Pölten: 2013 Ybbs/Amstetten: 2012/2015 Melk: 2011 St.Pölten/Loosdorf: 2017	63 min	45 min
St. Pölten-Vienna	Upgrade (250, partly 160 km/h)	44	Lainzer Tunnel: November 2012	41 min	25 min
Vienna	New central station		2012 (partly)/2016	40 min	0 min
Vienna-Bratislava	Upgrade (160 km/h)	65/80	Klederinger Schleife: 2016	70 (north)/ 55 (south)	35 (north)/ 55 (south)
TOTAL				**11¾- 12h**	**7½- 8h**

geographical scope but slightly also with regard to the tasks to fulfil: The European Coordinator will be nominated to facilitate the coordinated implementation of the new corridor. The European Coordinator shall consult the Member States concerned, and as appropriate, in partnership with the Member States concerned, consult other public and private entities, such as the infrastructure managers and operators, to draw up the work plan, make recommendations and monitor its implementation. The Coordinator may set up and chair corridor working groups which focus on modal integration, interoperability and the coordinated development of infrastructure in cross border sections. The Coordinator will have to develop a work plan - within one year - analysing the needs for the development of the corridor in the Member States concerned including a list of projects for the extension, renewal or redeployment of transport infrastructure for each of the transport modes involved in the core network corridor and the options for funding and financing. The European Coordinator shall support Member States in implementing the work plan, in particular as regards the investment planning, the related costs and implementation timeline, estimated as necessary to implement the core network corridors and defining measures aimed at promoting the introduction of new technologies in traffic and capacity management and, where appropriate, reducing external costs, in particular greenhouse gas emissions and noise.

TEN-T Funding projects and actions 1996-2015

	Project code	Section	Project title	maximum EU support in € million	maximum share %
FR	2006-FR-401c-S	Vaires-Baudrecourt	ERTMS Corridor C: High speed railway line "LGV Est" (Vaires-Baudrecourt-Saarbrücken)	8	50
	2007-FR-17210-P	Baudrecourt-Vendenheim		18	19.1
	2009-FR-17044-E	Baudrecourt-Vendenheim	TGV-Est studies and works	76	12
DE	1996-DE-13-P	Kehl-Appenweier	works on Kehl-Appenweier	4,2	
	2007-DE-17220-P	Kehl-Appenweier	works at Kehl	13.6	25
	1997-DE-51	Stuttgart-Ulm	Geological and hydrological exploration	3.5	50
	2000-DE-328-P	Stuttgart-Ulm	rail access to airport (S-bahn, regional rail, HST in future) reconstruction	1.6	
	2001-DE-1004-S	Stuttgart-Ulm	studies on high speed	2.5	
	2002-DE-1004-S	Stuttgart-Ulm	studies on high speed	5	
	2004-DE-1004 a-S	Stuttgart-Ulm	studies on high speed	4.9	45
	2006-DE-1004-S	Stuttgart-Ulm	studies on high speed	2.6	44
	2006-DE-90307-S	Stuttgart	studies on Stuttgart node	2	
	2007-DE-17200-P	Stuttgart-Wendlingen	works on high speed line	114.5	11.6
	2007-DE-17010-P	Wendlingen-Ulm	works on high speed line	101.5	14.4
	2001-DE-1005 P	Augsburg-Mering	works	3.5	25
	2002-DE-1005-P	Augsburg-Olching	works on high speed line	5	
	2004-DE-1005-P	Augsburg-Olching	works on high speed line	5	9.7
	2005-DE-1005-P	Augsburg-Olching	works on high speed line	5	8
	2006-DE-1005-P	Augsburg-Olching	works on high speed line	2.76	5.7
	2001-DE-1003A-P	München-Mühldorf-Freilassing	studies	1	
	2008-DE-91007-S	München-Mühldorf-Freilassing	study: preliminary planning for the electrification Markt Schwaben-Tüßling-Freilassing	8	50
	2007-DE-17020-P	Freilassing- Salzburg	works on bridges, tracks and a station	8.5	25
AT	2006-AT-GR-1108b-P	Freilassing-Salzburg	works on tracks	4.5	12.9
	2007-AT-17170-P	Freilassing-Salzburg	works on bridges, tracks and a station	37.8	25
	2005-AT-90103-P (only partly PP17)	Salzburg-Linz	ERTMS Corridor E: Equipment with ETCS Level 1 Phase 1 (Linz-Salzburg and Wels-Passau)	3	9.35

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	2011-AT-93059-P	Salzburg-Linz	Lambach-Breitenschützing	2.8	20
	2002-AT-1001-P	Enns	Enns deviation/Rohr node: works	0.5	
	2003-AT-1001-P	Enns	Enns deviation/Rohr node: works	1.3	
	2004-AT-1001-P	Enns	Enns deviation/Rohr node: works	4	
	2005-AT-1001-P	Enns	Enns deviation/Rohr node: works	7.65	
	1999-AT-4	St. Valentin-Amstetten	works on tracks	8	
	2000-AT-107-P	St. Valentin-Amstetten	works on tracks	8	
	2011-AT-93051-P	Amstetten	gap closure Amstetten	4.8	20
	2009-AT-17104-E	Amstetten-Ybbs	Amstetten-Ybbs: works on Burgstaller-Tunnel	3.4	20
	2009-AT-17098-E	Melk	Melk: works at station	3.4	20
	2009-AT-17100-E	Loosdorf-St. Pölten	St.Pölten: works on freight tracks	2.6	20
	1997-AT-13S	St Pölten-Vienna	EIA- studies	0.9	
	1998-AT-4	St Pölten-Vienna	works	3.6	
	1999-AT-8	St Pölten-Vienna	works	5.6	
	2000-AT-104-S	St Pölten-Vienna	design studies	3	
	2000-AT-108-P	St Pölten-Vienna	works on double track tunnel	8	
	2001-AT-155-P	St Pölten-Vienna	works	3.5	
	2001-AT-1002-P	St Pölten-Vienna	upgrading of node Wagram	1	
	2002-AT-1002-P	St Pölten-Vienna	upgrading of node Wagram	4	
	2003-AT-1002-P	St Pölten-Vienna	upgrading of node Wagram	3.1	
	2004-AT-1002-P	St Pölten-Vienna	upgrading of node Wagram	4.8	
	2004-AT-1108-P	St Pölten-Vienna	works on high speed line	9	
	2005-AT-1108-P	St Pölten-Vienna	works on high speed line	3	
	2006-AT-1108-P	St Pölten-Vienna	works e.g. Wienerwald Tunnel	4	
	2011-AT-93108-P	St Pölten-Vienna	St.Pölten freight bypass	5.1	20
	2010-AT-91136-S	Vienna	Terminal Wien Inzersdorf-Planning	2.1	50
	1997-AT-7	Vienna-Bratislava	upgrading Parndorf-Kittsee	3	
	1998-AT-3	Vienna-Bratislava	works	2.4	
	2007-AT-17040-P	Vienna-Bratislava	works	118.78	14
SK	2005-SK-92802-S	Vienna-Bratislava	Studies on the railway inter-connection of the TEN-T rail corridor with Bratislava airport and rail network	8.8	38
SUM				682.89	
European Economic Recovery Plan (**EERP**): €500 million call for proposals for TEN-T projects beginning before the end 2009 in the list marked with "E"				85.4	
TEN-T				597.5	

TEN-T Days 2011 - Workshop 3: A Network for Passengers: High speed rail and airport connections

Objective of the workshop

Today only about 20 major EU airports are well connected with the national rail network. The others lack multimodal capacity and efficiency also with regards to reduce CO2 emissions. The basis political documents are published. In the workshop some experiences were presented which airports, infrastructure managers and service providers made with the interfaces between airports and land access via rail but also the expectations of those which are not well connected yet. Because there is no intermodality if passengers are not informed, tickets are difficult to purchase, schedules not coordinated, signposting is poor or if luggage and passengers with reduced mobility are not taken into consideration. To fulfil the goals of the White Paper and the obligations by the new Union guidelines the presentations focus on questions of the organisation and sharing of information. Also the question if further action by the European Commission is needed was debated.

Position of the speakers

In the opening statement Mathieu Grosch, Member of the European Parliament and EPP Coordinator in the Committee for Transport and Tourism, criticised the lack of an interoperable European rail transport network. He emphasized the need for European action for better services, best quality, safety and security. He misses a real will to work together which is not less important then the money to implement technical measures and pleads for the fair exchange of information in the sector to secure good legislation.

Michael Kerkloh, CEO of Munich Airport, presented the options for airports to become suitable and sustainable gateways to the globalized world. To reach this aim intermodality and seamless travel are prerequisites within a multimodal transport system. Both are necessary in order to meet the growing demand for travel and to cope with future challenges but also to ensure the competitiveness of the airports. The basis for the "license to grow" including the enlargement of the catchment area by good rail connections is a combination of attractiveness, efficiency and sustainability. The European airports developed travel in the context of "Flightpath 2050 - Europe's Vision for Aviation" . Munich airport was planned in the 60ies when rail was of less importance; an efficient rail connection, especially to regional and long-distance traffic, is still missing. This is a competitive disadvantage for the airport which the airport, the Free State of Bavaria, the Federal Republic of Germany and the city of Munich want to overcome as soon as possible. But financing is not guaranteed at this moment in time.

Joachim Fried, Senior Executive Vice President European Affairs at Deutsche Bahn AG and member of the European Economic and Social Committee (EESC), presented the different products of Deutsche Bahn AG to facilitate the air-rail-connection (AIRail, "good for train", Rail&Fly, touch&travel) and the plan to cooperate with GOOGLE and APPLE to have applications ready for the journey planning and ticketing. He clearly supported future-oriented concepts of dynamic online interfaces to exchange timetable data and tariff information being elaborated by the railways as part of TAP-TSI. He also supported NFC as one of the basic technologies and wants it to become a standard of interoperability. DBAG is explicitly against a binding legal basis. Legal initiatives would have far-reaching impact on corporate sovereignty in retailing processes.

Vincent Coste, general manager of Air France KLM for Belgium and Luxembourg presented theirs product connecting Paris-CDG, Brussels-Midi and Amsterdam-Schiphol by high-speed-rail. Every year 2.5 million passenger travel to Paris-CDG by rail. He addressed as challenges different customer services and processes like different pre-sales conditions for rail and flight tickets (3 and 12 months), the accommodation and handling of luggage in trains to airports, the luggage handling on the stations and signage.

Kurt Scherpereel, representing Infrabel, the Belgium rail infrastructure manager, presented the "DIABOLO" project connecting Brussels airport directly to the railway lines towards Antwerp and the Netherlands. The project will reduce the travelling time between Antwerp and the airport by 30 minutes and shall be operational by 8 June 2012. The rail tracks use an old reserve site of motorway E19.

Ron Nohlmans, Programme Manager Mobility in the City of Eindhoven, presented "Brainport Eindhoven" with a focus on the plans to improve landside accessibility for example by building a new railway station to connect the airport closer to the railway network to Schiphol and Düsseldorf. Eindhoven airport plans to double the capacity by 2020 (4.5 Mio. passengers) and thus needs an efficient rail connection and improved services. The biggest challenges in connecting to the high-speed network for him are institutional barriers at the national borders.
Mikhail Goncharov, advisor to the President of JSC Russian Railways Russian Railways, Vladimir Yakunin focused on the on-going investment programme in air-rail links to fight congestion in the largest Russian cities and in

light of the upcoming Olympic Games in Sochi (2014) and the Football World Cup (2018). They will accelerate the air-rail links in Moscow by about 15 minutes and connect more airports to the rail network by 2018. Russian Rail is already operating an international service to Helsinki and will start with a regular service Moscow-Paris as of 12 December 2011.

Main outcome of the workshop

In the TEN-T network we have to consider that a huge number of international airports are not at all or not efficiently connected to the national rail network. An efficient air-rail connection can help reducing congestion, reducing the CO2-footprint and enlarge the catchment area of an airport. Efficient high-speed connections city-to-city can replace short haul flights. Despite of this a common understanding that intermodality and seamless travel could induce a win-win situation for airports, airlines and rail operators - not only for passengers is needed. But not only “hard ware” is important for travellers also innovative mobility patterns like multi-modal travel planers and “smart inter-modal ticketing” play a growing role.

We saw present services and products related to intermodality and exchanged experiences. We are also aware of some challenges on the way to travel with one ticket for a transparent price and with real-time information on the connections through Europe like sharing information and consumer protection.

The Commission will continue to promote the development of air-rail services from various perspectives. For example: Financial support for intermodal infrastructures, working-groups, development of interoperable standards for information and ticketing through the TAP-TSI rules developed by the European Rail Agency.

With the 2011 White Paper, the Commissions’ proposal for the new TEN-T guidelines and the Connection Europe Facility (CEF) the framework and some instruments for improvements are there. The Commission sets obligation to connect the core airports to road and rail by 2050 and reserves a share of the €31.7 billion of the CEF for the next financial perspective (2014-2020) to make this happen.

PP 17

Priority Project 18

Waterway axis Rhine/Meuse-Main-Danube

Trans-European transport network. Achievement of the Priority projects

0 200 400 km

Cartography: DG MOVE, October 2012
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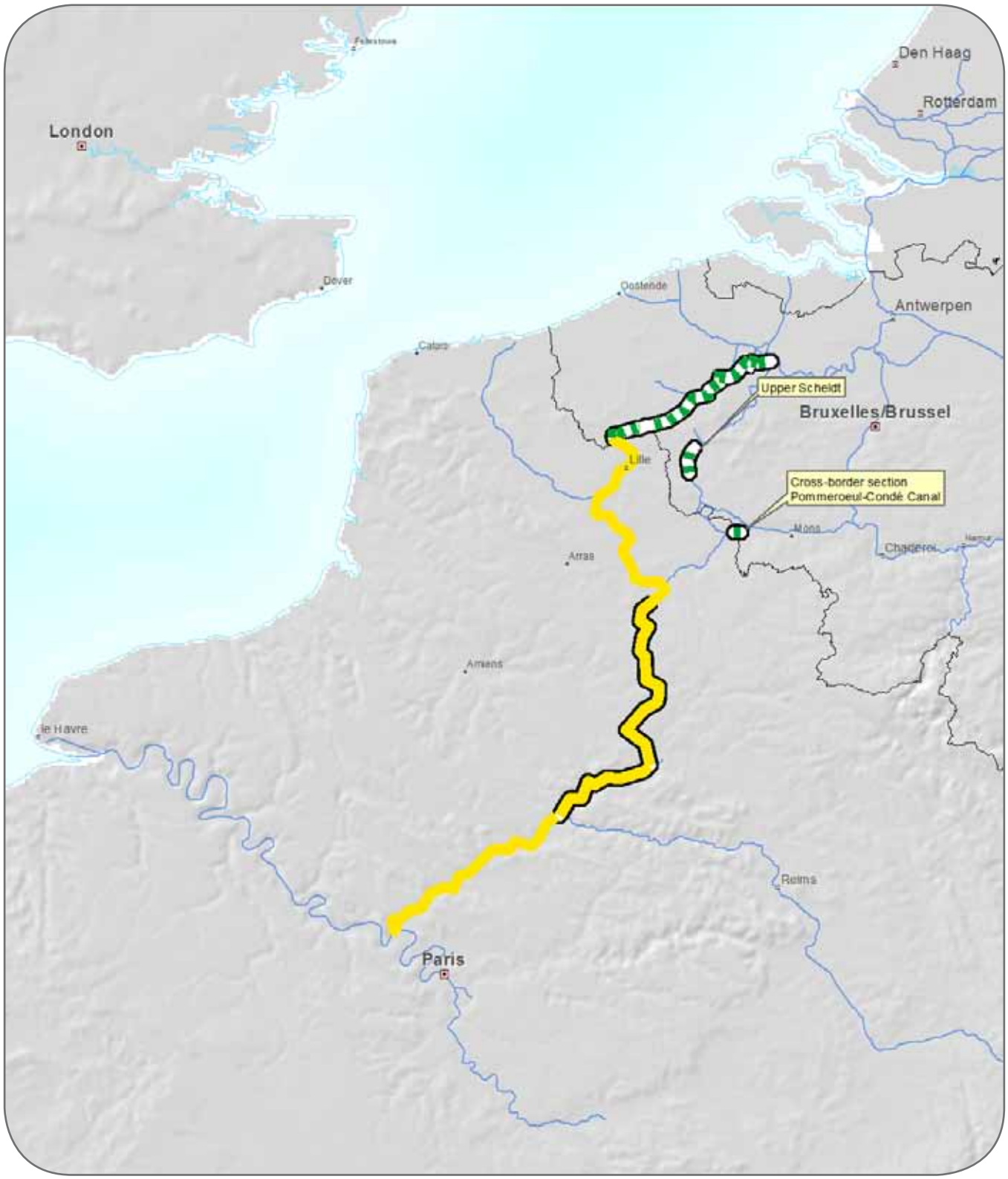
- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013
- Completion Date
- Priority sections
- Danube

TENtec

Priority Project 30
Inland waterway axis Seine-Scheldt

Trans-European transport network. Achievement of the Priority projects



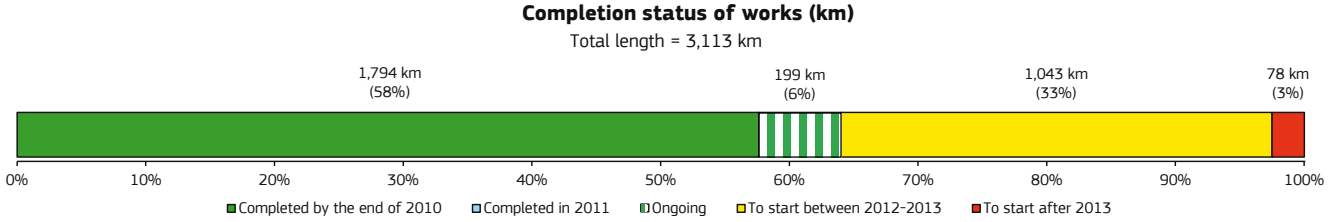
PP 18

PP 30

Priority Project 18
Waterway axis Rhine/Meuse-Main-Danube

Trans-European transport network. Achievement of the Priority projects

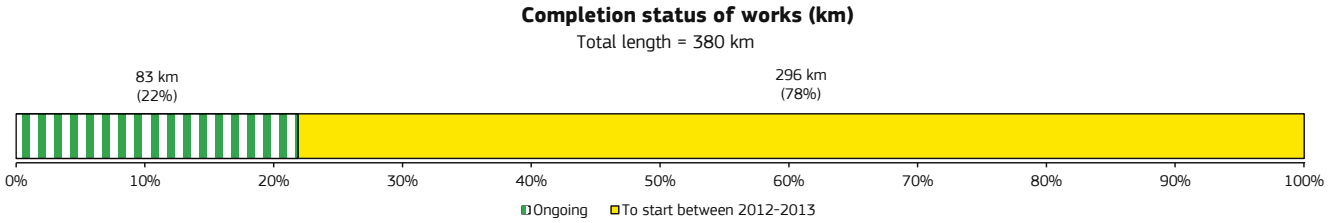
Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	Member State(s)	TEN-T support (in million)	Project status
Maasroute, Upgrade of Inland Waterways from class Va to class Vb specifications	NL	€81.8	Ongoing
Implementation of the Integrated River Engineering Project Danube East of Vienna km 1921.0 - 1872.7	AT	€36.4	Ongoing
Construction of a 225 x 25 m chamber navigation lock, its ancillary works and a pumping station/ hydroelectric power plant on the Albert Canal, to the east of the existing lock complex at Lanaye.	BE	€26.9	Ongoing
Etudes de construction d'une écluse de 225mX25m (classe VIb) à Huy (Ampsin-Neuville) et construction d'une écluse de 225mX25m (classe VIb) à Flémalle (Ivoz-Ramet), toutes deux sur la Meuse	BE	€17.6	Ongoing
Variantenunabhängige Untersuchungen zum Ausbau der Donau zwischen Straubing und Vilshofen	DE	€16.5	Ongoing
Neubau der Eisenbahnbrücke über die Donau bei Deggendorf	DE	€7	Completed
Studies for Improvement of the navigability on the Danube (Hungarian section of the Priority Project No. 18)	HU	€4	Ongoing
Project Documentation for Reconstruction and Modernisation of Bratislava Old Bridge	SK	€0.6	Ongoing
D. A. N. U. B. E. - Danube Access Network - Unlocking Bottlenecks in Europe, by developing a high-quality TEN-T ports infrastructure in Romania on optimal economic terms - Feasibility Study phase	RO	€0.2	Completed
TOTAL		**€191**	



Priority Project 30
Inland waterway axis Seine-Scheldt

Trans-European transport network. Achievement of the Priority projects

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	Member State(s)	TEN-T support (in million)	Project status
The Seine-Scheldt Inland Waterway Network - Cross-border section between Compiègne and Ghent	BE, FR	€420.2	Ongoing
Studies for the construction of three locks on the Upper-Scheldt	BE	€3	Ongoing
Additional studies in the Seine – Scheldt network in Flanders	BE	€2.3	Ongoing
Développement des quatre plates-formes multimodales du canal Seine-Nord Europe ainsi que de leurs raccordements routiers et ferroviaires. Stade des études préliminaires	FR	€2.2	Ongoing
Recalibrage de la Deûle au gabarit 3,000 tonnes entre Sequedin et Deûlémont	FR	€1.6	Ongoing
Study of the navigability of the 'Upper-Seascheldt' and the 'Southern Ghent Ring Canal' for class Va motor vessels (1,500-3,000 tonnage)	BE	€1	Ongoing
TOTAL		**€430.2**	



PP 18

PP 30

Priority Projects 18 and 30
- **Waterway axis Rhine/Meuse-Main-Danube**
- **Inland waterway axis Seine-Scheldt**

Trans-European transport network. Achievement of the Priority projects

European Coordinator

Karla Marie Henriette PEIJS

Summary

This year can be seen as the turning point for the development of inland waterway transport: after a few years of studies supported by grants from the European Commission, feasibility studies and Environmental Impact Assessments concerning important bottlenecks have been or are about to reach completion.

This marks the end of an analytical period and the start of a new one in which solid decisions concerning infrastructure have to be taken if the oft and highly praised support and integration of inland navigation in Europe will actually take place. If not, there is a serious risk that inland waterway transport will stay confined in regions where the tradition is long consolidated. It won't reach the level of European wide importance that it both deserves and is required for an increasingly efficient trans-European transport network.

The establishment of the two Priority Projects, Rhine/Meuse-Main-Danube (PP18) and Seine-Scheldt (PP30) was not meant to disregard the other potential inland waterways in Europe. The choice of PP18 and PP30 was conceived to create continuity between major basins, from the French Seine and Meuse to the Benelux countries, and from Benelux to south-eastern Europe along the Rhine, Main and Danube rivers until the Black Sea ports.

Infrastructure studies were planned in different countries either to improve the present navigability conditions or to create continuity of service and capacity for sustainable and profitable conditions of providing market opportunities in fair competition with other modes of transport. As always and naturally, developments and progress have not been linear. While some regions have experienced substantial progress, other regions have been hampered by unexpected stops or delays due to different causes.

One important and relevant issue can be confirmed: the sound cooperation with major environmental groups was confirmed by the consolidation of the Joint Statement Guiding Principles for the Development of Inland Navigation and Environmental Protection in the Danube River Basin (adopted by the Danube Commission[1], ICPDR[2] and by the International SAVA River Basin Commission[3]). Major results, both for the development of the navigability but also for the protection of the habitat and the reduction of the environmental impact have been achieved.

Another important aspect has been the start and first assessment of the Danube Strategy[4]. This strategy, launched by the Commission in 2010 has now produced the first report for the development of the so-called Priority Areas - including those dedicated to inland waterway transport and environmental protection.

The more the strategy grows, the more it takes shape as an important tool for intergovernmental relations at technical level, providing a good foundation for higher and political level agreement between both EU and non-EU Member States.

1 Danube Commission (DC) whose members are: Austria, Bulgaria, Croatia, Germany, Hungary, Moldova, Serbia, Slovakia, Romania, Russia and Ukraine

2 International Commission for the Protection of the Danube River, ICPDR. Members include Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Romania, Serbia, Slovakia, Slovenia, Ukraine and the European Commission

3 International Sava River Basin Commission (ISRBC). Members are Bosnia-Herzegovina, Croatia, Serbia and Slovenia

4 EU Member States: Czech Republic, Germany, Austria, Slovenia, Slovakia, Hungary, Bulgaria and Romania and non-EU Member States: Serbia, Croatia, Bosnia-Herzegovina, Montenegro, Moldova and Ukraine

Within this remit and following the specific example of the territorial development along the Seine-Nord Europe connection, other initiatives have been launched for bilateral agreements – such as the one between Bulgaria and Romania strengthening the fact that rivers are not only an opportunity for inland waterway transport, but also a great means for development of the surrounding regions.

Not everything went smoothly last year: due to the economic crunch that affected most European countries, governments have reconsidered investments and reallocated already planned finances. An exceptional drought has also had a strong negative impact in the Danube river basin.

1. Priority Project 18: Waterway axis AXIS Rhine/Meuse-Main-Danube

The overall corridor stretches for more than 3,000 km from the Benelux basin of the Meuse and Rhine rivers through the German Rhine and Main Rivers and the international Danube River until the Black Sea.

As mentioned earlier, the importance of the Joint Statement Principle agreement is complemented by initial results achieved within the activities of the Danube Strategy: a set of projects have been discussed by EU and non-EU Member States for an overall management of river navigation.

Following the heavy drought of autumn 2011, the Commission, represented by the Commissioners for Transport, Vice-President Siim Kallas and Commissioner for Regional Development, Johannes Hahn, with the presence of the European Coordinator, organised a riparian Danube state transport ministers meeting in Luxembourg on 7 June 2012.

The common declaration, committing the signatories to ensure a proper maintenance of the fairway and to establish appropriate coordination procedures in response to extraordinary conditions (low water, ice and flooding), has been signed by seven ministers and supported by Bosnia-Herzegovina in writing. Ukraine agreed on the principle but reserved the right of signing later the declaration. Hungary didn't sign the declaration, but confirmed its adherence to the international agreements through the Danube Commission activities.

What is becoming more and more clear is that a real political commitment is needed in order to tackle all the issues concerning inland navigation on the Danube, together with the other aspects that growth brings along: impact on the environment, proper water management as well as economic development through well-structured logistics centres, ports in particular, and activities that will boost the local economies of the countries concerned.

PP 18

1.1. Critical cross-border sections and bottlenecks

Straubing-Vilshofen (Germany)

Starting from the northern end of the corridor, the first real bottleneck that is encountered is that between the towns of Straubing and Vilshofen in Bavaria. The study relevant to the analysis of navigability options and their impact on the living habitat is nearly completed. Its first final draft is expected to be delivered to the German Federal Transport Ministry and Bavarian Transport Ministry by October 2012. In particular, the sections concerning the environmental impact analysis, the technical analysis and the traffic forecast are expected to be part of this first draft.

An Action Status Report of the study was delivered to the Commission in March 2012 after having been presented to the Monitoring Group. The Monitoring Group, composed of industry representatives and environmental experts, has nearly completed its tasks. It has performed quasi-monthly meetings from the start of its activities, and a large number of experts have been invited to discuss aspects and results of the study in progress. Compared to the studies of the past, this one has introduced innovative technologies for the two foreseen variants. A special modelling tool has been used for the analysis of the water flows and the investigation of water sources.

PP 30

A series of conferences has been organised by the two Ministries in order to inform the general public and the media on the progress and the status of the investigations. A further conference is planned for November 2012 for the dissemination of the final results.

East of Vienna (Austria)

The study and the pilot project in Deutsch-Altenburg, located east of Vienna and inside the national park that is a NATURA 2000 site, has been blocked for about two years lacking the necessary permits for the implementation of the pilot project.

During winter 2011, the World Wildlife Fund (WWF) thoroughly investigated the activities proposed by the water management agency Viadonau and issued a positive assessment of the foreseen approach. Even if WWF conditioned its approval after seeing the results of the pilot project, this preliminary approval has convinced the relevant environmental authorities to approve the pilot project on 1December 2011, which then started in February 2012. This event represents a major breakthrough for the development of a sustainable and efficient inland navigation on the Danube, an outstanding best practice for other sectors to follow. It demonstrates that a close and transparent cooperation between sector operators and important environmental groups can lead to a sound and efficient solution of bottlenecks.

Completion of works in the Austrian sector remains foreseen for 2022.

Hungarian sector

The study for the improvement of navigability on the Hungarian section of the river progressed until its planned completion in November 2011. While site measurements, data recording, physical modelling and technical engineering, as well as part of the environmental issues have been completed and submitted to relevant national authorities after the analysis of the first part of documentation, the Hungarian authorities have withdrawn the permits already issued in March 2011 and denied the validity of the documentation asking to restart the study and implement a new Environmental Impact Assessment.

On the basis of that decision, the Hungarian government asked to reallocate the European Commission budget for the construction phase to other destinations with the motivation that the infrastructure works will not be resumed before next Framework Programme.

The Commission has reiterated the importance of the rehabilitation of navigability in the Hungarian sector and questioned the submitted motivations for reallocation of the budget and reserved the right of reviewing the documentation.

Further discussion and investigations are foreseen in autumn 2012 in order to better clarify the situation and evaluate the entire file in order to evaluate what is missing and if the study has been conducted according to EU legislation.

Croatian-Serbian common sector

The Coordinator visited Zagreb, the Croatian capital in March 2012. During the discussions at the transport ministry, she was updated on the studies for the rehabilitation of navigation on both the Danube and the Sava Rivers as well on the development of ports in Vukovar, Sisak, Slavonski Brod and Osijek. The RIS system will also be extended to the Sava River. The Coordinator expressed her concern for the impact on the environment, as she received complaints by environmental groups. Croatian authorities stated that the Environmental Impact Assessment is still on-going and ensured that these concerns will be taken on board.

In parallel to her visit to Zagreb, the Coordinator planned to visit Belgrade to discuss with the Serbian Ministry about the common Croatian-Serbian sector of Apatin. This visit has been delayed due to recent elections and therefore non-availability of concerned governmental representatives. The visit is now planned for the autumn/winter 2012.

Bulgarian-Romanian common sector

The feasibility study on the section between Iron Gates I and Silistra (rkm 863-375) was finalised and the Environmental Impact Assessment study is currently being completed. At the end of this phase, public debates will take place in both countries.

A major progress in this sector is the initiative for a Memorandum of Understanding (MoU) brought forward by the Bulgarian Ministries of Territorial Development and of Transport for the regional development of the Bulgarian and Romanian regions crossed by the Danube.

Under the auspices of these two Bulgarian Ministries, a visit of the Coordinator to the Bulgarian Parliament Transport Committee was organised in spring 2012 to present the proposed ideas. This meeting was then followed by another one in Ruse where State Secretaries of the two Bulgarian Ministries discussed and agreed with the Romanian Transport State Secretary the draft of the MoU in the presence of the Coordinator.

The signature of the MoU by the two governments is expected in early October 2012. The intention is to follow the initiative proposed by the French administration in the development of the Seine-Nord Europe Canal: while developing the conditions for a sustainable and economically viable navigation, other important aspects for the regional growth would also be undertaken such as water management, creation of ports and tourism development,

This initiative has been presented to the steering committee for inland waterways of the Danube Strategy and has received strong support.

Sector between Calarasi and Braila (Romania)

The construction project was awarded in 2009 to improve navigation conditions in this sector following recommendations by the Danube Commission. The works on banks protection started in October 2011 at Ostrovul Turcescu and in March 2012 in Ostrovul Lupu. Works on a guiding wall at the Bala Branch critical point started in March 2012.

Before starting the construction of the bottom sill, discussions with environmental groups took place in order to achieve a step-wise approach for the effective construction of infrastructures. This approach would allow the impact of the infrastructure on the living habitat of flora and fauna to be evaluated.

PP 18

From 2009 until 2011, a series of meetings lead to the definition of an Environmental Monitoring Programme to be operated before, during and after the construction period. This Programme was the object of a contract awarded to an international consortium in March 2011.

In June 2012, Romanian authorities organised a workshop on the first year of activities of the Monitoring Programme with the participation of the inland waterways sector and environmental organisations. A second workshop is planned to take place in autumn 2012.

1.2. Other sections of the Corridor

Other developments and progress on PP18 include:
The Belgian-Dutch construction works on new lock in Lanaye have been on-going since June 2011, and the entire complex is expected to be put into service by the end of 2014. The situation is similar for the works on new lock in Ivoz which started in May 2011. This is also expected to become operational by the end of 2014.
As already reported last year, the new bridge in the vicinity of Deggendorf in Bavaria has been built and the project was successfully completed.

The restructuring study for the old bridge in Bratislava, Slovakia, is about to be completed, however some important documentation is still to be received. In particular, this concerns the certification by the Danube Commission that the distance of central pillars will not hamper navigation conditions.

PP 30

2. Priority Project 30: Waterway Axis Seine-Scheldt

From Conflans on the river Seine, downstream of Paris, PP30 links the Seine basin to the Benelux basin on the Scheldt River.

Priority Projects 18 and 30
- **Waterway axis Rhine/Meuse-Main-Danube**
- **Inland waterway axis Seine-Scheldt**

Trans-European transport network. Achievement of the Priority projects

It comprises the Seine-Nord Europe Canal in France and the connections in Flanders towards the western Scheldt and the Dutch network, as well as in Wallonia through the Meuse until the Rhine and the German basin.

This important connection, linking Atlantic ports with the major European basins, plays a key role for the development of the regions that it crosses, linking internal regions of Belgium and northern France with major sea and inland ports.

A good cooperation between the French, Flemish and the Walloon administrations has been a key asset for the launching of the project and the setting up of common coordination levels at ministerial level, such as the Intergovernmental Committee (IGC) and, at technical level, in the European Group of Economic Interest (EEIG).

2.1. Cross-border sections and bottlenecks

The cross-border section encompasses the French Seine-Nord Europe Canal and the bordering river sections in Flanders and Wallonia in Belgium.

In France, the first quarter of 2012 was dedicated to the competitive dialogue with the two selected bidders on the basis of their provisional proposals sent in October 2011, including those for the technical, contractual and financial parts.

A further detailed investigation started in April 2012. In the Action Status Report submitted in March 2012, it was indicated that, in order to give the bidders the possibility of presenting a sound financial offer, combined with a technical proposal keeping into account the actual investors market options and the connected proposal for a public private enterprise, it was foreseen to allow offers to be presented until the end of 2012. While confirming the progress of the competitive dialogue and the commitment to finalise the project of the canal, the newly established French government has undertaken a revision of the actual financial budget.

The delays occurred on the French side have had an immediate effect on the Belgian developments just across the border due to necessary coordination. In particular on the sections concerning Lys and Pommeroeul-Condé, delays by the French partner have had a repercussion on these Walloon projects. A thorough analysis of the actual situation is planned this autumn in order to assess the necessary measures to reduce delays that may affect the eligibility period for works already set for the end of 2015. The canal is planned to be fully operational in 2019.

2.2. Other sections of the Corridor

While on the one side there are budgetary difficulties due to the economic crunch that obliges progress to proceed on a project by project basis without a real structural multiannual planning, on the other side, as the Walloon administration warns, new projects have been submitted and retained for funding in the 2012 TEN-T Calls for Proposals.

A project aiming at increasing bridge clearance in the Walloon section of Seine-Scheldt, has been awarded in order to allow continuous passage of container ships up to three layers as well as studies to eliminate bottlenecks in the Flemish region.

3. Other inland waterway corridors

Many activities are being undertaken in other inland waterway corridors outside the range of the two Priority Projects. The development of the northern Italian inland waterways system is progressing well. The preparation of a master plan and projects for executive works to improve accessibility to the overall waterways system was

completed and all documentation has been delivered.

The infrastructural works to upgrade the waterway to Category V and improve accessibility between Fissero-Tartaro and Canal Bianco for a budget of more than €80 million (with a 10% EU contribution) was developed for more than 65% and is expected to be completed by the end of 2013, like the study for RIS application. The study for RIS application is on-going and is planned to be completed by the end of 2013.

In the Benelux region, besides the agreement between East Flanders and The Netherlands for the construction of a sea vessel lock in Terneuzen, a contract has been awarded to The Netherlands for the implementation study for the elimination of bottlenecks in the Amsterdam-Rotterdam-Antwerp corridor. In the same spring tender, a contract was awarded to Belgium for the lifting of several bridges across the Albert Canal to a height compatible with Category VIb.

Amongst the further developments, it is useful to mention that France is planning to propose the connections between Moselle-Rhone and Moselle-Rhine in the next Framework Programme.

4. Meeting and conferences

The most prominent event of this year was certainly the ministerial meeting in Luxembourg that saw the participation of Vice-President Kallas, Commissioner Hahn and the Coordinator from the side of the European Commission and eight Ministers of the riparian Danube States.

From the negative impact of the drought, this event brought to the attention of all concerned countries the importance of well-organised cooperation for the Danube and management of waters in the region. Synergies and bilateral cooperation are also aspects that have been touched upon which can lead to a more integrated approach.

In terms of other Conferences and missions, the Coordinator decided to dedicate her time to major issues in order to concentrate her action and support specific approaches.

In March 2012, the Coordinator participated in the Barge to Business Conference in Vienna that, following the pattern of the previous event held in Brussels, gave a very good opportunity to policy makers, sector operators and interest groups to get together and discuss the way forward for a more efficient and more sustainable inland waterway system. PP 18

There is quite a wide recognition that inland waterway transport offers broader opportunities than just transport. In fact, connecting ports through inland waterway transport represents an opportunity for a larger-scale development of the region that, according to the installations, can provide energy, better water management (through regulation of the water level), as well as a boost to local economies via transport and the promotion of tourism.

In this respect and as previously discussed, the Coordinator went to the Bulgarian Parliament to support the idea of a common territorial development between Bulgaria and Romania.

The Coordinator intervened in major conferences organised by other European Commission services such as the “Green Week” of the Directorate-General for Environment and the “Scientific Support to the Danube Strategy” conference organised by the Joint Research Centre (JRC). Following this event, the Coordinator was invited to visit the JRC installations at Ispra, Italy. Discussions with key JRC staff gave the Coordinator a good opportunity for future cooperation in transport research. The JRC’s well-established observatory can also be used for climate change and disaster monitoring, in particular for flooding prevention.

A closer cooperation has also been established with key sector players, such as the European Barge Union (EBU), the European Federation of Inland Ports (EFIP) and Inland Navigation Europe (INE). A periodical round of meetings has been set up with the respective heads of these organisations in order to improve synergies and closely monitor the sector’s needs and worries. PP 30

In the same line, the Coordinator has invited representatives of forwarders and transporters to debates at the TEN-T Days and at other occasions. She has also thoroughly discussed transport issues with the Secretary Gen-

eral of the European Freights & Logistics Leaders Forum, by whom she has been invited as keynote speaker at its next seminar in London on the economics of sustainability.

More conferences and workshops have been attended by the Coordinator's staff with the aim of supporting the general policy lines of the European Commission, such as the Danube Strategy or the implementation of the overarching development around inland waterways, as well as other events for the dissemination of best practices.

5. Conclusions and recommendations

Key points:

- Better integration of inland waterway transport with other modes of transport through the new TEN-T Guidelines and the organisation of Core Corridors and multimodal points
- Territorial development of regions, following the Seine-Scheldt example and the opportunities offered by the Danube Strategy, starting from modern logistics growth at inland ports and including energy production, water management and social benefits
- Consolidated cooperation between sector operators and environmental groups for an even more sustainable mode of transport
- Integration of non-EU Member States and cooperation for a common approach
- Project bonds to support private investments in major infrastructural works, and the start-up of activities by transport companies, including fleet renovation
- Technological development, also in line with Horizon 2020 targets, from RIS (River Information Services) to new engines, light fuel and operations
- Forwarders and transport operators to be involved in the development process for a better understanding of market needs
- Need for political support to achieve it: better environmental performance of vessels, R&D development and transfer to actual market, demonstration of political/economic advantage for local populations
- More rapid decision and information processes in case of emergency (i.e. in case of drought or flooding conditions)

The TEN-T Guidelines, which are presently under discussion with the European Parliament focuses on Core Network and Core Corridors based on a methodology that starts from major transport nodes, ports, capitals, and cities including all modes of transport for each corridor.

This approach allows the creation of synergies and combinations between different modes of transport for an optimal choice of solutions dictated by the most convenient for the specific region, cost and the specific type of freight.

Within this new scenario, inland waterway is no longer an isolated means of transport between two distant ports. Instead it represents an opportunity that can provide additional capacity while increasing the transfer of goods away from less environmentally friendly modes of transport.

The role of inland ports becomes more and more important to the success of inland waterway transport as only efficient port logistics can ensure advantageous operations and appropriate connection with the rail and road systems.

This more capillary development of transport facilities will be the starting point for the growth of the surrounding regions, and it is expected - as well as recommended - to create these logistics in terms of regional growth.

The already mentioned cooperation for a more environmentally friendly inland waterway transport is resulting in better infrastructure such as the East of Vienna project or the environmental monitoring programme in Romania.

Such a cooperative practise should be extended to other countries for a more conscious economic development and be directed towards other aspects of the sector, including the fleet renovation and the development of more ecological operations.

Now that project bonds are becoming a reality, the private sector intervention should be thoroughly encouraged to support start-up of activities and the modernisation of fleets.

RIS is being implemented widely and is already providing feedback from those regions where it is already in use. Technology at large should play a major role for an even more sustainable means of transport.

The heavy drought that blocked the navigation on the Danube River during autumn 2011 has shown that a mechanism of rapid reaction is needed, if we do not want to be surprised by natural events that can become black-out conditions for the whole sector.

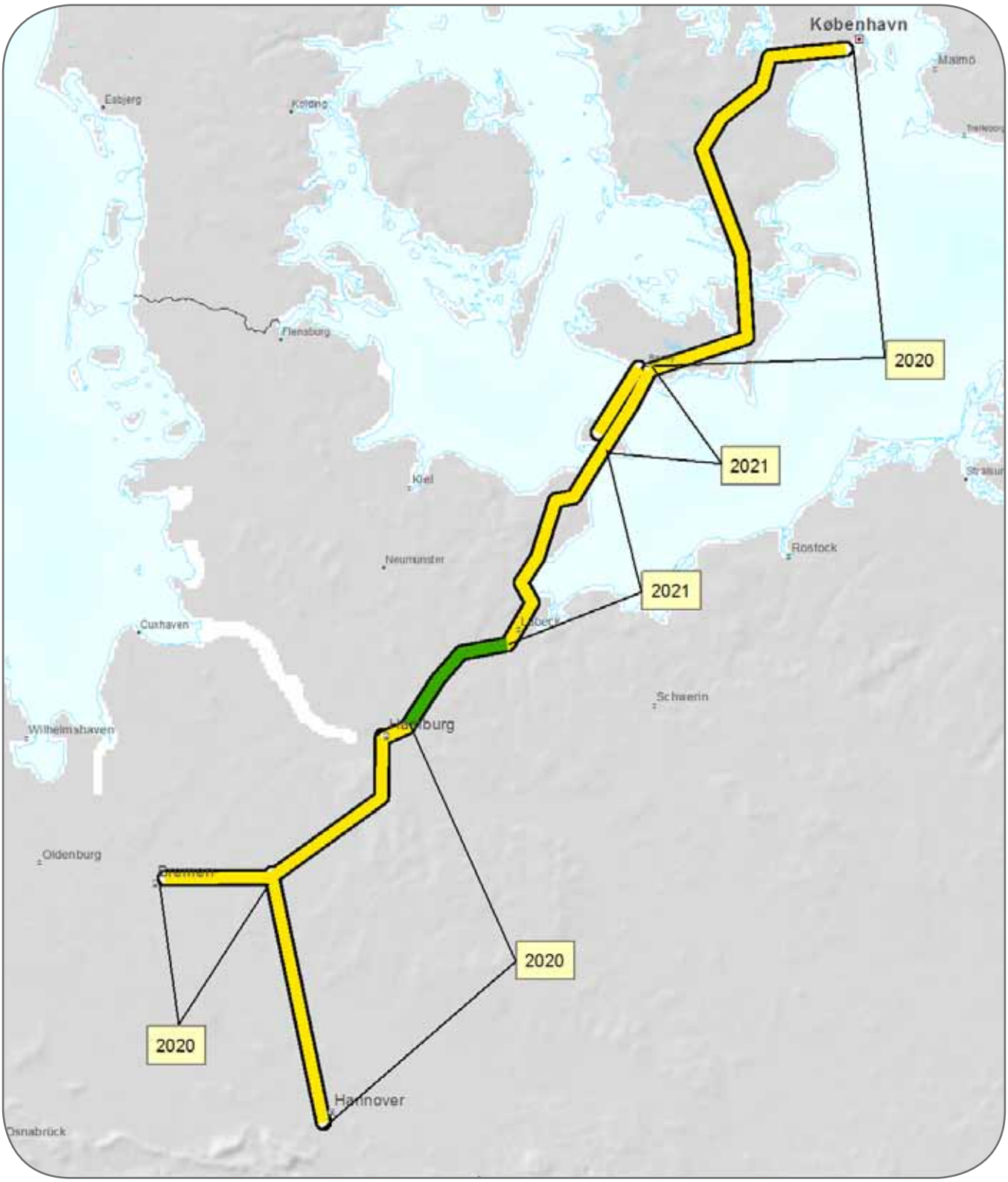
More coordinated efforts, particularly on the Danube River between riparian countries, are mandatory and the renewal of the Belgrade convention should not be kept on hold any longer. At present the new convention has been blocked since 2008 due to political reasons that should not have an effect on the entire river inland waterway development.

PP 18

PP 30

Priority Project 20
Railway axis Fehmarn Belt

Trans-European transport network. Achievement of the Priority projects



0 40 80 km

Cartography: DG MOVE, October 2012
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© EuroGeographics 2001 for the administrative boundaries

- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

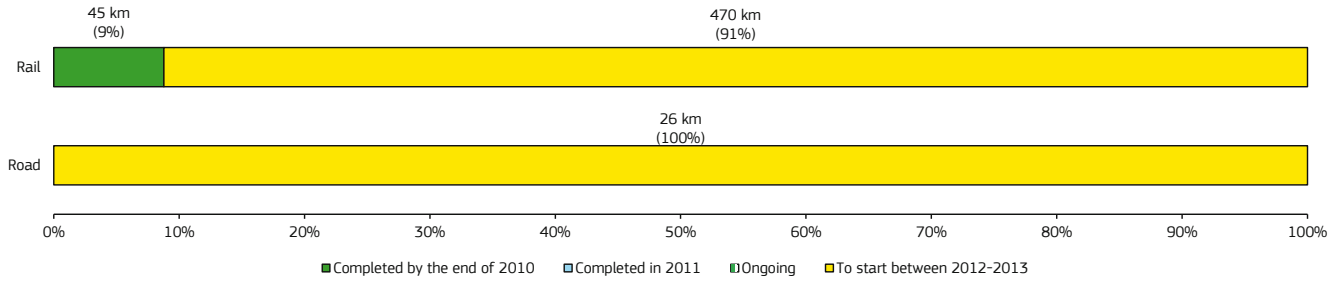
- Completion Date
- Priority sections

TENtec

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Studies and Works for the construction of Fehmarn Belt Fixed Rail-Road link	DE, DK	€338.9	Ongoing
Eisenbahn-Hinterlandanbindung zur Fehmarnbeltquerung von Lübeck nach Puttgarden	DE	€12.7	Ongoing
Studies for upgrading the railway access lines to the future Fehmarn Belt fixed link - from Ringsted to Rødby and the intersection in Kastrup	DK	€11.7	Ongoing
Studies for the capacity improvements of the section between Copenhagen and Ringsted	DK	€11	Completed
First phase of detailed planning studies – programme phase - for upgrading the railway access lines to the future Fehmarn Belt fixed link - from Ringsted to Roedby	DK	€5	Ongoing
TOTAL		**€379.3**	

Completion status of works (km)

Total length = 541 km (Rail: 515 km, Road: 26 km)



PP 20

Priority Project 20
Railway axis Fehmarn Belt

Trans-European transport network. Achievement of the Priority projects

Summary

This axis is a key component in the main north-south route between central Europe and the Nordic countries. It involves the construction of a bridge or a tunnel in order to form a fixed road and rail link, spanning the 19 km wide Fehmarn Strait between Germany and Denmark. It also includes improvements to related rail links in Denmark and Germany.

The project will provide an alternative for the ferry link between Rødby (Denmark) and Puttgarden on the Fehmarn Island in Germany. It is expected to stimulate economic development in the Baltic Sea regions of Denmark and Germany. Once completed, it will attract passenger and freight traffic estimated at more than 3.5 million vehicles and more than 40,000 trains annually. After the completion of the project, the travel time between Copenhagen and Hamburg will be reduced by approximately one hour, and for rail freight transport by approximately two hours.

Cross-border section

Denmark and Germany signed a treaty on the fixed link on 3 September 2008, which was ratified in 2009. Field studies concerning the geotechnical and the navigational conditions in the Fehmarnbelt and the environmental baseline study are finalized. In February 2011 the Danish Government following consultations with the political parties behind the Fehmarn Belt Fixed Link approved the recommendation on the preferred technical solution, the immersed tunnel. The two options under consideration are either an immersed tunnel or a cable-stayed bridge, both consisting of a four lane motorway and two electrified rail tracks. The construction work of the project is expected to start in 2015 and to be completed in 2021.

Other sections

Rail hinterland connections in Denmark: On the railway section Copenhagen-Ringsted (60 km), substantial capacity improvement is required, therefore a new line between Copenhagen and Ringsted via Køge will be constructed. The 120 km section Ringsted-Rødby will be electrified and the section between Orehoved and Rødby will be upgraded to a double track rail line. Decision will be taken soon if the rail link on the Storstrøms Bridge will remain single track or double track. The projects will be implemented before the opening of the Fixed Link.

Rail hinterland connections in Germany: On the German side, considerable investments will be needed to make the section Lübeck (Bad Schwartau)-Puttgarden (today single track and not electrified) fully operational. According to the Treaty, Germany will guarantee sufficient capacity on the railway line Bad Schwartau-Puttgarden when the fixed link opens. On behalf of the German federal government, DB AG is currently working on the preliminary design for the section between Lübeck and Puttgarden.

Financial issues

The two governments agreed that the fixed link will be planned, constructed, financed and operated by Denmark. Denmark has formed a single purpose company, Femern A/S, which is in charge of the planning and design of the Fehmarnbelt fixed link, and all investigations and construction activities are contracted with external consultants and entrepreneurs. The company can take up loans on the international financial markets, backed with a Danish state guarantee or take loans from the Danish Central Bank. The fixed link will be user-financed, by collecting tolls to repay the debt and finance the maintenance of the infrastructure.

The total cost of an immersed tunnel is estimated to be €5.5 billion (in 2008 prices) including the cost to create a construction site to produce elements for the tunnel. The funds for the development of the Danish and German rail hinterland connections will be secured from the Danish and the German state, respectively. Denmark will use yields from the fixed link to finance the upgrading of the Danish hinterland connections.

1. Introduction

This Priority Project is an extension of the Øresund crossing (PP11) and the Nordic triangle road and rail links (PP12). It is expected to greatly improve the main north-south route connecting central Europe and the Nordic countries. It will involve the construction of a tunnel or a bridge in order to form a fixed road and rail link across the Fehmarnbelt between Germany and Denmark, as well as improvements to related rail links in Denmark and Germany.

The project will provide an alternative to the ferry link between Rødbyhavn (Denmark) and Puttgarden on the Fehmarn Island in Germany. It is expected to stimulate economic development in the Baltic Sea regions of Denmark and Germany. Denmark has great experience in implementing similar projects, since they have already constructed the Great Belt Bridge (opened in 1998) and the Øresund Bridge (opened in 2000).

2. The Danish-German Treaty

A political agreement between Denmark and Germany on the construction of a fixed link between Rødbyhavn and Puttgarden was reached on 29 June 2007. A Treaty was signed by the Danish Minister for Transport and the German Federal Minister for Transport on 3 September 2008. This treaty was ratified by the Danish Parliament on 26 March 2009. Seven parties of the Danish Parliament have joined the agreement. On 18 June 2009, the German Bundestag adopted the Act on the Treaty. On 10 July 2009, the Bundesrat gave its consent to the Act, which was promulgated on 23 July 2009 in the Federal Law Gazette. Ratification was completed in Denmark in August 2009 and in Germany in October 2009. Works are expected to start in 2015 and they are expected to be completed by 2021.

3. Organisational issues

The two governments have agreed that the fixed link will be planned, constructed, financed, operated and owned by Denmark. Denmark has formed a single purpose company (Femern A/S) to perform the planning and designing of the fixed link. This company is a subsidiary of Sund & Baelt Holding A/S, which is a 100 per cent state-owned limited company.

Technical and environmental investigations will be accomplished in the period 2008-2013. The approval by the competent authorities in both countries are expected to be finalised in 2014 / 2015, which is a prolongation by 1 year compared to the Progress Report from 2011. All investigation and construction activities are or will be outsourced to external contractors and entrepreneurs. According to the State Treaty, at least two official bilateral meetings take place every year at ministerial or senior civil servant level. Additional meetings are held on a more technical level in order to better coordinate the preparatory works.

In order to comply with a new Commission interpretation line as regards the application of the EIA Directive to associated/ancillary works, the EIA was extended to include the establishment of facilities for the production of tunnel elements in the vicinity of the tunnel alignment on Lolland. The inclusion of the production facility, which was included in the plans in 2011, lead to a prolongation of the plan approval process by 6 months.

The prolongation of the approval process has an impact on the overall time schedule. The time schedule for the tender process and the construction process are unchanged, and the opening year is thus 2021 due to the prolonged approval process.

The Status of the project in July 2012 can be described as follows:

- All field studies related to the EIA are finalised.
- The recommendation of the technical solution (the tunnel) has been endorsed by the Danish Government following consultations with the political parties behind the Fehmarnbelt Fixed Link
- The recommendation of the establishment of a tunnel production site close to the alignment on Lolland has been endorsed by the Danish Government following consultations with the political parties behind the Fehmarnbelt Fixed Link.
- The proposal for an early commencement of the tender procedure has been approved by the Danish Parliament.

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Railway axis Fehmarn Belt

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4. The technical solution

The technical solution investigated is a combined road and rail link with a four lane motorway and two electrified rail tracks. The preferred solution consisting of an immersed tunnel and the alternative solution consisting of a cable-stayed bridge were presented by Femern A/S in November 2010. The company Femern A/S has indicated the exact alignment of the fixed link in the autumn 2011. The construction time is estimated at 6.5 years for the immersed tunnel and 6 years for the bridge.

5. Traffic across Fehmarnbelt

In 2011, almost 5,400 vehicles crossed the Fehmarnbelt per day. The annual increase between 2001 and 2011 was 1,6 %. The forecast indicates that almost 10,000 vehicles will pass the the fixed link daily after the opening. So, once completed, it will attract passenger and freight traffic estimated at more than 3.5 million vehicles and more than 40,000 trains a year, helping to relieve congestion on the Great Belt route across Denmark, in particular on the rail network.

Travel time between Copenhagen and Hamburg will be reduced by approximately 1 hour and travel time of goods by rail will be reduced by almost 2 hours as the 160 km detour via the Great Belt is avoided.

6. Financial issues

The total cost of the project is estimated at €5.5 billion (in 2008-prices) including the cost to establish a production site on Lolland close to the tunnel alignment. This estimation concerns the preferred technical solution, the immersed tunnel. The owner company will be backed with a financial state guarantee from the Danish State.
The project will be paid by the users. The construction of the fixed link will be financed by state guaranteed loans, which can be raised on the capital market, or by loans taken from the Danish Central Bank. These loans will be repaid via the tolls collected from road users on the fixed link and charges received from the rail sector. Revenues will also finance the maintenance costs of the infrastructure.

According to the Treaty, Denmark receives all revenues and has the authority to set the tolls and user fees. Toll collection will take place on the Danish side. The TEN-T budget is the second source of financing. Theoretically, the project can get up to 30% EU financial assistance from the TEN-T budget for works and 50 % financial assistance for studies. The estimated repayment period for the coast to coast connection and the Danish hinterland connections is 39 years.

Within the framework of the 2007-2013 multi-annual work programme, a co-financing of €338.9 million (studies and works) for the fixed road and rail link of the Fehmarn Belt (26.6% of total eligible costs in this programming period) was foreseen in 2007.

Due to changes in the amount of eligible cost expected to be incurred in the period 2007-2013, an amendment to the funding decision was adopted in January 2012, leading to a reduction in TEN-T co-financing, which now stands at €267.5 million for the period 2007-2015. Due to the delay in the approval process by one year, and thus a later start up for the construction phase, the decision will be amended again, and a reduction in TEN-T co-funding is foreseen.

According to the Danish-German Treaty signed on 3 September 2008, the Federal Republic of Germany is responsible for the upgrading and financing of the German hinterland connections. The upgrading of the stretch of road between Heiligenhafen (Ost) and Puttgarden to a four-lane highway is to be finished at the opening of the Fehmarnbelt fixed link at the latest. The road connection on the bridge across the Fehmarn Sound remains a two-lane road. The electrification of the railway section between Lübeck and Puttgarden is to be finished at the

opening of the Fehmarnbelt fixed link at the latest. The Federal Republic of Germany makes the actions necessary to ensure sufficient capacity on the railway section between Bad Schwartau and Puttgarden at the opening of the Fehmarnbelt fixed link at the latest. The upgrading of the railway section between Bad Schwartau and Puttgarden to a double-tracked and electrified section is to be operational at the latest 7 years after the opening of the Fehmarnbelt fixed link. The railway section of the bridge across the Fehmarn Sound will remain single-tracked. Denmark is responsible for the upgrading and financing of the Danish hinterland connections. Denmark reserves the right to finance the Danish hinterland connections by yield from the Fehmarnbelt fixed link. The railway section between Ringsted and Rødbyhavn is to be electrified and the railway section between Vordingborg and Rødbyhavn is to be double-tracked. The upgrading of the Danish hinterland connections are foreseen to be finalised before the opening of the fixed link across the Fehmarnbelt.

7. Studies and environmental impact assessment

Studies concerning the geotechnical and navigational conditions in the Fehmarnbelt are near completion. Following an EU-tender procedure, seven environmental consultant groups were appointed in the autumn of 2008, and the environmental base-line studies are completed as well. The EIS-studies, including NATURA-2000 studies, are expected to be completed in 2013 . The EIA investigations are divided into hydrography, marine biology, birds, fish & fishery marine mammals, approach areas Lolland and Fehmarn.

In order to comply with a new Commission interpretation line as regards the application of the EIA Directive to associated/ancillary works, the EIA was extended to include the establishment of facilities for the production of tunnel elements in the vicinity of the tunnel alignment on Lolland. The inclusion of the production facility in the EIA leads to a prolongation of the plan approval process by 6 months. A further delay of the plan approval process was reported in April 2012 due to a longer than expected duration of the formal plan approval process. The tender process and the construction process are unchanged.

According to the planning, approvals by the authorities will take place in the period 2012-2014 and the final "Construction Act" in Denmark, which includes the EIA, is expected to be approved by the Danish Parliament in 2014.

The German plan approval procedure includes the approval of the technical design, the EIA as well as additional environmental application documents and regulations with respect to the effects of the project towards the third parties. The approval will take approx.18 months. The plan approval procedure ends with the "Planfeststellungsbeschluss" (plan approval decision), issued by the Landesbetrieb Straßenbau und Verkehr Schleswig-Holstein as the competent plan approval authority.

8. Rail hinterland connections in Denmark

As far as the railway section in Denmark (Copenhagen-Rødby) is concerned, the implementation has progressed to different degrees at different sub-sections. On a small part of the section east of Ringsted the upgrading works finished in 2011. On a six kilometre sub-section south west of the Copenhagen Central Station the upgrading works are planned to be finished in 2012.

On the remainder of the railway section Copenhagen-Ringsted (60km), substantial capacity increases are required. It was decided to construct a new line between Copenhagen and Ringsted via Køge and this decision has been approved by the Danish Parliament in 2010. The new line will be designed for 200 km/h (with a possibility to increase to 250 km/h with small adjustments) and for 25 tons axle load. The construction phase is 2012-2018. It will cost € 1.35 billion in 2008 prices.

Concerning the 120 km section Ringsted-Rødby, the electrification of the existing rail line between Ringsted and Rødby and the upgrading to double track rail line from Vordingborg to the nearby Storstrøms Bridge and from Orehoved (south of Vordingborg) to Rødby will be done. Concerning the rail link across Storstrøms Bridge (3km long), five options have been examined to decide if it will remain single track or if it will be upgraded to double track. In August 2012 the Danish Government proposed the construction of a new bridge to be completed before the opening of the fixed link.

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Railway axis Fehmarn Belt

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The installation of ETCS2 system is planned to be installed in the Danish rail connections by 2020 at the latest. The estimated costs of the Danish hinterland connections from Ringsted to Rødby are €1.1 to 1.2 billion in 2008 prices. Denmark can use yields from the fixed link for the financing of the hinterland connections. Concerning the motorway from Copenhagen to Rødby, which exists since 1965, only minor upgrading works are necessary to improve traffic safety and environmental aspects (e.g., noise shields).

9. Rail and road hinterland connections in Germany

On the German side, considerable investments will be needed to make the section Lübeck (Bad Schwartau)–Puttgarden, (which today is single track and not electrified), fully operational. According to the Treaty, Germany guarantees sufficient capacity on the railway line Bad Schwartau-Puttgarden when the fixed link opens.

According to the German-Danish Treaty, the electrification of the railway line between Bad Schwartau and Puttgarden should be completed no later than at the opening of the fixed link across the Fehmarnbelt (in 2021). The upgrading of the railway line between Bad Schwartau and Puttgarden to a double-track, electrified railway line should be ready for operation no later than seven years after the opening of the fixed link (2028). The rail link on the Fehmarnsund will remain single track.

The hinterland railway connections shall be constructed as part of the conventional TEN-T railway network. On behalf of the Federal Government, DB AG is currently working on the preliminary design for the section between Lübeck and Puttgarden (estimated cost of the rail project Lübeck-Puttgarden € 820 million). The Land of Schleswig-Holstein has launched a regional planning procedure in May 2010. Investigations are carried out, including environmental studies, alternative alignments and possible impact on tourism. Studies are expected to be completed in 2013. The selection of the alignment and the plan approval procedure, including an EIA, will start once the regional planning procedure will be completed.

The 63 km long section Hamburg-Lübeck was completed in 2008 as a double track, electrified rail line with a maximum speed of 160 km/h for passenger (commuter) and freight traffic.

The rail line Hannover-Hamburg is double track, electrified with a maximum speed of 200 km/h. The rail line Hamburg-Bremen is double track, electrified with a maximum speed of 160 km/h. Building of new High Speed Lines (250 km/h) is considered from either Hamburg or Bremen to Hannover ("Y-Trasse") in order to get additional lines for High Speed and freight trains. Studies are still on-going.

Procedures for securing the financing of the necessary works in Germany have started following the ratification of the Treaty. The highway Puttgarden–Heiligenhafen will be extended to 4 lanes.

10. General appreciation

The Priority Project, consisting of the fixed link and the hinterland connections, is in a phase of detailed technical and environmental studies. The project is progressing according to schedule, with only some delays, due to longer than expected approval process. The preferred technical solution, as approved by the Danish Government is an immersed tunnel. The fixed link is expected to be completed in 2021. The Treaty between Denmark and Germany and the close collaboration between the two countries ensures the timely implementation of projects on both sides of the fixed link.

PP 20

Priority Project 21
Motorways of the Sea

Trans-European transport network. Achievement of the Priority projects

0 250 500 km

Cartography: DG MOVE, October 2012
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- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

- Completion Date
- Priority sections

TENtec

2010-EU-21106-S ITS Adriatic multi -port gateaway

2010-EU-21102-S MOS4MOS

2010-EU-21105-S MIELE

2010-EU-21101-S MOS24

2010-EU-21109-S Mona Lisa

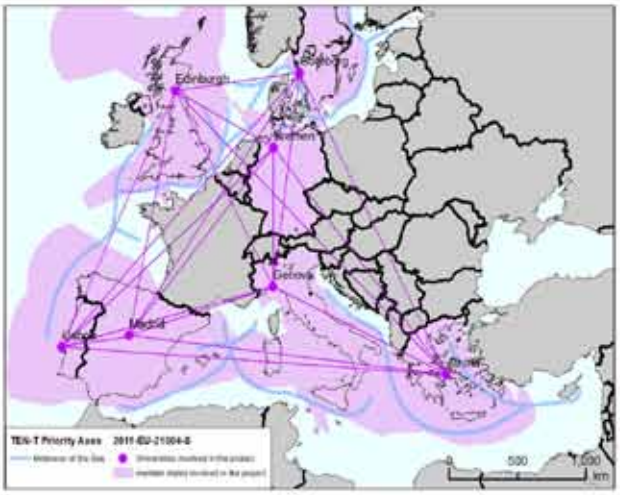
2010-EU-21112-S LNG

Source: TEN-T Executive Agency

PP 21

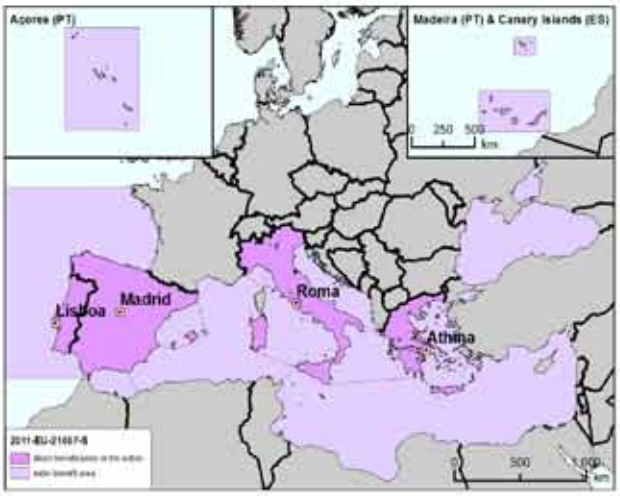
Priority Project 21
Motorways of the Sea

Trans-European transport network. Achievement of the Priority projects



2011EU-21004-S Train MoS

2011-EU-21005-S LNG in Baltic Sea Ports



2011-EU-21007-S COSTA

1. **2008-EU-21010-P** High Quality Rail and Intermodal Nordic Corridor Königslinie

2. **2008-EU-21015-P** Motorways of the Sea projects in the Baltic Sea Area Klaipéda-Karlshamn link

3. **2008-EU-21020-P** Motorways of the Sea Esbjerg - Zeebrugge

4. **2009-EU-21010-P** Baltic Link Gdynia-Karlskrona

9. **2010-EU-21107-P** Motorway of the Sea Rostock-Gedser

10. **2010-EU-21108-P** The Baltic Sea Hub and Spokes Project

13. **2011-EU-21001-M** Adriatic Motorways of the Sea (ADRIAMOS)

14. **North Sea network 2011-EU-21002-P** On Shore Power Supply - an integrated

18. **2011-EU-21009-M** IBUK – intermodal corridor

19. **2011-EU-21010-M** Green Bridge on Nordic Corridor

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
The Baltic Sea Hub and Spokes Project	DK, EE, SE	€24.8	Ongoing
Motorway of the Sea Rostock - Gedser	DE, DK	€24.5	Ongoing
Green Bridge on Nordic Corridor	DE, SE	€19.8	Ongoing
Baltic Link Gdynia-Karlskrona	PL, SE	€17.1	Ongoing
Adriatic Motorways of the Sea (ADRIAMOS)	EL, IT	€12.2	Ongoing
MonaLisa	DK, FI, SE	€11.2	Ongoing
Motorway of the Sea - High Quality Rail and Intermodal Nordic Corridor Konigslinie	DE, SE	€10.2	Ongoing
LNG infrastructure of filling stations and deployment in ships	BE, DK	€9.6	Ongoing
MIELE	CY, DE, ES, IT, PT	€8	Ongoing
IBUK – Intermodal Corridor	ES, UK	€7.3	Ongoing
Motorways of the Sea Esbjerg - Zeebrugge	BE, DK	€5.3	Ongoing
Motorways of the Sea projects in the Baltic Sea Area Klaipéda-Karlshamn link	LT, SE	€5.2	Ongoing
Monitoring and Operation Services for Motorways of the Sea (MOS4MOS)	EL, ES, IT, SI	€2.8	Ongoing
MoS 24 - ICT based Co-modality Promotion Center for integrating PP24 into Mediterranean MoS	BE, FR, IT, MT	€2.5	Ongoing
LNG in Baltic Sea Ports	DK, EE, FI, LV, SE	€2.4	Ongoing
COSTA	EL, ES, IT, PT	€1.5	Ongoing
ITS Adriatic multi-port gateway	IT, SI	€1.4	Ongoing
TrainMoS	DE, EL, ES, IT, PT, SE, UK	€1.3	Ongoing
On Shore Power Supply - an integrated North Sea network	BE, DK, SE, UK	€1	Ongoing
TOTAL		**€168.2**	

Priority Project 21
Motorways of the Sea

Trans-European transport network. Achievement of the Priority projects

European Coordinator

Luís VALENTE DE OLIVEIRA

Summary

The development of Motorways of the Sea (MoS) will provide a framework for the deployment of high level standards for efficient, safe and environmentally friendly maritime transport operations which can be fully integrated in a door-to-door transport chain.

MoS, whilst ultimately aiming at the increase of cargo flows to be carried by maritime traffic, aim primarily at the development of efficient ports and better port hinterland infrastructure and connectivity which will facilitate a smooth traffic flow. This development will help to mitigate traffic congestion and land transport deficient links between regions which are detrimental to cohesion and a dynamic internal market.

MoS will be integral to any efficient logistics chain aimed at supporting trade whilst reducing the transport footprint on the environment. Currently, 19 deployment projects and pilots support this contribution to sustainable development. Finally, MoS will become an intrinsic part of the future TEN-T Core Network and as such, fulfil its key role as the main exchange platform for the European foreign trade and increased European competitiveness.

Methodology

The opinions expressed are those of the European Coordinator, based on his findings in the fifth year of his mandate. The Coordinator formulates a number of recommendations that draw upon his contacts and meetings, including those with the Member States and the European representative organisations (both institutional and industrial), on issues that are common throughout Europe. This report relies upon the previous reports as well as on the progress and results of the ongoing MoS projects. The recommendations at the end of the report highlight both recurrent issues and others which need further attention.

1. Foreword

TEN-T Priority Project 21 Motorways of the Sea (MoS) builds on the EU's "2020" goal of achieving a clean, safe and efficient transport system by transforming shipping into a genuine alternative to overcrowded land transport. The MoS concept aims at introducing new inter-modal maritime logistics chains to bring about a structural change to transport organisation: door-to-door integrated transport chains.

Given the holistic approach required from MoS which addresses both of these impacts, international and internal trade across the entire EU and particularly on the EU maritime waterfront, a European Coordinator was appointed in the summer of 2007 to promote the efforts required for its development.

This progress report builds largely on annual findings from 2007 onwards and sets out the Coordinator's new findings in 2012. It also:

- Describes and assesses the progress and results of the 19 ongoing MoS TEN-T projects;
- Addresses the progress made thus far by several MoS initiatives such as the "clustering meetings" and others carried out under different frameworks;
- Provides more clarity in the MoS concept and describes the foundation of the new MoS TEN-T guidelines and

- Defines a set of recommendations on priority actions to take in the fields of research, innovation and deployment of infrastructure and services.

In 2012, the perspectives for MoS have changed enormously. Not only has the sector accepted the concept, approach and the priorities set out in the Coordinator's previous reports but has massively responded and 19 TEN-T projects are now underway.

The 2010 and 2011 Calls were a great success in quantitative terms: 15 new proposals were selected for funding of more than €140 million. MoS have now the critical mass required to spur change. From the qualitative viewpoint, it should also be highlighted that most of the proposals addressed "wider benefit" issues, e.g. safety, ICT logistics platforms, port single windows and new organisational schemes for ports. Last but not least, they also look at the use of LNG and other technologies to reduce emissions, using pilot projects to develop and demonstrate operational solutions.

In 2012, the Coordinator has continued to promote coordination meetings to bring together the MoS consortia and other stakeholders in order to improve cooperation and exploit synergies, avoid duplicative fforts and make the best possible use of resources. Two meetings were organised in Gothenburg (May 2012) and Limassol (June 2012), attracting more than 150 participants each. They were fundamental to share experiences, raise awareness, disseminate results and foster the development of new proposals. They were also used as sounding boards to identify new priorities and missing links. In addition to the clustering meetings, the ongoing projects have organised progress meetings, peer reviews and final reporting (e.g. Mos4MoS in the European Parliament).

The report also identifies key MoS issues that require further development. Those issues of technological, organisational and procedural nature reflect the new transport policy as outlined in DG MOVE's 2011 White Paper.

Finally, it proposes a foundation for the new definition of MoS based on the revision of the TEN-T guidelines. In short, it promotes MoS as the maritime face (shipping and ports) of the new TEN-T Core Network and consequently as a tool to integrate the key elements of the EU's maritime policy in European transport infrastructure, i.e. ports, maritime operations and TEN-T corridors.

2. Introduction - Motorways of the Sea

The European transport system faces a difficult challenge: to support the continued development of the largest trading block in the world, simultaneously catering for overseas trade and the needs of the internal market. In Europe the challenge is the interconnection of the internal market and mobility to accommodate large trade flows from Asia and the Americas – being transported through the Suez and Panama Canals or South Atlantic. In 2010, the value of EU seaborne external trade was €1452.3 billion. Maritime transport and ports handle up to 90% (in tonnes km) of EU external trade and 40% (in tonnes) of intra-EU freight exchanges. In 2010, European maritime transport and ports handled slightly under 400 million passengers. European ports are directly linked to over 800,000 enterprises, generating in total the direct and indirect employment of about 3 million people.

In times, such as the current conditions, when economic growth is essential, the role of maritime transport and ports is particularly important and thus needs to be adequately reflected in the European transport system/ TEN-T network.

TEN-T requires a dual approach, meaning that it should be developed simultaneously both as a tool to externally connect Europe to the world as well as to link its own countries and regions. For this, maritime operations and ports require efficient tools to be effectively interconnected and utilised. This is the heart of MoS development as it pursues the development of these tools. By improving maritime and ports operations, MoS develops the underlying foundation of Europe's foreign trade. As a funding (policy and financing) framework, MoS will improve port infrastructure, develop interoperable port-ship interfaces and efficient port–hinterland connections, link ports and integrate origins and destinations and bridge gaps in and between different trade corridors.

MoS provides a shrewd platform, using sophisticated information systems to integrate important assets, such as ports, shipping and know-how, tackle transport efficiency problems and endeavour to propelyr integrate maritime transport in the global logistics chain. For example, port single windows – single points of contact between ships,

cargoes, authorities and logistics operators - will pave the way for a smooth transit of cargo through the necessary customs and phytosanitary controls, saving literally hundreds of millions of euros by eradicating obsolete and cumbersome procedures. There are already practical results in this area, such as in the Mos4Mos project: others are being deployed and will be ready by the end of 2013, such as MIELE which involves ten ports/ authorities and seven different Member States.

In parallel, MoS supports the development of highly efficient shipping operations guaranteeing the smooth flow of large quantities of goods and efficient intermodal connection with the hinterland of ports such as Karlskrona-Gdynia, Trelleborg-Rostock, Gijon-Nantes, London-Bilbao or Zeebrugge-Ejsberg.

MoS fosters and favours cooperation and regional use of resources, such as between Gothenburg-Aarhus and Tallinn, by supporting the development of a common information structure, the development of better links between the ports and high density freight lines with the hinterland. A North Adriatic platform (to be completed by the end of 2013) will join together key ports in the area under a common corporate image, and the "Adriamos" project linking the upper Adriatic and the Hellenic peninsula (results expected in early 2015) supports three different transport Corridors and connects to/from the Baltic rim.

MoS supports safety and protection of the environment, including the development of sustainable maritime operations and the respect of environmental targets. This is particularly important on the Sulphur Emmission Control Areas where MoS activities involve countries, ports and ship operators in the Baltic and North Seas addressing the implementation of remedial tools such as the use of Liquified Natural Gas (LNG) or scrubbers. A masterplan on the issue is currently being developed by Baltic ports and should deliver results in 2014. MoS also supports projects producing new and updated hydrographical surveys, which help ships sail safely and avoid grounding, and more dynamic traffic control to prevent collisions and other accidents. The results of full scale pilots in this area are expected in early 2015). MoS is also exploring the economic use of LNG as a geostrategically relevant fuel for the Atlantic, Mediterranean and Black Sea areas. The results of this project – the COSTA project – are expected in late 2014.

Finally, MoS favours the creation of a knowledge network – building on local knowledge to tackle global problems. This initially started as a network of universities linked to MoS industrial stakeholders, promoting the integration of remotely dispersed experts and multidisciplinary expertise and making it available for education and professional training. The project will be ready at the end of 2014.

TEN-T is trying to optimise use of Europe's large maritime operations capacity, its technical expertise and European ports. The aim is to efficiently use and fully interconnect the over 80 ports in the Core Network and the more than 340 ports in the Comprehensive Network to the global logistics chain.

3. A new definition for Motorways of the Sea

The new TEN-T Guidelines have cast a new definition for the Motorways of the Sea. Revision of the TEN-T Guidelines. The TEN-T Guidelines constitute the main regulatory basis for the development of the Motorways of the Sea. The Guidelines define the type of eligible actions and the financial support dedicated to MoS in the 2007-2013 programming period where an overall indicative amount of €310 million was flagged. The process of revising the current TEN-T Guidelines started in 2009 and is expected to last until mid-2013. MoS are the framework for the development of actions covering maritime transport/ports and favouring their integration in the global transport chain. In the new Guidelines, MoS are part of the Core Network and link into the Comprehensive Network. They constitute an invisible but fully available transport corridor covering all of the EU's coastal areas and will therefore be a key infrastructure implementation tool in the deployment and operation of the Comprehensive and Core Networks.

Financing – The Connecting Europe Facility (CEF)

For the 2014-2020 financial perspective, the TEN-T programme will be developed under the CEF (Connecting Europe Strategy), which currently proposes €31.7 billion for transport projects.The CEF will be the main financing source for transport infrastructure projects in Europe.

Currently, Member States have a consensual position that MoS should be a horizontal priority in the CEF and that its financing rate should be 30% for projects and 50% for pilots and studies. These rates will only be finalised once there is a final agreement on the CEF.

Foundations for the New Guidelines

The new Guidelines should simplify and clarify the rules of engagement for MoS and re-affirm MoS' aim to support studies, both masterplan style and the preliminary or final design type, which are common to all infrastructure projects. In addition, schemes such as pilot actions, the integration of intelligent infrastructure, and support to start-up services and the deployment of innovative technologies on ships (including retrofitting) are all different but common elements of a coherent MoS development programme. MoS needs to support the key elements of maritime infrastructure: safety at sea and environmental protection. Without investments in these areas, the maritime infrastructure will not be operational.

Finally, the Guidelines should clarify the limits and types of incentive available to combine funding sources on MoS global projects,in order optimise use of available funding.

The new articles on MoS should clarify its role in unifying the Core and Comprehensive Networks, as well as the feedering services to/from other ports without which the core ports will not function. Europe is one of the major world trading partners and most of its trade exchanges are carried by maritime transport. Consequently, ports are the key nodes and ships the fundamental vehicles for trade, connecting European regions to their European or international partners. To properly support these activities, ports and ships must be able to efficiently interact between them as well as with the transport land network.

Geostrategic and transport operations elements

The following text reflects the essentials of the MoS concept:

4.4.1 Motorways of the Sea shall contribute to improve accessibility and cohesion within the European Union. As part of the core network, Motorways of the Sea is the building block for the maritime dimension of TEN-T, covering the European maritime space. As such, it provides a platform for the development of all the activities required to efficiently reconcile all the key elements involved in maritime transport – ports, ships, human element and organisational systems and procedures; in order to achieve the safe, secure and sustainable maritime operations which are instrumental for European competitiveness.

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Concerning the European Maritime space proper, activities will cover, inter alia:

- The safety of operations, e.g. ice breaking and year round navigation, human element, hydrographical surveys, safety information systems, dredging, navigation information systems, e-navigation.
- The environmental performance of ships, e.g. innovative waste and waste water treatment systems, improved reception facilities, environmental performance and dynamic ship indexing, improved ship and engine efficiency, reduced emissions as required for ECAS, environmental tailored design and retrofitting procedures as well as life-cycle analysis of ships including easy recycling and disposal and the use of electro-mobility or alternative fuels for ship propulsion.
- Traffic management and navigation services, e.g. support the deployment of improved vessel traffic management services (VTMS) and of their interface with ships, optimised bridge design and navigation systems as well as e-navigation services, tele-monitoring and remote maintenance and repair of ships, as well as navigation, reporting and positioning systems.
- Optimised ship operations, e.g. short sea shipping and sea-river operations, ship and port interface development to achieve efficient logistics operations

Scope and key elements

4.4.2 Motorways of the Sea shall comprise the European maritime space where ships evolve coming to and from European ports, the safety and security procedures that permit sustainable operations, the traffic management

services and the ports as the interconnecting points to other modes and final destinations for passengers and cargo thus guaranteeing both the accessibility requirements and the integration of the different services supporting high volume of trade.

Concerning the interface ship, port and hinterland, the following activities shall be considered as priorities:

- efficient connections from and to the core network ports, e.g. efficient multimodal connections to the European transport network and matching transhipment performances to other ships and other modes, avoidance of bottlenecks namely through terminal efficiency and infrastructure connections, support the deployment of physical infrastructure to integrate ship and port operations in the transport chain .
- ICT integration of ships and ports in the logistics chain: support to the continued development and deployment of single-window type of services and other e-maritime systems to streamline procedures and speed up the transportation process and the official clearance of cargoes. Support to the development of the institutional ICT layer where private services connect in order to exchange all the information required on a door to door type of transport.
- Favour the clustering of ports leading to an optimised use of common infrastructure and to larger economies of scale and thereby gaining efficiencies and avoiding bottlenecks, this will also entail the use of common information services
- Support the development of infrastructure and ancillary infrastructure required for the development of sustainable shipping, e.g. enhanced shore based reception facilities, liquefied natural gas (LNG) infrastructure for refuelling and bunkering services, refuelling services and cold ironing systems.
- Support the development of geo-strategic ports which will guarantee the security of supply for maritime transport services thus avoiding critical stoppages on the flow of goods due to natural calamities or man-made causes. This will address ports, access to hinterland, terminals and ships

Integrated Projects

4.4.3 The Motorways of the Sea projects will also embed the new type of dynamic infrastructure where transport modes and units, physical infrastructure and operational requirements and operations will be brought together and their integration optimised. This will result on a level playing field (framework) able to integrate public and private parties and their respective financing capabilities in the common endeavour of deploying equipment and infrastructure whilst developing effective and optimised operations. This operational infrastructure needs to be developed with door to door services in mind.

An example of this type of priority is the corridor-specific infrastructure project which focuses on infrastructure and facilities, having the objective of improving the capacity, frequency or quality of existing maritime links, or establish new ones, as elements of the broader network of MoS in terms of logistic chain.

Implementation Instruments

4.4.4 Implementation of MoS projects – given the diversity and type of projects which are covered under MoS, the instruments to be used cover studies, pilot projects including full-scale demonstration and development projects.

TEN-T methodology

Within the overall TEN-T methodology where the main nodes of the Core Network and the links between the main nodes are kernel and need to be identified, the parts referring to ports are very important for MoS and in particular these rules:

Core Network ports: Sea or inland ports or road-rail terminals of an urban main node (S). Outside urban main nodes, sea or inland ports with an annual transhipment volume of at least 1% of the total transhipment volume of all EU seaports, based on linear interpolation between bulk and non-bulk. In insular Member States or NUTS 1 regions with access to the sea where no ports are classified according to the above criteria, as a general rule,

along each continuous coastline only one seaport is classified as a main node. It shall be the largest such port, however taking into account also hinterland connectivity.

Comprehensive Network ports: ports with an annual transhipment volume of at least 0.1% of the total transhipment volume of all EU seaports. Motorways of the Sea ensures the links between these main nodes.

The new text of the Guidelines

1. Motorways of the sea represent the maritime dimension of the trans-European transport network. They shall consist of short-sea routes, ports, associated maritime infrastructure and equipment, and facilities enabling short-sea shipping or sea-river services between at least two ports, including hinterland connections. Motorways of the sea shall include:

(a) maritime links between maritime ports of the comprehensive network;

(b) port facilities, information and communication technologies (ICT) such as electronic logistics management systems, safety and security and administrative and customs procedures in at least one Member State;

(c) infrastructure for direct land and sea access.

2. Projects of common interest for motorways of the sea in the trans-European transport network shall be proposed by at least two Member States. They shall take one of the following forms:

(a) [...]

(b) constitute a maritime link and its hinterland connections within the core network between two or more core network ports;

(c) constitute a maritime link and its hinterland connections between a core network port and ports of the comprehensive network, with a special focus on the hinterland connections of the core and comprehensive network ports.

3. Projects of common interest for motorways of the sea in the trans-European transport network may also include activities that have wider benefits and are not linked to specific ports, such as activities for improving environmental performance, making available facilities for ice-breaking, activities ensuring year-round navigability, dredging operations, alternative fuelling facilities, as well as the optimisation of processes, procedures and the human element, ICT platforms and information systems, including traffic management and electronic reporting systems.

4. The ongoing projects

MoS currently has 19 ongoing projects, representing more or less €170 million in EU grants and a total investment of over €1 billion. The individual descriptions and progress of the projects can be found below:

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Projects started in 2008 and 2009 – State of progress on 1 June 2012

High Quality Rail and Intermodal Nordic Corridor Königslinie (2008)

The project was partially completed and ended in December 2011 at the request of the beneficiaries. Its main achievements are g:

- Integration of IT systems of the Port of Trelleborg, CargoNet and Scandlines AB
- Adaptation of berths in the Port of Trelleborg (additional roadside ramps and wider breakwater)
- Extension and improvement of the Port of Trelleborg (reconstruction of four rail tracks, making double rail shunting possible, and new areas to handle and temporarily store intermodal units)

Motorways of the Sea projects in the Baltic Sea Area Klaipéda-Karlshamn link (2008)

The project is being implemented with some delay. As a result of the detailed studies carried out on a first phase, some activities had to be reviewed (one cancelled) and their implementation adapted to the requirements of those detailed studies.

Motorways of the Sea Esbjerg-Zeebrugge (2008)

The Action is progressing well and is on track. The activities related to the floating ro-ro ramp and the ro-ro jetty were finalised in 2009 and 2011 respectively. The first part of the port access in Esbjerg opened for traffic in November 2011. The second part is expected to open by the end of June 2012, six months earlier than scheduled.

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Baltic Link Gdynia-Karlskrona (2009):
All the project activities except activity 6 have started and are being implemented more or less according to plan. Activities 9 and 10 related to on-shore power supply have been completed. Project implementation is being co-ordinated with a project to improve port access infrastructure in the Port of Gdynia, co-financed by the Cohesion Fund.

Projects started in 2010 – State of progress on 1 June 2012

MOS 24
The Action is progressing well and is on track. The activity related to the analysis of the context was finalised in 2011, as planned. The activities linked to the design and implementation of the MOS24 demonstrator have started and are on-going. The remaining horizontal activities, related to communication and project management, are being developed and are progressing as planned.

Monitoring and Operation Services for Motorways of the Sea (MoS4MoS)
The Action was completed on 31 May 2012 as planned. The MOS4MOS Masterplan was drafted and publicly presented. 15 initiatives were identified and analysed in-depth. A Cost Benefit Analysis of the forthcoming implementation of the 15 initiatives was elaborated. Piloting and Demonstration resulted in the piloting and demonstration of all 15 initiatives included in the Action, clearly exceeding the initial target of three piloted initiatives.

MIELE
The Action is on schedule and Part A was completed and approved by the Peer Review Group.
The results achieved include:

- Collection and analysis of user needs, best practices and existing and/or under development standards.
- Identification of obstacles and possible solutions to implementation of Directive 2010/65 within and between the five Member States involved.
- Agreement on interoperability standards and MIELE architecture.
- Start of extended dissemination (toward Member States not part of MIELE) and improvement of website.
- Contacts established with IMO and ASEAN States.
- Development of specifications for use cases (pilots will be tested through demonstrators).

ITS Adriatic multi-port gateway
The preliminary studies, including a port organisation and process analysis, marketing and prospective study and requirement identification and definition of standards, have been completed.
Work on the improvement of the existing port community systems has begun and should be completed by the end of 2012.

Motorway of the Sea Rostock-Gedser
Port works in Rostock and Gedser (primary berth facilities) are on track. Some minor adjustments were made regarding the initial planning, such as the final delivery dates of two new buildings (rescheduled from spring to autumn 2012). Works on the Nykoping Falster bypass are progressing as planned.

The Baltic Sea Hub and Spokes
The project is running behind schedule. Almost all the Action's activities, apart from the design studies, are delayed. The beneficiaries are undertaking the necessary steps to get the project back on track and have put in place the required mitigation measures. The project is however expected to be concluded with an overall achievement of 24% and 98%, respectively, for the investments related to the Aarhus port access and Gothenburg port access.

MonaLisa
Project implementation is generally on schedule. The activity on dynamic and proactive route planning is gen-

erating a lot of interest in the sector after the Concordia cruise ship accident, so it may be completed ahead of schedule. The study on a current situation with automated verification of ship crew certificates, together with a concept description, is underway. The hydrographical surveys are progressing and a working prototype of a universal proxy for global sharing of maritime information has been developed.

LNG infrastructure of filling stations and deployment in ships

The study on the LNG bunkering infrastructure has been completed and its recommendations have been vetted by the relevant stakeholders. The final conference took place. However, the pilot phase on installation and testing the LNG fuelled engines is delayed and will take place in 2013.

Projects started in 2011

Adriatic Motorways of the Sea (ADRIAMOS)

The Action aims to enhance a viable, regular and reliable sea-based transport service integrated in the logistisc chain along the Adriatic-Ionian transport corridor between the Port of Venice and the Ionian Sea/West Greece port cluster (Igoumenitsa and Patras), thereby contributing to the reduction of economic, social and environmental costs related to port and logistics activities.

TrainMoS

TrainMoS aims to support and train the human element of Motorways of the Sea by defining the basis for a future EU virtual open MoS University and by pulling together local competences and knowledge of different EU universities along with stakeholders' needs.

LNG in Baltic Sea Ports

The aim of the proposed Action is to develop a harmonised approach towards LNG bunker filling infrastructure in the Baltic Sea region. By sharing knowledge between eight Baltic partner ports (Aarhus, Helsingborg, Helsinki, Malmö-Copenhagen, Tallinn, Turku, Riga, Stockholm) from five countries and their stakeholders, a more standardised process for planning and constructing LNG infrastructure will be achieved.

COSTA

The COSTA Action aims to develop framework conditions for the use of LNG for ships in the Mediterranean, Atlantic Ocean and Black Sea areas. It will result in the preparation of an LNG Masterplan for short sea shipping between the Mediterranean Sea and North Atlantic Ocean as well as for deep sea cruising in the North Atlantic Ocean towards the Azores and Madeira. The feasibility study results will promote Motorways of the Sea sustainability, contributing to the common effort to address climate change, in particular in view of the forthcoming requirements for the implementation of the requirements of Annex VI of the MARPOL Convention.

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IBUK – intermodal corridor

The proposed action aims to improve MoS capacity along a corridor from the Iberian Peninsula to the UK. The proposed Action's main objectives are to increase modal shift from road onto the Spanish hinterland rail network and to improve the efficiency of the link in the multimodal transport chain of this corridor; in particular ensuring that the MoS route from Bilbao to Tilbury has suitable infrastructure, superstructure and information technology to handle the forecasted increase in cargo volumes.

Green Bridge on Nordic Corridor

The Action infrastructure development is built around the equipment of two roll on-roll off (roro) ships with exhaust gas cleaning technologies in form of scrubbers. This will require the vessels to be converted. To allow efficient future handling of the modified ferries and to ensure most flexible and smooth port operations, ferry berths in all three ports have to be re-constructed. In Trelleborg, port navigation conditions (breakwaters and water depths) will also have to be adjusted to the dimensions of the converted ships.

Onshore Power Supply-an integrated North Sea network

The project objective is to establish onshore power supply (OPS) at three DFDS freight ferry terminals for three freight ferries (ro-ro vessels) that frequently call the terminals. The terminals and ships form part of DFDS' freight shipping network in the North Sea.

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5. The impact of 2020 priorities on MoS

The Europe 2020 strategy for smart, sustainable and inclusive growth contains important guidance and support for many necessary MoS developments.

Funding

The new Guidelines stress the need to coordinate the mobilisation of public funding - Structural Funds, Cohesion Fund, R&D framework programme, TENs and EIB in order to achieve MoS goals - and stimulate the smart mix and use of these funds. This has already led to the creation of the Motorways of the Sea One Stop Helpdesk, set up in 2010, to give advice to stakeholders and other interested parties on the best source of support for their specific project (www.mos-helpdesk.eu).

Economic and Financial Background

Creating innovative instruments to finance the needed investments, including public-private partnerships (PPPs): this will be particularly suitable for logistics platforms, "dry ports" (like the one in Zaragoza) and even port terminals. Fostering European growth through our participation in open and fair markets world wide: this aim will only be achieved if a system of efficient ports is in place, assuring good external connections.

Research

Modernising and de-carbonising the transport sector: Past reports proposed new research in the field of fuels (energy efficiency, economics). This report also puts emphasis on pursuing research on efficient engines, catalysts and scrubbers, as well as efficient hull and propeller design.

Innovation

Inspired by previous MoS reports, on-going pilot actions now show how to give impulse to the development of a good mix of: research, the setting up of common industrial standards and the development of the necessary infrastructure to achieve the deployment of innovation in daily life practices.

Developing a deeper knowledge of the implications of the different types of fuels which can be used, particularly on their environmental impacts (NOx, SOx, CO2 and particulates): There are great expectations that Liquefied Natural Gas (LNG) may drastically improve the current situation. Nevertheless, LNG poses a number of challenges such as safety requirements, distribution networking and shipping economics. This new field requires further investigation, either by gathering current knowledge and integrating multi-disciplinary issues or by identifying and supporting the development of required research actions and studies to address technical problems.

MoS deployment issues

ICT Infrastruture, aplications and Intelligent Transport Systems – ITS

- Improving and fostering intelligent traffic management systems and services, ranging from the single window to the interface of road and railway systems with port systems.
- Developing an effective space policy to provide the tools to address some of the key global challenges and, in particular, to deliver Galileo and GMES. The suggestion regarding chips (tags) either for vessels or for containers comes under this umbrella.
- Developing smart, upgraded and fully interconnected transport infrastructures and make full use of ICT: The integrated MoS transport chains being implemented are a good practical example.

Clustering of ports and development of corridors

- Ensuring a coordinated implementation of infrastructure projects, within the EU Core Network, which critically contribute to the effectiveness of the overall EU transport system: There are many practical examples under this theme, e.g. the connection of the round-the-world trip, location of new transhipment ports in the Medi-

terranean Sea, railway corridors between north and south, articulation of a grouping of ports, and a deeper knowledge of the flows which cross the Suez and Panama Canals.

- Accelerating the implementation of strategic projects with high European added value and addressing critical bottlenecks, in particular cross border sections and inter-modal nodes (cities, ports, logistics platforms): Both safety devices for ships (see EMSA) and chips for containers are of particular importance. The banning of "convenience flags" for European companies or companies wanting to call on European ports must gradually be implemented.

European Internal market and logistic chains

- Reducing the transaction costs of doing business in Europe: Improvement of the efficiency and competitiveness of logistics chains has been a repeated recommendation.
- Promoting better logistics: This requires a global approach, ranging from the construction of logistics platforms to the training of the numerous professions in the field. The importance of this field has been systematically underlined in all previous reports.

External Trade

- Ensuring that transport and logistics networks enable industry throughout the EU to have objective access to the single market and the international market beyond: This is the main purpose of the geo-strategic considerations regarding connections with the Far East, South and North America and Africa.
- Developing a closer partnership with Africa: Ports are are an essential factor in this development. Ports in Europe and in Africa must both cooperate, in addition to everything else that comes as a result of MoS and its connection of ports with their hinterland. The EU has prospered through trade, exporting round the world and importing raw materials and finished products. Consequently, MoS needs to take the wider external dimension and related aspects into account, such as transhipment ports, the Suez and Panama Canals, connections to Africa and South America, impacts of round-the-world trips in the Mediterranean Sea, port hubs and new transhipment ports in the Mediterranean (besides Marsaxlokk, Gioia Tauro, Algeciras and Tangiers-Med).

Education, Training and employment

- Insisting on Education, Training and Lifelong-Learning: New training for the numerous professions linked to maritime transportation, logistics and operations in harbours must be implemented. This is fundamental for the provison of a good level of initial training rather than the on the job training currently used today.
- Promoting student mobility and trainers' mobility, and improving the employment situation of young people: We have suggested setting up an Erasmus type programme for maritime professions, using mercantile marine schools in Europe. This could eventually lead to the creation of a council of schools at European level. Countries without apparent problems (Greece, Romania, Latvia and Norway) could induce more dynamic action on the others.

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Promoting efficient, sustainable and competitive maritime transport: Blue Links

There is a market demand for innovative projects using new operational concepts, and new financial engineering solutions should be promoted. The "blue links" approach is a promising system, as it targets the support of all partners involved in a trade and transport venture in order to get competitive transport solutions, whilst using technological innovation and environmentally friendly solutions.

The system will be open and of European wide application, thereby avoiding regional distorsions or distortions of competition. However, Member States and private operators concerned by such a scheme must first agree on common methodologies to assess potential benefits and consequently define practical terms of support. This new approach effectively aims to replace or phase out outdated or financing schemes such as Marco Polo or Ecobonus. The main advantage of the new blue links scheme is that it favours the emergence of integrated maritime operations meeting the new environmental and technical requirements embedded in the TEN-T Core Network and will pave the way for the achievement of a more competitive European market.

List of development priorities

The definition of criteria allowing the identification of funding priorities for projects labelled as Motorways of the Sea needs to be improved, and the new TEN-T Guidelines and the CEF will provide the ideal basis. As clearly stated in all relevant meetings held throughout the year, priorities are to fund both infrastructure (hinterland

connections and within ports) and intelligent infrastructure (procedures, vehicles and cargoes).

Operations, although of great relevance and the ultimate goal of activities, are not the primary objective of TEN-T funding. There are funding schemes better adapted to fund private sector operations (maritime, ports or other), such as the Marco Polo programme, and obviously because before any operations can start the infrastructure needs to be in place. Accordingly, TEN-T concentrates on developing infrastructure. This is highly time consuming, taking on average ten years from preliminary studies to operation.

Finally, priority should be given to studies. Any large infrastructure investment project requires both preliminary and detailed studies to be completed prior to building works or final investment decisions. Furthermore, for a wide and complex subject such as MoS, studies also need to include the operational and team building component, i.e. the platform necessary to bring together all key actors, as well as the platform to be used as an integrator of technologies and operational requirements. Such a venture prototype needs to be supported by a dedicated tool. The proposed studies in the form of pilot actions seem to be adequate.

In order to better clarify the different funding and development priorities an indicative list of the most important MoS elements is given as follows:

Within port areas

- Railways connections to quays and piers.
- Superstructures, and systems allowing for more efficient flows of goods and better coordination of administrative procedures (one stop shop/guichet unique) e.g. customs, health and sanitary, veterinary police, emigration, security screening devices and port operations' services.
- Superstructures, construction works and equipment aiming to create efficient management of cargo flows in the port area, e.g. port gateways, cranes, piers, etc.
- Dredging of berths and canals to keep navigation or to increase the size of the target vessels.
- Alternative re-fuelling facilities for ships (e.g. LNG bunkering).
- Promotion of the role of European ports and the MoS network. Once the new TEN-T network is defined, the core network of ports and MoS should be promoted in a brochure outlining its operational characteristics and potential, based on common indicators (such as on similar UNCTAD reports).

Hinterland connections

- Connections to the hinterland for railways, inland waterways, motorways and, logistics platforms located in the interior.
- Building of logistics platforms and dry ports.
- Junctions, bridges, tunnels and other access elements that could improve connections to the hinterland.
- New railway lines or sections, bypasses and other upgrades which could help lower travel time and increase punctuality
- Integrated MoS systems, such as single window and/or port community systems, connecting shipper and receiver and facilitating the development of door-to-door operations and services (systems connecting ships/ports/hinterland and services operators).

Telecommunications

- Port information systems, vessel traffic management and information services, river information services (within the ports and when interfaces occur).
- Port community systems interfacing with logistics information systems (e.g single windows).
- Intelligent infrastructure, e.g. tracking and tracing devices, terminal info systems.
- Tracking and tracing systems and services for goods and vehicles (ships, port and inland vessels, ports and hinterland).

- MoS information systems, integrating vessels, VTS, port community, interfaces with other modes (e.g. ITS, ERTMS and RIS) and with intermodal platforms and business information interfaces.

Ships

It has been suggested that vessels and re-fuelling barges should be considered a special type of infrastructure, in particular when large retrofitting is required to accommodate new equipment and/or when innovative equipment has be installed on a new build (e.g.engines for a new type of fuel, scrubbers, etc). [Further discussion with stakeholders on this theme is required, in order to define the conditions under which the construction or the acquisition of a ship could be considered a funding priority].

Human Resources

- Priority should be given to training the whole range of staff involved in maritime operations: from seamen to pilots, VTS operators, dockers and crane operators.
- Training on the efficiency of processes in the transport chain needs to be provided to both operational and administrative staff, and training in logistics needs to be provided for all the actors in the MoS chain.
- An MoS Erasmus scheme should also be encouraged.

6. Conclusions and recommendations

Motorways of the Sea has, so far, been a key factor for the development of maritime transport. By supporting maritime areas such as safety, security, protection of the environment, training, information management and efficiency and competitiveness, which are instrumental for the development and operation of any transport mode or system, MoS has played the right methodological approach and constituted a fundamental contribution to the new TEN-T network bringing the right complementarity required to the development of corridors, as it bridges the gaps between the corridors through the maritime continuum that it represents.

In practical terms, this translates so far as the deployment of 19 development projects already described.
The MoS priorities that need to be pursed are fourfold:

- Support Europe's trade, in particular external trade: i.e. Concentrating on actions fostering the smooth flow of external European trade and exploiting four natural geographical pathways for trade: Atlantic, North Sea and Baltic, Mediterranean-Black Sea and Suez Canal. The new opportunities opened by the North Sea route gateway (including Artic access) were also taken into account. Examples: Baltic Sea Hub and Spoke, Adriamos.
- Fostering maritime transport within the internal market (e.g. Short Sea Shipping). Examples – single window: Miele, Mos4mos and Mos24.
- The cornerstone elements which allow for maritime transport - safety, protection of the environment, traffic management and training - as well as specific regional requirements, such as year round navigation, were also taken into account. Examples: Monalisa, Trainmos, LNG infrastructure, LNG masterplan for Baltic ports, Green Bridge on Nordic Corridor, Costa, On shore power supply.
- Developing ports to perform their required role as the main gateway for European tradehas included port development, port-ship and port-hinterland improved interfaces. Examples: Trelleborg-Sassnitz link, Klaipeda-Karlshamn link, Esbjerg-Zeebrugge link, Gdynia-Karlskrona, Rostock-Geddser link, Baltic Sea Hub and Spoke, Ibuk.

The fulfilment of these priorities will guarantee the full and smooth integration of maritime transport operations in the European logistics chain and support global trade operations.

What should be done?

During the past five years, the Coordinator has visited many European ports and discussed with hundreds of European actors interested in MoS ranging from master mariners, politicians, planners, businessmen, pilots and terminal operators to port managers, mayors, freight forwarders, civil servants, engineers, scholars, shipowners, ministers, traffic managers, road hauliers, shipbuilders, and shippers. All play a different role but share a common goal – they all support and believe in an increased role of maritime transport as a key development factor for a better Europe.

The Coordinator organised two large workshops in 2012, involving the 19 TEN-T MoS projects and integrating other frameworks, e.g. Interreg actions. The workshops were also open to the participation of third countries, in

particular of the neighbouring Mediterranean countries. Latin America also actively participated. The Coordinator has summarised some of their visions and ambitions in the following 12 recommendations for European MoS support priorities:

- Development of integrated port infrastructure (trade, procedures, movement of goods, information systems, superstructure, vehicles and operations). Key enablers are: close cooperation between port authorities and city/regional authorities, port masterplans, and a good networking between the port community and the cargo owners (shippers). The formation of port communities should be fostered. Finally, certification of port activities or at least of port management should be widely promoted and implemented.
- Improved hinterland infrastructure connections, development of the missing links and value added links in the door-to-door transport chain integrating sea legs. MoS logistics will become a key element for industrial logistics. In the future land-locked countries should be called to actively participate in defining their requirements and identifying key coastal connections.
- Deployment of intelligent infrastructure services (e.g. tracking and tracing) to better reconcile the shipper and its goods, increasing safety and security and allowing for a fully controlled just in time delivery system. Concerning the actual development of the European maritime space without barriers, EMSA already operates the key maritime electronic information management tools which are required to deploy the system.
- Promote activities and launch studies to better understand how to help the sector. Areas to be covered range from the identification of trade patterns within the internal European market (origin and destination matrix), to benchmarking efficiency in transport chains and nodes and on how best to foster cooperation among ports and co-modal actors to facilitate the deployment of innovative technologies. Each port should have an observatory monitoring both its hinterland and foreland.
- Support for the articulation of ports and port activities (ranges, gateways, hub and spoke) exploiting know-how and comparative advantages, creating a favourable environment for the development of new business opportunities and services. This articulation of ports will lead to an improved capacity service for transport corridors as connection to the sea will be done through a delta of ports instead of one single port. This is an important concept for regional development as it will increase critical mass and flexibility, thus offering better and more diversified services to the market. Foster the permanent dialogue between cities and their ports – there must be a joint development pact, a win-win venture, reinforcing the natural ties between cities and their ports.
- MoS would enormously benefit from improved education, training and cooperation efforts throughout the entire human element pillar in the area. This refers both to on-board staff and the numerous shore based professions which require knowledge in logistics as the basis of their know-how. A European-wide and comprehensive effort to improve education, training and attractiveness for maritime transport related careers needs to be launched. It should lead to the development of a MoS Erasmus type network – i.e. building on an aggregated European knowledge to improve access to knowledge, whilst keeping a sustainable diversity of training places.
- Develop actions and information systems to integrate procedures and operations in a one stop shop for the entire chain: foreland (shipper), feeder, port, shipping operator, port, feeder, hinterland (receiver). Clearly promote wherever and whenever possible the use of sea-river technologies, systems and services.
- Support the launch of actions aimed at fostering research and technological development to develop ships and equipment with reduced emissions and increased safety and environmentally friendliness as these measures will have a very positive impact on MoS. It's important not to forget that ships require many innovations to keep abreast of change. Cruise ships have immensely innovated amd the other types of vessel should follow example.

  On the technology side, the objective is to develop studies and pilot actions on the use of different types of fuel, giving priority to LNG, addressing inter alia: shipping economics, operational strategies and LNG supply logistics, and support the devopment of masterplans for deployment in ports. Further research may be required on retrofitting techniques, energy efficiency and ship's structural design.

Concerning foresight, strategic transport research policy actions, with clear areas of priority, need to be established for maritime research in general and for MoS in particular in order to boost the sector in a similar way as in the mid-1990s (e.g. short sea shipping, maritime safety and competitiveness in shipping). Furthermore, the EU should promote and improve the gathering of statistics concerning ports, maritime transportation, shipowning; hinterlands/forelands trade patterns, etc.

- Better articulate the different funding frameworks, whilst respecting their specificity in order to avoid duplication and achieve critical mass for innovation and change. Coordination of the different MoS funding is fundamental to achieve effective promotion and development of MoS. The creation of a single dedicated funding for MoS would be instrumental for this. An MoS development policy needs to target PPPs as the ultimate tool for deployment and target users on the demand side as its prime objective/customers (innovative financing).
- Simplify bureaucracy where possible and facilitate the use of benchmarked solutions in support of competitive maritime operations (Blue Links).
- Extend the reach to neighbouring countries and Africa, supporting the development of complementary efficient logistics chains in the Mediterranean and in the sub-Saharan regions. Improvement of port management in Africa should be our first cooperation priority. In particular, third country cooperation should have due regard to connections with eastern neighbouring countries (Ukraine, Belorussia, Russia and Moldavia) and Eurasia (especially Kazakhstan), which are very much dependent on railway connections to European ports and on changing-of-gauge devices.

  In order to collect strategic information, foster the development of geo-strategic studies addressing the maritime connections of Europe with our main trade partners in the world and try to define a global view of the challenges that we have to meet, the importance of Europe/US traffic cannot be overlooked, as it still represents about one-third of the total European traffic.
- Support the development of more electronic customs' services, to drastically simplify procedures whilst improving security. Customs operations are very complex and important and therefore need to be streamlined in order to increase the efficiency of ports and thus of the whole logistics chain, which rely heavily on customs for the quality of their operation. Supporting the development and practical application of Directive 65 on "ships' mandatory reporting" as well as to IMO's "FAL" Convention is crucial.

The Coordinator expects that many of these recommendations, as well as the example set by the 19 new TEN-T projects will be followed and implemented in the forthcoming years, paving the way for a more efficient and innovative European transport system.

7. Closing Remarks

19 TEN-T MoS projects have been already implemented, representing a total investment of over €1 billion. They demonstrate that the MoS framework constitutes a strong platform for the implementation of technical concepts aimed at improving the quality of maritime operations and their integration in the global transport chain.

PP 21

The promotion of MoS has further boosted the development of many small actions that have improved port infrastructure, information systems and the efficiency of maritime operations, as well as the development of better infrastructure connections between ports.

MoS has been the precursor for identifying and promoting innovative issues with practical solutions, e.g. intelligent infrastructure and LNG technologies. In both cases, pilot actions have been developed which are expected to deliver practical results in 2012. Unifying rather than fragmenting, MoS activities play a coordinating role, fostering the development of operational standards and common procedures, as well benchmarking operations. In short, MoS translates policy requirements into practical and concerted European solutions.

The programme also provides a sound basis for cooperation between ports and sea regions, such as in the Baltic area. A common understanding on ice operations, environmental protection and traffic safety is steadily developing and helping to reinforce these collaborations. Other sea areas (e.g. the Adriatic) are developing partnerships leading to an articulation between different ports and countries (e.g. the northern Adriatic range), adressing common strengths and weaknesses, and thereby increasing the attractiveness of these regions. International cooperation with neighbouring countries and regions, such as the Mediterranean and Black Sea areas and Africa, has also been initiated.

Priority Project 21
Motorways of the Sea

Trans-European transport network. Achievement of the Priority projects

MoS makes smar use of different implementation tools, taking advantage of the array of financial schemes and funding tools available. In general, Marco Polo finances services while TEN-T focuses on integrated infrastructure development (both physical and information systems) for ports and their hinterland connections (e.g. logistics centres). TEN-T has a dedicated budget of approximately €300 million for MoS for the 2007-2013 programming period. In the 2014-2020 financial period support for Motorways of the Sea is expected to greatly increase to levels adequate to its relevance: more than 70% (in tonnes) of external trade and almost 40% of internal trade.

Harvesting opportunities, short term actions to meet market demands:

- Smooth integration in TEN-T Corridors (hinterland connections);
- Meeting the SECA challenges for 2015 (LNG, scrubbers, re-fuelling, etc);
- Harvesting the SECA market opportunities – e.g. newbuildings, retrofitting, green shipping, innovative port bunkering and revival of the European Shipbuilding industry - building new ships and retrofitting existing ones to meet the European market demands.
- increasing safety and security standards by stimulating voluntary industrial actions

The new priorities and tools proposed in the 2012 TEN-T call (expected in November 2012) and the pilot actions are expected to continue to raise interest among stakeholders. This type of tool allowing may represent the ideal basis for testing a venture without touching on competition issues. It will enable the embracing of technical, operational and procedural issues and the emulation of resulting transport operations, allowing for the start-up of the commercial phase immediately upon completion of the pilot action.

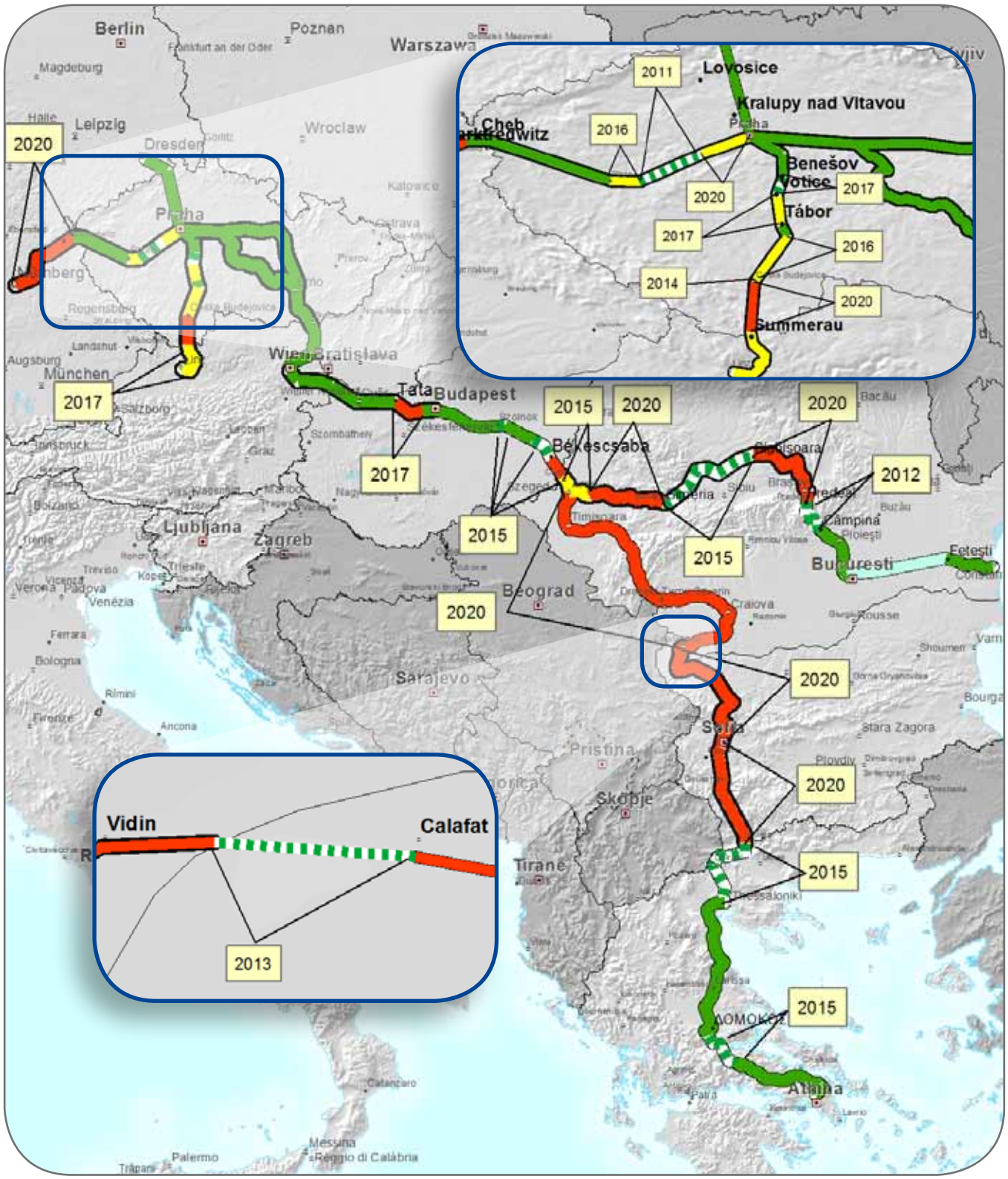
By providing support to the development of highly complex technical tools for efficient transport operations such as information systems and customs requirements interfaced with electronic cargo manifests and logistics information systems, MoS is bringing innovation to the real world and making a definite claim on its ability to support European growth and competitiveness.

PP 21

Priority Project 22

Railway axis Athina–Sofia–Budapest–Wien–Praha–Nürnberg/Dresden

Trans-European transport network. Achievement of the Priority projects



0 125 250 km

Cartography: DG MOVE, October 2012
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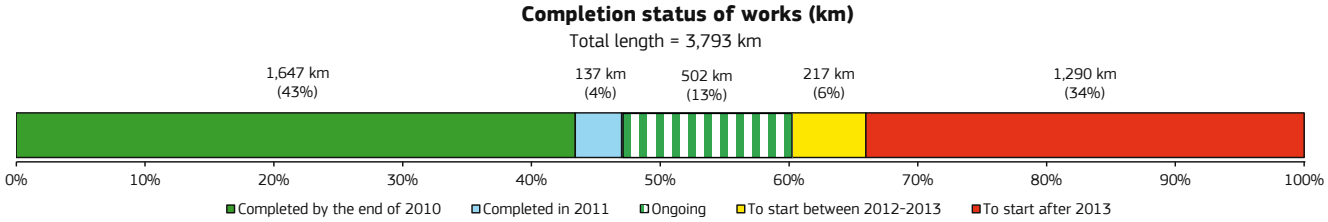
© EuroGeographics 2001 for the administrative boundaries

- Completed
- Completed in 2011
- Works ongoing
- Works to start between 2012 and 2013
- Works to start after 2013

- Completion Date
- Priority sections

TENtec

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Studies for the development of the Railway Priority Project No. 22	BG, EL, HU, RO	€6.5	Ongoing
Optimisation of Railway section Prague Hostivar - Prague main railway station detailed design	CZ	€5	Ongoing
Modernization of railway section Veselí nad Lužnicí - Tabor - II part, section Veselí nad Lužnicí - Doubí u Tábora, detailed design	CZ	€4.1	Ongoing
Modernization of the Tábor - Sudoměřice u Tábora line, detailed design	CZ	€3.4	Ongoing
Modernization of the Nemanice – Ševetín railway section – preliminary design	CZ	€1.7	Ongoing
Preparation of design for approval for the railway line section Biatorbagy (incl.) - Tata (excl.) of PRIORITY AXIS NO. 22	HU	€1.3	Ongoing
Total		**€21.9**	



PP 22

Priority Project 22

Railway axis Athina–Sofia–Budapest–Wien–Praha–Nürnberg/Dresden

Trans-European transport network. Achievement of the Priority projects

European Coordinator

Gilles SAVARY

Introduction

In many respects Priority Project 22 has a special place on the Trans-European Transport Network (TEN-T) map, simply on the grounds of its length (3,575 km) and the number of Member States it crosses (seven).

Involving three Member States of the "old European Union", Germany, Austria and Greece, two Member States from the 2004 enlargement, the Czech Republic and Hungary, and the two Member States from the 2007 enlargement, Romania and Bulgaria, PP22 embodies the principle of the trans-European network and illustrates the challenge its integration poses. Ultimately PP22 aims to better connect central and eastern Europe to the North Sea and Baltic Sea coasts, an ambition which extends beyond the current route.

PP22 is fragmented by its nature for at least two reasons. Firstly, in practical terms, the level of funding committed in the seven Member States varies considerably. Secondly, the outlook varies from one Member State to the next. While the expected investments have advanced significantly in Germany, the Czech Republic, Austria, Hungary and Greece, they remain more uncertain in Bulgaria and on the southern branch of the Romanian section.

Unsurprisingly, the most significant progress has been made where national and European objectives converge. This is the case for the Dečin-Prague-Břeclav, Břeclav-Vienna- Hegyeshalom, Hegyeshalom-Györ-Budapest, Athens-Thessaloniki and the Bucharest -Constanța sections. However, the upgrading of cross-border sections has generally suffered delays.

Moreover, from a European standpoint, the development of PP22 is subject to differences in political objectives for this route and the European funds that are available. The political objectives are rooted in the framework of the TEN-T policy and are only partly in line with the priorities set under regional policy. The funds are almost entirely managed under the Cohesion Fund and the ERDF and in some cases the ISPA programme, where the operational programmes for transport (OP-T) may prioritise non-PP22 sections at national level.

In this context, one of the Coordinator's tasks is to try to reconcile these potentially divergent and even conflicting interests in a context of tighter budgetary constraints, and while the revision of the different European frameworks for the period 2014-2020 is in progress.

1. Dynamic analysis of the project

The second year of the Coordinator's mandate has focused primarily on the development of forums for exchange of information and dialogue, as well as ensuring the coherence of different European policies, against the changing backdrop of the review of TEN-T policies and funding, as well as the review of cohesion policy tools.

A. Progress made in 2011

a. At governance level

Development of dialogue between Member States

The Coordinator's objective is to develop fora for coordination and dialogue between the relevant ministries and infrastructure managers along the route. This type of cooperation, which was already working well between the Czech Republic, Austria and Germany, had to be fully implemented between Hungary, Romania, Bulgaria and Greece.

The first step was the signing on 2 December 2010 of a declaration to this end by these four Member States, which, in addition to the nomination of PP22 correspondents representing the ministries and infrastructure managers, provided for a twice-yearly meeting with the relevant Directorates-General of the Commission, the European Investment Bank (EIB) and the TEN-T Executive Agency.

The first meeting took place in Sofia in October 2011, followed by a second in Bucharest in early 2012. These meetings firstly enabled a useful exchange of information on the situation with regard to investment, national priorities and difficulties encountered. During these discussions, agreements were reached on the identification of common challenges and priorities, as well as on the importance of collective monitoring of the studies in progress, which would be useful for gaining a better technical and socio-economic understanding of the Priority Project. In terms of the organisation of works, the Coordinator proposed a rotating Presidency between the Member States involved, but the latter asked the Coordinator to chair the meetings.

The Commission's legislative proposals on the review of the TEN-T policy and its financing under the future Connecting Europe Facility (CEF) were also presented during these meetings, confirming both the inclusion of most of PP22 in the future framework and its expansion within a new corridor on the TEN-T core network to include sections of key importance for PP22 traffic, representing natural extensions in view of its traffic flows. This involves in particular the inclusion of connections to the Black Sea ports and towards Turkey in Bulgaria, but also access to the German Baltic and North Sea ports at the other end of the corridor.

The idea was also discussed of building on these twice-yearly meetings by organising bilateral seminars on more specific progress made on the cross-border sections at Lökösházа-Arad, Craiova-Vratsa and Blagoevgrad-Thessaloniki, and establishing groups to address subjects of common interest such as interoperability and research into funding opportunities.

Extending coordination between the European institutions

Regular meetings between the Commission's Directorates-General, particularly DG MOVE and DG REGIO, as well as the EIB and the TEN-T Executive Agency provided useful input and additions to the meetings between the Member States, helping to ensure better coordination of European actions by delivering concerted messages to the Member States on common priorities.

In the same spirit of cooperation, and in anticipation of possible changes resulting from the adoption of the revised TEN-T guidelines and the creation of the core network corridors in particular, initial contacts were made with the managing bodies of Freight Corridor No 7. Created by the 2010 Regulation concerning a European rail network for competitive freight , the route of this freight corridor is similar to a large extent to that of PP22. Its management board jointly defines and organises international pre-arranged train paths for freight trains, and defines together with the Member States and infrastructure managers measures for the implementation of the corridor and the main aspects to be included in market studies.

Better links must be established between this operational management of infrastructure and the development of the infrastructure itself in PP22 discussions. Closer cooperation between these two structures over time is therefore essential for an integrated vision of the route, and is in line with the Commission's recent proposals. Operational questions are essential for sound use of infrastructure. For example, the upgrading of the cross-border section between Hungary and Romania will have little effect if trains continue to be delayed for several hours by administrative formalities at the border.

In this context, the question of the future availability of rolling stock which enables the full potential of new infrastructure to be exploited should also be addressed. The EIB has emphasised the importance of examining the development of infrastructure in parallel to the development of national plans for rolling stock modernisation.

Priority Project 22
Railway axis Athina–Sofia–Budapest–Wien–Praha–Nürnberg/Dresden

Trans-European transport network. Achievement of the Priority projects

Taking a wider view....

In view of the public debt crisis affecting some Member States on the PP22 route, the possibility has been discussed of extending the scope of consultations to financial assistance authorities, such as the World Bank and the IMF, to encourage complementary approaches and enable investments to be made which are essential for future growth.

b. With regard to individual sections

Considerable practical progress has been made on some sections of the project. In Greece, major progress has been made despite a difficult economic context on the 106 km-long Tithorea-Domokos section, with two tracks equipped for maximum speeds of 160-200 km/h. When finished, this section will complete the Athens–Thessaloniki line, which will be a fully electrified double-track line, reducing journey times between the two cities by some fifty minutes.

In Bulgaria, progress has been made not so much on PP22 itself as on its branch line towards Turkey (included in PP22 as part of the corridor proposed under the CEF). Studies indicate that this branch could have a considerable impact on increasing PP22 traffic levels.

In Romania, the Predeal-Campina, Campina-Bucharest, Fundulea-Fetesti and Fetesti-Constanța sections were completed in 2011, considerably improving access to the port of Constanța.

In Austria, the main improvement relates to the progress of works on Vienna central station, at the interface between PP17 (railway axis Paris-Strasbourg-Stuttgart-Vienna-Bratislava) and PP22 (railway axis Athina–Sofia–Budapest–Wien–Praha–Nürnberg/Dresden). Part of the new station will be operational from December this year. In the Czech Republic, work has focused on the modernisation of the sections between Prague, Plzen and Chleb, and Prague and České Budějovice.

B. Sections to be closely monitored

a. The Vidin–Calafat Bridge over the Danube and its access routes

The Vidin-Calafat Bridge is the second bridge over the Danube on the border section between Romania and Bulgaria. It is co-financed by the Cohesion Fund for the period 2000-2006 and has received loans and technical assistance from the EIB. Despite some technical and financial problems inherent in this type of infrastructure which have resulted in some delays, construction of the bridge is progressing well and should be finished in early 2013, or even by the end of 2012. The EIB and the Commission are closely involved in this project to ensure that it is completed as soon as possible.

However, one open point remains at present: the operational management of the bridge once it is completed. A common structure is to be implemented between the Bulgarian and Romanian authorities for the day-to-day management and maintenance of the bridge in particular. The two countries must cooperate on the creation of this structure. At the time of writing, little progress can be reported in this respect, despite the attention drawn to this area by the Commission and the EIB. Without a cooperation structure of this kind, this major structure financed by European funds will not be accessible for the trains, lorries and cars for which it has been constructed. A second difficulty relates to access routes to the bridge, where, with the exception of the sections which connect directly with the bridge, little improvement is expected with regard to the current railway infrastructure on each side of the Danube despite its current poor state of repair. There is a great risk therefore that, once operational, the bridge will essentially be a road bridge, contrary to the political objectives of the trans-European networks. Despite the works carried out on the ten kilometres of four-track line between Calafat and Golenți, Craiova, which is some 80 kilometres from the bridge, will remain four hours by train from the Danube and the Bulgarian border when the bridge is placed into service. Trains currently run at an average of 30 km/h on this section, rising to an average of 60 km/h between Craiova and Arad.

b. Cross-border sections between Germany and the Czech Republic

As borne out by the discussions on the maps for the revised TEN-T guidelines, relations between the Commission and the Czech and German authorities are sometimes complex with regard to routes between German cities and Prague, despite regular discussions. Connections to the Czech Republic are not considered priority by the German national ministry and are not included in the multi-annual transport plan, of which the next review is scheduled for 2015. However, these sections are priority sections for the Czech authorities, particularly the connections to Dresden and Munich (whereas PP22 relates to Nuremberg–Prague), meaning that the Czech authorities are more in line with the German federal states concerned in this respect.

However, some encouraging recent developments point towards renewed cooperation on these routes. In particular, the German federal government has supported a study into a new high-speed line between Dresden and the Czech border, coordinated by the federal state of Saxony. The German transport ministry has informed the Coordinator of its intention to look into the possibility of including this new line in the next ten-year framework for infrastructure investment planning (the Bundesverkehrswegeplan) which is set to be adopted in 2015.

In view of the financial constraints faced by these relatively costly projects, the Coordinator is working to concentrate the efforts of the stakeholders involved in joint studies. The Annex to the CEF provides scope for dedicated financing for studies on these sections. These studies must be implemented to enable works to be carried out over the medium term to connect the North and Baltic sea ports more efficiently to central Europe.

c. Other cross-border sections

The Lökösházа-Curtici and Kulata-Promachonas sections also require particular attention. In both cases, setting up shared and regular information points could provide significant results by helping to foster operational cooperation, if only in terms of agreeing priorities, timetables and technical parameters.

Discussions over the course of meetings of PP22 correspondents for the four south-eastern countries mentioned above have resulted in a common understanding of projects in progress and planned on each side of national borders and an awareness of the financial constraints in each case. The Romanian and Hungarian authorities thus shared information on work on each side of their common border and discussed legal aspects which could arise in connection with the development of the cross-border section. The Greek authorities informed their Bulgarian colleagues about internal discussions in preparation of a future cross-border agreement. These initial steps must now be followed up with regular and deeper cooperation, but these first multilateral meetings are an encouraging sign as they convey openness to dialogue and cooperation and demonstrate the potential benefits to be gained.

d. A possible bottleneck: Budapest

At the interface of PP22 and PP6 (railway axis Lyon-Trieste-Divača/Koper-Divača-Ljubljana-Budapest-Ukrainian border), Budapest is an essential railway hub with a difficult topology to the west of the city, making improvements to the existing line fairly costly. As a result of increased traffic levels expected on these routes, Budapest could be a significant bottleneck in a few years' time. Studies should be carried out as soon as possible to determine whether a bypass, which would take many years to become operational, is necessary, rather than waiting for serious congestion problems to develop.

C. First results of studies in progress

Works have started on two cross-border studies covering all or part of PP22 in 2011 and is still in progress. The common purpose of all these studies is to provide the Member States, infrastructure managers and European Institutions with a better understanding of the Project and to prepare for future investment decisions. In addition to this common purpose, these two studies financed by the European Commission have other specific objectives.

a. Preparatory studies on the Athens-Hegyeshalom route

Co-financed by the TEN-T programme and supervised by the TEN-T Executive Agency, the first phase of this study involves analysis of the technical, commercial, financial, operational and socio-economic characteristics of the main route between the four countries in the south-east area of PP22 in order to propose common technical and operational characteristics for the four countries and to make specific recommendations for different sections of the route. In the second phase, the analysis will be used by the Member States to carry out preliminary studies in preparation for the implementation of the recommendations resulting from the first phase.

Priority Project 22
Railway axis Athina–Sofia–Budapest–Wien–Praha–Nürnberg/Dresden

Trans-European transport network. Achievement of the Priority projects

The first phase of the study took place over the course of 2011 and came to an end with the start of the second phase in 2012 as scheduled. The work of the consultants and Greek authorities responsible for the coordination of the works was very efficient and comprehensive and enabled the Member States to gain a better understanding and overview of the route, both on their national territories and those of neighbouring countries. The meetings of the steering group were merged with those of the PP22 Correspondents Group, as both served similar cooperation and information-sharing purposes. Consequently, all members of the Correspondents Group, including the different services of the European Institutions, were able to benefit from the information available.

The studies as part of the second phase are due to start in the second half of 2012 and will focus on specific sections selected by the Member States on the basis of the recommendations of the first phase. The scope of the studies is adapted to the specific requirements of the sections, including environmental impact studies, design studies, feasibility studies and cross-border interoperability studies. No fewer than 14 studies are scheduled up to 2015, ensuring continued cooperation and providing a solid foundation for the future development of the sections concerned.

b. Study on the implementation of PP22

The objective of the second study is to analyse the implications of the implementation of PP22 with high ambitions in terms of standards (speeds of 160 km/h, double-track over the whole route). The study will therefore examine the benefits to be expected in terms of increased traffic and economic and social development of the regions concerned, as well as the environmental and financial impact of the project. Consequently, the study will provide a clear and comprehensive view of the development of PP22, enable analysis of investment requirements in relation to anticipated benefits under different scenarios, providing both an overview and a country-by-country analysis. This approach will provide essential data for determining the investment levels required to exploit the full potential of PP22.

2. Progress of PP22 by sub-section

A. Sections considered complete

Sections with one or two electrified tracks capable of a speed of at least 100 km/h are considered complete from the infrastructure point of view. The installation of ERTMS is also mandatory on a number of sections of the PP22 under the terms of the European Deployment Plan of 22 July 2009.

A substantial part of the PP22 between Prague and Budapest can be considered complete, or almost complete, with the exception of Pirna-Bad Schandau and Tata-Biatorbágy. Contrasting with the encouraging picture for the main part of the PP22 route, only a number of sections on the Nuremberg-Prague and Prague-Linz branch lines are complete.

An upgraded section of 17 km with four tracks and capable of maximum speeds of 160 km/h has been in service between Dresden and Pirna since 2004.

The sections at Dečin-Prague, Česká Třebová-Brno-Břeclav and from Břeclav to Vienna are complete from an infrastructure standpoint. There is a legal obligation to equip them with ERTMS by 2015, and this is underway. The Vienna-Hegyeshalom-Györ-Tata section, meanwhile, is complete and equipped with level 1 ERTMS.
Regarding the Nuremberg-Prague section, between Prague and Cheb a section between Plžen and Stříbro of approximately 35 km was completed in 2009 and the section between Stříbro and Cheb (roughly 75 km) in 2010. The Zbiroh–Beroun section was completed in 2011.

On the Prague-Linz section between Prague and České Budějovice, the Prague-Benešov and Tábor-Doubí u Tábora sections are also complete.

The situation is more mixed to the south of Biatorbágy. As far as infrastructure is concerned the Biatorbágy-Budapest-Szolnok section and, further south, the Szajol-Gyoma section, are complete. The same is true in Romania for the Câmpina-Bucharest-Fundulea -Feteşti –Constanța section, and in Greece for the Thessaloniki-Domokos and Tithorea-SKA/3 bridges section; the latter is the northern access point to the Athens metropolitan area. However, the latter section has been seriously damaged, including by theft of cables, and needs to be restored. Rail traffic is currently operating on an older, non-electrified line.

B. Sections to be finished by 2015

These sections are mainly located in the Czech Republic, Hungary, Romania and Greece. In the Czech Republic the Schirnding-Střibro section is to be completed in 2012 and the České Budějovice connection (Nemanice I-České Budějovice) in 2014. In Hungary, the line to Szolnok and the section between Békéscsaba and Curtici and the implementation of ERTMS must also be completed by 2014, as is the case in Romania for the sections between Curtici and kilometre point 614 (some 41 km) and between Simeria and Coșlariu. The section between Coșlariu and Sighișoara (some 90 km) is to be completed by the end of 2015. The same is true of the Kulata/Promachonas–Thessaloniki and Domokos–Tithorea sections in Greece on which works are currently in progress.

C. Sections to be finished between 2015 and 2020

In the northwestern part of PP22, the section between Plzeň and Rokycany in the Czech Republic is to be completed by 2016. The section between Benešov and Tábor, the section between Summerau and Linz in Austria and the Tata-Biatorbágy section in Hungary are to be finished by 2017. Prague-Beroun, on the Prague-Nuremberg section, is to be completed by 2020.

Germany does not consider completing the Nuremberg-Schirnding section, which crosses difficult terrain and is for the most part not electrified, a priority. Its completion date cannot be estimated at present, but it is unlikely to be before 2020. In the meantime Germany has proposed to the Czech Republic an upgrade of the Markredwitz-Schirnding section (approximately 15 km) to connect up with the Leipzig-Hof-Regensburg-Munich line which is currently being upgraded. However, this solution does not appear to satisfy all the requirements on the Czech side.

In general terms Romania and Bulgaria contain the longest sections that can realistically be completed by 2020. Romania expects to finish the Golenți–Craiova section in 2018; the Sighișoara-Brașov and Craiova-Turnu Severin sections in 2019; the Curtici-Simeria section in 2020; and the section between Turnu Severin and Arad in 2021. Bulgaria expects to complete its PP22 section by around 2020.

The barren nature of the topography requires expensive costly civil engineering works to re-align mountain sections, funding for which is not assured at present. Consequently there is reason to believe that the timetable for sections earmarked for 2020 will need to be amended after 2015.

3. Priorities for the Coordinator for the rest of the mandate

A better general understanding of PP22 has been gained over the first two years of the project and routines established for the exchange of information and cooperation between all stakeholders, at both Member State and European Institution level. In addition to continuing and building on these activities, progress must now be made on the most challenging aspects in the development of this link between central and eastern Europe and the North and Baltic Seas to the north. This requires major progress on cross-border sections, realistic decisions to start the necessary investments and the preparation at the earliest stage possible of projects in line with the next European financial framework. Moreover, the project must be viewed in the broader context, taking account of the alternative eastern Balkans route in particular.

A. More formal governance for cross-border sections

In addition to multilateral discussions, the Coordinator intends to develop an approach which is more focused on cross-border sections by means of dedicated seminars. This in necessary for:

- sections where some cooperation has been established but where obstacles remain, for example the cross-border sections between Germany and the Czech Republic;
- sections where works are progressing on each side of the border but without close cooperation, such as the border between Hungary and Romania;

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- sections where there is a will to engage in dialogue but a well-defined framework is required, such as the border between Bulgaria and Greece;
- and, for the specific case of the Vidin–Calafat bridge, where the Coordinator's role is to provide the stakeholders with support if necessary concerning the operational management of the bridge, but also to succeed in reconciling the priorities, timetable and technical parameters for the development of the bridge access routes.

B. Prepare for decisions to enable the necessary investments

The first conclusions of the studies indicate a very positive cost-benefit ratio for investments completed to date and in progress, justifying the utility of PP22 in terms of economic development and social and environmental impact. However, the studies also suggest that many of the remaining investments will be very costly, as they relate to the implementation of the highest standards of TEN-T policy. These standards, particularly the intended speeds (160 km/h) could be considered excessive for a route which is essentially used for freight traffic.

The Coordinator therefore intends to use the results of the two studies in progress to determine the requisite investment levels, while complying with European requirements in terms of technical specifications for interoperability. This calls for an open debate between Member States, European institutions and the relevant infrastructure managers and railway operators to move towards solutions which enable optimum use of the route within a reasonable timeframe. There is a risk at present of over-ambitious objectives which are not always justified being used as financial arguments for systematically postponing work which may not be considered priority at national level, but which is priority at European level.

C. Prepare for the implementation of the new TEN-T guidelines and the Connecting Europe Facility

Over the course of the meetings of PP22 correspondents, the European Commission presented its October 2011 proposals on the CEF, the TEN-T guidelines, and the future rules applying to the Structural and Cohesion funds. These discussions served to clarify the proposals, identify opportunities and mitigate concerns associated with these new frameworks.

The Coordinator considers that the PP22 Correspondents Group, which brings together Member States, infrastructure managers, the different services of the European Commission, the TEN-T Executive Agency and the EIB to develop closer cooperation in the four countries in the southeast of PP22, is something of a precursor to the future Corridor platforms provided for by the revised TEN-T guidelines and the CEF, retaining a tailored approach for the two PP22 sub-sets.

The Coordinator's priority is now to encourage the Member States to work on their portfolio of projects for the period 2014-2020 at as early a stage as possible in order to derive maximum benefit from future instruments. It will also be necessary to identify the technical and administrative support required, involving the TEN-T Executive Agency and JASPERS where appropriate.

D. Western Balkans route not to be overlooked

Any analysis of PP22 must take account of its overall context and thus include the routes to the North Sea, the Baltic Sea, the Black Sea and Turkey, as set out in the future CEF corridors, as well as the implications of developing the parallel route through the eastern Balkans.

Despite its symbolic importance – it will be the third bridge on the Danube between Belgrade and Giurgiu/Ruse – the bridge between Vidin and Calafat alone will not bring about a major immediate improvement in international north-south rail freight traffic.

The current southern route of PP22, conceived as an alternative to the historical route which links Greece and

Bulgaria to Hungary via the Former Yugoslav Republic of Macedonia, the Republic of Serbia and Croatia, draws Greece away from central Europe and the latter away from the ports in the north of the Adriatic. As mentioned earlier, its irregular geography requires substantial upgrading costs in comparison with expected levels of rail traffic. This makes justifying these investments all the more difficult for current governments.

The Balkan route, which follows Corridor X (Thessaloniki-Skopje-Belgrade- Budapest/Zagreb-Ljubljana-Graz/Salzburg) shortens the Athens-Budapest route by 330 km compared to the present route. The total length is around 1030 km compared to 1362 km for the current southern PP22.

There are also a number of technical advantages: 89% of the Balkan route is electrified, as against 75% of the PP22 route and the tracks are designed for higher maximum speeds overall. Nevertheless 64% of the line is still single track, while 46% of the PP22 route is currently double track.

Although it is not our intention here to call into question the inclusion of the Thessaloniki–Arad route, which links two capital cities, Athens and Sofia, and feeds into the east-west trunk route linking Bucharest and Constanța in Romania, in the medium term it may become necessary, in the light of the studies mentioned above, to tailor priorities in line with what is feasible, both for the European Union, the main provider of funding, and the Member States concerned.

In this respect, Croatia's accession to the European Union in July 2013 and discussions with the Republics of the former Yugoslavia in connection with the review of TEN-T policy present a useful opportunity to develop rail links between southeast and central Europe via the western Balkans.

Conclusion

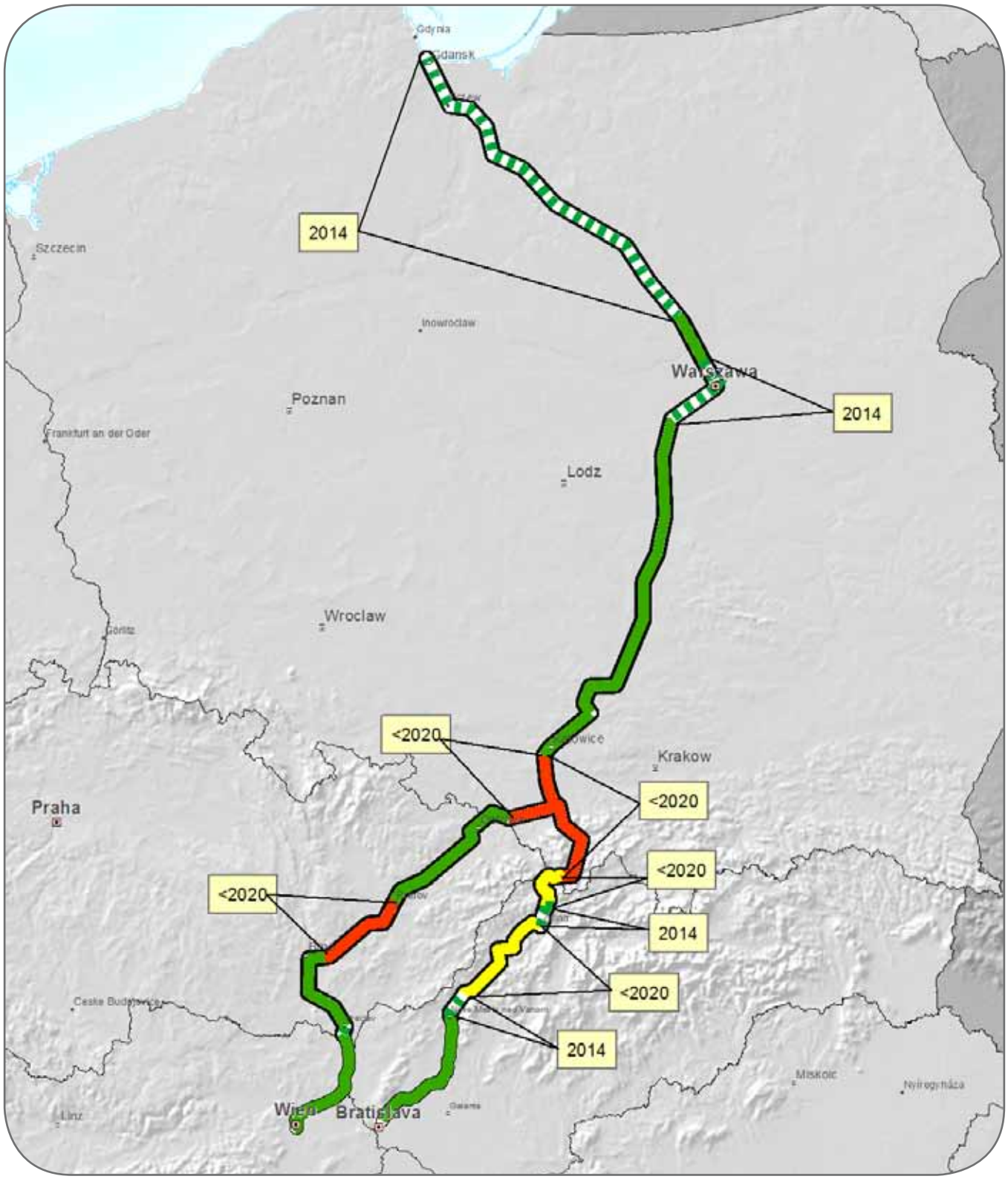
Despite its complexity, PP22 is an opportunity that must be exploited, provided that its overarching objective, which is to connect the north-west and the south-east of Europe, is reviewed in the light of the feasibility of investments. From a more political perspective, thinking about PP22 beyond its strict borders is an obvious step. Thus in the north PP22 would not stop in Dresden, but continue to Hamburg and Rostock; in the northwest it would go as far as Munich rather than Nuremberg; and in the southeast it would cross Sofia not only to go to Athens, but also to reach as far as Varna, Burgas and the Turkish border. This approach has been taken up in the future corridors of the TEN-T core network.

With this in mind, a practical approach must be adopted to enable the essential parts of the project to move ahead as quickly as possible. In addition to considering the western Balkans option, this must involve examination of the question of the necessary investments in line with European requirements, avoiding an idealistic vision of the project, which is the best way of hindering tangible progress.

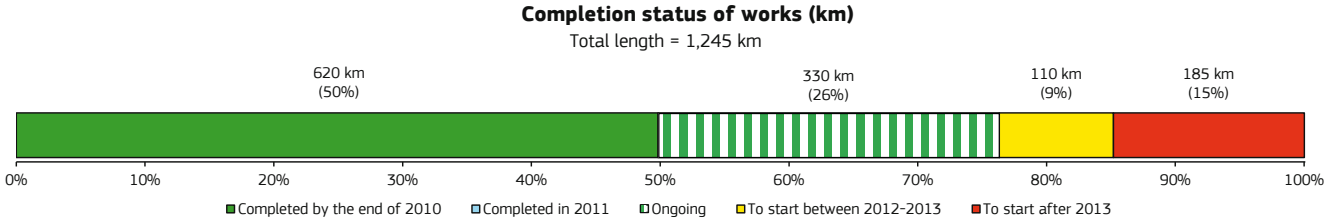
Over the course of 2011, a governance structure was implemented for the southeast of PP22 providing scope for dialogue and cooperation which was relatively limited in the past. The objective now is for this structure to result in tangible cooperation and projects on cross-border sections, with research beginning immediately into project funding opportunities under the future European financial framework. The structures implemented and the sound cooperation between the different European services and institutions have also demonstrated the relevance of closer synchronisation of the different European frameworks to help Member States in their implementation of the Project.

Priority Project 23
Railway axis Gdańsk-Warsaw-Brno/Bratislava-Vienna

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Feasibility Study for the Modernisation and Extension of the Katowice Railway Junction	PL	€3.2	Ongoing
Modernisation of the railway line Warszawa Wlochy – Grodzisk Mazowiecki – preparatory works	PL	€1.4	Ongoing
Preliminary Feasibility Study for the task: Modernisation and expansion of the Katowice Railway Junction	PL	€0.5	Ongoing
Modernization of corridor, state border CR/SR – Cadca – Krásno nad Kysucou (outside) railway track	SK	€0.5	Ongoing
TOTAL		**€5.5**	



Priority Project 23
Railway axis Gdańsk-Warsaw-Brno/Bratislava-Vienna

Trans-European transport network. Achievement of the Priority projects

Introduction

Priority Project23 (PP23) connects some central and eastern Member States through a north-south railway axis. The project mainly involves the modernisation and upgrading of the rail route from Gdańsk via Warszawa and Katowice with a western branch via Brno to Vienna and an eastern branch via Žilina to Bratislava. Brno is the second city of the Czech Republic. Žilina is a city of growing importance for automotive production in Slovakia. The axis stretches for 1,000 km from Gdansk to Vienna and 970 km from Gdansk to Bratislava. It in-volves four Member States: Poland, the Czech Republic, Austria and Slovakia.

Modernisation of the railway lines and construction of container terminals at Gdańsk, Sławków (both PL) and Žilina (SK) will generate better conditions for development of an ef-fective intermodal transport on the basis of common standards (ERTMS, electrified twin-track). The work will allow increased speeds on most sections: 160 km/h for passenger trains, up to 250 km/h for some sections in Poland and 120 km/h for freight trains in general. The work will also reinforce the attractiveness of rail, enabling a modal shift from road to rail. An investment of about €6.1 billion is foreseen for the development of PP23. Work has already started in most of the sections, with some subsections in all four member states already com-pleted and others foreseen to be completed until 2016.

The rail projects on this axis are included in the respective national development plans of the Czech Republic, Poland and Slovakia. The development of attractive rail services from the Baltic Sea along a new north-south route constitutes a unique opportunity for providing an alternative to the existing saturated north-south route from the North Sea to south-east Europe, the Adriatic and the Balkans. The project also contributes to a wider strategy to attract new economic activities along the axis and promote a modal shift for long distance traffic while serving the mobility needs of regional passengers, and complements two other TEN-T priority projects: PP25 and 27.

Definition

The legal basis of the TEN-T Policy is Decision 884/2004/EC of the European Parliament and of the Council of 29 April 2004 on “Community guidelines for the development of the Trans-European Transport Network”. This decision defines the 30 Priority Projects in its Annex III. PP23 is defined as “Railway axis Gdańsk-Warszawa-Brno/Bratislava-Wien”. The stretches from Gdańsk to Břeclav (CZ) and Nove Mesto n.V were defined as priority sections.

Pan-European Corridor VI

In 1994, after the political change in Eastern Europe, the EU took the decision to identify transport corridors – so-called Pan-European Corridors – to and within the Central and East-ern European Countries which were applying for EU membership at that time. In different Pan-European Transport Conferences including representatives of the governments and par-liaments of the European countries, the European institutions, the European Union and inter-governmental organisations at the Crete (1994) and Helsinki (1997) ten pan-European transport corridors were identified. They aimed to create an enhanced territorial cohesion and develop the single market by increas-ing sustainable mobility for good and persons.

Pan-European transport corridor VI was identified as multimodal (shipping, rail, and road) axis from north to south connecting Gdańsk via Warszawa, Katowice with Žilina (Slovakia) and with a western branch via Ostrava to Brno (Czech Republic). Corridor VI is connected with Corridor I (Berlin-Nizhny Novgorod) at Warszawa, with Corridor III (Dresden-Kiev) at Katowice, with Corridor IV (Dresden/Nuremberg-Istanbul), with Corridor VII (Danube Riv-er) at Bratislava and with Corridor V (Turin-Budapest-Kiev), branch A (Bratislava- Uzhgo-rod) in Žilina.

Corridor VI was further developed in 2003 by a High Level Group on the Trans-European Transport Network chaired by Karel van Miert together with the Member States and the can-didate countries at that time. The High Level Group identified 18 priority projects to be opera-tional by 2020 including “Mixed railway line Gdańsk-

Warszawa-Brno/Žilina" (No. 8) and "Motorway Gdańsk-Katowice-Brno-Wien" (No.18). These 18 projects were again modified during the political decision making process and added up to 30 priority projects set by the already mentioned Decision 884/2004/EC.

EU co-financing

The European Union funding system offers two opportunities for co-financing TEN-T Priority Projects:

- TEN-T annual and multi-annual programmes with €8 billion for 2007-2013 including €500 million for the Loan Guarantee Instrument of European Investment Bank (EIB) which aims to facilitate a larger participation of the private sector in the financing of TEN-T infrastructure or
- Cohesion Fund (CF) and Regional Development Fund (ERDF) with €37.5 billion allo-cated 2007-2013 for TEN-T projects (mainly for Priority Projects).

TEN-T financing

In order to give financial support to the implementation of the TEN-T guidelines, the Parlia-ment and Council adopted Regulation 680/2007/EC specifying general rules for the granting of Community aid in the field of trans-European networks[1]. TEN-T Priority Projects generally can be co-financed from the TEN-T budget (€8 billion for 2007-2013). TEN-T contributions are distributed on the basis of proposals submitted by the Member States within the Multi-Annual or Annual Programmes. These proposals are evaluated and selected for funding by both external experts and the Commission.

Along PP23 about €26 million will be allocated by TEN-T budget up to 2015:

- 2006-PL-92608-S: Preparation of modernisation and extension of Warsaw Railway Junction (EU contribution €4.9 million, 50%);
- 2008-PL-92001-S: Preliminary Feasibility Study for the task: modernisation and ex-pansion of the Katowice Railway Junction (EU contribution €500,000, 50%);
- 2008-PL-92005-S: Studies on the long-term adjustment of the International Gdańsk Lech Walesa Airport, a TEN-T node in the North Poland, for air transport needs (max-imum EU contribution €1.2 million, 50%);
- 2009-PL-60151-P: Project and development of ETCS level 1 system at the section of the E 65, CMK, railway line, Grodzisk Mazowiecki-Zawiercie (maximum EU contri-bution €8.8 million, 50%);
- 2010-PL-92245-S: Feasibility Study for the Modernisation and Extension of the Ka-towice Railway Junction. This project is going to be finished with a significantly re-duced EU contribution: €0.5 million instead of € 3.2 million;
- 2011-PL-93141-S: Modernisation of rail section Warszawa Włochy-Grodzisk Ma-zowiecki: preparatory studies (maximum EU contribution €1.4 million, 50%);
- 2011-PL-91128-P: Extension of Deepwater Container Terminal in Gdańsk (maximum EU contribution €1.8 million, 10%);
- 2007-CZ-23020-S: Study for the upgrading of the railway line on the section Blazov-ice-Nezamyslice: cancelled in Nov 2010;
- 2007-CZ-90501-S: Reconstruction of the Railway Station Přerov (EU contribution €1.3 million, 50%);
- 2005-SK-92804-S: Upgrading Railway Puchov- Žilina to 160 km/h (EU contribution €3.2 million, 50%) – finalised in June 2010;
- 2008-SK-92307-S: Modernisation of corridor, state border CR/SR – Cadca- Krásno nad Kysucou railway track (EU contribution €480,000, 49,8%);
- 2009-SK-60108-P: ETCS deployment on Corridor VI: Žilina – Čadca – State Border SK/CZ (maximum EU contribution €2 million, 50%).

Structural Funding

Strengthening infrastructure is one of the main objectives of the Regional Policy. The assis-tance of Cohesion Funds is given to actions in the area of Trans-European Transport Networks (in particular priority projects of common interest) or in the area of environment within the priorities assigned to EU environmental protection policy under the policy and action pro-gramme on the environment (which includes also transport projects outside of

1 Regulation (EC) No 807/2004 of the European Parliament and of the Council of 21 April 2004 amending Council Regulation (EC) No 2236/95 laying down general rules for the granting of Community financial aid in the field of trans-European networks

Priority Project 23
Railway axis Gdańsk-Warsaw-Brno/Bratislava-Vienna

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the TEN-T Network)[2], whilst the ERDF contributes towards the financing of, among others, investment in infrastructure that could be TEN-T projects. As three out of the four related Member States are new members of the European Union, structural funding plays a prominent role in the fi-nancing of PP23.

The Structural Funds budget and the rules for its use are decided by the Council and the European Parliament on the basis of a proposal from the European Commission. Each Member State prepares a National Strategic Reference Framework (NSRF), coherent with the Strategic Guidelines which defines the strategy chosen by the Member State and proposes a list of op-erational programs (OP). The OP Transport (OP-T) contains its aim and purpose, the expected impacts of the investments, and the transport priorities of the country.

Member States along PP23

Poland

Poland is a large central European country, with an area of about ten times the size of Belgium. The motorway and dual carriageway network is currently underdeveloped with large gaps remaining on all major corridors. Road safety is improving but road fatalities are still almost double the EU average. An excessive number of accidents are caused by the organisa-tion of traffic and the behaviour of participants to road transport.

The railway network in Poland stretches about 20,228 km (2011) – about 8,500 km is on TEN-T routes, and 58.7% is electrified[3]. Most of the tracks have standard gauge, with only 543 km with a large gauge. Poland's rail system is the third largest in Europe. The status of the railway lines is improving: 40% are in good condition and 32% in satisfactory condition. On 57% of the lines the timetable speed is higher than 80 km/h, and on 21 % higher than 120 km/h.

Timetable for 2011/2012

The main aims of regional development is to improve standards and create coherent interna-tional, national and regional transportation system and also to stimulate spatial development and enhance the competitiveness of the regions affected.

The main problems in Poland implementing PP23 is the large diversity in the quality of infra-structure, resulting in speed limits, mining damage occurring in the Upper Silesia region, in-creased investment cost and natural barriers (mountains) limiting the possible speed.

The most important sources for funding in Poland are – like in most of the new Member States – the Cohesion Fund (CF) and the European Regional Development Fund (ERDF). Over 2007-2013, Poland is planning to invest €25 billion [without national contribution] in transport infrastructure development from the following Operational Programmes: OP for Infrastructure and Environment (€19.4 billion), OP for Eastern Poland (€700 million) and 16 Regional OPs (€3,994 million). The TEN-T priority projects are mainly financed from the Operational Programme for Infrastructure and Environment 2007-2013 (OPIE 2007-2013). 60% goes to road infrastructure investments (motorways and national/local roads) and the railway infrastructure share is 19% with an additional 3% spent on rolling stock improvements. Clean urban transport is allocated 9% and airports 3%.

Czech Republic

The Czech Republic plays an important role in the European transport system, due to its geographic position at the centre of Europe. The operational length of railway lines is 9,612 km, 31% of which are electrified lines. The Operational Programme for Transport identified some priorities to be dealt with in the current programming period, not primarily focusing on the construction of new lines but on the modernisation of existing lines. The Czech

2 Council Regulation (EC) No 1084/2006 of 11 July 2006 establishing a Cohesion Fund and repealing Regulation (EC) No 1164/94

3 Transport – activity reults in 2011, GUS

Republic will pay special attention to national lines which originally formed part of the TINA European network which now comprise part of the TEN-T network (PP22, PP23). An overview on all railway modernisation projects can be found online: http://www.szdc.cz/en/modernizace-drahy/zasady-modernizace.html

PP23 interconnects the Czech Republic with Poland on the one side and Austria on the other. Its alignment mainly overlaps two Czech transit railway corridors:

- Corridor I: Germany-Austria via Brno and Břeclav
- Corridor II: Austria-Poland via Břeclav-Přerov-Ostrava

The Czech Republic, like most of the new Member States, receives the main part of its EU contributions for transport from the Cohesion Fund and the European Regional Development Fund (ERDF); however the latter has not been used for railway projects. The largest part of Cohesion Fund money is spent on the TEN-T Priority Projects. According to the Operational Programme for Transport, the total estimated costs of upgrade and development of the TEN-T railway network are €2.57 billion; from that amount ERDF and the Cohesion Fund will give an assistance of €2.19 billion between 2007-2013. By the end of 2009, about €1 billion had been invested, €3.6 million from TEN-T funding, €305 million from the Cohesion Fund and ERDF, €122 million from EIB loans and about €67 million from other sources.

Slovakia

The Slovak Republic is located in the middle of Europe facing a geographical advantage for international transport flows. Main international railway tracks are directly connected to national railway tracks. The total length of railway tracks adds up to 3,662 km, most of it with standard gauge (3,624 km), less than half electrified (1,578 km) and less than one third as dual track (1,011 km). In eastern Slovakia (Košice), 98 km of the “Broad gauge metallurgy line” from Ukraine exists for freight transport.

The existing network of railway tracks in Slovakia is the result of approximately 150 years of development of different national, political and economic conditions, different economic and strategic aims and priorities. A rather high percentage of the railway transport network uses obsolete technology, and the technical basis of the railway infrastructure is not sufficiently ready for the changing conditions and structure of the transport market. This situation is caused in particular by the low technical level and quality of the technical basis of the railway transport and by its neglected maintenance and insufficient refurbishment. Investments have been made and are foreseen to develop the network, including the installation of ERTMS. The most important sources for funding are, as in most of the new Member States, the Cohesion Fund and the ERDF.

In Slovakia, according to the Operational Program for Transport 2007-2013, a total budget (national and EU) of €3.8 billion is foreseen for spending on transport projects, €3.2 billion from ERDF and the Cohesion Fund and €638 million from the national budget. About €921 million (EU and Slovakia) will be spent on railway infrastructure. By the end of June 2012, about €370.7 million had already been invested, €270 million from the Cohesion Fund and ERDF.

All activities planned for developing railway infrastructure and intermodality are mainly covered by the Ministry of Transport, Construction and Regional Development through Railways of the Slovakian Republic and the Slovak Railway Company. These organisations are the investors and the final beneficiaries of funds.

Austria

With regards to transport issues, Austria is a transit country in the middle of Europe. Six pri-ority projects touch upon its territory. Additionally, it is an Alpine country, so that the geo-graphical conditions define the way of traffic and transport organisation. Austria took the leading role in constructing of tunnels and bridges some time ago. The overall length of the rail network is 5,356 km of which 3,518 km (66%) aisre electrified.

For Austria, PP23 is the connection via Poland to the Baltic Sea, therefore it might play a prominent role for future freight transport. The railway section of PP23 in Austria is already in service for 120 km/h. It was reported that first planning steps were taken to upgrade the track. The recent Austrian Infrastructure Development Plan foresees an upgrading for this track until 2022 up to 160 or 200 km/h.

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Railway axis Gdańsk-Warsaw-Brno/Bratislava-Vienna

Trans-European transport network. Achievement of the Priority projects

State of implementation of the cross-border sections

Katowice - Czech-Slovak Border

In Poland, the upgrade of the Katowice-Zebrzydowice/Petrovice (Czech Republic) section and Katowice to Zwardoń/Myto (Slovakia)section is planned to be realised after 2013. In Slovakia, the cross-border section to Myto/Zwardoń (Poland) is also planned for completion after 2013. Works on Czech Republic the territory have already been completed between Prerov and the border at Petrovice/Zebrzydowice (Poland).

Břeclav–Vienna

The Brno-Břeclav-Vienna track has a design speed of 200 km/h, but the operating speed is 160 km/h for safety reasons. The Czech Republic is willing to upgrade the signalling system to 200 km/h if Austria also upgrades its section from 120 km/h to 200 km/h. The node at Břeclav is being re-constructed and beyond Břeclav to the Czech-Austrian border work on the European Train Control System (ETCS) is on-going and will be implemented by December 2012. On the Austrian side it is a continuous two-track line, existing since 1838, nowadays electrified and operating at 120 km/h. It was reported that first planning steps have been taken to upgrade the track.

Other sections

Poland

In Poland, the implementation of PP23 will cost €2,939 billion and should be mainly carried out during the 2007-2013 period. The Gdynia-Zebrzydowice/Zwardoń railway corridor sec-tion will cost €2.3 billion and by the end of 2011 €1.8 billion had already been committed. Work for the project includes straightening the alignment, replacing the power supply as well as installing new signalling and communication systems along the E65/C-E65 lines. The plans also include the construction of an access link to the port of Gdansk, because a new container and ferry terminal (with an expected annual capacity of one million 20 foot equivalent units (TEUs) and 1.5 million passengers) will be added to the port. Work on this access link is ongoing.

The Gdansk-Warsaw section is under construction and works are well on track. The Nasielsk-Legionowo section was finished in 2011. Poland intends to proceed with the modernisation of the remaining 200 km of track and to upgrade power supply stations and the traffic control system (including ERTMS on the whole Warsaw-Gdynia section). This should permit a speed up to 200 km/h for the passenger service and 120 km/h for freight transport. The travel time will be reduced between Gdynia and Warsaw from 5 hours to 2h 50min.

The passage through Warsaw should be completed in 2015. The Central Railway Trunk Line (CMK) Zawiercie-Grodzisk Mazowiecki section, with a length of 228 km, has already been upgraded for a speed of 160 km/h. However, further improvement works on, for instance, catenaries and bridges are ongoing. It is reported to be the most efficient railway line in the country. Further investments are nonetheless planned to increase the speed to 230 km/h at a later stage. The first work to install ERTMS is on-going: EU Decision K(2010) for ETCS project on the Grodzisk Mazowiecki-Zawiercie section was adopted on 12 July 2010 (TEN-T 2009-PL-60151-P project) The installation should be ready in 2012 and could be fully operational by 2013. EU co-funding will be €8.82 million.

Preparatory work for the modernisation/reconstruction of the Zawiercie-Zebrzydowice (Polish-Czech border)/-Zwardoń (Polish-Slovak border) sections is ongoing. The selection of options will be determined in a feasibility

Subsection	Length (km)	Status
Gdynia/Gdańsk-Warsaw	340	works ongoing (160/200 km/h)
Warsaw-Grodzisk Mazowiecki	27	works ongoing (160 km/h)
Grodzisk Mazowiecki-Zawiercie	228	existing 160 km/h, works ongoing (200/230 km/h)
Zawiercie-Katowice	41	upgrade/reconstruction 2013-2020
Katowice-Czech border	78	upgrade 2014-2020
Wisła-Most-Slovak border	69	reconstruction 2014-2020

study and the possible implementation of the investment will take place in the next financial perspective (2014-2020). Modernisation of the Central Trunk Line (CMK) and the Zawiercie-Katowice reconstruction work will be paid from the state budget.

The upgrade/reconstruction of the Katowice-Zebrzydowice/Petrovice (Czech) section and Katowice to Zwardoń/Skalite (Slovakia) section (now 80km/h) is planned for after 2013.

Czech Republic

The development of PP23 in the Czech Republic will cost about €1.48 billion, financed by the state budget (€836 million), ERDF, the Cohesion Fund, EIB loans (€168 million) and TEN-T funding (€10 million). The main investments were made before 2007, but there are still works ongoing. It is expected that all works on PP23 in the Czech Republic will be finalised by 2025.

In the Czech Republic, work from the Polish border at Petrovice/Zebrzydowice (Poland) to Přerov is already finished. On the Přerov-Brno section the work to upgrade the line to 200 km/h is due to commence around 2013

Subsection	Length (km)	Status
Polish/Czech border-Přerov	100	completed
Přerov-Brno	90	upgrade 2013-2020
Brno-Břeclav	60	completed
Břeclav-Bernhardsthal (Austria)	12	upgrade to 200 km/h ongoing

and is expected to be complete by 2020. This section will be part of future Prague-Brno-Ostrava-Katowice high speed connection. Work to upgrade from 160 km/h to 200 km/h between Brno and Bernhardsthal at the Austrian border are ongoing.

Work on the Břeclav and Přerov nodes are on-going: at Brno, works are due to commence in 2010 and at Ostrava main station in 2014. The connection of the international airport in Ostrava-Mošnov to PP23 is under preparation.

Slovakia

The development of PP23 in Slovakia will cost about €1,149 billion and will be financed by the state budget (€422 million), Cohesion Fund and TEN-T funding (€718.612 million). Several investments will be made during

Subsection	Length (km)	Status
Krasno nad Kysucou-Zilina	19	completed
Zilina-Povazska Tepla	23	planning/next programming period
Puchov-Belusa	9	works ongoing
Belusa-Trencianska Tepla	20.5	works ongoing
Trencianska Tepla-Zlatovce	12	planning/next programming period
Zlatovce-Nove Mesto nad Vahom	17.5	works ongoing

the current funding period 2007-2013.

In the Slovak Republic, the Bratislava-Nové Mesto nad Váhom section (approximately 90 km) is already completed (2009) and ETCS L1 has been implemented. In the current programming period 2007-2013, at least five out of six further sections (approximately 80-90 km, see table below) should be completed. The section should permit speeds of 160 km/h for passenger trains with tilting wagons.

Work to extend Priority Project 23

In October 2006 representatives from national ministries of Poland, Czech Republic, Slovakia, Austria and Italy signed a “Letter of intent” on the development of a “Baltic-Adriatic Transport Corridor” suggesting a prolongation of the axis of PP23 and 25 to northern Italy.

In October 2009 regional representatives from five Polish, two Czech, four Austrian and three Italian regional governments committed themselves to the Baltic-Adriatic Corridor (BAC) from Gdansk/Gdynia via Katowice, Os-

Priority Project 23
Railway axis Gdańsk-Warsaw-Brno/Bratislava-Vienna

Trans-European transport network. Achievement of the Priority projects

trava and Vienna to Bologna/Ravenna with a branch Katowice-Zilina-Bratislava-Vienna.

On 19 October, the Commission adopted a package of proposals, made up of the Connecting Europe Facility (€50 billion)[4], the revised TEN-T guidelines[5], as well as a proposal to launch a pilot phase of the Project Bonds initiative[6]. The TEN-T network consists of two layers: a Core Network to be completed by 2030 and a comprehensive network feeding into this, to be completed by 2050. The implementation of the Core Network will be facilitated using a corridor approach. Corridors will provide the basis for the coordinated development of infrastruc-ture within the Core Network covering at least three modes, three Member States and two cross-border sections. One of the 10 proposed corridors is the Baltic-Adriatic Corridor from Helsinki to Ravenna taking on board the proposed alignment of the "letter of intent" between Warszawa and Bologna. In Austria the Baltic-Adriatic Corridor will include "Südbahn" with two new sections: "Koralmbahn" (130 km including 33 km of tunnels) and Semmering Base Tunnel (27.3 km, 230 km/hmax). The main works at Koralm (2011-2022) the started in March 2011, the preparatory works at Semmering Base Tunnel (2012-2024) between Gloggnitz and Mürzzuschlag in April 2012 (see map). Austria will invest up to €10 billion to improve the capacities along the "Südbahn", including €5.3 billion for Koralm- railway and €3.3 billion for the Semmering Base Tunnel. Along the corridor pre-identified projects[7] can be co-financed from the Connecting Europe Facility (CEF) by up to 40% for works, up to 50% for ERTMS, RIS and VTMIS and also up to 50% for studies.

Conclusions and recommendations

Works have already started on most sections; some subsections in all four Member States are already completed. The section Katowice-Czech and Slovakia border are behind schedule, foreseen to be finished in the next funding period. After the finalisation of PP23, the Austrian section will be the slowest section along PP23. With respect to recent Austrian plans for up-grading up to 2022, a competitive and high-quality service from the Baltic to Vienna should be realistic.

With regard to the new TEN-T guidelines a European Coordinator will be nominated to facili-tate the coordinated implementation of the new Baltic-Adriatic Corridor. The relevant European Coordinator shall consult the Member States concerned, and as appropriate consult other public and private entities, such as the infrastructure managers and operators, to draw up a work plan, make recommendations and monitor its implementation.

The work plan will be presented within one year analysing the needs for the development of the corridor in the Member States concerned including a list of projects for the extension, renewal or redeployment of transport infrastructure for each of the transport modes involved in the core network corridor and the options for funding and financing. The European Coordinator will support Member States in implementing the work plan, in particular as regards the investment planning, the related costs and implementation timeline, estimated as necessary to implement the core network corridors and defining measures aimed at promoting the intro-duction of new technologies in traffic and capacity management and, where appropriate, re-ducing external costs, in particular greenhouse gas emissions and noise. The Coordinator may set up and chair corridor working groups which focus on modal integration, interoperability and the the coordinated development of infrastructure in cross border sections.

4 http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/1200&format=HTML&aged=0&language=en and http://ec.europa.eu/transport/infrastructure/connecting_en.htm

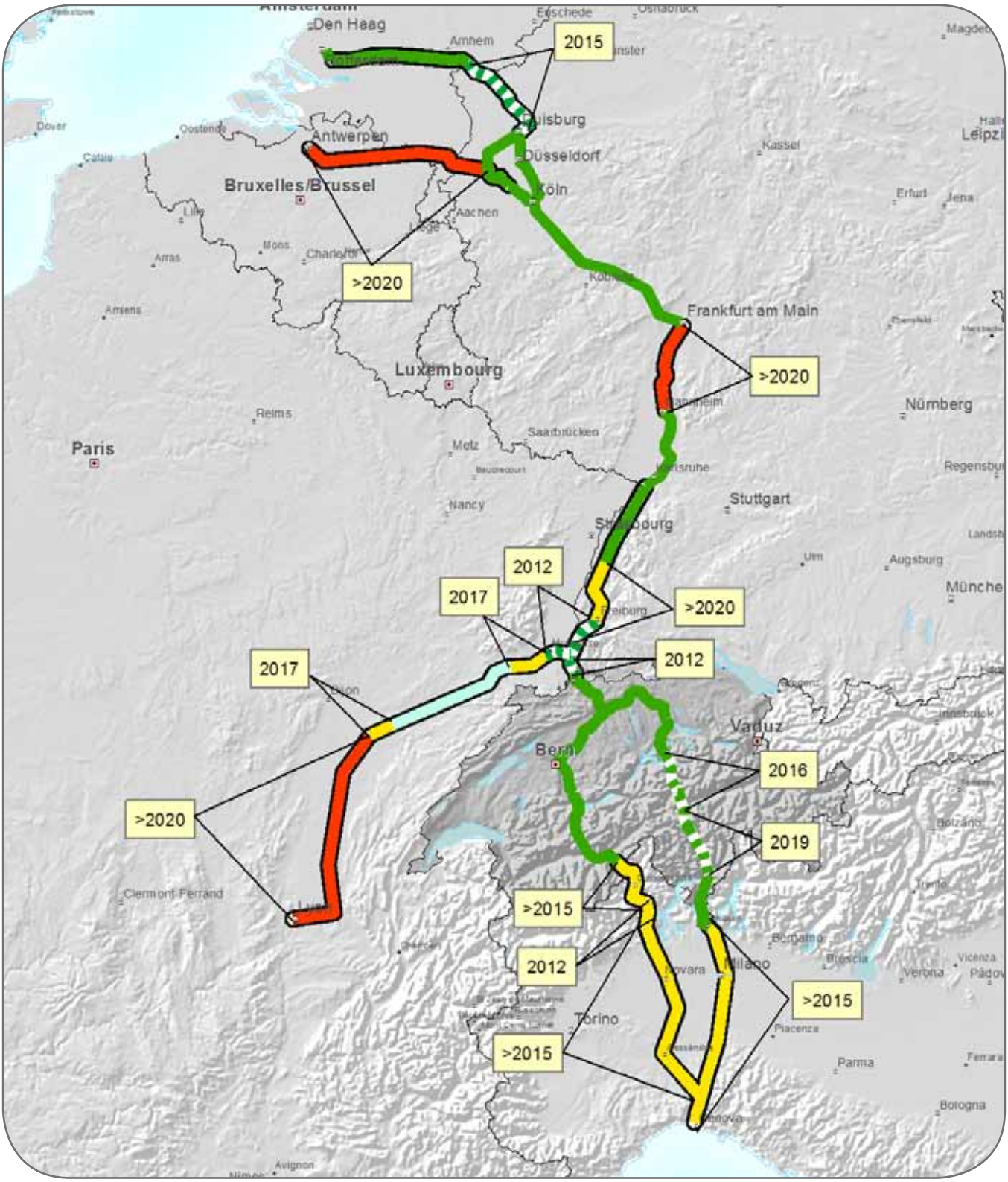
5 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011PC0650R(01):EN:NOT

6 http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/707&format=HTML&aged=0&language=EN&guiLanguage=e

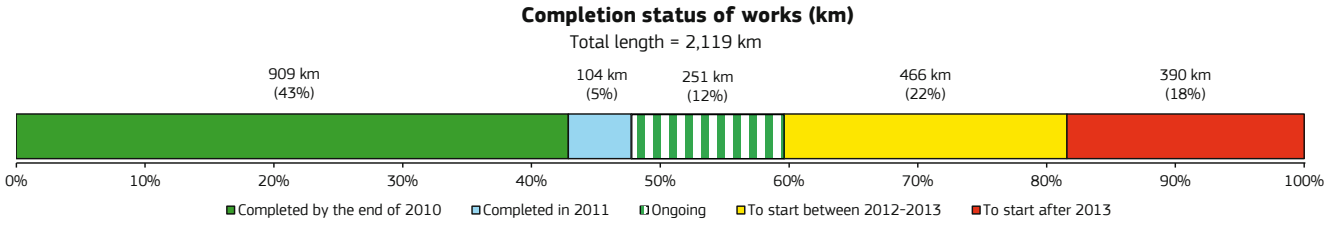
7 including the rail sections Gdynia - Katowice, Wroclaw – Poznań – Szczecin/Świnoujście, Semmering Base Tunnel, Koralm, Udine - Cervignano - Trieste, cross-border sections (PL-CZ, PL-SK, SK-AT), Graz - Maribor - Pragersko development of multimodal platforms, airport-rail interconnections and port interconnections (Gdynia, Gdańsk, Trieste, Venice, Ravenna, Koper), works for cross-border road sections (EE, LV, LT, PL, SR) and horizontal measures like Telematic Applications Systems for Road, Rail, Inland Waterways andVessels (ITS, ERTMS, RIS and VTMIS), Core Cetwork Ports, Airports, safe and secure infrastructure

Priority Project 24
Railway axis Lyon/Genoa-Basel-Duisburg-Rotterdam/Antwerp

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Ligne à grande vitesse (LGV) Rhin - Rhône Branche Est	FR	€198	Ongoing
Ausbaustrecke / Neubaustrecke Karlsruhe - Basel mit teilweisen Ausbaumaßnahmen an der bestehenden Strecke	DE	€94.5	Ongoing
Duisburg - Emmerich	DE	€63.3	Ongoing
Ausrüstung der Eisenbahnstrecke von Emmerich (Grenze) bis Basel (Grenze) mit elektronischen Stellwerken als Teil des Korridors A Rotterdam-Genua	DE	€39.7	Ongoing
Studien für den Bau der Neubaustrecke Rhein/Main-Rhein/Neckar	DE	€35.5	Ongoing
Works for replacement of legacy systems by 15/25 kVAC on two remaining sections in the Netherlands of the railway corridor Rotterdam Genoa.	NL	€19.9	Ongoing
Iron Rhine	BE, NL	€7.3	Completed
Beseitigung der Bahnübergänge auf der Strecke 2270, Oberhausen - Emmerich	DE	€5.1	Ongoing
Railway node of Genova - Study for upgrading the section Genova Voltri - Genova Brignole	IT	€5.1	Completed
Nodo ferroviario di Genova: razionalizzazione degli impianti per la fluidificazione dei traffici	IT	€5	Ongoing
Freight Corridor Betuweroute – South-East Netherlands – Germany (Corridor I)	NL	€3.8	Ongoing
Potenziamento tratta Tortona-Voghera, Progetto Prioritario n. 24, Progettazione Definitiva	IT	€2.6	Completed
Extension railway yard Maasvlakte West- Phase 1	NL	€1.5	Ongoing
Third Track Zevenaar - German border	NL	€0.8	Ongoing
TOTAL		**€481.9**	



PP 24

Priority Project 24
Railway axis Lyon/Genoa-Basel-Duisburg-Rotterdam/Antwerp

Trans-European transport network. Achievement of the Priority projects

Summary

Priority Project 24 is one of the major north-south transalpine railway axes in Europe. It connects the North Sea ports of Rotterdam and Antwerp to the Mediterranean basin in Genoa and provides connections with several east-west freight and passenger rail axes. Notably, it connects in Duisburg with the Aachen-Warsaw freight corridor, in Frankfurt/Main with Priority Project 4 High speed railway axis East, in Karlsruhe with Priority Project 17 Paris-Strasbourg-Stuttgart-Vienna-Bratislava and in Milano with Priority Project 6 Lyon-Trieste-Divača/Koper-Divača-Ljubljana-Budapest-Ukrainian border.

Important progress has been achieved since 2004, among which at first rank the entry into service of the Betuwe line in June 2007 and that of the Lötschberg base tunnel in December 2007. In addition, the eastern branch of the new Rhine-Rhône high speed line went into commercial operation in December 2011 and has provided, in a first phase, 360km/h services between Dijon and Mulhouse. On the longer run, the completion of the Gotthard and of the Monte Ceneri base tunnels is expected in 2016 and 2019 respectively.

However, further steps need to be taken to complete the project. In order to secure its core component, the Rotterdam-Basel-Milan-Genoa axes, priority attention needs to be paid to the completion of the German section, the cross-border sections Zevenaar/Emmerich-Oberhausen and Karlsruhe-Basel.

Furthermore, the improvement of rail accesses to the Port of Antwerp through the removal of bottlenecks on the Montzen route and, on the longer run, through the revival of the Iron Rhine coupled with the improvement of the Apennine crossing north of Genoa will certainly emphasise the main objective of the Priority Project 24: to connect the North Sea to Mediterranean ports. However, this objective cannot be properly fulfilled without securing at the same time enough capacity at major nodes, such as Milan, Novara, Duisburg or Basel.

A major section of Priority Project 24 is mixed and includes some of the most congested rail stretches in Europe. Hence, taking into account the reported delays for completing several sections along the PP, developing an appropriate capacity coordination together with shared work planning will be a priority for the very next years.

1. Project overview

PP24 is a freight and passenger railway section including, for the passenger part, conventional and high speed traffic. It involves five Member States (The Netherlands, Belgium, Germany, France and Italy) and transits through Switzerland.

Its EU network amounts 1,829 km and is split as follows:

- 220 km in The Netherlands (12%)
- 72 km in Belgium (3.9%)
- 794 km in Germany (43.4%)
- 356 km in France (19.4%)
- 384 km in Italy (21%)

In Switzerland, the length of the Lötschberg branch is of 304 km and that of the Gotthard branch of 411 km. PP24 includes several individual projects with major political significance at national level. These are in particular:

- The Betuwe freight line (Priority Project 5) connecting the port of Rotterdam to the German border in Zevenaar/Emmerich
- The Iron Rhine freight line linking the port of
- Antwerp to Mönchengladbach
- The construction of a third track between Emmerich and Oberhausen, the new high speed line (HIGH SPEED LINE) between Frankfurt and Mannheim and the construction of two additional tracks between Offenburg and

the German/Swiss border
- The new high speed line Rhine-Rhône connecting Mulhouse to Dijon and to Lyon
- The Lötschberg, Gotthard and Monte Ceneri base tunnels through the Alps
- The Novara and Milan nodes and the Terzo Valico tunnel through the Appenines

Furthermore, a major component of PP24 is ERTMS Rail freight corridor A Rotterdam-Genoa, designed in 2006 by the European Commission and the Community of European Railways (CER) as part of a network involving five other such corridors on which ERTMS will be deployed in priority1.

2. General data on PP24

2.1. Technical parameters

The eastern Branch of the Rhine-Rhône high speed line is designed for a maximum speed of 360 km/h. Commercial speed will be around 320 km/h. The future southern branch is expected to be designed for a maximal commercial speed of 270 km/h between Dole and Bourg-en-Bresse and of 220 km between Bourg-en-Bresse and the outskirts of Lyon.

On the Cologne-Frankfurt high speed line, commercial speed reaches 300 km/h, a speed which will also be possible on the future Frankfurt-Mannheim high speed line. High speed passenger services in Germany are otherwise operated at around 220 km/h, and around 200 km/h in Switzerland. The Lötschberg, Gotthard and the Monte Ceneri base tunnels have been designed for a maximum speed of 250 km/h.

Conventional passenger traffic meets usual speed parameters, ranging from 120 to 160 km/h, depending on the profile of the line.

Freight (Rotterdam-Genoa axis) 2

Corridor A Rotterdam-Genoa represents the freight component of PP24. It was developed on an intergovernmental basis two years after the entry into force of the TEN-T Guidelines. Hence, slight differences may be noticed between the map of PP24 and that of Corridor A, especially in Italy. To be coherent, this report will include data covering the entire Corridor A, including those sections that are not part of PP24 (Bellinzona-Luino-Rho, Domodossola-Rho and Luino-Novara).

Train length

The 750 m standard applies on the Dutch and the German sections of PP24 as well as in Switzerland on the Basel-Bern-Domodossola sections. The Basel-Bellinzona-Chiasso route can cater for 650 m long trains whereas on the Bellinzona-Luino the limit is 600 m. In Italy, a various set of standards applies and ranges from 355 m on the Novara-Ovada-Genoa section to 575 m on the Domodossola-Novara, the Luino-Rho and the Chiasso-Milano sections.

Train weight

The target of 3,000 tonnes for regular traffic has not yet been reached along the Priority Project as a regular standard. Maximum train weights along Rotterdam-Genoa range from 1,600 tonnes in Italy to 2,735 tonnes in Germany for regular traffic3. However, special traffic may be submitted to a higher maximum weight standard, such as clay trains between Koblenz and Domodossola (3,250 tonnes), 550 m coal trains between Rotterdam and the Ruhr area (4,800 tonnes) and ore trains between Rotterdam and Dillingen (5,600 tonnes).

Train speed

A large part of the Rotterdam-Genoa axis can be run at an average 100 km/h speed, i.e. between Zevenaar, at the Dutch-German border, and Rho, North of Milan. The Betuweroute and the Basel-Bern-Domodossola section in Switzerland have a 120 km/h average speed. The lowest maximum speeds are registered in Italy (90 km/h) and on the Rotterdam Harbour line between Maasvklakte and Kijfhoek (80km/h).

2.2. Electrification

The state of electrification on PP24 is well harmonised for high speed passenger transport. Since 2011, dual-current locomotives or train sets equipped with 15 kV and 25 kV have been able to run the German (15 kV) and the French HIGH SPEED LINE (25 kV).

The situation is however much more scattered for freight transport, with three different voltages still in operation along the Priority Project:

- 25 kV on the Betuwe Line - including, since autumn 2009, on the Harbour line in Rotterdam;
- 15 kV in Germany and Switzerland,
- 3 kV DC in Italy, and from Antwerp Nord to Herentals (that will be continued to the Dutch border for the electrification of the Iron Rhine).

In the Netherlands, 1.5 kV DC will be installed on the Iron Rhine as part of the reactivation of the Dutch section. From Zevenaar to Emmerich (approximately 15 km, of which approximately 12 km in Germany) the line is equipped with 1.5kV DC. The equipment with 25 kV of that last section will however be completed in 2013. Furthermore, it is worth mentioning that approximately 100 km of line from Herentals to Möndchengladbach (Iron Rhine) are not yet electrified, except for the section from Weert to Roermond.

2.3. Control-Command and Signalling Systems (CSS)

Six CCS are currently in use on PP24. ERTMS Corridor A, as part of the European Deployment Plan which entered into force on 1st September 2009, is due to be equipped with ETCS as from the end of 2015 at the very latest. The Ministers of Transport concerned renewed their commitment to maintain this timeline in the Genoa Declaration on Corridor A signed on 26 May 2009. After having confirmed the completion date of the entire deployment along Corridor A on 2 December 2010, Germany announced some months later that it will not be able to finalise installation of the necessary equipment on the corridor before 2021. Following this announcement Mr Karel Vinck, European ERTMS Coordinator, made a lot of effort in order to foster interoperability along Corridor A. In late 2012 Germany showed openness towards ERTMS deployment and it does not exclude anymore the possibility of installing it according to the initial deadlines along its stretch of Corridor A, as defined in the European Deployment Plan. Consultations between the European Commission and German authorities are ongoing.

For the time being, ETCS is operational on the Betuwe Route between Rotterdam and Barendrecht and between Kijfhoek and Zevenaar. The section Zevenaar–German border is foreseen to be equipped with ERTMS L2 by the end of 2014. Maasvlakte 2 (port connection) will be equipped with ERTMS L1 by the end of 2013. Kijfhoek will be equipped with ERTMS L1 by the end of 2013.

The Katzenberg Tunnel will be inaugurated in December 2012 with PZB/LZB, its ETCS equipment with level 2 planned to be finalised by 2015. ETCS design for the Basel hub is currently in coordination between DB Netz, EBA, SBB and BAV. A mix of level 2 and level 1 is foreseen for the hub. As mentioned above, for the remaining section in the German territory alternative solutions are being studied in order to complete the ETCS installation by 2015 or, at latest, 2018.

Level 1 limited supervision will be implemented along the entire Swiss network, with Priority Project 24 being equipped first. SBB starts with the replacement of ZUB/Signum by ETCS balises on 13 July.

The Milano Lambrate–Treviglio section (40 km along ERTMS Corridor D) is the pilot line in Italy for ETCS Level 2 implementation (baseline 3) in parallel to the existing National system (SCMT). The call for tender has already been launched. If the specifications during the pilot line deployment can be considered as final, the installation of ERTMS on the Italian part of Corridor A can be finalised by the agreed European deadlines. The launch of tender is foreseen in March 2013.

Otherwise, ATB is used on the non ETCS sections in the Netherlands, LZB/PZB in Germany, ZUB Signum in Switzerland and SCMT in Italy.

3. From Rotterdam to Duisburg - The Betuwe Line

The Betuwe Line (PP5) was put into service in June 2007. It is a two track section solely dedicated to freight traffic from Rotterdam harbour to the German border. As such, it is one of the three freight routes currently linking Rotterdam to the German border and is expected to become the main route to that destination, while the Venlo route, which falls out PP24's scope, would be an alternative route along Corridor A. The third route, linking Rotterdam via Amsterdam to Bad Bentheim, concerns neither PP24 nor Corridor A.

In 2010, an average of 55 daily southbound international freight trains used the Betuwe Line between Kijfhoek and Emmerich, as compared to 41 in 2008.

Despite this increase, the Betuwe Line remains currently underused. At the border crossing in Emmerich a joint calculation by ProRail and DB Netze forecasts an increase of demand for train paths by 80% to 144 paths daily in 2015, as compared to 2008.

4. From Antwerp to Duisburg – The Iron Rhine

Elements of context

The Iron Rhine, a 162 km long partly one track and non-electrified rail freight section, dates back to the Treaty of London signed between The Netherlands and Belgium in 1839. Together with setting the independence of Belgium, it enabled it to construct and finance a freight link through the Dutch province of Limburg to the then Prussian border. The line was inaugurated in 1879.

Today, it is operational and in use except for the section linking Roermond to the Dutch-German border town of Dalheim (approximately 15 km), which has not been used since 1991. In Belgium, the section from Lier to Neerpelt/Hamont is used by passenger and freight trains. Some freight trains still cross the Belgian-Dutch border towards the Budel Zinc factory. The Weert-Roermond section is part of the Dutch intercity network (approximately 24 km). The German section between Dalheim and the Rheydt freight station is used for local passenger and freight traffic and the German part of the border line Dalheim-border D/NL (800 m) can still be used, but no trains have operated on this line since 1991.

In 1998, Belgium asked The Netherlands to re-open the link with a deadline then set for 2015.

In 2003, the case of re-opening the Iron Rhine was brought by Belgium and The Netherlands before the Arbitrational tribunal of the Permanent Court of Arbitration. Its decision was delivered on 24 May 2005, to which an interpretative decision was added on 20 September 2005. They set rules to calculate the share between both countries to finance the modernisation of the Dutch section, but no concrete agreement between has yet been found on the issue.

In-depth studies (traffic forecasts, technical studies, social cost/benefit analysis) were undertaken from 2007 to 2009. These studies were validated by a commission of independent experts, which delivered its advice on budgetary burden sharing in spring 2009. Since then, both countries have pursued the goal of a Memorandum of Understanding defining the main elements of the project (design, budget sharing, planning, etc.).

From 2010 up until now there have been extensive negotiations between Belgium and the Netherlands. On 4 July 2011, Belgium reconfirmed its preference for the historical route, which was acknowledged and accepted by the Netherlands and also Supported by Germany.

The three countries decided to electrify the Iron Rhine as part of the re-activation. Further studies for the electrification and associated costs were carried out at the end of 2011. The planning, both for procedures and the construction itself, were updated in the beginning of 2012. The earliest completion is expected to be the end of 2025. A Memorandum of Understanding between Belgium and the Netherlands is in the final stage. It includes the distribution of the investment costs between these two countries, according to a fixed percentage. At the current time, some financial points remain open to discussion, with both countries working to come to a solution as soon as possible.

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Traffic forecast and cost-benefit analyses on the Iron Rhine

According to the TMO/TNL social cost benefit analysis, carried out on behalf of the Belgian, Dutch and German governments and published in July 2009, the Iron Rhine would bring 1.2 to 2.9 extra million tonnes/year around 2030. Approximately 8.1 to 9.8 million tonnes/year would result from traffic diverted from the Montzen Route. Depending on the scenarios based upon various growth factors, and more or less pro-active policy measures - liberalisation, internalisation of external costs - the Iron Rhine is expected to carry from 9.3 million tonnes/year to 12.7 millions tonnes/year. At the same time, traffic on the Montzen route is expected to drop by more than half in the case of revitalisation of the Iron Rhine, from 14.3 million tonnes/year in 2030, without the Iron Rhine, to a traffic volume evaluated to reach 4.5 to 6.2 million tonnes/year.

Most of the traffic growth should depend upon economic growth and the expansion of the Antwerp harbour, whereas the increase of infrastructure capacity should play a minor role.

On that basis, and in a context of economic downturn, negotiations were temporarily put on hold. The Belgian part expressed the willingness to resume discussions before 2010, with the aim of achieving a Memorandum of Understanding by the end of the year to frame upcoming financial negotiations. As it stands now, investment planning from the Belgian and the Dutch Ministries foresees the completion of the Iron Rhine by the end of 2019 at the earliest.

Additional elements of context likely to impact on the Iron Rhine project

The initiative put forward in May 2009 by the Dutch Minister for Transport, Mr Camiel Eurlings, and confirmed in the Rotterdam Declaration of 14 June 2010 to better connect ERTMS corridor C Antwerp-Basel/Lyon, corridor A Rotterdam-Genoa and corridor F Aachen-Warsaw-PL/BY border, shows a willingness of the Dutch side to address the competitiveness of the Benelux ports (Zeebrugge, Antwerp and Rotterdam) in a larger view. The initiative is supported by the Belgian government.

In that context, it appears that the Iron Rhine could be considered not to be solely a branch of an individual Priority Project, but part of a future intermodal sea-to-rail triangle linking the Benelux ports to the Rhine valley, thereby shifting the focus from the infrastructure to its function. Hence, as long as the Iron Rhine is not completed, it could certainly make sense to consider the Montzen route as providing the connection from the port of Antwerp to Duisburg. Traffic optimisation in the area could then be reassessed in due time, after the modernised Iron Rhine enters into service.

The removal of bottlenecks on the Montzen Route to the Dutch-German border, which, until completion of the Iron Rhine, remains the main east-west rail connection to the Rhine valley, is estimated to amount to €89 million and concerns the construction of a fly-over in Aarschot.

5. From Emmerich to Basel - The German section of PP24

The PP24 stretch in Germany is mostly mixed, either between freight and regional/suburban passenger transport or together with high speed passenger traffic. In 2002, a high speed line section was put into service between Cologne and Frankfurt, thereby separating freight and regional/suburban traffic running on the classical line from ICE traffic that will be transferred to the new line.

Emmerich-Oberhausen

The electrification of two remaining slots in The Netherlands, one of which links Zevenaar (eastern endpoint of the Betuwe Line) to Emmerich aims at replacing the last sections electrified with a 1.5 kV system to a 25 kV system. The project has faced important delays due lack of agreement on a common technical solution between The Netherlands and Germany. An ad hoc expert group issued a proposal in January 2010 that has since been

endorsed by ProRail and DB Netz.

It foresees the migration from 1.5 kV to 25 kV of a cross-border section starting east of Zevenaar and ending about 5 km south of the Dutch-German border, to which the Betuwe route also connects. This will enable conventional locomotives equipped with a dual power system (15 kV and 25 kV) operating on the Betuwe Line to cross the border by means of a single switch.

By the end of 2012 ,the plan approval procedures for the third track between the Dutch-German border and Oberhausen will be gradually launched in all 12 sub-sections. Building permits will probably not be granted before 2013. On 22 January 2007 both governments signed a Memorandum of Understanding in that sense. It is worth mentioning that, on the Dutch side, preliminary studies on the section Zevenaar-Emmerich have not yet been assigned.

However, updated traffic forecasts delivered in September 2010 by the German Ministry of Transport show significant traffic increase by 2025 according to which the existing project planning may have to be at least partly adapted.

According current national law7 an agreement between Deutsche Bahn, Land of North Rhine-Westphalia and the municipalities is a condition for removal of numerous crossing levels along this section. These agreements are currently being negotiated. To facilitate consensus ,a consultative project commission was set up in October 2009, composed of representatives of the federal and regional ministries of transport and the national railway authority (EBA). In addition, the transport ministry of Nordrhine-Westphalia and the municipalities negotiate local burden sharing in order to limit the financial impact of the investments on local budgets.

Oberhausen-Frankfurt

The main achievement along this section is the entry into service of the high speed line between Cologne and Frankfurt in August 2002, following a two year delay. This 180 km long two track line, following the A3/E35 highway, is the first line in Germany to separate high speed passenger service from conventional rail.

This new high speed line includes three new stations -, Siegburg/Bonn, Montabaur and Limburg-Süd - the latter of which being the first one in Germany to be solely served by high speed trains. This new infrastructure includes at its north end a 15 km loop linking the Cologne central station-Siegen line to the Cologne/Bonn airport. At its south end, between Frankfurt Airport and Frankfurt Central Station, the ICE uses the conventional network. Conventional rail, among which rail freight, runs on the four track line, which is located on the left and on the right banks of the Rhine.

Cologne-Karlsruhe

The results of the last review (2010) of the needs in the German railway network (Bedarfsplanüberprüfung) show that a suitable transport strategy lacks for the railway corridor Köln-Rhein/Main-Rhein/Neckar-Karlsruhe. Therefore, a study is being carried out on behalf of the Federal Ministry of Transport that should analyse an overall conception for this highly overloaded railway corridor. As the first step, the infrastructure needs are defined on the basis of traffic-related requirements without prior assumptions. The objective is to find an economically based solution that can be included in the future Federal Masterplan. This study is being followed by a working group that consists of the representatives from North Rhine-Westphalia, Hesse, Rhineland-Palatinate, Baden-Württemberg and DB Netz AG. Its results are to be expected at the end of 2013.

Karlsruhe-Basel

This section is common to PP24 and PP17 between Appenweier and Karlsruhe (approximately 66 km). It is crucial as regards to TEN-T policy implementation, being one of the most utilised sections on the German rail network. The realisation of that section mixes the upgrade of existing lines and the construction of new lines, including tunnels, such Rastatt and Katzenberg.

Passenger and rail freight traffic are still mixed on most of the line. However, one major aim of infrastructure investment along that section is to build up enough capacity to improve traffic coordination and, in some cases, to split it. The aim of the Federal State is to have the full section finished by the time the axis Gotthard-Monte

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Ceneri section will be completed, in 2019.

Capacity upgrade between Karlsruhe and Basel

Since 2004, four tracks are in service between Rastatt Süd and Offenburg. The enlargement from two to four tracks is further planned between Dummersheim and Rastatt Süd (approximately 15 km), from Offenburg to Kenzingen and from Buggingen to Basel Bad station (approximately 40 km each), parallel to the two already existing tracks. A two track bypass of Freiburg is foreseen for the transport of goods between Kenzingen and Buggingen (approximately 50 km). A traffic split is also foreseen further south between Bad Bellingen and Efringen Kirchen (approximately 12 km), after the Katzenberg tunnel is open, expected in December 2012. Freight will use the already existing two track stretch along the Rhine. For noise protection reasons it is planned that all freight night trains and as many as possible freight trains during the day will pass through the Katzenberg tunnel. Deutsche Bahn Netz AG estimates the total costs of the measures still to be done between Karlsruhe and Basel will amount to €6.2 billion. €2 billion was already spent by the end of 2011.

The completion timeline for the section Karslruhe-Basel is undetermined. Local initiatives, raising the issue of noise pollution, have put forward alternatives, including the displacement of two additional tracks further west along the highway, i.e. along less densely inhabited areas, as well as the construction of a tunnel in Offenburg and in Weil-am-Rhein, between Haltingen and Basel. These alternatives are evaluated to raise additional costs to around €900 million.

In order for an overall agreement on the section Offenburg-Basel, a consultative project commission was set up in October 2009 which has met seven times. It is composed of representatives from local authorities, Baden-Württemberg, DB and the Federal State. Three working groups have also been set up to solve topical problems. However, no timeline can be set for the achievement of a settlement.

The Rastatt tunnel and the Appenweier curve

Furthermore, two subsections have remained so far unsolved: the Rastatt tunnel and the Appenweier curve. The construction of the Rastatt tunnel has long been suspended because of the lack of a financial agreement between the federal authorities and DB. All preliminary studies have been completed and construction authorisation was given in 1998. A financial agreement was signed for the construction of the new line and the Rastatt tunnel on 22 August 2012 (Karlsruhe Main Station–Rastatt South, costs: €693 million). Their completion is expected for 2022.

The Kehl-Appenweier section, a 14 km two track section, belongs to PP17 and is not part of PP24. It aims at improving the interconnection between the eastern French TGV network to southern Germany. As such, it may then impact capacity levels on the Karlsruhe axis and thus cannot be considered as being unrelated to PP24. Furthermore, the state of planning of the Mulhouse-Mülheim section on the German side makes an efficient development of the Strasburg-Kehl cross-border section all the more important.

The foreseen investment aims at upgrading the line to enable a 120- 160 km/h passenger service. Whereas the Kehl-Appenweier project section has not yet been pushed into planning, the Kehl bridge as such entered into service in December 2010.

The Appenweier curve was discussed for long time, and finally the fly-over variant (instead of a connection with no-flyover) has been chosen for realisation. The fly-over solution will enable trains coming from France and going to Karlsruhe to join the right track without crossing southbound traffic. In order to accelerate the completion of the second construction phase of the Kehl-Appenweier section, the Bund plans to pre-finance the planning costs for the infrastructure manager. This planning implies clarification of the tasks, stock-taking, environmental

impact assessment, assessment of variants, and decision making aid.

6. The Mulhouse-Mülheim section - Connecting the HIGH SPEED LINE Rhine-Rhône to the German network

This 25 km single track section is currently used for regular rail freight traffic as well as for regional cross-border traffic. Within the frame of PP24, it aims at connecting high speed passenger trains circulating on the Rhine-Rhône high speed line to the German network. This connection however requires an upgrade of the line and France and Germany have set diverging priorities on the section.

On the French side, upgrades are ongoing within the seven-year state-region financing frame contract (Contrat de projet Etat-région) with the aim of re-opening the line to regular regional passenger and freight traffic as from the end of 2012. The re-opening ceremony is planned for 9 December 2012. Investment totals around €22 million, and for freight include works such as the modernisation of the Bantzenheim station and the renewal of track parts.

Upgrades in view of enabling high speed train traffic are not yet financed. They would aim at increasing the operational speed up to 90 km/h and would cover minor works such as changes in the signalling layout and renewal of ballast and ailroad ties on part of the section. Investment costs are estimated at €3.6 million, with EC co-funding of €720,000, and the rest is shared between the national and regional/local entities.

On the German side, the section has not yet been included into any investment planning. Both the German government and DB Netze would rather support a connection of the high speed line Rhine-Rhône to its network through the new Rhine bridge near Kehl.

That solution is however not supported by major rail operators on both sides, (SNCF and DB Fernverkehr) as both cross-border sections do not connect with the same areas. The Mulhouse-Mülheim section connects to the Freiburg urban area (+/- 600,000 inhabitants) whereas the new Rhine bridge opens north to Karlsruhe and continues then south to Munich.

In addition, the Strasbourg-Mulhouse line which links the Rhine bridge to the high speed line Rhine-Rhône is devoted in priority to regional and freight traffic, and has an already high utilisation rate despite the recent entry into service of two additional tracks between Strasbourg and Sélestat. In the first stage, around four high speed trains a day are planned to circulate between France and Germany using the high speed Rhine-Rhône. In the long term, the new Rhine bridge and the Alsatian line will unlikely serve as an alternative to the Karlsruhe-Basel section for French high speed trains going to Freiburg or for German high speed trains going to Mulhouse, and further to Lyon and the Mediterranean basin.

7. From Mulhouse to Lyon - The HSL Rhine-Rhône

The full high speed line Rhine-Rhône project involves three branches out of which two (the eastern and the southern branches) are included in PP24. . The eastern branch - a 190 km long two track section - is by far the most advanced. Its first phase was completed in December 2011. The southern branch remains at the stage of preliminary studies and mapping.

The Eastern branch (Dijon-Mulhouse)

Eastern branch - 1st phase (2006-2011)

The first phase consists of a 140 km long double track section linking Villers-les-Pots southeast of Dijon to Petit-Croix in the Belfort region. It is designed to handle high speed services up to 350 km/h, but will first be operated at 320 km/h. It entered into service in September 2011 and was opened for passenger operations in December 2011.

The works of this first phase are carried out by RFF for the infrastructure and the non-passenger related parts of the two new railway stations, Besançon Franche-Comté TGV and Belfort-Montbéliard TGV. The French railways, SNCF, are in charge of passenger areas of railway stations and the upgrade of the Lyon-Guillotière train maintenance platform.

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The total investment amounts to €2.5 billion, among which €2.313 billion are for infrastructure and non- passenger related equipment. These costs might however be reviewed at a later stage, as cost overruns may occur. The financing comes from the French and Swiss governments, the EU, RFF, SNCF, the regions of Alsace, Franche-Comté, Burgundy and Rhône-Alpes as well as the seven departments and eight urban communities.

The entry into service of the first phase will significantly cut travel times. At a national level, travelling from Strasbourg to Lyon will take 65 minutes less, from 4h45 to 3h40, and from Frankfurt to Lyon about 75 minutes less than now. Strasbourg will take 75 minutes less, and will be 5h30 away from Marseille instead of the current 6h45. Although being a national stretch without international interconnections, the time savings may positively impact other high speed passenger travel times from the Frankfurt, Freiburg and Basel areas down to Lyon and further, on a more seasonal basis, to the Mediterranean coast. However, harmonising timetables between Germany and France, in order to open new alternatives, is currently confronted with some difficulties related to the saturated Mannheim and Lyon hubs.

In the first two years, fifty-five trains a day are expected to run on the line, after which its utilisation will be governed by market rules. The line can be run by one train every four minutes in each direction.

The Perrigny interconnection

This interconnection is located south of the Dijon area and aims to provide a bypass link to the Paris-Lyon-Méditerranée (PLM) line both from the eastern branch of the high speed line and from the Nancy-Dijon freight axis to the PLM line.

Works for this 2.5 km long line located in a dense urban area started in 2007 and are due to be completed by the end of 2012, together with the start of passenger operations on the eastern branch of the high speed line. The construction will cost €110 million.

Eastern branch - 2nd phase (2012-2017)

The second phase covers the end sections of the eastern branch, between Genlis and Villers-les-Pots in the west (15 km) and between Petite Croix and Lutterbach in the east (35 km). Its completion will enable a 17 minute gain between Strasbourg and Lyon.

Currently, RFF is carrying out the remaining preliminary studies, archaeological check researches, forest clearings and the acquisition of the necessary lots before the declaration of public need (Déclaration d'utilité publique) for the entire eastern branch expires in January 2012. These activities, aiming at securing the timeline, are led in the frame of two financial conventions covering budgetary needs respectively for 2010 and 2011, and these conventions have already been signed.

The first cost estimation for the second phase amounts to €1.16 billion. According to RFF, works for the second phase could start in 2014. However, this requires financing issues to be solved within the next five years.

The short shunting of Mulhouse and the tram-train connection Mulhouse-Lütterbach

The short shunting of Mulhouse is a 700 m single track section that would enable direct connections from the north (Alsace) to the west (Franche-Comté) without having to stop at Mulhouse station. The shunting will also represent a 10 minute time gain between Strasbourg and Belfort. However, its high cost - €50 million - has raised local opposition for several years. Furthermore, the shunting has been presented by opponents as redundant after the second phase of the eastern branch is completed. Despite the argument, works have started and the section is expected to be completed in 2013. After entry into service of the full eastern high speed line, the short shunting will foremost be used for bypassing freight traffic.

Furthermore, the Mulhouse municipality defends the project of a tram-train connection from the high speed line to the city centre. The project would require installing a tram station along the line in an area where technical building issues, partly related to the presence of a nearby road interchange, might significantly increase investment costs. The project has been the subject of political discussions and might not be implemented.

The Southern Branch (Dole-Lyon; 2006 - tentatively 2025)

Unlike the eastern branch, the southern branch is expected to be a mixed traffic line. It connects north to the eastern branch of the high speed line Rhine-Rhône north of Dole, and stops south in Leyment, which is located northeast of the Lyon urban area.

The southern branch belongs to the 2,000 km of new high speed lines for which works were designated in the Grenelle de l'environnement - a nation-wide debate on sustainable development that took place in 2008 - to be launched by 2020.

The specifications for designing the southern branch include further requirements, such as enabling a link from Strasbourg to Lyon in approximately 2h10. This would stop at Bourg-en-Bresse at the existing railway station and provide an interconnection, in the east, to the Haut-Bugey line towards Geneva, stopping at a new station in the area of Lons-le-Saunier/Louhans and providing an interconnection in the west, to the Paris-Lyon-Méditerranée (PLM) line in the Mâcon area, and serve both Lyon central station and its airport intermodal station.

Preliminary studies launched in February 2006 led in 2008 to the conclusion of a stretch that would follow the A39, A40 and the A42 highways from the north of Dole down to Lons-le-Saunier, Saint-Amour and Bourg-en-Bresse.

This approximately 170 km long stretch recommended by RFF has the advantage of using an already existing infrastructure corridor along highways, whereas both of the others (the west and central stretches - not represented on the map above) would lead to open a new corridor, and could potentially conflict with environmental protection issues, the presence of industrial installations submitted to specific risk prevention measures (Solvay plant in Dole and north of Bourg-en-Bresse) and the presence of densely inhabited areas.

Unlike other new high speed lines in France, the eastern stretch is designed to be operated at 270 km/h north of Bourg-en-Bresse and 220 km/h south of it, instead of 320 km/h. However, speed does not appear as a major discriminating factor when compared to the centre and western alternatives. On both latter sections, in fact, a 320 km/h speed could only have been reached on distances as long as 44 km (centre stretch) or 78 km (western stretch).

The southern branch will include two new railway stations: a Dijon-Dole-Besançon interconnection station in the Dole area and a station located midway on the line between Louhans and Lons-le-Saunier. The existing station in Bourg-en-Bresse aims to become a major multimodal station, and for the time being, no new station is planned there.

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This stretch should enable Strasbourg to be linked to the Lyon airport in 2h14 and Lyon city centre in 2h18.

The main debate concerns having a mixed traffic along the entire or just a part of the branch. The area Dijon-Dole-Bourg-en-Bresse-Lyon is currently served by two lines: Bresse in the east and the PLM in the west, both being major north-south freight axes. In the long run, the PLM line is due to host more regional passenger traffic, whereas the Bresse line is planned to be in priority devoted to freight. Within the €7 billion national action plan for freight, launched in October 2009, €100 million is allocated to increasing the daily number of freight train paths on the line from 110 to 290. This target will require investments such as improvement of sub-stations, noise and vibration reduction works, as well as the removal of level crossings. Studies are currently underway. RFF is exploring two options for the southern branch: the construction of a full mixed line or a high speed line north of Bourg-en-Bresse and a mixed line between Bourg-en-Bresse and Lyon.

According to RFF, mixed traffic is necessary south of Bourg-en-Bresse. The opportunity of developing new capacity with the southern branch is considered by RFF as necessary - at least south of Bourg-en-Bresse, to absorb

the traffic increase forecast in the Lyon area, as well as that related to the entry into service of the Lyon-Turin base tunnel.

In the case of a full mixed line, the additional capacity planned to be made available by the southern branch depends on the number of high speed trains expected to run the line. If thirty high speed trains a day run in each direction, corresponding to the work estimates of RFF, sixty freight trains could run on the line, especially between 22h00 and 6h00, i.e. outside passenger traffic timetables, but within maintenance timetables. The optimal operational speed parameter for freight trains taken in this case is 120 km/h, with 1,800m long sidings at every 25th kilometre.

Preliminary studies evaluate additional investment costs related to having a mixed line at an amount of 10% of the total costs. A non mixed high speed line would thus cost €2.9 billion instead of €3.2 billion.

However, operational and maintenance additional costs have not yet been assessed but might reach as much as 20- 30% of these same costs in case of a non mixed high speed line. It is yet unclea, to what extent these costs might be borne by rail operators through track access fees significantly higher than those applying on the already existing PLM and Bresse lines.

In the current discussions, track access charges to be applied on the southern branch would stay in an average range, in order to compensate the increase of fees collected on the PLM high speed line. However, these charges would remain significantly higher to those collected on freight lines.

For this reason mainly, SNCF expressed serious doubts on the necessity of having a mixed high speed line, in which two existing lines, providing cheaper capacity, start at points located around 40 km away from one another and arrive southwards in the same area.

The eastern stretch, with the different traffic options, was opened to public consultation in the second half of 2009. A synthesis of the 400 answers has been available since the end of April 2010, together with the complementary socio-economic studies.

The southern branch is not expected to enter into service before 2025. However, RFF is considering the Bourg-en-Bresse bypass as a possible first step to be undertaken in order to ease north-south freight traffic.

The Lyon urban area bypass (CFAL - Contournement ferroviaire de l'agglomération lyonnaise)

Though not a component of PP24, the CFAL project impacts its integration into the wider TEN-T network as it will ease the interconnection with PP6 Lyon-Budapest as well as with the ERTMS freight corridors C Antwerp-Basel/Lyon and D Valencia-Lyon-Budapest.

The project dates back to the end of 2001 and was officially launched by ministerial decision on 16 May 2003. In general, it aims at easing the bypass of Lyon for freight trains, by optimising the use of existing lines, by constructing a new line linking Leyment, where the southern high speed line branch and the Bresse line will arrive, to Sibelin, located south of Vénissieux. The city centre of Lyon will therefore be bypassed on its eastern side.

It should contribute to relieve capacity on inner city lines for passenger traffic and smooth north-south freight traffic going further south to the Mediterranean basin and east to Italy through the Lyon-Turin axis, to which the CFAL will provide a connection.

The CFAL project includes as well a train connection to the Lyon St Exupéry airport, hence improving its accessibil-

ity by rail from other cities in the Rhône-Alpes region as well as from Geneva and later from the regions situated along the southern high speed line branch.

The new line is split in two parts: the CFAL north starts in Leyment and ends at Saint-Pierre de Chandieu where the connection to the Lyon-Turin axis will occur. This phase includes works in the railway station of Ambérieu-en-Bugey to improve the interconnection of lines. The CFAL south then continues to Sibelin. The complete new line will be 80 km long and run on two tracks.

For the CFAL north, RFF currently is carrying out second stage studies to precisely determine the 60 km long line that will follow a stretch parallel to the A42 and A432 highways. After that, a decision on its public utility will be required to go further with the preparation of the works phase. A ministerial decision of 23 December 2009 requests the procedure to start before the end of 2010.

The CFAL south project is at an earlier stage of development. In December 2009, the Secretary of State for Transport decided upon a stretch among seven that had been studied by RFF. This stretch, the so-called Plaine d'Heyrieux – Sibelin nord, is 21 km long and consists of tunnels for about 60% of its length, due to geographical constraints and gradients that would be otherwise too steep for freight trains. It runs north of all the stretches that were taken into account, and is near the Lyon urban area.

As regards to costs, the full CFAL project is estimated at €3.1 billion, out of which €1.5 billion are planned for the CFAL north. The costs of the CFAL south will be more precisely assessed during the second-stage study which is about to start.

8. The north-south Alpine transversal: From Basel to Domodossola/Chiasso

The Swiss section of PP24 divides in two branches starting both in Basel. The Lötschberg branch joins Bern through Olten and continues through Thun and Spiez to the two Lötschberg routes: the mountain route running through the 14.6 km long historic tunnel and the base route running through the 34.5 km long base tunnel. The Lötschberg branch then continues to the 19.8 km long Simplon tunnel. It passes through the Swiss-Italian border located in the tunnel and ends in Iselle, between Brig and Domodossola. The Lötschberg branch is 304 km long. Between Basel and Arth-Goldau, the Gotthard branch has three possible stretches, through Zürich (approximately 120 km), Lucerne (approximately 90 km) and Brugg/ Rotkreuz, this last stretch being the reference route for rail freight Corridor A. From Arth-Goldau southward, it continues through the Gotthard Tunnel (15 km) to the Swiss-Italian border in Chiasso (approximately 150 km). The Gotthard branch is 411 km long.

With the exception of the Luino-Switzerland-Italy stretch, which is a single track section, PP24 lines on Swiss territory are double tracked. All lines are mixed for rail freight and passenger traffic.

The new rail link through the Alps (NRLA)

The realisation of the NRLA represents the core issue of the Swiss section of PP24. At a national level, it also represents the most important project of Swiss infrastructure policy. It relies on a strong political choice made by Switzerland in favour of rail for Alpine transit.

This choice is supported by traffic prognosis which forecasts an increase of the distance travelled in Switzerland of 20% to 48% by 2020 depending on the underlying assumptions such as, at first rank, demographic and economic growth and transport policy scenarios. Rail transport for passengers is expected to increase, in passenger-km, from 30% to 132% (16% to 31% for individual motorised transport) and for goods, in tonnes – km, from 48% to 96% (36% to 87% for road). Subsequently, modal shift is expected to evolve in favour of rail, from 15% to 26% of the traffic volume between 1997 and 2020, while the traffic volume on road would contract from 85% to 74% on the same period.

In this context, the NRLA is one of four major policy frames10 aimed at developing rail both for regional and long distance passenger traffic, as well as the transport of goods. All four projects are financed through the Public Transport Fund (FTP Fund). The NRLA covers seven projects, among which the Gotthard and the Lötschberg axes. On these axes, passenger traffic is expected to increase by up to 75% and freight traffic by up to 70% by 2030. In 2004, it was clear that the FTP fund, to which an allocation of CHF30.5 billion (approximately €28.5 billion

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- 1995 price levels) had been estimated necessary when it was created in 1998, would not be sufficient to implement all four programmes. In that context, the Federal Parliament asked the Federal Office for Transport to undertake a priority review, which it submitted in October 2007.

Within the FTP, the estimated for the NLFA implementation was evaluated in 1998 at CHF14.2 billion (approximately €13.5 billion - 1995 price levels). This evaluation was updated to CHF19.8 billion in 2007 (approximately €18.2 billion - 1998 price levels).

To compensate the cost increase, it was agreed to renounce to the projects of two basis tunnels, the Zimmerberg II and the Hirzel - initially planned to be built between Zürich and Arth-Goldau. The Gotthard and the Monte Ceneri base tunnels and accesses were given a priority.

The updated NLFA budgetary needs amount to CHF19.1 billion (€17.8 billion), among which CHF11.9 billion (€11.1 billion) for the Gotthard and CHF4.2 billion (€3.9 billion) for the Lötschberg branch. The financing of the NRLA through the FTP fund is based upon three tax sources: the performance related heavy vehicle fee, the tax on mineral oils used as fuel and the reallocation of a fraction of VAT revenues.

The Lötschberg, the Gotthard and the Monte Ceneri base tunnels will enable the modal shift from road to rail which is laid out in the Swiss Constitution. In 2020, the Swiss transit corridors Lötschberg and Gotthard will offer an overall capacity of 370 paths per day for freight trains.

The Basel knot

The Basel area, where densely inhabited areas in France, Germany and Switzerland converge, is a major passenger and freight intermodal node for the upper Rhine region. It constitutes of the:

- Euro-airport Mulhouse-Bâle-Fribourg through which 4.26 million passengers and 101,111 tonnes of freight transited in 2008
- three Rhine inland ports of Kleinhüningen (North of Basel), Birsfelden and Müttenz Au (southeast of Basel) through which 17% of imports in Switzerland and around one third of mineral oils transited in 2009
- Weil-am-Rhein and Muttenz rail transhipment areas
- Basel rail passenger stations, a major hub for regional traffic, intercity and high speed trains. On the Swiss part, 86,500 passengers a year commute, 70.4% from Swiss longer distance connections

As regards to rail, Germany, Switzerland and France established in 2003 a long term (25 year) tri-national planning committee on the Basel knot. The outcome of the study, published in December 200814, was that no capacity problem would occur in the Basel area when the Gotthard basis tunnel will be put into service, provided all planned infrastructure projects are implemented. This however includes such capacity improvements as the construction of the two planned additional tracks between Offenburg and Basel.

In France, investments taken into account in the study, as already planned or implemented, and contributing to release capacity are the third track constructed between the south of Strasbourg and Sélestat (approximately 40 km), which was put in operation in 2009. They also cover the second phase of the east European high speed line, between Baudrecourt and Strasbourg-Vendenheim (106 km), which is planned to enter into service in 2015. However, the study recommends furthering analyses of the possibilities to improve capacity on the Colmar-Mulhouse-Basel section. Such analyses are expected to be carried out by 2013.

On the Swiss side, the deployment of the Basel suburban train network, the Regio S-Bahn, depends on the number of paths per hour that will be dedicated to it. Currently this issue and the impact on the overall capacity (mainline and freight) are dealt with in the STEP (Strategic Development Plan for Railway Infrastructure) project

in order to ensure enough capacity for all train types.

The Lötschberg-Simplon section

Transit freight volume on this line more than doubled between 1999 and 2007, from 4 to 10 million net tonnes. A major step was the entry into service of the first single track tube of the Lötschberg base tunnel in June 2007 and its first commercial drive six months later.

The Lötscherg base tunnel allows 140 train paths a day. Its utilisation rate had reached 77% of its capacity by June 2009. Currently, approximately 40 intercity trains and 12 international passenger trains use the Lötschberg base tunnel daily, as well as around 57% of the freight trains crossing the Lötschberg, the other 43% being diverted to the double track mountain tunnel. The latter is also used by 70 to 180 car transport trains and approximately 35 regional trains.

The perspective of increased capacity after the opening of the Gotthard tunnel was studied in STEP on both the Lötschberg and the Gotthard corridors. The completion of the Lötschberg base tunnel would permit a 30 minute frequency for passenger trains and at least four freight trains per hour/ direction. Additionally, reserve for some extra trains will exist and the travel time of freight trains can be optimised.

The second tunnel is already partly bored - seven kilometres remains to be dug and the rail installation also needs to be achieved.

The Gotthard-Monte Ceneri section

The Gotthard and the Monte Ceneri base tunnels are expected to be put into service by the end of 2016.

At the beginning of September, 22% of the Monte Ceneri Base tunnel had been excavated and the final breakthrough of the Gotthard base tunnel took place in the east tube on 15 October 2010.

The Gotthard base tunnel will be 57 km and the Monte Ceneri base tunnel 16 km long. Both will have two single track tunnels. In comparison to the current mountain tunnel, the distance between Altdorf and Biasca (Gotthard base tunnel) will be reduced by approximately 40 km. However, a major achievement will be that of the maximum speed, as both base tunnels will be designed, as the Lötschberg BT, for 250 km/h operations.

The Gotthard Base tunnel is being dug from five different points, starting from the ends and three intermediate points, in Amsteg, Sedrun and in Faido. After a year of delay along the Erstfeld-Amstfeld section (north access) of the Gotthard tunnel, works are now ahead of schedule. The main uncertainty was the presumably difficult geological structure north of Faido, but this was achieved at the end of 2008, with the drive through the so-called Piora syncline. Unlike previously thought, the rock appeared to be dry and no water infiltrations have yet been noticed. However, profile deformation due to the specifically high pressured environment has made adaptation works necessary, especially in the east tube. The profile of the tubes is now considered as stabilised.

Operational targets for the Gotthard base tunnel are around two-thirds higher than that of the Lötschberg Base Tunnel. The Gotthard base tunnel should accept six freight paths and two IC paths per hour in each direction (total 300 paths a day: 260 freight, 40 IC) whereas the Lötschberg should stay approximately at the same level than now with three paths per hour in each direction (130 paths a day). Train length on both branches will be brought to 750 m. The line Bellinzona-Luino will accomodate 700 m long trains.

Similarly to the Lötschberg branch, both base tunnels on the Gotthard branch will be dedicated to high speed passenger and heavy freight trains. They will be equipped with ETCS, and therefore likely to be favoured by transit traffic. Regional traffic will run through the mountain tunnel.

9. From the Alps to the Mediterranean: From Domodossola and Chiasso to Genoa

The Italian section of PP24 connects the Swiss Alpine transversal to the Milan and Novara areas, and further to the port of Genoa. It is composed of two major north-south axes subdividing themselves into two sub-axes respectively between the south of Domodossola and Vignale (north of Novara) and the north of Milan. Both north-south axes join south in Arquata Scrivia before crossing the Apennines to Genoa.

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The Domodossola-Novara axis continues the Lötschberg branch. The sub-sections of the Milano axis start west in Luino and east in Chiasso. The Luino axis connects to the Gotthard branch in Bellinzona, whereas the Chiasso axis connects to the Monte Ceneri base tunnel through Lugano and continues south through Como and Seregno to Milan.

The Luino axis joins the eastern sub section of the Domodossola-Novara axis in Sesto Calende, from where a connection is planned to Malpensa Airport.

Furthermore, the Luino axis subdivides into three sections joining southeast of Sesto Calende, in Gallarate, out of which two start south of Laveno and the third one is partly new. The latter aims at linking Malpensa to Arcisate and Stabio, in Switzerland, located on the Chiasso axis. The new line concerns the Arcisate-Stabio stretch.

All lines are mixed for passenger and freight traffic

From a general point of view, the major issue concerning the Italian section of PP24 is to improve capacity for both the freight and passenger axes, in an area where traffic along the Rotterdam-Genoa freight corridor meets the daily regional cross-border traffic between Lombardia and Tessino as well as long distance traffic between Milan, Zürich and Geneva.

In that sense, the Italian section of PP24 needs to be considered complementary to the Karlsruhe-Basel section as both represent the accesses to the Swiss Alpine transversal.

On the Italian side, PP24 related projects consist in upgrading the capacity of existing lines and of constructing a new line from Milan to Genoa, including a new crossing of the Apennines, the Terzo valico dei Giovi.

From the Alps to Milan and Novara

Capacity improvements on this part of PP24 rely on seven projects, one of which was completed in 2009 and another is expected to be finished in 2012.

The Luino transit section project aimed at shortening travel times from the Swiss-Italian border to Novara and Milan, as well as ease connections to Malpensa Airport. The project was finished in 2009 for a cost of €21 million. It enclosed the extension of track sections in several stations along the line, the further deployment of the ETCS control command and signalling system Level 1 with radio infill, overlaying the current Italian system SCMT, the upgrade of power supply in Domo II and the interconnection in Busto Arsizio of the RFI operated Domodossola-Milan line and the FNM operated Saronno-Malpensa line.

The Gozzano bypass, located on the Novara-Simplon axis, is planned to enter into service in 2011 and consists in constructing a 2.7 km long new line west of Gozzano, to facilitate the transport of goods as well as to improve passenger accessibility to the downtown station. The project further encloses the removal of six level crossings. The four remaining capacity upgrade projects situated on PP24 are all at preliminary stages and their financing is not yet settled.

Between Rho and Gallarate, a second track will be constructed from Rho to Parabiago (approximately 10 km northwest of Rho) and a third track from Parabiago to Gallarate (approximately 24.5 km northwest from Rho). This project further includes an interconnection between the RFI Rho-Gallarate line and the FNM Saronno-Malpensa line, south of Busto Arsizio. The aim of the interconnection is to connect Milan Central Station to Malpensa Airport. The project is financed in the 2009 update of the 2007-2011 framework contract up to €392 million, with a planned completion date by 2015.

The Chiasso-Monza section is planned to be quadrupled. This 37 km long project includes the bypass of Como, the interconnection, in Seregno, to the new east-west line linking Seregno to Bergamo and adaptation works in station of Seregno. This project has not yet been approved by the government's infrastructure planning committee (CIPE) and is mentioned in the 2009 update of the 2007-2011 framework contract as complementary planned work, for which solely the design is financed. Its cost is estimated at €1.412 billion.

Finally, the doubling of the Laveno-Luino and its connection to the Swiss Gotthard branch are envisaged as a complementary planned work for an estimated investment cost amounting to approximately €1.27 billion. Between Luino and Switzerland, two alternative stretches are being considered, one joining the border at Cadenazzo and the other further south in Vezia. A third alternative is considered between Laveno and Vezia, and runs south of Luino.

On the Domodossola-Novara axis, the doubling of the 35 km long track between Arona and Vignale, is envisaged for an investment cost amounting to €535 million, which is not yet financed. Although the preliminary design was already presented to the Ministry of Infrastructure in 2004, it has not yet received any approval from the government's infrastructure planning committee. Within the 2009 update of the 2007-2011 framework contract, it is considered as complementary planned work.

The Novara node

The capacity upgrade project in the Novara area aims first at facilitating freight transit to provide additional backup capacity for rail freight currently transiting west of the Milan area via Mortara and in future also through the south belt of Milan. The project will help the interconnection of PP24 and PP6 Lyon-Turin-Trieste-Ljubljana-Budapest.

In its current state, the project foresees the construction of a new double tracked line dedicated to freight between Vignale, situated approximately 5 km north of Novara, and the south of Novara. The new line would first follow the existing tracks and run east in parallel to the Torino-Milan highway, before turning south following in a tunnel the FNM Novara-Milan line through Boschetto and finally join the historic RFI Mortara line. A major part of this new bypass is planned to run in tunnels.

A feasibility study was released in 2005 and preliminary activities are currently in preparation. In the 2009 update of the 2007-2011 frame contract, the cost of the project is evaluated at €471 million - from which approximately €50 million is to be financed by the state.

From Milan and Novara to Genoa - The Terzo Valico project

The southern Italian section of PP24 is dominated by the Apennines crossing and the sea-to-rail freight conditions in and out of the port of Genoa. Furthermore, the section is relevant not only for north-south freight traffic coming from Switzerland, but also for east-west freight traffic from France towards Central Europe through the Po valley. As such, it should be addressed in relation with the implementation of PP6.

The major project on the southern Italian PP24 section is the so-called Terzo valico dei Giovi the third pass, which aims at creating additional rail capacity towards the port of Genoa, both for freight and high speed passenger traffic. The full section is 54 km long, out of which 39 km consist of tunnels, most of which composed of two single track tubes. The project further includes 15 km of interconnection lines. The Terzo Valico is expected to be designed for a maximal speed of 250 km/h and approximately 220 trains per day.

The new line will be connected north to the Genoa-Turin line at the level of Novi Ligure, and with the Alessandria-Piacenza line at Tortona and south to the port of Genoa and to the Voltri docks, located in the western part of the harbour.

The project dates back to the end of the 1980s. The first practical steps were taken in 1992, when the first environmental impact assessments were conducted. Its final design was approved by the government's (Interministerial Committee for Economic Planning) (CIPE) in March 2006, which had already classified it in 2001 as strategic infrastructure of national interest. In its approval decision of 2006, the CIPE sets a spending ceiling at €4.962 billion.

Priority Project 24
Railway axis Lyon/Genoa-Basel-Duisburg-Rotterdam/Antwerp

Trans-European transport network. Achievement of the Priority projects

The full financing of the Terzo Valico is still ongoing. In November 2009, the CIPE decided to allocate €500 million for the first construction lot.

In December 2011 (Resolution n.86/2011) CIPE updated the total cost of the project, with the spending ceiling set at €6.2 billion and an additional €1.1 billion, over the period 2012-2016, for the second construction lot. Further lots are being planned, but there is no financial commitment as of yet.

10. Conclusions and recommendations

Important steps have already been taken

Since 2004 and the adoption of the TEN-T Guidelines, Priority Project 24 has achieved undeniably important progress with the entry into service of the Betuwe Line (Priority Project 5) in June 2007 and the Lötschberg tunnel in December 2007.

Furthermore, the timely progress of the Gotthard and the Monte Ceneri base tunnels are likely to provide the internal marketwith the first Alpine rail transversal equipped with ERTMS before 2020.

Another success of PP 24 concerns the installation of a constructive governance organisation for ERTMS Corridor A Rotterdam-Genoa led by The Netherlands at political level, with the support of a programme management office in Frankfurt.

Between Rotterdam and Genoa, improving trans-Alpine capacity and implementing ERTMS appear as important priorities.

Securing enough access capacity north and south of the Swiss tunnels should a first general priority, as the European added value of PP 24 – linking northern Europe to the Mediterranean sea, depends upon the reliability of trans-Alpine infrastructure.

Fulfilling this priority relies on achieving a full four-track section between Karlsruhe and Basel, as well as implementing the pending capacity improvement projects between Domodossola and Novara, Luino /Chiasso and Milan.

The organisation of freight traffic is a second clear priority as it is the major unifying aspect of PP 24 linking together two major economic areas (Rotterdam-Amsterdam/Duisburg/Antwerp and Milan) and four port basins (Rotterdam, Antwerp-Zeebrugge, Duisport and Genoa-La Spezia).

At first, a horizontal goal consists in the timely deployment of ERTMS by 2015, as set through the European Deployment Plan.

More specifically, geographical priority should then be put on the Rotterdam-Duisburg-Antwerp triangle, to ensure that infrastructure capacity will evolve coherently with future traffic forecasts. This requirement could also go beyond just rail and consider sea ports, currently excluded from of PP24, inland ports such as Duisport and inland waterways. Hence, in view of a future TEN-T network consisting of a “core network” rather than of individual Priority Projects, it could make sense to consider the Rotterdam-Antwerp-Duisport area as a major intermodal node involving PP24, PP18 (Rhine-Meuse-Main-Danube inland waterway axis), PP30 (Seine-Scheldt inland waterway axis) and parts of PP21 (Motorways of the Sea).

Finally, the Novara-Milan area should also be given specific attention, as it represents a major connection point between north-south and east-west freight traffic in an area facing a significant lack of capacity.

The coherence of PP24 could be enhanced

Beyond these aspects, PP 24's major issue is its heterogeneity. Since the project definition phase, the Rotterdam-Genoa axis has undoubtedly represented its backbone. During the last year, the connection of the port of Antwerp to the Rhine valley has gained a larger political reach through the EU Regulation proposal on a rail freight oriented network which frames rail interconnections between the ports of Rotterdam and of Antwerp/Zeebrugge with the inland port of Duisburg. Hence, the Belgian branch of PP24 is better integrated compared to a few years ago. However, there are few links to be expected between the Rhine-Rhône high speed and freight line and the rest of PP 24. Connections to Frankfurt, Stuttgart and Munich will further occur through Saarbrücken and Strasbourg. As for freight, a major part of the traffic expected on the future mixed Dole-Lyon section will come from a North Sea-Luxembourg-Metz axis.

The Rhine-Rhône high speed and freight project does have a European relevance. It should however be considered differently for the better coherence of PP 24 and the better integration of the Rhine-Rhône project within the TEN-T network.

For passenger traffic, the western branch - which currently falls out of the scope of Priority Projects - and the eastern branch represent an axis that links Paris to the upper German Rhine valley. It is complementary to the high speed priority axis Paris-Strasbourg-Munich-Bratislava-Budapest (PP17) and Paris-Luxembourg/Mannheim (PP4), and builds an east-west high speed network with three interconnection points between France and different parts of Germany. Generally, it further extends through a southern route the high speed network that irrigates an economic basin starting north in London, west in Paris, and progressing east towards Brussels, Rotterdam/Amsterdam, Cologne and Frankfurt, before continuing south to Basel, Stuttgart and Munich.

For freight traffic, the Rhine-Rhône project - and most specifically its future southern branch - appears to be rather a component of the north-south rail freight corridor linking Antwerp to Luxembourg, Basel or Lyon.

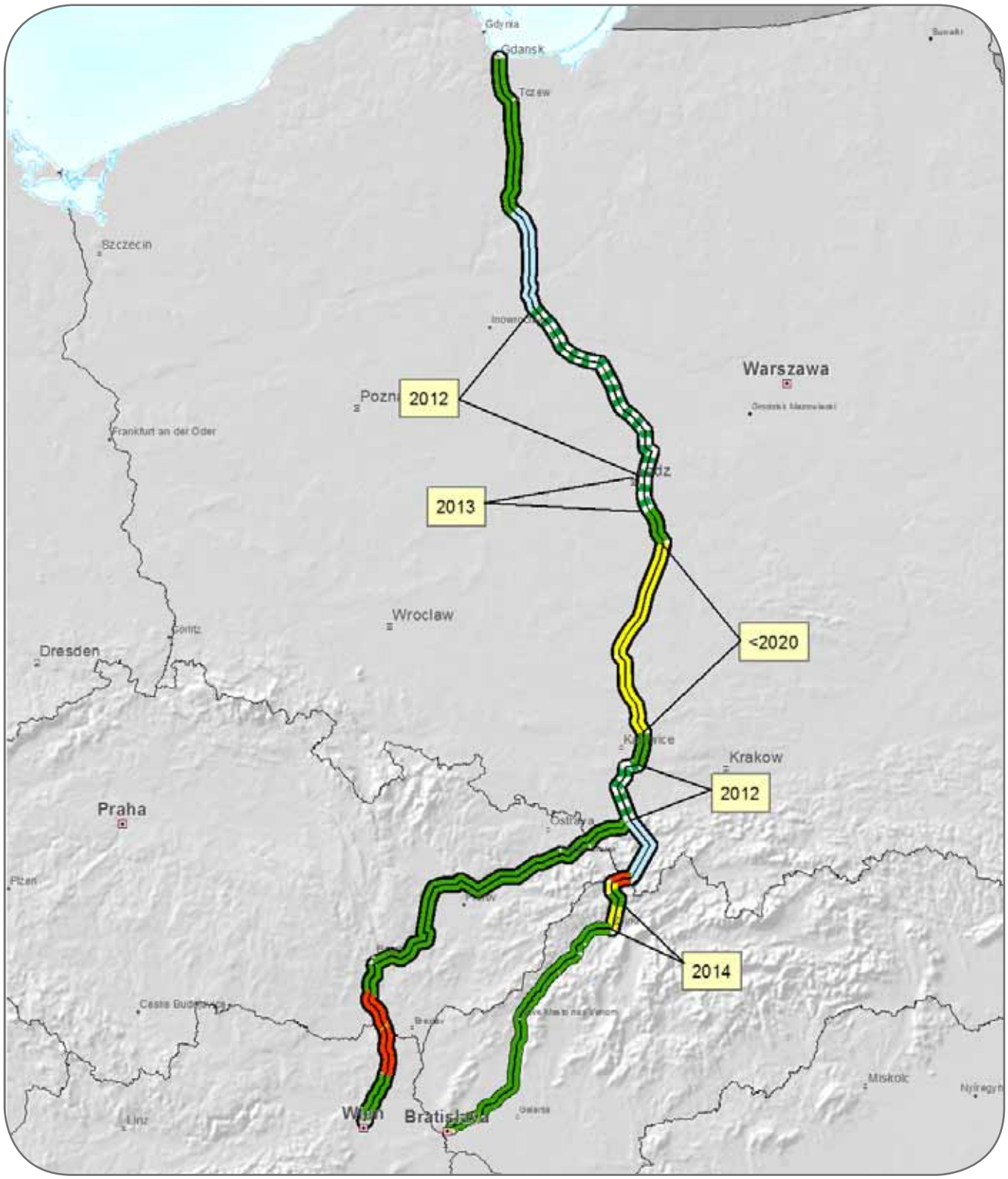
In this respect, the southern branch should be viewed together with the Paris-Lyon-Marseille (PLM) and the Bresse lines, as well as together with the CFAL project, where the three Dijon/Dole-Lyon freight axes connect to the Valencia-Budapest freight corridor as well asthe Lyon-Turin axis.

The southern branch of the Rhine-Rhône project, along with the PLM, Bresse, and CFAL could be reallocated to a predominantly north-south rail freight network to be included in a future TEN-T core network.

To conclude, it can be said that, in view of a future core network, PP 24 would require some changes in its perimeter. This should help to better frame priority deliveries expected on its core axis and that are crucial for TEN-T. Looking at its current definition, some of its components could be integrated in the emerging Western European high speed network. Some others, such as the "two sea freight axis", could gain further density through improving rail interoperability and better inter-modality between rail and waterborne transport modes.

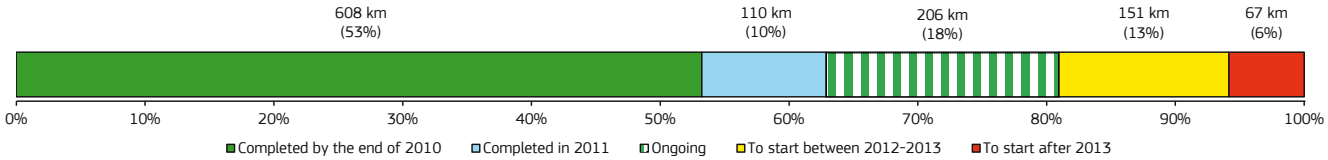
Priority Project 25
Motorway axis Gdańsk-Brno/Bratislava-Vienna

Trans-European transport network. Achievement of the Priority projects



Completion status of works (km)

Total length = 1,142 km



PP 25

Priority Project 25
Motorway axis Gdańsk-Brno/Bratislava-Vienna

Trans-European transport network. Achievement of the Priority projects

Introduction

Priority Project25 (PP25) connects some central and eastern Member States through a north-south motorway axis. The corridor was identified as a multimodal axis to create a complex rail and road transport link for goods and passengers with the port of Gdańsk. It involves four Member States: Poland, Czech Republic, Austria and Slovakia. Its western branch (950 km) passes through Brno, the Czech Republic's second largest city on its way to Vienna, while its eastern branch (890 km) passes through Žilina, a city of growing importance for automotive production in Slovakia, to reach the country's capital, Bratislava. It involves the construction of new motorways, with two lanes in both directions in most sections. Some sections of exist-ing roads will be upgraded between Katowice and Brno/Žilina. The project also includes the construction of an access link to the port of Gdansk, where a new container and ferry terminal is planned.

The motorway projects are included in the respective national development plans of the four Member States. Work has already started in most sections and some subsections in all four Member States have already been completed.

The route is of particular European interest as it already carries a high share of international transport. Poland has had one of the least developed motorway networks of the new Member States. Therefore, the existing road infrastructure has limitations for lorries with European standard weights and dimensions. Building this motorway will allow the improvement of road safety, reduce congestion and thereby facilitate trade. Moreover, this project contributes to a wider strategy to attract new economic activities along the north-south route, which will also be assisted by the parallel railway project (PP23).

Definition

The legal basis of the TEN-T Policy is Decision 884/2004/EC of the European Parliament and of the Council of 29 April 2004 on "Community guidelines for the development of the trans-European transport network". This decision defines 30 Priority Projects in its Annex III. PP25 is defined as "Motorway axis Gdańsk-Brno/Bratislava-Wien". The stretches from Gdańsk to Wien (AT) and Žilina (SK) were defined as priority sections. The defined subsections should have been finished by 2009/2010.

Pan- European Corridor VI

In 1994, after political change in Eastern Europe, the EU took the decision to identify transport corridors – so called Pan-European Corridors – to and within Central and Eastern European Countries, which were applying for EU membership at that time. In the Crete (1994) and Helsinki (1997) Pan-European Transport Conferences, which gathered representa-tives of the governments and parliaments, the European institutions, the European Union and intergovernmental organisations, ten Pan-European transport corridors were identified. The corridors aim to enhance territorial cohesion and develop the single market by increasing sus-tainable mobility for goods and persons.

Pan-European transport corridor VI was identified as a multimodal axis from north to south connecting Gdańsk with Žilina (SK) via Katowice and making the link to Brno (CZ) with a western branch via Ostrava. Road Corridor VI is connected with Road Corridor II (Berlin-Nizhny Novgorod) in Stryków (near Łódź), Corridor III (Dresden-Kiev) in Katowice, Corri-dor IV (Dresden/Nuremberg-Istanbul) and VII (Danube River) in Bratislava, Corridor V (Tu-rin-Budapest-Kiev), and branch A (Bratislava-Uzhgorod) in Žilina.

Corridor VI was further developed in 2003. A High Level Group on the Trans-European Transport Network chaired by Karel van Miert gathering the Member States and the candidate countries at that time identified eighteen priority projects to be operational until 2020 includ-ing "Mixed railway line Gdańsk-Warszawa-Brno/Zilina" (No.

8) and "Motorway Gdańsk -Katowice-Brno-Wien" (No.18). These 18 projects were again modified during the political decision making process and developed into 30 priority projects set by the already mentioned Decision 884/2004/EC.

EU co-financing

The funding system of the European Union offers two opportunities for co-financing TEN-T Priority Projects:

- The TEN-T Annual and Multi-Annual Programmes, with €8 billion for 2007-2013 in-cluding €500 million for the Loan Guarantee Instrument from the European Invest-ment Bank (EIB), which aims to facilitate a larger participation of the private sector in the financing of TEN-T infrastructure or
- The Cohesion Funds (CF) and Regional Development Fund (ERDF), with €37.5 bil-lion allocated for 2007-2013 for TEN-T projects (mainly for Priority Projects).

TEN-T financing

In order to give financial support to the implementation of the TEN-T guidelines, the Europe-an Parliament and the Council adopted Regulation 680/2007/EC specifying the general rules for the granting of EU aid in the field of Trans-European Networks. TEN-T Priority Projects can generally be co-financed from the TEN-T budget. €5 billion has been distributed for Mul-ti-Annual projects and €3 billion has/will be distributed within the Annual Programmes and different horizontal programmes. TEN-T contributions are allocated on the basis of proposals submitted by the Member States within the Multi-Annual or Annual Programmes. These pro-posals are evaluated and selected for funding by both external experts and the Commission.

Along PP25, about €34 million has so far been allocated for several projects to prepare works or to improve in-teroperability funded by the TEN-T budget:

- 2004-PL-92610-S: Feasibility study and geological documentation for a stretch of a toll motorway A1 Stryków-Częstochowa-Pyrzowice, including traffic analysis (EU contribution €960,000, 50%) - finished;
- 2005-PL-92602-S: Design study for construction and tender documents for motorway A1 - Section Pyrzo-wice-Maciejów, including environmental preparation material and geological documentation (EU contribution €2.8 million, 50%) - finished;
- 2005-PL-92603-S: Feasibility studies for S-1 expressway section from Kosztowy II interchange in Mysłowice to Suchy Potok interchange in Bielsko-Biala PP 25 (EU contribution €72,600, 50%) - finished;
- 2005-PL-92604-S: Design study for construction and tender documents for motorway A1 – section Toruń-Stryków (EU contribution €11 million, 50%);
- 2006-PL-92605-S: Technical documentation for the construction of S-69 expressway Bielsko Biała-Żywiec-Zwardoń, section Przybędza-Milówka (Węgierska Górka by-pass) (EU contribution €2.4 million, 49%);
- 2008-PL-92005-S: Studies on the long-term adjustment of the International Gdańsk Lech Walesa Airport, a TEN-T node in North Poland, for air transport needs (max. EU contribution €1.2 million, 50%);
- 2009-PL-92005-S: Elaboration of the project documentation for reconstruction of na-tional road n°1 into an expressway on the section Podwwarpie-Dąbrowa Górnicza: cancelled;
- 2009-PL-92004-S: Elaboration of the technical documentation for S1 expressway con-struction on the sec-tion from Kosztowy II Interchange in Mysłowice to Suchy Potok Interchange in Bielsko-Biala: cancelled;
- 2009-CZ-00079-E: Motorway D47 section 47092 Bohumín-state border Czech Re-public/Poland (max. EU contribution €10.3 million, 10%);
- 2004-SK-92804-S: Pre-Investment study for the motorway D3 Svrcinovec-Skalité (max. EU contribution €3.8 million, 49%);
- 2005-SK-92803-S: Pre-Investment studies for motorway D3 Cadca-Svrcinovec (max. EU contribution €1.5 million, 50%).

PP 25

Structural funding

Strengthening infrastructure is one of the main objectives of EU regional policy. Assistance from the Cohesion Fund is given to actions in the area of Trans-European Transport Networks (in particular priority projects of com-mon interest) or in the area of environment within the priorities of EU policy and the action programme on the environment (which includes also transport projects outside of the TEN-T Network)[1]. Amongst others, the ERDF contributes to financing infrastructure such as TEN-T projects. The Structural Funds budget and the rules for its

1 Council Regulation (EC) No 1084/2006 of 11 July 2006 establishing a Cohesion Fund and repealing Regulation (EC) No 1164/94

Priority Project 25
Motorway axis Gdańsk-Brno/Bratislava-Vienna

Trans-European transport network. Achievement of the Priority projects

use are decided by the Council and the European Parliament on the basis of a proposal from the European Commission. Each Member State prepares a National Strategic Reference Framework (NSRF), coherent with the TEN-T Strategic Guidelines, which defines the strate-gy chosen by the Member State and proposes a list of operational programs (OP). The OP Transport (OP-T) outlines the aim and purpose and expected impacts of the investments, and the transport priorities of the country. As three out of the four Member States involved in this priority project are new members of the European Union, structural funding plays a prominent role in the financing of PP25.

Member States involved in PP25

Poland

Poland is one of the largest EU Member States in terms of population and area. It plays an important role in the European transport system, due to its geographic position at the intersec-tion of the main east-west and north-south transport routes. The public road network in Poland is 412,263.7 km long (of which 68% is hard surface roads). Most of the road network consists of regional and local roads managed by the relevant sub-national governments (voivodships, district and municipality). National roads account for nearly 7% of public hard surface roads, but carry more than 60% of the traffic.

Poland still lacks a coherent motorway network linking major cities and industrial areas. The pavement of a large part of the existing road network has not yet been adapted to the Europe-an standards for heavy load traffic – by the end of 2011, 33% of national roads were adjusted to support a 115 kN axle load. The motorway network is currently under development, with large gaps remaining on all major corridors. Road safety is improving but road fatalities are still almost double the EU average. An excessive number of accidents are caused by the organisation of traffic and the behaviour of participants in road transport. National road transport policy is based on the National Roads Construction Programme for the 2011-2015 period (Ministry of Transport). At the same time, major projects are underway to connect the main urban centres and the western border of the country with Warsaw. In 2011, 1,070 km of motorways and 738 km of dual carriageways were in use.

Poland is going to invest €25 billion in transport infrastructure in the current funding period, about 60% of which will go into road infrastructure (motorways and national/local roads). Work on the implementation of an electronic toll collection system (ETC) on certain road sec-tions in Poland are being carried out. Electronic traffic tolling was introduced in Poland for vehicles (>3.5 tones) and buses from July 2011. An electronic toll collection system replaced the previous vignette system, for more efficient transport. A manual toll collection system re-mains in place for passenger vehicles.

PP25 interconnects Poland with the Czech Republic and Slovakia. Its alignment also touches upon important international transport corridors, including the interconnection to the Trans-Siberian Railway and the “New Silk Route” at Sławków (8 km).

Czech Republic

The Czech Republic plays an important role in the European transport system, due to its geo-graphic position at the centre of Europe. There is 691 km of motorway (in 2009) and around 55,000 km of roads operated in the Czech Republic, 6,210 km of which are public roads. The-se roads form the backbone of the road network that carries about 90% of the total road transport capacity. In 2009, about 68% of the roads in the Czech Republic were reported as good, very good or excellent, 10% as bad or very bad condition. EU funds are a big contribu-tion in financing transport construction. In the current funding period 2007-2013, a contribu-tion of about €5,774 billion is foreseen by the Operational Program Transportation (OPT). In many cases, this represents up to 85% of the total cost of construction. The beneficiary of this support is the Road and Motorway Directorate of the Czech Republic. Allocation of financial support will contribute to ensuring quality national road connections, which will have a posi-tive impact both on the economic and social environment of particularly affected regions and on

diminishing the negative consequences of transport on the environment. An overview of all road modernisation projects is available online: http://www.rsd.cz/en

PP25 connects the Czech Republic with Poland and Austria, with a stretch of about 265 km, more than half of it already operational.

Slovakia

The Slovak Republic is located in the middle of Europe, a geographical advantage for interna-tional transport flows. In Slovakia, roads add up to 25,942 km, including 377 km of motor-ways and 225 km of dual carriage-ways, 1,342 km of which form part of the TEN-T-network. The main national strategic objectives for the upcom-ing programming period are set by:

- the "New Transport Policy of the Slovak Republic until 2015", approved by the gov-ernment of the Slovak Republic on 8 June 2005 and
- the "Strategy for transport development in the Slovak Republic until 2020", approved by the Slovak govern-ment on 3 March 2010.

In Slovakia, according to the Operational Programme - Transport (OP-T), a total budget (na-tional and EU) of €3.8 billion is foreseen to be spent on transport projects in 2007-2013: €3.2 billion from ERDF and the Cohesion Fund and €638 million from the national budget. About €1.14 billion (EU and SR) will be spent for the development of TEN-T road infrastructure. Additionally, €872 million is planned for other road infrastructure. All activities planned for developing TEN-T road infrastructure are covered by the Ministry of Transport, Construction and Regional Development of the Slovak Republic through the National Motorway Company (NDS).

PP25 connects Slovakia with Poland and follows the D1 (Bratislava-Žilina-Košice) and D3 (Žilina-Čadca-Skalité) motorways. On the territory of the Slovak Republic PP25 totals 263.5 km.

Concerning the completion of PP25 in Slovakia, it has to be stated that only parts of the D3 motorway, including the sections north of Žilina to the borders with Poland, still have to be realised. The rest of the D1 motorway from Žilina to Bratislava, continuing to Vienna has al-ready been finished and is in operation.

Austria

Austria is a transit country in the middle of Europe. Six priority projects touch upon its territo-ry. Additionally, it is an Alpine country, with geographic conditions defining traffic and transport organisation. Austria took the leading role in constructing tunnels and bridges some time ago. The overall length of the road network is 110,206 km, including 2,145 km of dual carriageways.

PP25 provides Austria with a connection to the Baltic Sea via the Czech Republic and Poland. Therefore it may play a prominent role for future freight transport.

State of implementation of the cross-border sections

Brno-Polish/Czech border

In the Czech Republic, the work at the Polish border on the Český Těšín-Frydek-Mistek and Brno-Bělotin section is finished.

Pohořelice-Mikulov

The section in the Czech Republic up to the Austrian border is in an environmentally sensitive area (NATURA 2000) and the appropriate alignment is still under consideration. On 21 June 2012, the spatial plan for the South-ern Moravia – including the routing of PP25 along dual carriageway S52 - was repealed by the Czech Supreme Administrative Court repealed.

Žilina-Zwardon

The S 69 road from Żywiec to Zwardoń in Poland was built with one lane per direction and was completed in 2012. On the Slovak side, results of the socio-economic cost-benefit analy-sis indicate that the designed sections are not feasible. Costs of the planned four lane highway cannot be balanced by the economic benefits, due to insufficient traffic intensities and high investment costs.

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Motorway axis Gdańsk-Brno/Bratislava-Vienna

Trans-European transport network. Achievement of the Priority projects

Other sections

Poland

Along the A1 motorway (Gdańsk-Katowice) most sections will be ready by 2015, apart from the Piotrków Trybunalski-Pyrzowice section. Starting from Katowice, the main connection to the Czech Republic is along the A1 but PP25 follows the S1 towards the Czech border and the S1/S69 dual carriageway towards the Slovak border. A new road link of the S1 is planned between Katowice and Bielsko-Biała (in red on the map). The Bielsko-Biała-Zwardoń/Myto section (S69, 59 km) is mainly finished (in green on the map), including the tunnel in Laliki. Work on the section from the node "Mikuszowice" to Żywiec has been ongoing since 2010 (in yellow on the map).

It is estimated that PP25 will cost about €2.6 billion in Poland and is to be largely implement-ed in 2013. About €1.7 billion will be spent on the Pyrzowice-Bielsko-Biała and Bielsko-Biała-Żywiec subsections. By the end of

Subsection	Length (km)	Status (year of finalising)
Gdańsk-Nowe Marzy	89.45	Open
Nowe Marzy-Toruń	62.4	Open
Toruń-Stryków	143.95	Construction (2013)
Stryków-Tuszyn	40	Construction (2013)
Tuszyn-Piotrków Trybunalski	17.5	Open
Piotrków Trybunalski-Pyrzowice	122	Preparatory works
Pyrzowice-Podwarpie (phase I and II)	14.5	Open
Pyrzowice-Podwarpie (phase III)	9.5	Preparatory works (completed)
Dąbrowa G.-Tychy	33.8	Open
Kosztowy-Bielsko Biała	40	Preparatory works
Bielsko Biała-Cieszyn (Czech border)	35.5	Open
Bielsko Biala-Zywiec I	9.2	Open
Bielsko Biala-Zywiec II	15.6	Works ongoing
Żywiec-Przybedza	7.7	Open
Przybędza-Milówka (Węgierska Górka bypass)	8.5	Preparatory works
Milówka-Zwardoń (Slovak border)	12	Open

2009, about €1.2 billion had been invested.

Czech Republic

The implementation of PP25 will cost about €5.5 billion and is expected to be finished in 2014. By the end of 2009 about €2.6 billion had been invested, €486 million from the Cohe-sion Fund and ERDF, €147 million from EIB loans and the rest provided by national govern-ments. About €2.3 billion is expected to be invested during 2010-2013.

The Český Těšín-Frydek-Mistek section (30 km) at the Polish border has already been com-pleted. Work on the Frýdek-Místek- Belotín 50 km stretch is partly ongoing (Rychaltice-Frýdek-Místek). The Bělotin-Pohořelice subsec-tion (150 km) is mostly finished and the 10km Rajhrad- Brno stretch is already in operation.

Subsection	Length (km)	Status (year of finalising)
Český Těšín/Cieszyn (PL)-Brno-Pohořelice	214	Open
Pohořelice-Mikulov/Drasenhofen (AT)	25	Planning documents repealed, alignment under consideration

Slovakia

PP25 stretches about 250 km in Slovakia. The development of PP25 in Slovakia will cost about €2.9 billion, financed by the state budget (€1.6 billion), ERDF/the Cohesion Fund (€1.1 billion), TEN-T funding (€11 million) and from PPP schemes (€58.1 million). By the end of 2009, about €1.4 billion had been invested, €11 million from TEN-T funding and €250 million from the Cohesion Fund and ERDF. It is expected that all work on PP25 in Slovakia will be complete in 2017.

More than 80% of the whole axis in the Slovak territory is already operational. Finishing the D1 motorway Sverepec-Vrtižer subsection in June 2010 completed the link between Bratisla-va and Žilina (202 km long).

Subsection	Length (km)	Status (year of finalising)
Skalité-Svrčinovec	12.3	Preparatory works (2012)
Svrčinovec-Čadca Bukov	5.8	Preparatory works (2013)
Oščadnica-Čadca Bukov	3.4	preparatory works (studies) (construction planned for next programming period 2014-2020 (2015))
Oščadnica-Kysucke Nové Mesto	10.7	Preparatory works (2014)
Kysucke Nové Mesto-Žilina Brodno	10.1	Preparatory works (2013)
Žilina Brodno-Zielina Strážov	4.3	construction postponed (planned for next programming period 2014-2020 (2015))

Austria

The total development costs of PP25 in Austria will amount to €2.5 billion. Austria has al-ready spent about €489 million, including an EIB loan (€171 million). The southern part of the A5 motorway (Wien-Schrick) was completed in January 2010 as a PPP project. The northern part of the A5 motorway Schrick-Drasenhofen section is in the planning stage, the EIA was finished in 2009. The start of work was envisaged for 2011 and completion by 2016/17, but the on-going consideration of the best alignment in the Czech Republic is delaying the implementation. A two lane bypass is planned first, to be followed by a four lane motorway at a later stage.

Subsection	Length (km)	Status (year of finalising)
Drasenhofen-Schrick	32.5	Preparatory works (2016/2017)
Schrick-Eibesbrunn	22.7	Open (2010)

Efforts for extending the Priority Project 25

In October 2006 representatives from the national ministries of Poland, Czech Republic, Slo-vakia, Austria and Italy signed a “Letter of intent” on the development of a “Baltic-Adriatic Transport Corridor” suggesting a prolongation of the axis of PP23 and 25 to northern Italy.

In October 2009 regional representatives from five Polish, two Czech, four Austrian and three Italian regional governments committed themselves to the Baltic-Adriatic Corridor (BAC) from Gdansk/Gdynia via Katowice, Ostrava and Vienna to Bologna/Ravenna with a Katowi-ce-Zilina-Bratislava-Vienna branch.

On 19 October, the Commission adopted a package of proposals, made of the Connecting Eu-rope Facility (€50 billion)[2], the revised TEN-T guidelines[3], and a proposal to launch a pilot phase of the Project Bonds initiative[4]. The TEN-T Network consists of two layers: a Core Network to be completed by 2030 and a comprehensive network feeding into this, to be com-pleted by 2050. The implementation of the Core Network will be facilitated using a corridor approach. Corridors will provide the basis for the coordinated development of infrastructure within the Core Network covering at least three modes, three Member States and two cross-border sections. One of the 10 proposed corridors is the Baltic-Adriatic Corridor from Helsinki to Ravenna, taking on board the proposed align-

2 http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/1200&format=HTML&aged=0&language=en and http://ec.europa.eu/transport/infrastructure/connecting_en.htm

3 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011PC0650R(01):EN:NOT

4 http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/707&format=HTML&aged=0&language=EN&guiLanguage=en

Priority Project 25
Motorway axis Gdańsk-Brno/Bratislava-Vienna

Trans-European transport network. Achievement of the Priority projects

ment of the “letter of intent” between War-szawa and Bologna. Along the corridor, pre-identified projects[5] can be co-financed from the Connecting Europe Facility (CEF) by up to 40% for works, up to 50% for ERTMS, RIS, and VTMIS and up to 50% for studies, whereas the share of financing up to 85% for each above items refers to the Cohesion Fund countries (Poland, Czech Republic, Slovakia).

Conclusions and recommendations

Work has already started in most sections and some subsections in all four Member States have already been completed. The targeted date for the whole axis set by the “Community guidelines” was 2009/2010. At the end of 2009 about 40% of the axis was operational. Out-standing issues for implementing PP25 as a whole remain at the border sections in northern Slovakia, as well as at the Austrian-Czech border section.

Regarding the new TEN-T guidelines, a European Coordinator will be nominated to facilitate the coordinated implementation of the new Baltic-Adriatic Corridor. The relevant European Coordinator will consult the Member States concerned and, as appropriate, consult other public and private entities, such as infrastructure managers and operators, to draw up a work plan, make recommendations and monitor its implementation.

The work plan will be presented within one year, analysing the needs for the development of the corridor in the Member States concerned, including a list of projects for the extension, renewal or redeployment of transport infrastructure for each of the transport modes involved in the core network corridor and the options for funding and financing. The European Coordi-nator will support Member States in implementing the work plan, in particular as regards the investment planning, the related costs and implementation timeline, estimated as necessary to implement the core network corridors and defining measures aimed at promoting the intro-duction of new technologies in traffic and capacity management and, where appropriate, re-ducing external costs, in particular greenhouse gas emissions and noise.

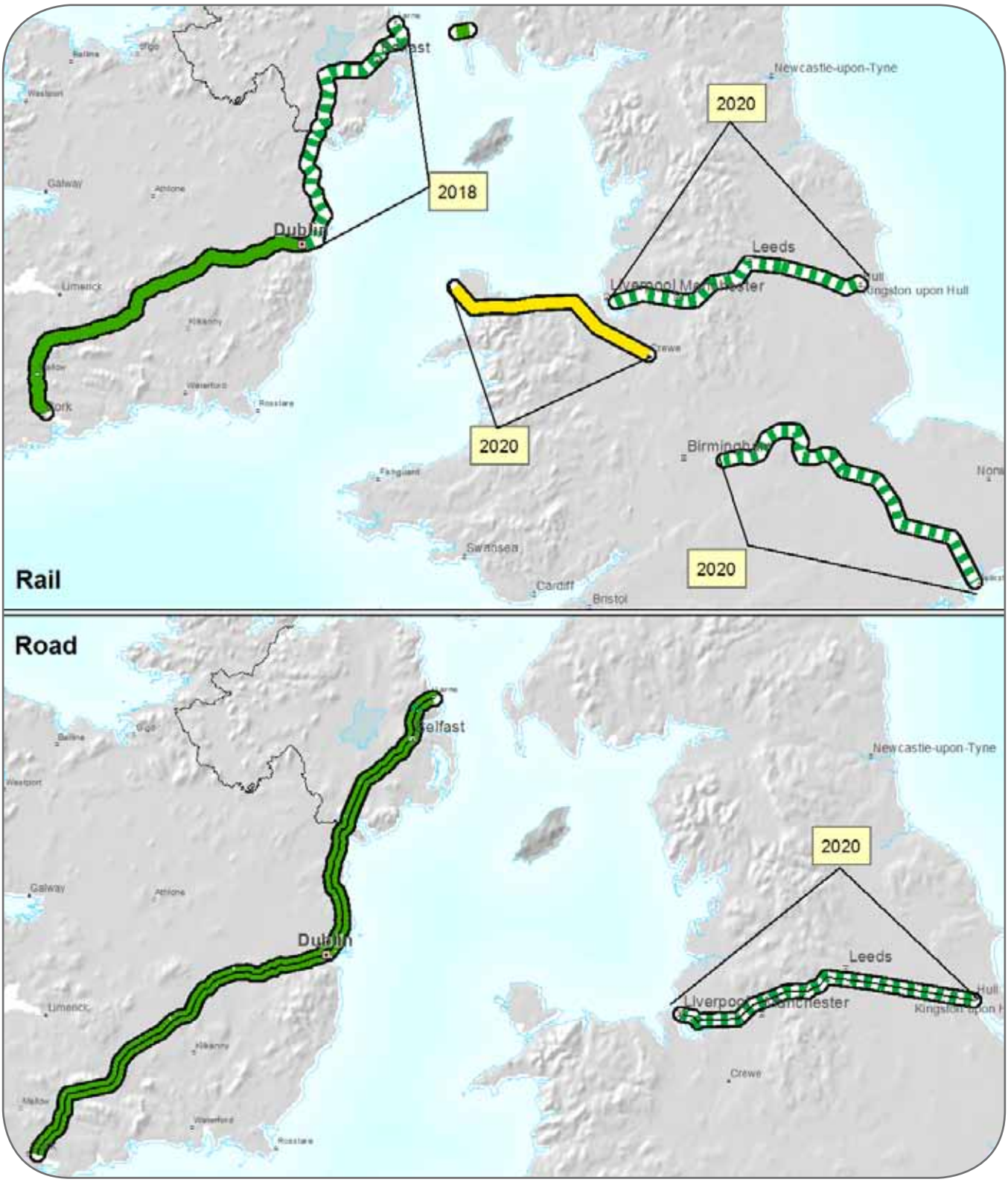
The Coordinator may set up and chair corridor working groups which focus on modal integration, interoperability and the the coordinated development of infrastructure in cross-border sections.

5 including the rail sections Gdynia - Katowice, Wroclaw – Poznań – Szczecin/Świnoujście, Semmering Base Tunnel, Koralm, Udine - Cervignano - Trieste, cross-border sections (PL-CZ, PL-SK, SK-AT), Graz - Maribor - Pragersko development of multimodal platforms, airport-rail interconnections and port interconnections (Gdynia, Gdańsk, Trieste, Venice, Ravenna, Koper), works for cross-border road sections (EE, LV, LT, PL, SR) and horizontal measures like Telematic Applications Systems for Road, Rail, Inland Waterways andVessels (ITS, ERTMS, RIS and VTMIS), Core Cetwork Ports, Motorways of the Sea (MoS) and Airports, safe and secure infrastructure

Priority Project 26

Railway/road axis Ireland/United Kingdom/continental Europe

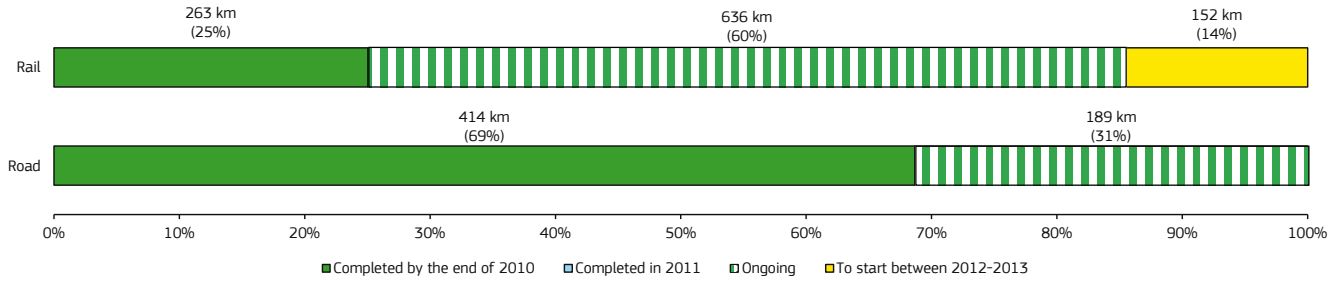
Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Dublin Interconnector Tunnel Study- Design and Railway Order Phase	IE	€10	Ongoing
Felixstowe - Nuneaton Route Work	UK	€9.2	Ongoing
Felixstowe Rail Terminal - Improving intermodal transfer and removing bottleneck on PP26	UK	€5	Ongoing
Priority Axis 26: North West England Electrification, Manchester-Liverpool	UK	€5	Ongoing
Priority Axis 26: Nuneaton North Chord and Kennett Re-signalling Works	UK	€5	Ongoing
TOTAL		**€34.2**	

Completion status of works (km)

Total length = 1,654 km (Rail: 1,051 km, Road: 603 km)



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Priority Project 26
Railway/road axis Ireland/United Kingdom/continental Europe

Trans-European transport network. Achievement of the Priority projects

Summary

This axis builds on improvements to the main north-south rail line in Ireland (PP9 Railway axis Cork–Dublin–Belfast–Stranraer) and to the Ireland-United Kingdom-Benelux road links (PP13). Both have helped to considerably reduce passenger and freight journey times between Ireland, the United Kingdom and the European mainland.

Further improvements in capacity in both rail and road are now required to deal with increased traffic and improve links with the rest of the EU. This project focuses on rail infrastructure in the Republic of Ireland, and also includes both rail and road in the United Kingdom.

Investment is needed to complete the upgrading of the major inter-urban motorways north and south from Dublin, linking the three principal cities on the island, and to set up a driver information system to improve traffic management.

In the United Kingdom, the major projects relate to modernising the Felixstowe-Nuneaton and Crewe-Holyhead railway lines. These links to two major ports will almost triple the current capacity of west-east freight movements across the United Kingdom. These two lines intersect with the United Kingdom's main north-south rail route, the West Coast Main Line (PP14).

The electrification and upgrade of the Trans-Pennine Rail route from Hull to Liverpool will increase capacity, improve journey times and reduce pollution.

1. Road routes in the United Kingdom

In the UK, work on the road axis is being taken forward between now and 2015 to remove key bottlenecks on the M62 and M60 - the main transit routes across northern England.

1.1. England

The following table gives a breakdown of the different elements that make up the road axis in England.

Road	From	To	Length in km	Status
M62	A63 junction	Junction 18	121.4	Predominantly 3 lane dual
M62	Junction 12	Wavertree	31.1	Predominantly 3 lane dual
M60	Junction 18	Junction 12	11.4	Predominantly 3 or 4 lane dual
M57	Junction with M62	Junction with A59/A5306	15.4	Predominantly 3 lane dual
A5036	Junction with M57/A59	Seaforth	5.2	Predominantly 2 lane dual

Future schemes on the M62 and M60 will include a managed motorway solution to add capacity by allowing vehicles to run on the hard shoulder either permanently or during busy periods.

Lane availability and speed limits will be displayed on overhead signs. This will relieve congestion and provide users with more reliable, safer journeys. In addition, they provide real benefits to road users and are less expensive to implement than traditional widening schemes.

There are three managed motorway schemes in the Manchester area that are due to start work in 2012-13.

- M60: junction 8 to junction 12
- M60: junction 12 to junction 15
- M62: junction 18 to junction 20

1.2. Northern Ireland

The following table gives a breakdown of the different elements that make up the road axis in Northern Ireland. It is the same as PP13, an update on the projects that are due to take place can be found in the PP13 Report.

Road	From	To	Length in km	Status
A8	Larne Port	B100 Ballyrickard Road.	6	Dual Carriageway
A8	Ballyrickard Road	Colemans Corner roundabout	14	Single carriageway
A8	Colemans Corner	Sandyknowes Roundabout	5.2	Dual Carriageway
M2	Sandyknowes Roundabout	York St Junction	10	Motorway (part 3 lane)
A12	West Link York St	Broadway Underpass	3.5	3 lane Dual Carriageway
M1	Broadway Underpass	A1 off slip	13.5	3 Lane Motorway
A1	Sprucefield roundabout	Beech Hill	28	Dual Carriageway
A1	Beech Hill	Cloghogue	12	Dual Carriageway
A1	Cloghogue	Border	4.3	Dual Carriageway

3. Rail in the United Kingdom

In England, gauge enhancements on the Felixstowe to Nuneaton rail line are now complete. These are complemented by projects at the Port of Felixstowe (a new rail terminal will improve handling and capacity) and at Nuneaton (a chord has been built to provide a grade separated junction to PP14 (the West Coast Main Line). Resignalling at Kennet, which will increase capacity and availability, is also now complete. At Ipswich, work is due to start on a chord which will further develop the capacity of the route. Further works are planned for the electrification of the trans-pennine route and consideration is being given to remodelling/re-signalling around Crewe. In Northern Ireland, work on the new railway station at Newry was completed in 2009. Significant investments are planned for track at Lisburn.

3.1. England

The following table gives a breakdown of the different elements that make up this part of the axis.

Rail section	Length in km	Status	Demand	Capacity	Bottlenecks
Hull to Liverpool	190	Multiple tracks and dual use	High	Medium	Stations in Leeds and Liverpool need improvements to improve capacity; line-speed and gauge enhancements are needed to enable passenger and freight growth.
Felixstowe to Nuneaton	265	Mainly dual track and dual use	High	Medium	Nuneaton North Chord. Felixstowe harbour - single line.

Hull–Liverpool

This route covers significant urban areas in northern England and is located on each side of the East Coast Main Line (ECML) and West Coast Main Line (WCML). It is particularly focused on the lines into Leeds, Liverpool Lime Street, Manchester and Yorkshire & Humber regions.

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It is a mixed-use railway, covering passenger traffic in East Yorkshire, Greater Manchester and lines into Liverpool and freight flows and from Immingham. It also serves Manchester Trafford Park, Ditton and Liverpool Docks. Freight and passenger use is predicted to increase by over 10% to 2014. Works are on-going to improve capacity and allow for growth. Particularly along the Liverpool–Manchester-Leeds corridor, there are motorway and major road alternatives to all rail routes, but these can be heavily congested in the peak hours. Inland port developments such as at Port Salford can help move freight from road to rail and reduce congestion.

The development of an intermodal platform at Port Salford (Manchester), will redistribute container traffic, removing freight from the road element of PP26, easing congestion and improving modal shift.

December 2008 saw the completion of the co-funded project providing a third rail platform at the Manchester

Priority Project 26
Railway/road axis Ireland/United Kingdom/continental Europe

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Airport station. This greatly increased operational flexibility at the station and significantly reduced the number of times that late running services had to be terminated at Manchester Piccadilly. In addition, a number of lines have seen significant track renewals, with increased line-speeds provided on the routes via Wilmslow and Macclesfield. This, together with the route being free of delay inducing speed restrictions, has greatly improved performance. Future work will include station improvements in Manchester and line-speed and capacity improvements from Leeds via Manchester to Liverpool.

The North-West Electrification project was awarded €5 million from the TEN-T Annual Work Programme in 2011. This project starts in 2012 and forms part of the trans-pennine electrification programme.

Hull-Liverpool expenditure details (£ million)

Up to 2006	2007	2008	2009	2010	2011	2012	2013	2014-2020
£49.5	£26.1	£24.1	£20.6	£47.8	£60.7	£69.8	£103.0	Not available

Felixstowe-Nuneaton

This route serves East Anglia, one of the fastest growing regions in the country. Since the UK's Freight Route Utilisation Strategy was published March 2007, demand forecasts have been revisited and further refined and agreed by the industry. Freight demand, especially in intermodal deep sea containers from the Port of Felixstowe is growing 4-5% annually. This demand will be further increased by the impending port developments at Felixstowe South (work commenced in 2008), and Bathside Bay, Harwich (approved March 2006). These revised forecasts show that Felixstowe/Bathside Bay could generate around 28 additional trains per day (over and above the 2004-05 base year) by 2030. High levels of passenger and freight growth are expected. This will make providing additional capacity on the cross country route to the ECML and WCML via Peterborough and Nuneaton, and further clearance for W9 and W10 gauge freight traffic beyond Peterborough to the WCML. This is a high priority if capacity is not to be compromised on the congested Great Eastern route via London. The cross-country route becomes a core freight route under the auspices of the Strategic Freight Network.

The Felixstowe–Nuneaton route work project received a TEN-T grant of €9.7 million under the 2009 EERP call for funding. The project was completed in April 2011, and it has delivered track gauge enhancements which enable larger freight containers to be moved on the network, increasing the capacity of the line.

The North Chord project at Nuneaton, awarded €5 million from the 2010 TEN-T Annual Call, enables intermodal traffic from Felixstowe to destinations in the northwest/ Scotland to cross over PP 14 at Nuneaton under grade separated conditions. This will greatly reduce disruption to traffic flows on both axes and safeguards the capacity forecast for intermodal growth to 2013. The Chord is now complete,opening to trains October 2012. Further work to improve capacity on this route will include projects such as the Ipswich Chord, which will remove a key bottleneck and the Ely loops project, which enables longer trains to use this important freight corridor.

The Port of Felixstowe was also awarded €5 million in 2010 TEN-T Annual Call. This project will develop additional rail facilities in the port complementing the gauge enhancement work on the rail route and the work on the Nuneaton North Chord. The impact of these projects should involve an increased modal shift from road to rail and reduced road congestion on PP13.

Felixstowe-Nuneaton expenditure details (£ million)

Up to 2006	2007	2008	2009	2010	2011	2012	2013	2014-2020
£84.3	£37.2	£40.7	£46.2	£51.8	£62.1	£58.9	£77.1	Not available

3.2. Wales

The following table gives a breakdown of the different elements that make up this part of the axis.

From	To	Length Km	Status	Demand	Capacity	Bottleneck
Crewe	Holyhead	180	Dual track, Mixed use	Medium	Medium	Chester junction; regulating points Crew/Chester

Constraints in North Wales tend to restrict flexibility when planning the overall timetable, or restrict perturbation management, rather than prevent the desired level of traffic.

Examples of current constraints are:

- the restricted layout at Chester East junction, which creates problems between North Wales–Crewe traffic and Manchester–Northwich–Chester traffic
- a lack of regulating points from Crewe/Chester to Holyhead

Travel patterns in North Wales are heavily influenced by the proximity of the major nearby cities of Manchester and Liverpool. In addition, the Manchester and Liverpool airports (John Lennon International Airport, accessed from the recently expanded Liverpool South Parkway station) influence demand on the North Wales coast line, which has no through services from Liverpool.

The strategic development of the railway line between Liverpool and Chester through enhancement of the Halton Curve, near Frodsham, would enable a new regional link to operate and create better connectivity between Manchester, Liverpool and the north Wales coast as well as with Wrexham. Future strategic developments include the continuation of committed electrification schemes to include these corridors, and better connection with the future HS2 network.

Although there is currently ample main line capacity west of Chester, Taith (the north Wales regional transport consortium) recognises the likely need for investment to enhance the route if more stations were built and an intensified suburban-style service operated between Liverpool, Chester and Rhyl as the obvious western terminus for such additional movements.

Crewe-Holyhead expenditure details (£ million)

Up to 2006	2007	2008	2009	2010	2011	2012	2013	2014-2020
£34.2	£25.9	£63.3	£27.3	£13.7	£18.6	£22.9	£26.6	Not available

3.3. Scotland

The following table gives a breakdown of the different elements that make up this part of the axis.

From	To	Length Km	Status	Demand	Capacity	Bottleneck
Stranraer Port	Rail network	1	Single Track	Not an issue	Not an issue	The current pier head location of Stranraer station is not convenient for passengers/rail freight traffic.

The Stranraer & Loch Ryan Waterfront Development Framework was published in 2009, proposing a number of options, including a new public transport interchange, demolition of the existing station, and construction of a new transport interchange 300 metres closer to the A77/A714. Although Stena Line has relocated to Cairnryan, the transport interchange remains a long-term goal for the region.

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3.4. Northern Ireland

The following table gives a breakdown of the different elements that make up this part of the axis.

Route	From	To	Length Km	Status	Demand	Capacity	Bottleneck
N1	Larne	Newry	127	Single	Not an issue	Not an issue.	Platform lengths

The rail track and infrastructure are continuing to being updated and improved. Northern Ireland Railways (NIR) have now taken delivery all the new CAF trains, which have replaced all the old stock operating on the Larne-

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Trans-European transport network. Achievement of the Priority projects

Belfast line. This will allow NIR to respond to the record numbers of passengers travelling by train, and helping to reach the target of increasing modal shift away from private towards public transport.

Future work on the line will involve the £32m relay of a 22 mile stretch of the line between Lisburn and Lurgan, as well as seeing the introduction of a new passenger timetable which will introduce more frequent services.

Future Expenditure (£ million)

April 10-March 11	April 11-March 12	April 12-March 13	April 13-March 14	April 14-March 15
12.5	34.6	10.1	6.1	16.4

4. Rail in the Republic of Ireland

These projects follow on from improvements in the main north–south rail line in Ireland under PP9.
The Irish Government's capital programme for the period 2012-2016 is determined by the "Infrastructure & Capital Investment 2012-2016: Medium Term Exchequer Framework" published in November 2011 which provides the following funding for public transport:

Public Transport	2012 (€ million)	2013 (€ million)	2014 (€ million)	2015 (€ million)	2016 (€ million)	Total 2012-2016 (€ million)
Public Transport Infrastructure-NTA	130,238	153,000	149,200	145,000	150,000	727,438
Public Transport Safety & Development	111,000	114,000	120,000	115,000	111,000	571,000
Public Transport Projects	15,965	16,435	16,020	15,220	14,920	78,560
Public Transport Total	**257,203**	**283,435**	**285,220**	**275,220**	**275,920**	**1,376,998**

The significant reductions in Exchequer funding for transport in recent years have led to a much reduced programme when compared with Ireland's original Transport 21 Programme (now formally terminated). It has also led to the postponement of a number of public transport projects, including the Dart Underground.

Once commitments for projects in progress are set aside, the current plan prioritises investment to protect existing assets and maintain safety standards. In allocating any remaining funds for new projects, priority will be given to those which add value to existing assets, are affordable, have strong business cases and contribute to sustainable economic recovery. Funding is therefore prioritised for railway safety works, removal of level crossings and speed improvement works on mainline rail.

Funding has also been committed to improve the attractiveness of public transport. For example, the National Transport Authority (NTA) is overseeing the development and enhancement of the Integrating Ticketing System (Leap Card), passenger information systems and journey planners. The NTA has responsibility for the implementation of public transport infrastructure in the Greater Dublin Area.

DART Underground (formerly the Dublin Interconnector)

The Dublin commuter rail network is severely constrained by a number of key bottlenecks in the central area, most notably the capacity of the inner loop line through and south of Connolly and the remoteness of Heuston Station. Because of the limited track options and station capacities, it is not possible to operate the required level of services into and through the popular city centre stations. This also limits InterCity operations along the Cork and Belfast routes.

The solution proposed – DART Underground - involves the construction of a rail tunnel between Inchicore (west of Heuston Station)_ in the west and Docklands in the east to allow for the through running of services between the southwest and northern suburbs i.e. between the Cork and Belfast lines. It will be necessary to electrify a significant element of the network to cater for tunnel operations and the proposed twinning of services.

The detailed design, including the work planning programme was completed at the end of 2009. €10 million from the TEN-T budget under the Multi-Annual programme has been earmarked for this purpose.

Due to the financial crisis, the project has been postponed for consideration in advance of the next capital programme which will be drawn up in 2015 and will cover the period from 2016 onwards.

While the DART Underground Tunnel project has been postponed there may be elements of the overall Programme, such as some re-signalling and/or electrification which of themselves will bring benefits and which, subject to funding availability and other priorities, may be progressed in the period to 2016.

5. Cross-Border

Road

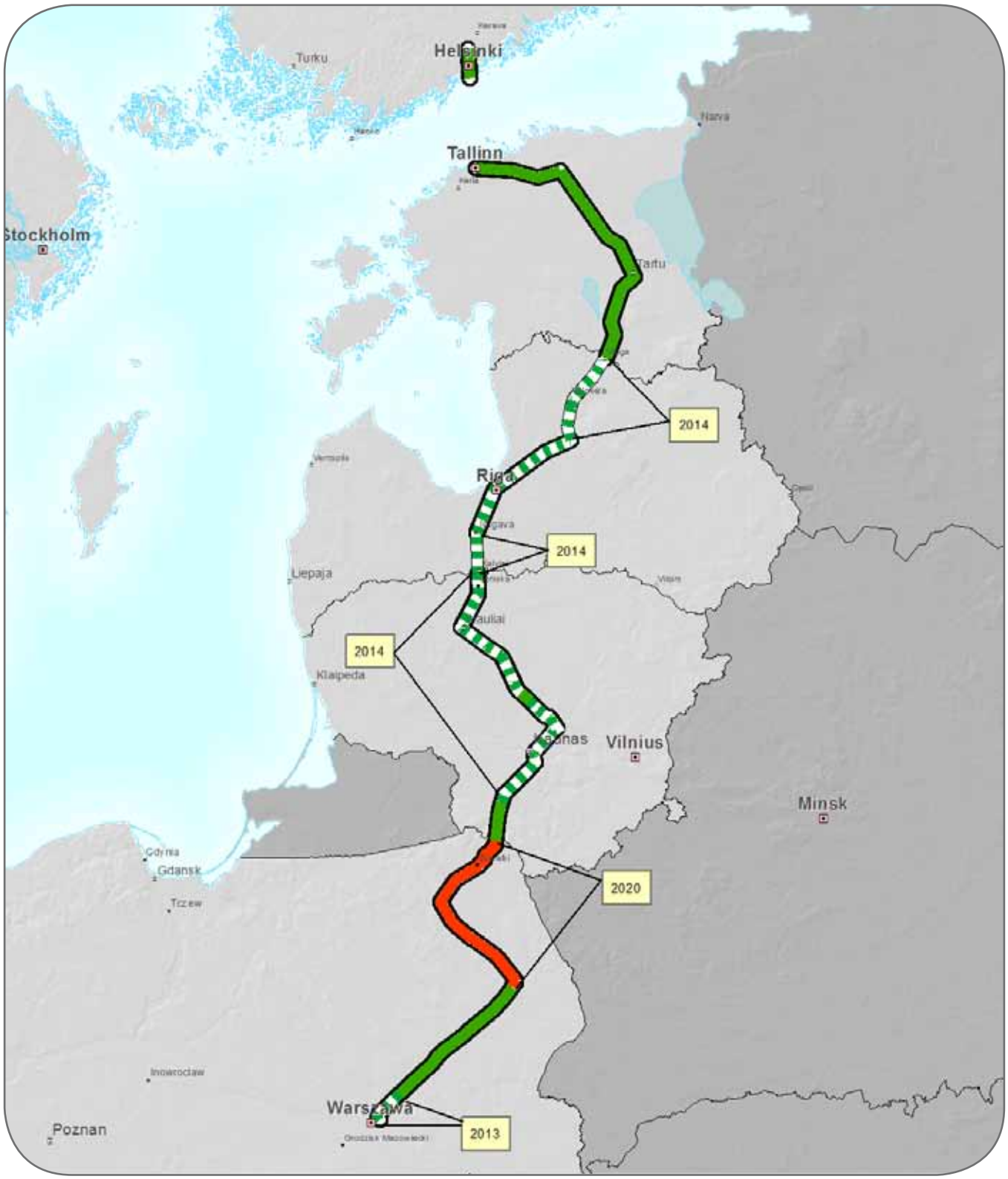
The cross-border section from N1 Dundalk to the border with Northern Ireland received TEN-T grants in the 2001-2006 programming period and has now been completed.

The project was related to the completion of the construction of 19 km of dual carriageway from Dundalk to Newry (4.6 km on UK territory/14.5 km are south of the border), which replaced an existing inadequate trans-frontier link on the Dublin-Belfast corridor.

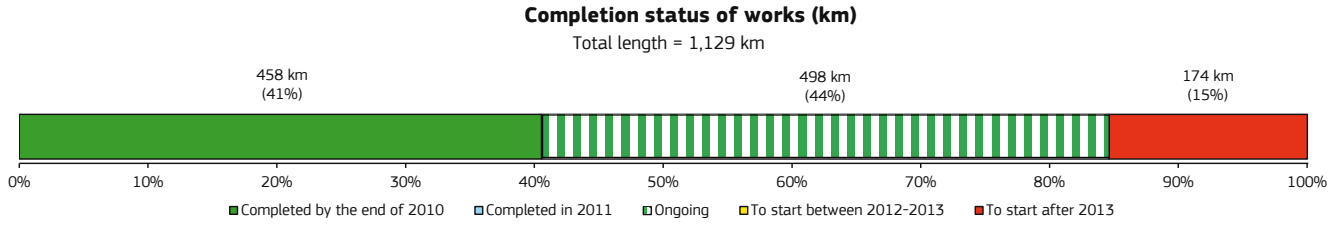
Priority Project 27

"Rail Baltica" axis Warszawa-Kaunas-Riga-Tallinn-Helsinki

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
1)Building of new European gauge line on the cross-border section PL border - Marijampole 2) cross-border section Siauliai - LV border. Reconstruction/Upgrading	LT	€72.8	Ongoing
1)Reconstruction/upgrading: cross-border section north Valmeira - Valka abd cross-border section south Jelgava - LT border. 2) Reconstruction/upgrading Jugla (Riga city border station) - Valmiera	LV	€22.3	Ongoing
Studies for Rail Baltica, Lithuanian part: a)section PL border - Marijampole in European Gauge; b) Improvement of existing line; c)contribution to global Rail Baltica study for European Gauge	LT	€16.1	Ongoing
Cross-border section Tartu - Valga railway reconstruction/upgrading	EE	€10.8	Ongoing
Studies for a European gauge line (Latvian section)	LV	€1.1	Ongoing
Studies for a European gauge line for Rail Baltica (Estonian section)	EE	€1	Ongoing
Total		**€124.1**	



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Priority Project 27
"Rail Baltica" axis Warszawa-Kaunas-Riga-Tallinn-Helsinki

Trans-European transport network. Achievement of the Priority projects

European Coordinator

Pavel TELIČKA

SUMMARY

"Rail Baltica" is a strategic and sustainable rail project linking four of the new Member States of the EU -Poland, Lithuania, Latvia and Estonia, as well as Finland. It is the only rail connection between the three Baltic States, as well as between them, Poland and the rest of the European Union. To the north, Helsinki can be connected by ferry services across the Gulf of Finland forming a connection to the countries of the Nordic Triangle. The length of the current track is approximately 1,200 km by the most direct existing route from Tallinn to Warsaw. A variety of track and operating systems are currently in use: single and double track, electrified and non-electrified (of which single track non-electrified is the most common system). The line passes through a variety of different terrain: urban areas surrounding the cities of Białystok, Kaunas and Riga and rural areas such as the Podlaskie region of north eastern Poland and southern Lithuania, as well as northern Latvia and the south of Estonia. Rail Baltica connects three major Baltic seaports - Helsinki, Tallinn and Riga - and has a short rail connection to a fourth, the Lithuanian main port of Klaipeda. Priority Project 27, Rail Baltica, has been co-ordinated by Pavel Telička since 2005.

1. Introduction

The year 2011-2012 was marked by important developments and a shift in emphasis from the original Rail Baltica 1 (the step-by-step upgrading project on the original 1,520 mm alignment where works are complete in Estonia and are progressing in Latvia and Lithuania), towards the new higher speed 1,435 mm UIC gauge direct line project (now known as "Rail Baltic") from Tallinn to Warsaw via Pärnu, Riga, Kaunas, Ełk and Białystok[1]. Following the publication of the International Feasibility Study in August 2011[2], the partner countries took several important steps during the year towards the realisation of the new line, including publishing a Joint Statement of the Baltic Prime Ministers and a Declaration of Intent by the Ministers of Transport of the three Baltic States which both highlighted the political will to proceed with the new project.. Developments in 2011-12 also took place against the backdrop of the EU Council's adoption of general approaches on both the Commission's proposal for revised TEN-T Guidelines as well as the accompanying financial measure - the Connecting Europe Facility. The Guidelines lay down a completely new structure for the TEN-T based on national comprehensive networks and international core corridors linking the strategic parts of the enlarged EU (which will include Rail Baltic). These corridors have been proposed by the European Commission in order to implement the core network, which includes the Baltic-Adriatic Corridor. The new policy was presented to the partner countries on 19 October 2011 and was discussed in detail at the 2012 TEN-T days held in Antwerp on 29-30 November 2011. Currently (October 2012), the two Commission proposals are with the European Parliament where they will be voted in committee on 27 November and in plenary early in 2013. .

However, all of these developments have to be taken in the context of the political discussions on the European Union budget – the future Financial Perspective (2014-2020), which has to be agreed before the end of 2013. The allocations to the TEN-T and the CEF can only be finally established once the total EU budget is known.

1 This line is known as either "Rail Baltica 2" or as suggested by Vice-President Siim Kallas: "Rail Baltic"

2 For details see Annual Report 2010-2011

2. Improving the existing 1,520 alignment

2011-2012 was the penultimate year of the second mandate for coordination of PP 27 and several advances were made in upgrading the existing line, in a step-by-step approach to achieving an average operating speed of 120 km/h. In Estonia, work was already completed in 2010-2011 with the finalising of the last elements of the upgraded track - including entry into Valga/Valka station - and aligning the platform heights in other stations to UIC standards.

In Latvia, work resumed following the pause occasioned by the economic and financial crisis and consisted of concluding the contracts for the supply of materials and works. Total financial expenditure is in the order of €18.9 million. On 4 October 2011, the Latvian administration reported the conclusion of a contract for the supply of rails. All rails within the planned reconstruction scope of the project have now been supplied. A further contract for the supply of sleepers with elastic fastenings was concluded on 9 March 2012. A total of 35,040 sleepers were supplied in 2012. These supplies will continue in 2013. A contract for the supply of railway ballast was concluded on 11 July 2012 and immediately executed. A works contract for the reconstruction work was concluded on 28 June 2012.

Work carried out in 2011-2012 is therefore as follows:

- Cleaning of the rail ballast on the Jelgava-Meitene railway section has been completed;
- Installation of the rail grid on the Jelgava-Meitene railway section has started;
- Cleaning of the rail ballast on the Sigulda-Līgatne railway section has started;
- Replacement of the rail fastenings on the Sigulda-Līgatne section has been carried out;
- Welding of rails in the SIA LDZ Infrastruktūra welding centre has been carried out;
- The first welded rails (800 m) for installation on the Sigulda-Līgatne railway section have been unloaded;
- Necessary repair works of railway crossings on the Sigulda-Līgatne railway section has been carried out.

The detailed design is now complete for 36 km of reconstructed track. The construction permit for reconstruction work has been obtained and the status report for 2011 has been approved by the TEN-T Executive Agency. The project is therefore on track to be completed in accordance with the planned schedule by the 31 December 2015.

In Lithuania, following the opening of the first dual gauge track section between Mockava and Sestokai in August 2011, work on installing the same dual gauge from Sestokai to Kaunas has slowed in 2012 and this is a matter of concern. The Lithuanian administration cites environmental issues as the reason and difficulties with bridge crossings in the area. Nevertheless, if the aim of linking Kaunas with the UIC gauge by the end of 2015 is to be achieved then Lithuanian Railways (LG) must move forward with the upgrading work at a faster pace.

In Poland, the European Coordinator is happy with the positive attitude towards the project being shown by the administration and during the year the Coordinator had several productive meetings with the Under-Secretary responsible for railway infrastructure. In particular, the Coordinator appreciated the realistic approach of the administration towards the general reconstruction of the Polish rail network, including Rail Baltic.

3. The new direct higher speed 1,435 mm UIC gauge line - Rail Baltic

3.1. Joint Statement of the Baltic Prime Ministers 10 November 2011

Early achievements in the year in question were the two declarations on the new line in the Baltic States.

On 10 November 2011, at a meeting in Tallinn attended by Vice-President Siim Kallas, the Prime Minister's Council of the Baltic Council of Ministers issued a Joint Statement. Within a framework of wider cooperation in the field of transport, the Prime Ministers welcomed the Commission's initiative to include the Rail Baltic corridor Tallinn-Pärnu-Riga-Kaunas-Warsaw in the pre-identified projects list of the Core Network (see below for details).

The Prime Ministers:

- "Declared the importance of finishing the preparatory phases and starting with the construction of the new Rail Baltic standard gauge (1,435 mm) railway line during the next EU Financial Framework 2014-2020;
- Agreed that a Joint Venture would be established between Estonia, Latvia and Lithuania before the end of 2012 at the latest;

- Agreed to start spatial and regional planning; tasked their respective national authorities with preparing and implementing the necessary steps that the planning, including adjustments to routing solutions, must ensure real connections between the key nodes and that the new corridor should not only complement, but also leverage the existing transport infrastructure;
- Agreed that the EU financing for the project should be allocated outside the national cohesion fund envelopes and that the EU co-financing intensity should be around 85%;
- Invited Poland to join in the full implementation of the new Rail Baltic corridor;
- Reaffirmed the intent to finish the construction works and start preparations to operate interstate passenger trains on the existing railway infrastructure by 2016".

Finally the Prime Ministers authorised their respective Transport Ministers to agree a memorandum of mutual understanding at their meeting on 7 December 2011 in Tallinn.

3.2. Declaration of Intent of Baltic Transport Ministers 7 December 2011

This Declaration underlines the importance of the Tallinn-Warsaw corridor, and

- Agrees that coordination between Estonia, Latvia, Lithuania and Poland is crucial for full implementation of the new alignment of the project;
- The parties invite the EU Coordinator to launch immediately the negotiations to reach the agreement on co-ordination;
- Foresees the creation of a joint venture to focus on and speed up the implementation of the Rail Baltic project and agree that by 16 January 2012 Estonia, Latvia and Lithuania should appoint two representatives to a special Task Force;
- That this Task Force should decide upon the establishment of a Rail Baltic joint venture involving project stakeholders and work out detailed plans for a management structure, financial issues and the coordination of long and short work plans.

The document goes on to welcome the idea of a further study (co-financed with the EU under the current Financial Framework 2007-2013) to draft detailed documentation for the Rail Baltic joint venture to support the activities of the Task force. The Ministers also agreed that an inter-ministerial coordination group of Member States and EU representatives should be established to steer the planning process. Finally the Ministers declared that they wanted current upgrading work on the existing alignment to be finished by 2016 so that preparations to operate interstate passenger trains can be started.

3.3. The setting up of the Task Force and the inaugural meeting in Tallinn on 13 June 2012

Following the Declaration of Ministers, each country appointed representatives to form a special Task Force to oversee the project and to establish a Joint Venture.

The first meeting of the Task Force took place under Estonian Chairmanship in Tallinn on 13 June 2012 and was composed of delegations from all four partner countries. Following a general presentation by the Commission, the meeting went on to discuss a draft set of terms of reference for a study on setting up the Joint Venture, followed by a dialogue on the common principles for spatial planning and preparatory works. In the end three documents were adopted (with amendments).

These are:

- Terms of Reference for a Rail Baltic Joint Venture study (JVS)
- Common principles for a Rail Baltic 1435 mm railway Spatial and Territorial planning and preliminary design study (Lithuania, Latvia and Estonia) (STP)
- Protocol to the above agreed also with Poland

It was agreed at the meeting that the next step towards the realisation of the project would be to commission a study drawing on best practices to suggest the most appropriate structure for a joint venture structure that would manage at an international level the design, construction and putting into operation of the new line within the framework of the revised TEN-T guidelines and financing packages. An open tender would be launched to select a suitable consultant to draft such a study. It was agreed that Estonia would finance the JVS from existing TEN-T supported funds. It was also agreed that the Task Force would act as a Steering Committee for the contract and that the reports would be presented to the Task Force. Both the successful consultant and Commission representatives will take part in relevant meetings of the Task Force.

The meeting then agreed that the following step would be to lay down the common principles for the spatial and territorial planning and preliminary design – a sketch map - of the steps to take with suitable deadlines and timetabling (STP). This would be a major study which would carry the project forward up to 2015 and prepare the way for the final technical design which is the last step before building work is carried out. A common agreement is crucial to provide the partner countries with a unitary framework and with the agreement of mutually ensured deliveries. The Latvian delegation presented additional technical comments dealing with the access of the new Rail Baltic line to the Riga area and these amendments were accepted by the Task Force.

A further text relating to Poland was also adopted. The Polish perspective on the preparatory works is different from the three Baltic States and this needs to be taken into account. The Polish representatives explained that the 1435 mm line up to the Lithuanian border will be reconstructed in sections with feasibility studies. The first stage of reconstruction will be undertaken with financial support from the Cohesion Fund for the existing 2007-2013 Financial Framework. The main focus will be on the line to Białystok. The development of the rest of the line to speeds in excess of 120 k/ph depends largely on the perspective presented by the Rail Baltic development. To determine these perspectives it is important for Poland to be part of the Rail Baltic development activities. For Poland, the advantage of the project is that it carries the possibility of modal shift from road to rail but higher speeds are required to create an effective freight corridor. It was agreed that by the next meeting of the Task Force there would be a draft of the formal procedures for discussion and this document would take account of the particular position of Poland.

In the accompanying text of the STP relating to Poland, it was agreed that Poland will develop the connecting Warzawa-Białystok-Ełk-Suwalki-Trkiszk-LT border route. Poland will abide by the EU provisions relating to interoperability of the EU rail system. Also, the most feasible interstate border crossing points must be identified in each of the partner countries, including that at the border between Lithuania and Poland.

It was also proposed that there should be a ministerial meeting between the four Transport Ministers before the end of 2012 in order to reflect on project progress and if necessary to clarify any of the outstanding issues with the mandate of the Task Force.

A final issue discussed was the possible involvement of Finland in the Task Force as Finland has expressed both economic and political interest in the Rail Baltic project. It was agreed that Estonia will formally invite Finland to take part in the next meeting of the Task Force.

3.4. The second meeting of the Task Force in Warsaw on 14 September 2012

The second meeting was also chaired by Estonia and hosted by Poland at the headquarters of Polish Rail PKP. 24 representatives from Poland, Latvia, Lithuania, Estonia and Finland as well as from the European Commission and the TEN-T Agency attended.

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The Polish delegation explained that all the Rail Baltic tracks in Poland will be upgraded from 120 to 160 km/h for passenger trains and all upgraded tracks will be electrified with a common 3 kV electric system. The preparation works will be planned for the next financial perspective because there are still some unsolved questions at local level. Problems in Masuria and the Rospuda valley were currently being addressed and decisions will be forthcoming following the preparatory works.

In the three Baltic States the next step is for two further studies. The first is for a study to propose the most suit-

able form of Joint Venture structure for Rail Baltic. There is a legal delay to the final decision on the appointment of the winning tenderer but the study should be finalised before Christmas. The second study will be for spatial planning activities, environmental studies and site investigations where the main outcome expected of the contract is to be the full preliminary design of the railway by the end of 2015. The meeting felt that this schedule was tight, but possible. The Estonian delegation explained that for Estonia the tender announcement for the study for the thematic regional plans and the preliminary railway design was published on 9 August 2012. The study will cover the route from Tallinn to the border with Latvia through Pärnu. The substance of the tender is to find the best candidate for the preparation of thematic county plans for counties where the line passes through, as well as the relevant detailed plans, strategic environmental assessment, environmental impact assessment, preliminary design of the railway and the preliminary designs of the railway-related buildings. The deadline for submitting a proposal under the tender is 4 October 2012. Financing will be covered by the Estonian government and the TEN-T.

The Latvian representative stated that the draft for the study tender is ready and the winner will be announced in September 2012. He assured that all the works will be finished by the end of 2015, in accordance with the timeline. Estimated costs would be in the region of €1.5 million. This was felt to be rather a low figure for a study of such scope.

The Lithuanian delegation reported that it had divided the preliminary works procurements into three sections - environmental impact assessment, spatial planning and environmental assessment. The deadline to announce the tender is now April 2013. Work should be completed by the end of 2015. The preliminary design will be part of the technical design in Lithuania and the scope of the works will be presented in hard copy by the end of September 2012. Lithuania is planning to finance the project with finance from national sources and from the TEN-T and estimates the cost of preparatory works to be approximately €8 million.

3.5. Financing the two studies

The two studies will be financed by an amendment to the existing financing decisions for each country and in the case of Estonia and Latvia also an application for funding under the 2012 Annual Call will be made.

Estonia has almost completed their modification proposals on the existing Decision, while Latvia is still working on some technical issues. Lithuania is almost ready with modifications and a first draft should be ready by the end of September. The TEN-T Agency representative pointed out that even if changes were proposed to the initial Decision then the original focus must remain. The European Commission presented the timetable for the Annual Call 2012. The application procedure (which is entirely online) is expected to open at the end of November 2012 and be closed by the end of February 2013. The information day is planned for 29 November. Decisions are expected to be announced during summer 2013. The Polish representative also stated that Poland will be asking for funding for freight corridors.

4. TEN-T revision and the Connecting Europe Facility

On 19 October, the Commission adopted a package of proposals, made up of the Connecting Europe Facility[3], the revised TEN-T guidelines[4] and a proposal to launch a pilot phase of the Project Bonds initiative[5].

The TEN-T Network consists of two layers: a Core Network to be completed by 2030 and a comprehensive network feeding into this, to be completed by 2050. The comprehensive network will ensure full coverage of the EU and accessibility of all regions. The aim is to ensure that progressively, and by 2050, the majority of Europe's

3 http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/1200&format=HTML&aged=0&language=en and http://ec.europa.eu/transport/infrastructure/connecting_en.htm

4 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011PC0650R(01):EN:NOT

5 http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/707&format=HTML&aged=0&language=EN&guiLanguage=en

citizens and businesses will not need more than 30 minutes' travel time to access this comprehensive network. The Core Network will prioritise the most important links and nodes of the TEN-T. Both layers include all transport modes: road, rail, air, inland waterways and maritime transport, as well as intermodal platforms and ports.

The implementation of the Core Network will be facilitated using a corridor approach. Corridors will provide the basis for the coordinated development of infrastructure within the Core Network. Covering at least three modes, three Member States and two cross-border sections, these corridors will bring together the Member States concerned, as well as the relevant stakeholders, for example infrastructure managers and users. European Coordinators will manage the implementation and bring together all the stakeholders. Ten corridors were identified (see map).

The proposed new Rail Baltic will form the northern most section of the new Baltic – Adriatic Corridor. This Corridor will start in Helsinki/Tallinn and continue to Bologna and Ravenna via Poland, the Czech Republic, Slovakia and Austria. There will also be a branch from Warsaw to Gdansk on the Baltic Sea coast (see dark blue route on map).

5. The Environment

It has always been made clear by the Coordinator that while rail provides intrinsic environmental improvement (sustainability, low carbon emission, small land purchase demand etc.) any new construction involving Rail Baltic should still have environmental considerations as a priority. Environmental impact assessments are in any case mandatory for all EU financed projects and all the partner countries must be aware of this.

In any event, Rail Baltic can be a main transporter of heavy freight, easing the environmental impact by taking freight off the region's road network. The Commission and the Coordinator believe that the environmental element is vital to the development of a successful project.

6. Stakeholders

6.1. The Rail Baltica Development Corridor (RBDC)

2011-2012 was an active year for stakeholder activity in the project. Developments in the initiative of the Baltic Metropoles Network (which includes the cities of Helsinki, Tallinn, Kaunas, Białystok, Warsaw, Łódź, Poznan, Berlin and St. Petersburg) to create a Rail Baltic Development Corridor continued throughout the period, culminating in a meeting in Vilnius on 24 November 2011 entitled "The First Transnational Roundtable". The group continues to help the project by publicising the benefits of the corridor and promoting its image, particularly in the major nodes such as Helsinki and Tallinn. The group's research is part financed by the ERDDF. The main theme of the meeting was EU transport policy perspectives in the light of the October 2011 announcements on the Core and Comprehensive networks.

The RBGC has created a cooperation platform - the Rail Baltica Transport Forum -to enhance interaction and policy dialogue between high-level decision makers in the field of transport and regional development within the Baltic Sea region. The Rail Baltica Transport Forum is working to create a Rail Baltica growth strategy, which communicates perspectives and challenges of transport and economic development, and gives direct input for local and regional development plans. The strategy strives to observe the needs of both the transport sector and customers in line with the Green Corridor principles. The RBGC invites cities, regions, transport sector, and ministries to build a common action plan to gain momentum to the introduction of a truly transnational, customer-friendly, effective and sustainable Rail Baltic connection.

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6.2. The Baltic-Adriatic Corridor-Connecting Europe and beyond

This meeting on 6 December 2011 was the first session of a new stakeholder support group to support and promote the new Baltic-Adriatic Corridor. It was organised by a group of MEPs from the EPP and socialist groups and speakers included members from Italy, Austria, Estonia, Poland and the Czech Republic. The aim of the meeting was to highlight the significant importance of the Baltic-Adriatic Corridor for the European economy and competitiveness.

6.3. The European Parliament's Baltic Region Intergroup

Chaired by Latvian MEP Robert Zile, this group brings together Baltic State MEPs and others interested in the

development of the region. The Group have already held one meeting to discuss the 2011 Feasibility Study for the new 1,435 mm Rail Baltic line.

6.4. The Baltic-Adriatic Axis (BAA)

The Baltic-Adriatic Axis was formed in October 2006, when the transport Ministers of Poland, Czech Republic, Slovakia, Austria and Italy signed a Letter of Intent on the development of a Baltic-Adriatic Transport Corridor, suggesting a prolongation of PP23 and PP25 to northern Italy. The Baltic-Adriatic Transport Corridor should connect Gdansk via Warszawa with Bologna at the most southerly point, including branches via Ostrava/Brno or Zilina/Bratislava to Vienna and passing by Graz, Klagenfurt, Villach and Udine with another branch to Trieste. It will connect at the northern end in Warsaw with the proposed new Rail Baltic line forming Core Corridor 1.

7. Activities of the European Coordinator

During the period under review the Coordinator made seven visits to the four partner countries. During this period, he had discussions with the Prime Minister and Transport Minister of Lithuania, the Transport Ministers of Estonia and Latvia and with two Undersecretaries of State from Poland. He also attended the TEN-T days in Antwerp and the EIB Conference in Vienna on the Eastern Partnership for Growth.

8. Work objectives for 2012-2013

The main objectives for the next year will be

- Help coordinate the work of the Rail Baltic Task Force,
- Monitor the on-going reconstruction work on the existing alignment in Latvia and Lithuania in an effort to ensure completion by the end of 2015,
- Act as an interface between the EU institutions and the partner countries in the continuing discussions in Brussels on the revised TEN-T guidelines and the Connecting Europe Facility.

9. Conclusions and recommendations

In general, the Coordinator is satisfied with the progress made this year and in particular with the transition of the partner countries' emphasis from the reconstruction of the existing 1,520 mm alignment to planning the new higher speed 1435 mm project. The partner countries have taken a pragmatic approach in setting up the Task Force to oversee the planning stage and organise the various tenders for the Joint Venture Authority and the Spatial and Territorial Planning studies which are the crucial next steps towards final realisation of the project.

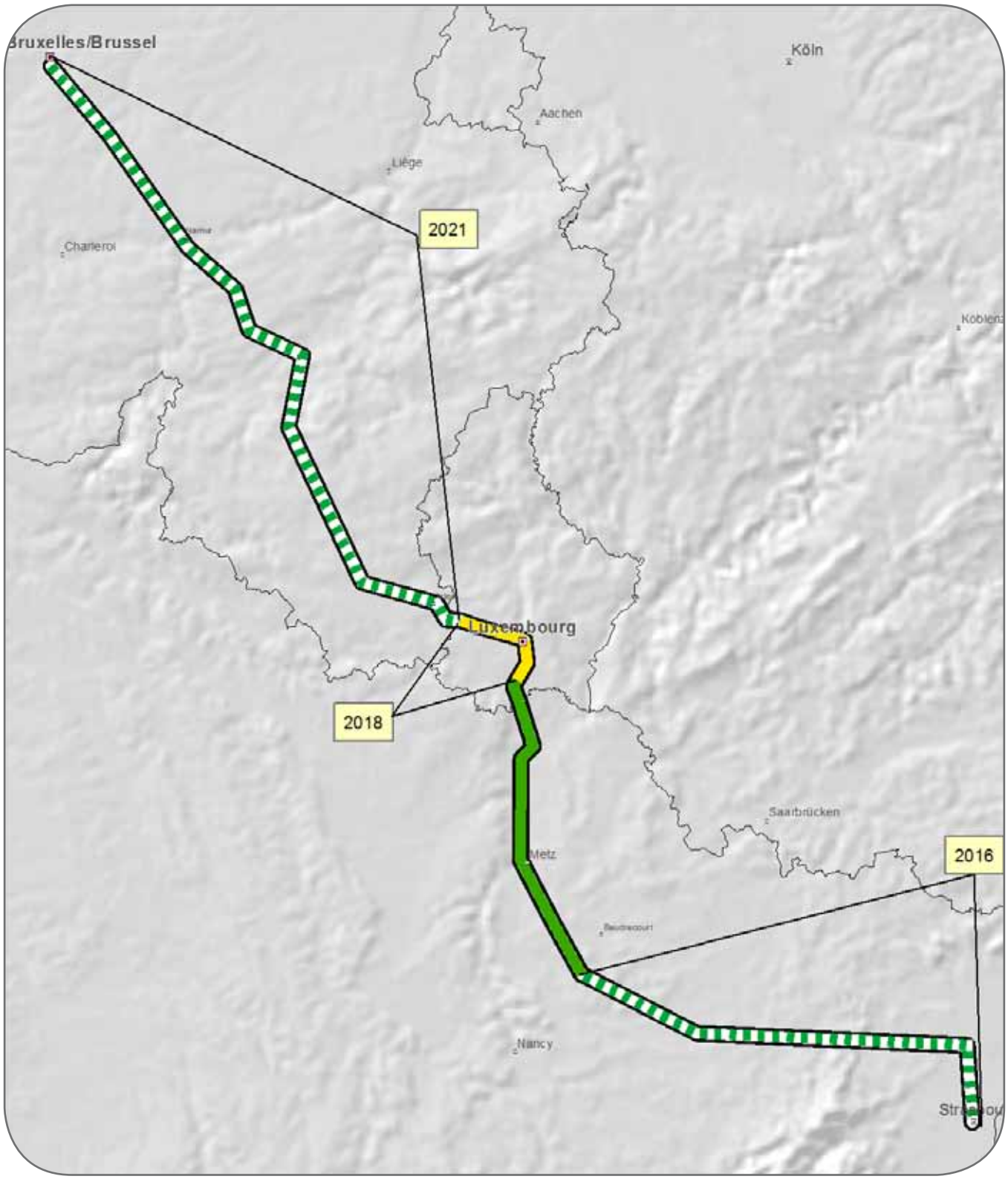
There also seems to be general support for the corridor concept created by the new structure which will extend across national boundaries and be truly international in character. The corridors will also be very long and link all of Europe. The Rail Baltic corridor will now form the northern section of the Baltic-Adriatic Corridor, linking Helsinki/Tallinn with Venice, Bologna and Ravenna via Poland, the Czech Republic, Austria and Slovakia.

As far as the work to upgrade the existing alignment is concerned, in Estonia the work is virtually complete. In Latvia, the Coordinator hopes that authorities will be able to catch up on the two year break in the work caused by the economic crisis, so that the average operating speed of 120 km/h can be achieved by 2014-15. In Lithuania, it is hoped that the work to install the dual gauge sections from the Polish border to Kaunas can be speeded up with the same aim in view. In Poland, the Coordinator is encouraged by the positive attitude of the Polish authorities towards the project.

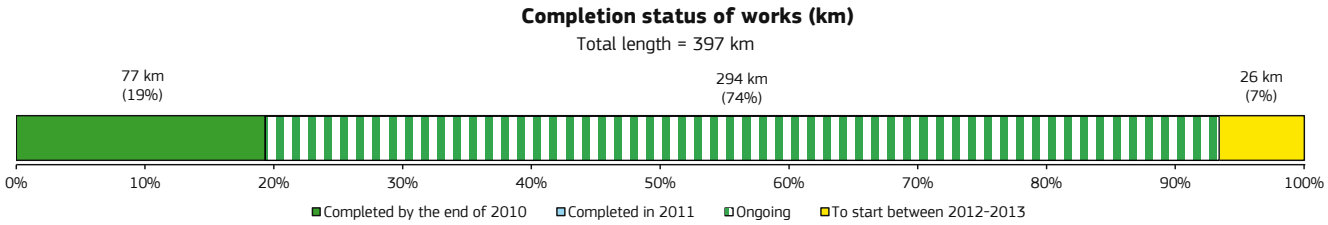
Priority Project 28

"Eurocaprail" on the Brussels-Luxembourg-Strasbourg railway axis

Trans-European transport network. Achievement of the Priority projects



Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
EuroCap-Rail modernisation de l'axe ferroviaire Bruxelles-Luxembourg	BE	€30.2	Ongoing
EuroCap-Rail. Modernisation de l'axe 3 Bruxelles-Luxembourg-Strasbourg	LU	€27	Ongoing
TOTAL		**€57.2**	



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Priority Project 28
"Eurocaprail" on the Brussels-Luxembourg-Strasbourg railway axis

Trans-European transport network. Achievement of the Priority projects

Summary

Priority Project 28 is intended to improve rail connections between the North Sea and southern Europe via Belgium, Luxembourg, eastern France and Switzerland. The Eurocaprail project also aims to connect the three capitals of the European Union - Brussels, Luxembourg and Strasbourg - through a high performance rail link.

The project includes the upgrading of the existing Brussels Luxembourg border section, in order to reach 160 km/h between Ottignies and Luxembourg and the modernisation and conversion of the Eurocaprail line in Luxembourg.

The Baudrecourt Strasbourg section coincides with the second phase of LGV Est européenne in France and is comprised of a new high speed line (in construction). In the Baudrecourt Luxembourg border section, the works were completed and the section became operational in 2007 at the same time as the Paris-Baudrecourt line.

The Belgian authorities chose the scenario including a reference speed of 160 km/h with a double electrification system (direct current of 3 kV and alternating current of 25 kV) and ERTMS signalling system Level 1. The total cost under the improved basic scenario amounts to €566 million (2005 prices).

The ongoing modernisation and upgrading works on the Eurocaprail section in Belgium and Luxembourg are due to be completed by 2021/2022, for the Belgian part.

1. Introduction

Priority Project 28 (Eurocaprail) is comprised of 397 kilometres of high speed lines between Belgium, Luxembourg and France. On the European scale, the Eurocaprail axis complements PPs 4 and 17, the 'Magistrale for Europe' linking Paris and Bratislava, and PP 24 which connects three major ports of the European Union.
By reducing travel times and improving the accessibility of the regions involved, the Eurocaprail axis offers new opportunities in terms of passenger mobility and the economic development of the regions connected by the axis.

The Eurocaprail axis comprises:

- 190 km of line to be upgraded/adapted between Brussels and Luxembourg
- 40 km of line to be upgraded/adapted in Luxembourg
- 80 km of line to be upgraded/adapted between Luxembourg, Metz and Baudrecourt (section of PP4)
- 107 km of new high speed line between Baudrecourt (Moselle) and Strasbourg (section of PP17 and the French LGV Est).

Length of the rail network (km)

	Length of lines in use (km)	Amount electrified	High speed rail network (km)
EU27	215,439	107,373 (49.8%)	5,427
BE	3,544	2,977 (84.0%)	320
FR	29,286	14,765 (50.4%)	1,893
LU	275	262 (95.3%)	0

2. Socio-economic impact of the project

Since the Eurocaprail network involves countries - France, Belgium and Luxembourg - whose per capita gross national income (GNI) is above 90% of the EU average, Structural Funds and the Cohesion Fund are not considered in the framework of the Convergence objective. Thus, TEN-T funding remains the most important source for co-

financing TEN-T projects in regions with a normal economic performance. The Eurocaprail axis is a key factor in the development policies pursued by socio-economic players and local authorities. Being incorporated in regional projects along the line, the Eurocaprail axis accompanies and promotes dynamic regional development in areas which have undergone significant economic changes resulting from deindustrialisation and a rather negative brand image.

The Eurocaprail project will be a mixed line (passengers and freight), bringing about substantial reductions in travel times between the three countries and regions concerned and attracting passengers away from the roads.

	Area 1,000 Km2	Population (Million)	GDP per capita
EU27	4,323	495.57	100
BE	30.5 (0.70%)	10.58 (2.13%)	120
FR	544 (12.58%)	61.54 (12.42%)	111
LU	2.6 (0.06%)	0.484 (0.097%)	266
EU3	577.1 (13.34%)	72.604 (14.64%)	

3. Infrastructure development by country

The development and state of implementation of Eurocaprail is as follows:

Eurocaprail	Length (in km)
Brussels-Luxembourg border	170 (line to be upgraded)
Luxembourg	40 (line to be upgraded)
Baudrecourt-Luxembourg border	80 (line upgraded)
Baudrecourt-Strasbourg	107 (new line)

Belgium

The competent authorities have examined three scenarios for the Eurocaprail section on Belgian territory:

- Basic Scenario 1 of the SNCB project envisages upgrading of the existing line to reach 160 km/h between Ottignies and Namur, passing through Gembloux station at 160 km/h compared to the current 80 km/h, increasing the speed to 160 km/h between Namur and Ciney (130 km/h in Assesse) and sections at 140, 150 and 160 km/h between Libramont and Luxembourg. The cost of the works for implementing Scenario 1 is €366 million.
- Scenario 2, in addition to the upgrading under the basic scenario, envisages a new high speed line between Ciney and Libramont with the cost of the works estimated at €1.03 billion.
- Scenario 3 envisages 200 km/h between Ottignies and Namur, 160 to 200 km/h between Namur and Ciney, a new line at 300 km/h between Ciney and Libramont and 160 to 200 km/h between Libramont and Luxembourg, with the cost of works estimated at €1.79 billion.
-

The SNCB reviewed the three scenarios, and after taking into account the costs and advantages of the various options, it chose the solution of improving the current infrastructure without constructing a high speed line. The Walloon Region is involved in the works by means of pre-financing.

The ongoing modernisation and upgrading work on the Eurocaprail section in Belgium to allow trains to run at a speed of 160 km/h is foreseen to be completed by 2021-2022. The total costs for the improved basic scenario amount to €566 million (2005 prices).

Luxembourg

Modernisation and upgrading work on the Luxembourg section of Eurocaprail to allow trains to run at a speed of 160 km/h is due to be completed by 2018. A ten-minute savings could be achieved in Luxembourg, since the Luxembourg main station (180° turn) is no longer served. International trains stop at the new train station at Cessange.

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France

Baudrecourt–Luxembourg border section

The works on this section were completed and it became operational in 2007 at the same time as the Paris-Baudrecourt line.

Priority Project 28
"Eurocaprail" on the Brussels-Luxembourg-Strasbourg railway axis

Trans-European transport network. Achievement of the Priority projects

Baudrecourt-Strasbourg section

This 107-kilometre section coincides with the second phase of LGV Est européenne in France and will be a new high speed line. An initial agreement for €94 million was signed in 2007 in order to finance the preparatory works for the construction of the second phase. The agreement financed the necessary land acquisitions, network displacement and archaeological excavations.

The financing agreement for the works of the second phase was signed in 2009. The costs of the project are estimated at €2.01 billion and it is expected to become operational in March 2016. The density of engineering structures will be roughly equivalent to that of the first phase: in addition to the Saverne tunnel, they include 91 highway bridges, 4 rail crossings, 2 river crossings and 4 flying/burrowing junctions.

4. Financial aspects

The EU supports the implementation of the TEN-T projects through several financial instruments, as well as loans from the European Investment Bank.

The subsidies, in particular under the TEN-T budget line, the Cohesion Fund and European Structural Funds for development, play an important role both in the preparation of TEN-T projects and the launching stage. Subsidies are allocated to studies (feasibility, complete technical or environmental, and costly geological explorations), helping to overcome difficulties of a project during the first stage and the works phase.

Priority Project 28 involves regions which do not benefit from support from the Structural Funds. As mentioned earlier, significant co-financing of the project is ensured by the TEN-T budget. A key issue is to rationalise EU subsidies by allocating them to projects with high European added-value. The TEN-T budget is used to co-finance some of the works under this project.

5. Technical and operational aspects

Operating speed

The 107 km of new line (Baudrecourt-Strasbourg) will be built for a nominal (potential) speed of 350 km/h. Commercial services will at first be operated by TGV trains at a maximum speed of 320 km/h. For the other sections, a speed of 160 km/h is possible.

Interoperability

Interoperability is a system of standards (supported by infrastructures and rolling stock) that aims to allow any type of train meeting these standards to run on a given infrastructure. The line will be fitted with high frequency track circuits and track-train communication. Moreover, it will be equipped with ETCS and GSM-R, components of the European Rail Traffic Management System (ERTMS).

For conformity reasons, the line will also be equipped with the conventional signalling system which allows conventional stock unequipped with the ERTMS system to operate on the line.

Operability

Four options are to be considered for this line:

- Use of conventional rolling stock suitable for operating at 160km/h
- Extension of the TGV Est européen Strasbourg–Luxembourg to Brussels
- Extension of Swiss IC trains at a speed of 200km/h from Basle to Strasbourg, Luxembourg and at a speed of 160 km/h from Luxembourg to Brussels;
- Extension of tilting trains of the SBB fleet to Belgium via Strasbourg, Luxembourg and Brussels.

At the same time, the SNCB has initiated meetings with potential partners (CFL, SNCF and SBB) to explore their interest in participating in the technical and economic studies on the subject. The technical studies are aimed to evaluate the performance of various types of rolling stock, mainly the speeds that are possible with the infrastructure and the resulting travel time. After completion of these studies, it should be possible to evaluate the feasibility of the various alternatives, including that relating to tilting trains. With the planned upgradings and investments, the first three options would be possible. The use of tilting trains, and their potentially necessary adaptations will be reviewed in a joint working group of train companies and Infrabel.

6. Conclusions

- The overall investment envisaged in the 2001-2012 SNCB multi-annual investment plan on the Brussels-Luxembourg axis is €366 million.
- Scenario 2, which includes the investment in Luxembourg, the SNCB basic project (Scenario 1) and the new line between Ciney and Libramont, would allow travel time to be cut by approximately 43 minutes by using TGV rolling stock at 300 km/h, resulting in a commercial journey between Brussels-Luxembourg and Luxembourg-Cessange of 1 hour and 30 minutes.
- The internal profitability rate (railway company + railway infrastructure manager), including external costs and based on a doubling of the market share of rail transport between 2010 and 2015 (reduced journey times, improved quality of service, progressive saturation of the railway infrastructure) is 7.7%.
- Scenario 2 has the best cost/quality relationship, but requires additional funding to the tune of €664 million from the Belgian side. This scenario involves investment of €215 million on Luxembourg territory and an investment of €1,03 billion on Belgian territory, making a total of €1.245 billion.

In fact, the Belgian authorities chose the basic scenario including a reference speed of 160 km/h with a double electrification system (direct current of 3 kV and alternating current of 25 kV) and ERTMS signalling system Level 1. The total cost under the improved basic scenario amounts to €566 million (2005 prices).

The ongoing modernisation and upgrading works on the Eurocaprail section in Belgium and Luxembourg are due to be completed by 2021-22 (for the Belgian part).

Priority Project 29

Railway axis of the Ionian/Adriatic intermodal corridor

Trans-European transport network. Achievement of the Priority projects

0 25 50 km

Cartography: DG MOVE, October 2012
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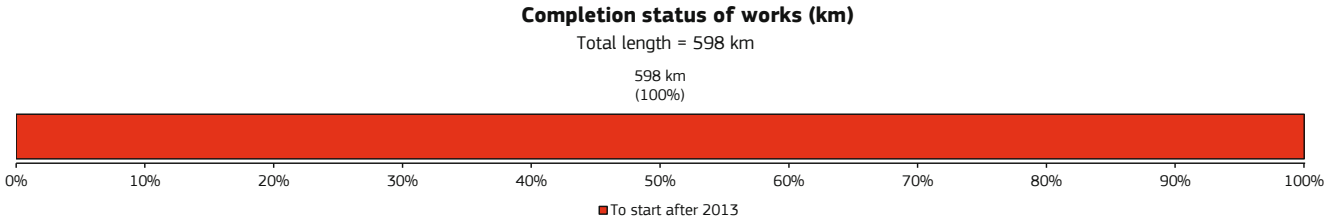
Completed
Completed in 2011
Works ongoing
Works to start between 2012 and 2013
Works to start after 2013

Completion Date
Priority sections

TENtec

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Studies for standardisation and upgrading design for the existing Patras - Pyrgos - Kalamata railway	EL	€15.5	Ongoing
TOTAL		**€15.5**	



PP 29

Priority Project 29
Railway axis of the Ionian/Adriatic intermodal corridor

Trans-European transport network. Achievement of the Priority projects

Summary

These new rail links are founded on Greece's geographical position at the crossroads between Europe, Africa and Asia. The two interlinked routes will increase the capacity for intermodal links between sea and rail transport, by connecting the major ports in Greece with each other and with the main rail routes to the rest of Europe. Connections between the rail networks of south-eastern Europe (Greece, the Former Yugoslav Republic of Macedonia, Bulgaria and Turkey) will become easier and more efficient.

The new line for the Kalampaka-Ioannina-Igoumenitsa section is single line of normal gauge (1,435 mm). The speed is more or equal to 160 km/h and the maximum longitudinal gradient is 20‰. The line will be electrified and equipped with bi-directional signalling, ETCS-level I, telecommanding and GSM-R. Work is due to begin in 2018. For the Ioannina-Antirrio section, the new line was planned to start at the eastern part of Antirrio and to finish at Ioannina, connecting with the planned Igoumenitsa-Kalampaka railway line, and has a speed of 100 km/h. There is no specific timetable for this part of line, due to the significant shortages in national expenditures for public works, resulting from the economic crises.

For the Patras-Pyrgos-Kalamata section, the project includes the upgrading and the standardisation of the existing metric gauge railway line. The time of design phase completion is estimated for 2015, while work is envisaged to begin in 2018. The slippage in the forecasted start dates of the projects, compared to last year's progress report for PP29, is due to the adverse financial conditions prevailing in the Greek economy.

General appreciation

PP29 is taken forward in regions which benefit from Structural Funds. Consequently, the Structural Funds and the Cohesion Fund will ensure significant co-financing of this project. However, the "Accessibility" Operational Programme produced within the framework of the National Reference Strategic Framework for Greece (2007-2013) does not foresee financial support for this TEN-T project. Therefore, financing of this project is considered difficult. The TEN-T budget 2007-2013 co-finances some of the studies relating to this project.

1. Introduction

These new rail links are founded on Greece's geographical position at the crossroads between Europe, Africa and Asia. The two interlinked routes will lead to increased capacity for intermodal links between sea and rail transport by connecting the major ports in Greece with each other and with main rail routes to the rest of Europe. This axis will complete the railway infrastructure in northern Greece, allowing the operation of the so-called Egnatia railway axis. Connections between the rail networks of south-eastern Europe (Greece, the Former Yugoslav Republic of Macedonia, Bulgaria and Turkey) will become easier and more efficient.

The Priority Project will significantly increase the capacity of the rail network to efficiently accommodate intra-EU and international transport flows towards central European markets which are currently served by road and long-distance maritime transport. Improved intermodal operation along the Adriatic-Ionian corridor will create significant time and cost savings for cargo transit and will encourage the use of sustainable modes of transport. The first rail line, which will connect with existing infrastructure, will create a high quality and environmentally friendly "land bridge" between the port of Igoumenitsa (on the Adriatic Sea) and Thessaloniki, Volos, Alexandroupoli and Piraeus (the major hub of the Eastern Mediterranean). The second line will connect the four Greek ports of the Adriatic-Ionian corridor (Patras, Igoumenitsa, Kalamata and Astakos).

2. Socio-economic context

The Priority Project runs through a country whose Gross National Income (GNI) per inhabitant is less than 90% of the EU average. The Structural and Cohesion Funds aim to reduce their economic and social shortfall, as well

as to stabilise their economy. They support action in the framework of the Convergence objective. In this context, both the Cohesion Fund and the Structural Funds will remain a major source of funding for TEN-T projects in regions with weaker economic performance.

Journey times will be drastically cut by the construction of the axis. It will directly benefit most of the population living in the cities along the Priority Project, accelerating economic and regional development. And for freight on longer distance journeys, the new axis will improve links to central Europe and the rest of the EU, providing more reliable transport for the whole region. Considerable efforts have been made at design stage to minimise the environmental impacts of construction.

3. Infrastructure Developments

The status and the developments along PP29 are described as follows:

3.1. Kalampaka-Ioannina-Igoumenitsa section

Sections	Length (Km)		Construction costs (€ million)
A. Kalampaka-Igoumenitsa	157.8	New line	2,360
B. Kalampaka-Kozani	95.7	New line	1,060
C. Ioannina-Antirio	214.5	New line	970
D. Rio-Kalamata	284.0	Rehabilitation of existing line	579
Total	**752.0**		**4,969**

This section begins at Kalampaka with the connection to the existing Volos- Palaiofarsalos-Kalampaka railway line. Sections A and B run on the same track from Kalampaka to Chani Mourgani (technical station) where they separate. The line ends at Igoumenitsa after passing through very difficult morphology (many tunnels and bridges). At Igoumenitsa, two stations are planned, the cargo terminal inside the port of Igoumenitsa and the mixed terminal (passenger and freight) a few kilometers outside the port.

3.2. Kalampaka-Siatista-Kozani section

As mentioned above, this line begins after the technical station of Chani Mourgani; the line heads to Kozani to connect to the existing Kozani-Thessaloniki line (a freight station is planned outside Kozani) with the further possibility of travelling to Athens, Volos or Thessaloniki, Alexandroupolis.

Study status for sections 3.1 and 3.2

The technical studies have been separated to A' phase studies and B' phase studies. The A' phase studies consist of the alignment, hydraulic, rural surveyor, environmental, geological and geotechnical works and studies (till final study). The B' phase studies consist of the structural, geological, geotechnical and electromechanical (if needed) studies for the technical works.

For Section 3.1, the A' phase studies are almost completed while the B' phase studies are half way to completion. The beginning of works is envisaged for 2018.

For Section 3.2, the A' phase studies are half way completed while the B' phase studies are completed at 30%. The beginning of works is envisaged for 2018.

Characteristics

All the lines are single lines of normal gauge (1,435 mm). The design speed is 160 km/h and the maximum longitudinal gradient is 20‰. The line will be electrified and equipped with bi-directional signaling, ETCS-level I, telecommanding and GSM-R.

3.3. Ioannina-Antirrio section

The new line was planned to start at the eastern part of Antirrio and to terminate at Ioannina, connecting with the planned Igoumenitsa-Kalampaka railway line and using a design speed equal to 100 km/h. Due to the severe economic crisis and the shortages in national expenditures for public works, there is no specific and clear time plan for both studies and works. In any case, work is envisaged to start after 2020.

Priority Project 29
Railway axis of the Ionian/Adriatic intermodal corridor

Trans-European transport network. Achievement of the Priority projects

3.4. Patras-Pyrgos-Kalamata section

The project includes the upgrading and the standardisation of the existing metric gauge railway line in the Patras-Pyrgos-Alfios-Olympia and Alfios-Kiparissia-Kalamata sections, including local alignment improvements. For the elimination of level crossings in selected locations, the road network will be restored along the railway line, including the side road network where necessary and the intersecting road network, with grade-separated and locked level crossings. The new railway line will be single track, standard gauge and will allow speeds of 160 km/h. Its overall length is approximately 284 km.

Study status

Studies for both sections, i.e. the Patras-Pyrgos-Alfios-Olympia section and the Alfios-Kiparissia-Kalamata section, are planned to be finished at the end of 2015. Work is envisaged to begin in 2018. The slippage in the forecasted start dates of the projects, compared to last year's progress report for PP29, is due to the adverse financial conditions prevailing in the Greek economy.

4. Financial aspects

The European Union supports the TEN-T implementation with several EU financial instruments and with loans from the European Investment Bank.

Grants, in particular under the TEN-T budget line and the Cohesion and European Development Funds, play a major role in project preparation and implementation phases. Grants are allocated to the works phase and to studies (from feasibility studies to comprehensive technical or environmental studies and costly geological explorations), helping to overcome early stage project difficulties. A key issue for the future in relation to the implementation of the TEN-T policy is to rationalise the allocation of grants and to link it to the European added value of the project so as to ensure the best value for EU money.

European Cohesion Policy 2007-2013 (in mio €)

Transport Infrastructure	EU Contribution	National Contribution	Total Public Contribution
EL	3,700	1,276	4,976

PP29 is taken forward in regions which benefit from the use of Structural Funds. Consequently, significant co-financing of this Priority Project will be ensured by the Structural Funds and the Cohesion Fund. Financial support from the TEN-T budget is used to cofinance some of the studies relating to this project.

The "Improving Accessibility" Operational Programme produced within the framework of the National Reference Strategic Framework for Greece (2007-2013) does not foresee any financial support for this TEN-T project.

5. Western railway axis characteristics

Railway line	Single line, normal gauge (1,435 m)
Max speed	(>) = 160 km/h
Longitudinal max gradient	20‰
	Electrification
	Telecomanding
	Bi- directional signaling

6. General appreciation

PP29 is taken forward in regions which benefit from Structural Funds. Consequently the Structural Funds and the Cohesion Fund will ensure significant co-financing of this project. However, the “Accessibility” Operational Programme produced within the framework of the National Reference Strategic Framework for Greece (2007-2013) does not foresee financial support for this TEN-T project. Therefore, financing this project is considered difficult. The TEN-T budget 2007-2013 co-finances some of the studies relating to this project.

ERTMS
European Rail Traffic Management System

Trans-European transport network. Achievement of the Priority projects

European Coordinator

Karel VINCK

1. Summary

In the last 12 months there have been significant advances in the development of ERTMS in Europe.

In addition to the opening of new routes[1], this period has seen the signing of a number of major contracts, in particular in Switzerland and Denmark. So far, ERTMS has been deployed for the most part on new high-speed lines, especially in Spain and Italy. From now on, while the equipment of the European high-speed network will continue and should be completed by 2025 or earlier, the most significant progress in coming years is expected to involve the conventional network. Alongside the equipment of corridors in line with the European deployment plan, Member States will increasingly organise the conversion of the entirety of their networks to ERTMS. This action can go ahead now that there is unanimous agreement in the railway sector on the ETCS standard which will be applied throughout the EU in the long term.

Despite these very positive developments, there are many challenges still to be overcome in order to ensure that the ERTMS project is effective in strengthening the competitiveness of rail.

- The first condition is the requirement for compatibility between onboard equipment and lines. This aspect is now under control. The specifications in force since 2008 ensure interoperability. Procedures to check equipment conformity with specifications were significantly bolstered thanks to the adoption of the Commission Decision of 25 January 2012. However, remedying the errors of the past and, in particular, upgrading lines and trains equipped according to incompatible standards takes time and will not be completed before 2013-14. The Coordinator would stress the importance of ensuring this is achieved as soon as possible.
- The second condition is the need to adhere to the deployment plan in order to bring about a situation whereby ERTMS-equipped locomotives can actually cross several countries without having to have a range of systems fitted. At present, in most cases, complying with the dates laid down in the deployment plan seems ambitious but feasible, even if a number of projects have incurred delays.
- The third condition is the need to ensure the free movement of ERTMS-equipped locomotives on ERTMS-equipped lines. Once all other technical conditions have been satisfied (electrification system, gauge etc.), it is important to ensure that a locomotive fitted with ERTMS is not unduly obliged to undergo additional tests. This is a key point, associated not only with technical ERTMS-related issues but also with the implementation of vehicle authorisation law.
- The fourth condition is the need to reduce the costs of ERTMS, especially with regard to on-board equipment to be fitted on existing locomotives. This issue has been discussed at length in the working groups run by the Coordinator. The discussions showed that, apart from aspects associated with vehicle authorisation, the integration of ERTMS into the vehicle – and in particular connection to the braking system – is a key issue. A standardisation plan should be completed in the near future.
- The fifth condition is linked to the implementation of freight corridors. There remains a whole series of obstacles in the rail sector which reduce the competitiveness of international freight transport. Even if the corridors are fully ERTMS-equipped, ERTMS will not bring the anticipated benefits if locomotives still have to stop at borders for a variety of administrative, technical and operational reasons. The Coordinator would underline

1 Orense-Santiago (87 km, level 1) and Cercanias-Madrid (90 km, level 1/level 2)

that maximising corridor use hinges on three factors: infrastructure quality, the introduction of ERTMS and the alignment of national rules throughout Europe. As regards the latter, the adoption of Directives on freight rules should help significantly.

All these aspects are reflected in the Memorandum of Understanding signed in Copenhagen on 16 April 2012 between the Commission, the European Railway Agency and the representative associations of the rail sector. The Memorandum of Understanding lays down a genuine work programme with which to make progress on these five conditions in the coming years. It should, however, be noted that one of the main challenges is to make progress on the issues of vehicle authorisation and implementation of freight corridors, two aspects with implications reaching beyond just the ERTMS project.

2. Equipment compatibility

There are three potential sources of incompatibility between ground-based and onboard equipment.

2.1. Specifications

The ERTMS system specifications themselves have generated incompatibilities. These were not detected until after the first lines and trains had been equipped, i.e. around 2005-2006, and frequently were incompatibilities arising in specific configurations and resulting from technical options selected at project level. These incompatibilities were resolved in 2007 and a Commission Decision adopted in 2008 set out a new 'rectified' version of the specifications.

It is important to note, nonetheless, that, for various reasons, there is often a considerable lapse of time between the amendment of the specifications and the upgrading of equipment.

First, the time between the moment when contracts are awarded and the moment when a line is put into service often exceeds three or four years. Technical specifications are usually set out when a contract is awarded and any amendment may have repercussions for budget and for timetabling. Although the difficulties generated by this situation should diminish over time, it is an aspect that should be given special attention when contracts are awarded.

Secondly, the upgrading of a line can only be achieved in close coordination with the railway operators running services on the line. Such operators often run services on other lines equipped with ERTMS, thus any upgrading entails a complex coordination process involving a range of stakeholders.

Lastly, existing safety authority procedures are often not geared to handling software upgrades. For example, the Coordinator was notified of a case in which a safety authority demanded that a locomotive be re-weighed after a software update. All this naturally contributes to increasing the cost of upgrades, making the whole matter more sensitive and complex.

It appears, nevertheless, that the process of modernising European rail lines is now well under way, even if it calls for a proactive policy. The objective of upgrading the vast majority of lines to a compatible standard by the end of 2014 so that virtually the entire network is compatible for the end of 2015 still stands.

2.2. Non-conformity of onboard equipment

Railway undertakings or leasing companies often ask industrial manufacturers to equip locomotives to operate on a specific ERTMS line. Experience indicates that, in such cases, the onboard equipment has all the functions needed to operate on the line specified in the contract but does not have other functions that are nonetheless essential in order to operate on other lines. Consequently, the installed onboard equipment cannot be used on other lines and has to be upgraded. Even now – whether justified or not – this upgrading requires a fresh authorisation ('approval') for every national railway network on which the locomotive was entitled to operate, costing a great deal in time and money.

What is more, the on-board equipment must - naturally - be compatible with the lines and requirements of national infrastructure managers. This can lead to requirements that are incompatible with compliance with the specifications.

ERTMS
European Rail Traffic Management System

Trans-European transport network. Achievement of the Priority projects

Industrial advances have gradually made it possible to minimise the impact of non-conformities in onboard equipment. However, to ensure greater transparency and avoid the proliferation of non-compliant equipment, the specifications and test procedures have been made more stringent. As a result, a Commission Decision was adopted on 25 January 2012 requiring the mandatory application of new test specifications and more transparent procedures, in particular requiring referral to accredited laboratories. The Coordinator strongly recommends that, considering the technical, operational and economic implications of these requirements, the entire rail sector should step up its efforts towards achieving standardisation.

2.3. Non-conformity of lines

Ensuring interoperability is often a key component of the decision to fit a line with ERTMS equipment. Once a decision has been taken, however, a project is carried out to a precise budget and time schedules, which often take precedence over the objective of interoperability. Consequently, should divergence from the specifications be detected at an advanced stage of the project, there will be a strong temptation to request that onboard equipment be adapted accordingly rather than making ground equipment compatible. Often the same industrial operator is responsible for the ground equipment and first locomotives to run on the line and, in this case, there is an even greater risk that the problem of the non-conformity of the ground equipment will be resolved by adapting the on-board equipment: locomotives equipped by this industrial operator will be able to travel without difficulties and the problem will go unnoticed until other locomotives have to run on the line.

To minimise this risk, the Commission Decision of 25 January 2012 requires the main operational scenarios for lines to be placed in the public domain. In addition to offering the necessary transparency in this area, this will allow each manufacturer to easily test the compatibility of its onboard equipment with each newly equipped line and thus rapidly detect any incompatibility, whatever its source (specification, non-conformity of the on-board equipment or non-conformity of the line).

In line with the Memorandum of Understanding signed on 16 April 2012, the idea is to gradually achieve a situation in which onboard equipment is tested in accordance with a clear, transparent and effective procedure that makes it possible to guarantee the conformity of onboard equipment with specifications, such that the onboard equipment is also compatible with all ERTMS-equipped lines. Obviously, the ultimate objective is to do away with compatibility tests between on-board equipment and a given line, as tests carried out at European level to ensure the conformity of equipment with European specifications will be sufficient to ensure the objective of interoperability.

3. Adherence to the deployment plan

The deployment plan, a Commission Decision adopted in 2009, requires some lines to be equipped with ERTMS by 2015 and others by 2020. In addition, by the end of 2012 the Member States concerned must notify the Commission of their detailed time schedules for putting into service the lines due to be equipped by 2015.

The detailed time schedules must, in particular, indicate the date by which the tender for the equipment of the line will be concluded, the procedures put in place to ensure interoperability with neighbouring countries along the corridor as well as the main project milestones. Member States must then inform the Commission every twelve months of their progress on equipping these lines by forwarding an updated time schedule.

The strategy continues to be, as far as possible, to coordinate the installation of ERTMS by corridors. The corridor management authority, preferably an EEIG, must have a very clear overview of the schedules, technical choices and operating rules and must play an active role in following up the project in each Member State, in particular as regards the equipment of border areas.

It has to be said that management continues to take place at Member State level. For both France and Italy, for example – Member States involved in several corridors – the technical and operational choices are currently being validated on a pilot line. Once all aspects have been validated, deployment should be quickly rolled out onto all national lines, adhering to the principles validated on the pilot line. At present, this is still not the case.

At this stage, the Coordinator considers that the time schedule should be respected, but there is still scope, in respect of certain sections of the corridor, for Member States to apply the clause allowing a delay for technical reasons. The deployment plan restricts the duration of the delay to three years and imposes a number of conditions. In particular, the Member State must submit a file to the Commission containing an updated schedule, explaining the reasons for the delay and indicating the corrective measures undertaken. A number of conditions must be fulfilled and, in particular, evidence provided to show that appropriate measures have been undertaken to minimise as far as possible any additional delay.

The state of progress with regard to the equipment of corridors in Germany, particularly the Emmerich-Basel section, has for several years been a particularly sensitive issue. The German experts have until now considered the availability of the ETCS baseline 3 standard and the renewal of signal boxes an essential prerequisite for equipping with ERTMS. As laid down in the Copenhagen Agreement, the baseline 3 standard has been defined by ERA and will shortly be officially incorporated into the TSI. As for the renewal of signal boxes, in terms of order of magnitude the cost of a single signal box is five to ten times more than the cost of equipping with ERTMS alone.

The technical solution and the cost of interfacing ERTMS with existing signal boxes is feasible and is being analysed in depth by the experts. This is the reason why the German experts considered the costs of ERTMS equipment to be prohibitive. However, the investment in ERTMS must be separated out from that for the renewal of signal boxes; there are alternative technical solutions for ERTMS that do not necessitate the renewal of signal boxes.

The situation has been fundamentally changed thanks to the signature, on 16 April 2012, of a Recommendation of the European Railway Agency (ERA) advocating the use of the new baseline 3 in specifications. This new baseline includes the 'limited supervision' function whereby ERTMS can be installed more simply on existing lines without the issue of interfacing with signal boxes posing a problem.

As a guide, Switzerland has signed a contract for the equipment of its entire network and the average cost per kilometre is less than €80,000. Although, of course, it is possible that specific national requirements, different technical situations or aspects associated with the management of the project may entail additional costs, this is an order of magnitude which may be used as a reference. The cost for the 700 km Emmerich-Basel line would be in the order of €60 million. This clearly demonstrates that, even if the Swiss situation cannot be directly extrapolated to the German case, we are still a long way from the estimates of several billions which were being mentioned at one time.

Consequently, the Coordinator is working in close cooperation with the various stakeholders concerned on two scenarios.

- The first scenario calls for the installation of 'limited supervision' everywhere that signal boxes have not been renewed and for the installation of ERTMS, with radio-transmission of information (level 2), on sections where the signal boxes can easily be interfaced with ERTMS. This is the case of part of the Emmerich-Oberhausen line.
- The second scenario involves, on the basis of the first scenario, carrying out cost-benefit studies, section by section, to analyse the cases in which it is cost-effective to bring forward the date of the renewal of the signal box. Renewing in this way naturally entails costs but also brings benefits in terms of maintenance, operation, increased capacity, etc. The studies are likely to show that bringing forward the date of the renewal of some signal boxes is justified in technical and economic terms.

The Coordinator will remain at the service of all stakeholders for examining possible financial solutions to optimise the investment.

4. Ensuring the free movement of locomotives equipped with ERTMS

It is essential to ensure that a locomotive fitted with ERTMS can run on all lines equipped with ERTMS in Europe. As emphasised above, there are technical issues which are gradually being resolved. However, resolving technical issues will not necessarily bring about the situation expected by railway undertakings and leasing companies.

Indeed, at present, locomotives equipped with ERTMS and authorised to travel in one Member State still have to undergo many more tests before being allowed to run on lines in another Member State. This is an issue which is not linked solely to ERTMS. Tests are required not only because of existing national safety systems but more generally because of the tests which each safety authority deems necessary in order to verify compatibility with the national infrastructure.

Equipping corridors with ERTMS, improving product quality and the experience that all the stakeholders in the system are acquiring will certainly help to improve matters. However, more fundamental developments are in all probability necessary, and it is an issue that goes beyond ERTMS. In this context, the Coordinator supports the Commission's proposals during consultations on the fourth railway package. More specifically, regarding the authorisation of locomotives, the Coordinator considers that the situation could be simplified by boosting the role of the infrastructure manager and the railway undertaking.

Here, the concept of a 'European passport' for locomotives covering the technical characteristics of a locomotive (safety systems, electrification systems, loading gauge, etc.) is an avenue worth exploring. A passport of this kind could be compared directly against the infrastructure register and the safety authorities would no longer have to intervene in order to authorise a locomotive to run on a line provided that the technical characteristics of the line and the locomotive are compatible. The infrastructure manager would be responsible for ensuring that its infrastructure matched the characteristics listed in the register. The railway undertaking would be responsible for ensuring that the technical characteristics of the locomotive were compatible with the lines on which it would run.

It is vital to ensure at the earliest possible opportunity that ERTMS-equipped locomotives may enjoy free movement in this way because, as long as the procedures for authorising these locomotives in different countries continue to be lengthy and costly, there is no real advantage to having a single system over having a juxtaposition of different national systems.

5. Reducing the costs of ERTMS - equipment of existing locomotives (retrofitting)

ERTMS cost issues have been extensively discussed with all stakeholders. While it is still possible to make progress on the equipment of lines and new locomotives, the issue of the equipment of existing locomotives is a prime concern.

It is a fundamental issue: the rate of fleet renewal (in the order of 2 to 3% a year) is not sufficient to base the equipment strategy on new equipment alone. If the locomotives operating on a line are not all equipped with ERTMS, the infrastructure manager that decides to equip an existing line with ERTMS faces a choice between two strategies: either withdraw the national system, in which case only ERTMS-equipped trains can run, or maintain the national system in tandem, leading to additional costs. This aspect frequently has a bearing on infrastructure managers' investment decisions and delays investment in ground-based equipment.

Equipping existing locomotives is often costly for several reasons. On the one hand, studies have to be carried out on a case-by-case basis, for each type of locomotive. Incorporating ERTMS into an existing locomotive is a complex and multifaceted operation and the requirements of safety authorities are not always transparent.

Furthermore, even if a safety authority has already checked the installation of ERTMS in a vehicle, further inves-

tigations are often required in other Member States where the locomotive has to run, in particular with regard to issues of transition with national systems. All this can be optimised, in particular by implementing the 'passport' concept in order to prevent similar tests being carried out several times. This of course presupposes that the tests pertaining to national systems and the transitions between ERTMS and national systems have been identified and can be carried out efficiently using the full potential of laboratories and test centres.

The issue of software upgrading is also an issue on which the stakeholders need to work with a view to finding more effective solutions. All too often many tests are required by each safety authority when the software of a locomotive able to operate in various countries is upgraded. It is important that solutions be found to limit the additional tests, to have them carried out mainly in laboratories and to have them performed only once.

6. Implementation of freight corridors

Equipping corridors and locomotive with ERTMS is not in itself enough to significantly increase the competitiveness of rail freight. To take just one example, one of the advantages of ERTMS is to enable locomotives to cross borders. As a result, the locomotive no longer needs to be replaced at the first station after crossing the border. With such a replacement taking time and the locomotive potentially arriving late, different margins must be allowed for at present.

Theoretically the matter could be resolved by ERTMS, but in practice there are other issues that need to be resolved. For example, train paths need to be consistent, without long waiting times at borders. Priority rules also need to be reviewed in detail. If a freight train runs between two Member States and a delay arises in the first Member State on account of the infrastructure manager, that train will generally be seen as 'late' in the second Member State and will lose any priority.

Many other issues need to be addressed at corridor level with a view to optimising the competitiveness of rail freight transport. The issue of harmonisation of technical parameters (axle load, loading gauge, maximum length, maximum mass, etc.) is fundamental: along a corridor, it is sufficient for train length to be restricted to a low value such as 400 m on one section, even a short one, to affect the traffic on the whole corridor.

The benefits of equipping locomotives with ERTMS will therefore not be fully realised unless, in addition, every action is taken to facilitate the movement of international freight trains. In this area, the directives laid down in the freight regulations will enable operational conditions to be gradually brought into line.

7. Conclusions – Action for the coming months

The coming months will be crucial for ERTMS. The Coordinator's activities will focus to a large extent on rolling out the Memorandum of Understanding signed on 16 April 2012, which offers a response to the problems identified above.

The first task is to oversee the finalisation of the documents which will complete 'baseline 3'. Although it is possible – and indeed advisable – for projects to use baseline 3 as of now for issuing invitations to tender, further documents will be added to facilitate the execution of projects. This includes test specifications and the definition of a number of internal train interfaces in order to improve standardisation. While, of course, the European Railway Agency bears chief responsibility for these issues, it is quite clear that success depends on the cooperation of the entire sector.

Another important task will be to ensure that specifications are maintained in such a way as to give appropriate consideration to operators that have already invested in ERTMS. In other words, we need to ensure that innovations can be incorporated without adversely impacting on existing equipment.

This seems perfectly feasible for the main innovations under examination, either aimed at addressing GSM-R development issues or the possibilities of including new functions such as the autopilot in the standard. The Coordinator also plans to be very attentive to issues relating to equipment tests and authorisation procedures. As mentioned above, these are issues which, albeit related to the ERTMS project, actually go beyond it. In all cases, the 'free movement of ERTMS locomotives' presupposes that all equipment is upgraded and compliant

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with specifications and that equipment test procedures are made more effective, with laboratories playing an enhanced role. The Coordinator is convinced that the test process can obtain the necessary credibility only through cooperation between the laboratories of industrial manufacturers and external laboratories that are able to demonstrate their independence.

Lastly, of course, the priority in the coming months will be to ensure the implementation of the European deployment plan. In this context, the notifications awaited from all the Member States concerned by lines to be put into service by 2015 will make it possible to take accurate stock of progress on equipping corridors with ERTMS.

The Coordinator would like to thank all contributors from across the European rail sector, the European Commission and the European Railway Agency for the teamwork which has made such a significant contribution to progress on the ERTMS project. In spite of the risks inherent in installing such a complex and demanding system, ERTMS has now become a reality.

Section C – TEN-T policy: key issues and developments

C.1. Open Method of Coordination (OMC) - TENtec Information System

Overview

The Open Method of Coordination (OMC) – an intergovernmental method of "soft coordination" – has been re-launched by the Lisbon strategy and provides the political frame for all TENtec developments. TENtec is the information system of the European Commission to coordinate and support the TEN-T Policy. It stores and manages technical and financial data for the analysis, management and political decision making of the TEN-T programme. TENtec acts as a bridge to Members States ministries and other key-stakeholders (DG REGIO, DG ENV, EIB and third countries in the pipeline).This includes support for briefings, modelling of future policy/budgetary scenarios, interfacing to GIS (Geographical Information System), monitoring and reporting, electronic submission of applications and online conduction of surveys. Additionally, the system manages the necessary workflows, issuing of COM decisions, complete selection cycle for new projects including proposal submission and reception, and the required web interfaces (Private and Public Portal as well as general web services to connect external data sources). Finally, interactive maps and satellite overlays (e.g. Google Earth) are supported with the seamless inclusion of GIS. The entire software development is based on the SMART-IT principle, making TENtec a user-driven application.

TENtec information system implementation

Since 2008, TENtec serves as a bridge between the European Commission and the TEN-T Executive Agency, providing an effective and efficient working environment. The system features a workflow strategy aiming at successive, continuous improvement and completion of the underlying database.

The TENtec Private Portal was inaugurated during the 2009 TEN-T Days in Naples in October 2009. However, the bridge to the ministries in the Member States entered into production on 25 February 2010 with the iReport module, which supports the creation of the annual TEN-T Progress Report on the implementation of the Priority Projects. The workflow strategy of continuous database improvement was used here.

The formal inauguration of the relaunched TENtec Public Portal has been scheduled for the 28th of November for the 2012 TEN-T Days 2012, which will provide timely information to the EU public with the help of dynamic maps, facts, figures and various audio-visual and interactive elements. This public access will be a useful communication instrument and will provide a more systematic and comprehensive information on the Commission's work in relation to TEN-T. This important instrument aims to raise citizens' awareness regarding the benefits of the TEN-T policy development.

Furthermore, a reporting module will allow the Commission to automatically compile information and create instant reports. This not only reduces the pressure on reporting deadlines, but also provides to the Commission, Member States and all stakeholders a much increased data quality and a systematic, up-to-date overview on the execution of the budget and the technical implementation of each project of the TEN-T networks in all modes of transport.

Moreover, the Private Portal contains the Open Method of Coordination (OMC) module which is the underlying work environment for the current implementation report exercise (2006-2010), covering the entire TEN-T network (around 8,000 sections). Here the workflow strategy of continuous database improvement will be further enhanced through the use of interactive maps. The inclusion of modelling capabilities with the generation and preparation of data for scenario simulation using the GIS system (and TRANSTOOLS) will be realised in the future. The creation of data bridges to DG REGIO and also to European Investment Bank to incorporate their TEN-T data is in progress. This will further complete the overview of European transport infrastructure funding and the status of its technical implementation. The OMC principle will ensure that all stakeholders will not only contribute, but also benefit from the system. For instance, after the data validation workflow each stakeholder can see the data of all other stakeholders. Printing of tables and maps in Excel, PDF and (later) other formats are available for inclusion in the daily work on TEN-T projects.

The following functionalities and modules have been initiated in the end of 2011 and will be further developed: Inclusion of Neighbouring States, Web-interface for third parties, Transport funds monitoring (Connecting Europe

Facility/TEN-T), cohesion, EIB, Member States, TEN-T and TEN-T EA Monitoring, TEN-T online Reporting and statistics, as well as the outsourced individual TEN-T project implementation functionalities, such as Action-Status-Reports, Strategic Action Plans and Financial (project follow-up/ePMS replacement). It may also serve as a base for general transport infrastructure policy-making in Europe.

With these features in place, TENtec was able to provide full support to the policy-making process, leading to the European Commission proposals on the new TEN-T Guidelines and the Connecting Europe Facility (CEF), through collecting and presenting the facts, as well as planning and displaying all official maps.

C.2. TEN-T & Innovation

The overall objective of opening TEN-T support to Innovation and New Technologies has grown since 2008 through the TEN-T Green Paper[1], the TEN-T Policy Review (Expert Group 3)[2], the White Paper on Transport[3] and the TEN-T Annual Calls 2010[4] and 2011[5]. It finally became mainstream in the Commission's proposals for the new TEN-T Guidelines[6] and the Connecting Europe Facility (CEF)[7] in October 2011. This practise is to be continued in the Annual Call 2012. In addition innovation is now becoming also eligible for support under the Multi-Annual Call 2012.

The necessity of integrating innovative solutions and new technologies to transform the European transport infrastructure into a modern, safe and resource-efficient system, is emphasised in the White Paper on Transport, which states that research, innovation and the deployment of innovative solutions are essential to successfully reach its objectives.

The Intelligent Transport System (ITS) and New Technologies (NT) Expert Group published a report in March 2010. Amongst its conclusions, the report underlines that electrification should take place as much as possible in all transport modes, taking into account future innovation in energy storage, and that electromobility (e-mobility) and other alternative drives should be supported to become a mass market product, driven by consumers demand.

Following the recommendations of the above mentioned Expert Group, EU funds were made available under the annual TEN-T call in 2010 for infrastructure studies with the possibilities of integrated pilot deployment, contributing to the decarbonisation of transport. One e-mobility project on the "Greening European Transportation Infrastructure for Electric Vehicles" was selected and funded with a EU contribution of €4.95million.

The TEN-T Annual Call 2011 focused on the promotion of infrastructure development contributing to mitigation and adaptation to climate change and reducing the impact of transport on the environment. In total 8 projects were successfully selected and funded..

In addition, it is intended to open the Annual the Multi-annual TEN-T Call 2012 for proposals to innovative infrastructure studies of the above mentioned type using the remaining budget of the current financial cycle 2007-2013 (indicative total budget €1.2 billion).

Furthermore, as also recommended by the same Expert Group, the Commission proposal for the new TEN-T Guidelines, which were published on October 19th,2011 opens TEN-T support to a much wider range of innovative actions on transport infrastructure (see in particular Art.39). The process of adoption by the Council of the European Union and the European Parliament is ongoing.

Moreover, the Connecting Europe Facility (CEF) proposal of the Commission on infrastructure investments covering the next financial cycle (2014-2020), makes strong reference to the innovation objective.

During the TEN-T Days 2011 in Antwerp, the innovation for infrastructure subject has been promoted by a dedicated workshop (WS4), with its report and presentations published on the conference website in December 2011[8].

At our TEN-T day 2012 in Brussels a plenary session with many distinguished speakers and guests is dedicated to innovation. All TEN-T innovation projects stemming from the calls in 2010 and 2011 have been invited to showcase their projects in the Grand Hall and the corresponding vehicles are ready for a drive & ride in front of the venue.

1 http://ec.europa.eu/transport/infrastructure/ten-t-policy/review/green-paper_en.htm

2 Expert's Report of March 2010: http://ec.europa.eu/transport/infrastructure/ten-t-policy/review/expert_group_3_en.htm

3 http://ec.europa.eu/transport/strategies/2011_white_paper_en.htm

4 http://tentea.ec.europa.eu/en/ten-t_projects/ten-t_projects_by_country/multi_country/2010-eu-91117-p.htm

5 http://tentea.ec.europa.eu/en/apply_for_funding/follow_the_funding_process/annual_call_2011.htm

6 http://ec.europa.eu/transport/infrastructure/connecting/revision-t_en.htm

7 http://ec.europa.eu/transport/infrastructure/connecting/connecting_en.htm

8 http://www.ten-t-days-2011-antwerp.eu/conference-documents.html

Thus, eligibility and funding for innovation and new technology in transport infrastructure are provided at EU level through TEN-T Guidelines and the CEF. Pilot deployments of new concepts are increasingly implemented by companies on a local and regional scale. The particular focus on innovation under TEN-T is that for successful market-oriented innovation projects it is not sufficient to present technical innovation with a couple of prototypes in a demo project. It is equally important to test an innovative company-client relation in a real-life trial.

This swift and substantial opening of TEN-T to innovation, new technologies, decarbonisation, including alternative propulsion, even in advance of the new legislation is in full agreement with the already mentioned White Paper on Transport, which promotes this concept for all modes of transport.

C.3. Project Bond Initiative (PBI)

Introduction

After being announced by President Barroso in his State of the Union speech to the European Parliament in September 2010 the Europe 2020 Project Bond Initiative (PBI) and became a reality on 12 July 2012 when the European Parliament and the Council adopted the legislation on its establishment. This followed a thorough consultation of stakeholders that took place February-June 2011 and a nine-month legislative process started by the Commission proposal of October 2011.

The objective of the Project Bond Initiative is to establish a complementary source of financing for infrastructure projects in addition to bank loans by facilitating the issuance of bonds on capital markets by project companies. The PBI will not replace traditional forms of financing or grants for infrastructure projects, but aims to increase the overall availability of financing for large-scale infrastructure projects in the three sectors of transport, energy, information and communication technologies (ICT) and broadband. The initiative will enhance the creditworthiness of projects through a subordinated facility provided by the European Investment Bank (EIB), which is supported by an EU budget contribution. Ultimately, the Initiative aims to create a new asset class of infrastructure bonds.

Project Bonds should be seen as a complementary tool alongside grants to finance key EU priority infrastructure projects, which in the absence of the public contribution to sharing the underlying investment risks, would not have been able to attract sufficient private capital and carry out the necessary investments. The Commission, in its Communication to the European Parliament and the Council COM(2011)660 on the pilot phase for the Europe 2020 Project Bonds Initiative, presented the rationale for developing a market for project bonds.

Pilot phase

The PBI for the pilot phase was established by the Regulation of the European Parliament and the Council (EU) 670/2012 of 12 July 2012. This Regulation provides the legal basis for the Union contribution to the Project Bond Instrument, in which up to € 200 million can be used to finance transport projects, up to €20 million to finance ICT and broadband projects and up to €10 million to finance energy projects. The Project Bond instrument is a risk-sharing facility, in which the EU, represented by the Commission and the EIB share part of the risks underlying an investment.

The pilot phase will test the Project Bonds concept and design using the remaining budget of the current multi-annual financial framework (2007-13). In accordance with the Regulation establishing the PBI, projects can be financed from the entry into force of the Cooperation Agreement between the Commission and the EIB to be signed on 7 November 2012. Projects must be approved by the EIB Board of Directors before the end of 2014 and reach their financial close before the end of 2016.

The experience gained during the PBI's pilot phase will allow optimisation of the instrument in the framework of the Connecting Europe Facility in the next multi-annual financial framework 2014-2020. The pilot phase is subject to an interim evaluation in 2013 to optimise its implementation by the Commission, as well as a full-scale independent evaluation of operations in 2015.

PBI implementation builds on the experience of cooperation with the EIB as the risk-sharing partner of the EU in other financial instruments such as the Loan Guarantee Instrument for the TEN-T projects (LGTT) and the Risk Sharing Facility for projects related to Research and Innovation (RSFF), which were established and financed in the multi-annual financial framework 2007-2013.

How does the PBI work in practice?

As a example, a project company intends to finance an investment, which is partly financed from its own capital and partly by debt. Given the risks involved in preparing, constructing and operating a given project, private long term institutional investors such as pension funds or insurance companies are reluctant to engage in direct project financing.

In order to increase the creditworthiness of a particular project, the EIB would provide a Project Bond Facility to a project company, either in the form of a subordinated loan to the project company or as a guarantee in the

form of a contingent credit line, which may be drawn upon by the project company if the revenues generated by a project are not sufficient to ensure repayment of the senior debt. Such facilities can be provided up to 20% of the amount of the senior debt. As a consequence, a project company would be able to obtain a more attractive financing of its senior debt through a bond issue as part of the risks of the project are absorbed by the subordinated Project Bond Facility provided by the EIB and supported by the Commission. The involvement of the EIB and the Commission in a project also increases confidence and trust of the other financial actors involved in the bond transactions.

The risk sharing between the Commission and the EIB is determined according to a Portfolio First Loss Piece model, where the first losses on the portfolio (and not individually project per project) are absorbed by the Commission up to a certain pre-agreed percentage, whereas the EIB retains all other risks. The more transactions enter in a defined portfolio and the more diversified they are, the lower is the probability of default on the portfolio. From the point of view of the application procedure and of the eligibility criteria, the interested project sponsors apply for financing directly to the EIB and its usual criteria apply.

The EIB verifies with the Commission that the proposed project fulfils certain policy criteria in order to benefit from the Project Bond Facilities. This includes the eligibility criteria according to the relevant trans-European network (TEN-T for transport and TEN-E for energy) or the Competitiveness and Innovation Programme (CIP) guidelines. Given the very limited time-scale of the Project Bonds pilot phase , the EIB and the Commission have already started developing the pipeline of eligible projects for transport based on current and planned tenders.

If a project has been approved as “eligible” in accordance with the TEN-T, TEN-E or CIP guidelines, and it moves closer to implementation, the EIB will use its specialist expertise to carry out the due diligence and the financial analysis in the structuring phase and price the guarantee or loan. The EIB verifies that the project is revenue-based with robust cashflow forecasts and is technically and financially viable. In general terms, the project needs to demonstrate its capacity to repay the financial facilities provided by the EIB and other investors. The project sponsors also need to demonstrate the ability to raise funding and the likelihood that they will successfully carry out the project. If the sponsors decide to use the Project Bond Facilities, the proposal will be submitted for approval to the governing structures of the EIB, in line with its standard procedures. The detailed financial structuring tasks only takes place once the project reaches an appropriate stage of maturity. The implementation of the project must be compatible with EU law, including in the area of state aid.

To summarise, the eligible projects must:

- meet the TEN-T, TEN-E or CIP eligibility criteria
- be at an advanced stage of project development and tendering, if applicable
- have robust traffic forecasts and expected revenues

The sponsors apply directly to the EIB, which confirms eligibility of an investment with the Commission, which carries out the due diligence and structures the project financing in cooperation with the sponsors.

C.4. Traffic Management/ITS

The activities related to the promotion and effective roll-out of ITS for roads, mainly built on the ITS Directive 2010/40/EU and the ITS Action Plan (COM (2008) 886 final), calling for accelerated and interoperable deployment of ITS. To facilitate coordinated and harmonised deployment of ITS for roads DG MOVE also financially supports effective deployment, notably through the EasyWay project set up by 23 EU Member States and their partner. This project started in 2010 and will run until the end of 2012. The ITS Action Plan (adopted on 16 December 2008) and the ITS Directive (2010/40/EU) aim to accelerate the coordinated deployment and use of intelligent transport systems in road transport, and interfaces with other modes, across Europe.

The Action plan encloses 24 actions in six priority areas:

- Optimal use of road, traffic and travel data
- Continuity of traffic and freight management ITS services
- Road safety and security
- The Integration of the vehicle in the transport infrastructure
- Data security, data protection and liability
- European ITS cooperation and co-ordination

The implementation of the ITS Action Plan is on-going. It is a concerted effort between various Commission DG's (MOVE, INFSO, CONNECT, ENTR and CLIMA) and has a clear perspective on tackling bottlenecks that seem to hamper interoperable deployment and broader market take-up. Directive 2010/40/EU provides a legal framework to accelerate and coordinate the deployment and use of ITS for road transport, including the interfaces with other transport modes. It covers four priority areas which are very much in line with the first four areas of the ITS Action Plan and, indicates six Priority Actions to be addressed first:

- EU-wide multimodal travel information services
- EU-wide real-time traffic information services
- Road safety related minimum universal traffic information free of charge to users
- Interoperable EU-wide eCall
- Information services for safe and secure parking places for trucks and commercial vehicles.
- Reservation services for safe and secure parking places for trucks and commercial vehicles

A key element consists of the mandate received from the Council and the European Parliament to adopt specifications related to technical, organisational, legal or service-related issues in the form of delegated acts. The Commission is assisted in this task by the (advisory) ITS Committee composed of Member State representatives, and the European ITS Advisory Group, composed of high level representatives from relevant ITS service providers, user associations, transport and facilities operators, the manufacturing industry, professional associations, local authorities and other relevant fora. The role of the European ITS Advisory Group is to advise the Commission on business and technical aspects of the deployment and use of ITS in the EU. The EasyWay II project focuses on the concerted and harmonised deployment of ITS services, whereas the backbone of implementation activities is constituted by the self-identified Core European ITS Services defined in three thematic domains: traffic and travel information services, traffic management services and freight & logistics services. EasyWay 2 builds on a long tradition of constructive cooperation among leading public administrations and evolves along a shared vision and commonly defined road map. The EasyWay 2 work programme includes 1,200 projects, and significant work is been undertaken to constitute a commonly accepted foundation ensuring interoperable deployment and real Europe-wide continuity of service. A major objective is to have external stakeholders effectively engaged and committed to realising commonly set targets with regard to the Trans European Road Network and its interfaces with the complementary networks and transport modes, including public transport. The project's budget is around €500 million, of which a maximum of 20% is granted through the TEN-T budget line.

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
EasyWay, Phase II	AT,BE,CY,CZ,DE,DK,EE,EL,ES,FI,FR,HU,IE,IT,LT,NL,PT,RO,SE,SI,SK,UK	€100	Ongoing

EasyWay	AT,BE,CY,CZ,DE,DK,EL,ES,FI,FR,HU,IE,IT,LT,NL,PT,RO,SE,SI,SK,UK	€100	Completed
A feasibility study for establishing regular public transport inter-city links and city links with airports, ports and major tourist destinations in Cyprus that will use the Cyprus Motorway Network	CY	€0.8	Ongoing
TOTAL		**€200.7**	

C.4.1. Single European Sky ATM Research (SESAR) Programme

The Single European Sky[1] (SES) aims to improve the overall efficiency in which European airspace is organised and managed. The objectives of SES are to reduce ATM costs by half, to triple the current air traffic capacity in Europe while improving safety by a factor of 10, and to reduce the environmental impact per flight by 10%. SES is based on five interrelated pillars addressing performance, safety, technology, human factors and airports.

SESAR (Single European Sky ATM Research) is an integral part of the SES policy and constitutes its technology pillar. It is a three-phase EU programme that, through the definition, development and deployment of a new generation of technologies and procedures, will provide Europe with a modern and harmonised ATM system capable of meeting SES performance objectives. These three phases are outlined in the European ATM Master plan[2].

SESAR is now in its development phase, managed by the SESAR Joint Undertaking (SJU)[3]. Based in Brussels, the SJU coordinates all ATM research, development and validation activities in Europe through a public-private partnership founded by the Commission and Eurocontrol[4]. This phase is co-funded by the EU through the TEN-T Programme and 7th research and technological development framework programme.

The operational activities of the SJU started in 2009 with the setup of over 300 projects. In 2011, 91% of the R&D projects were in the execution phase. 2011 was also a key year in terms of progress towards achieving the SJU's mid-term objectives, in particular: validation of the initial 4D trajectory in an operational environment; 10.000 civil and military flights have demonstrated SESAR benefits ("SESAR labelled"); 80% of SESAR projects have tested their output in a real life environment; the first SWIM (System Wide Information System) pilots are in place; the first remote tower is ready for operation; and SESAR benefits have been demonstrated in city pairs connecting eight European airports. After a comprehensive review of the programme, in 2011 the SJU reorganised the programme deliverables into a series of releases embedding groups of projects delivering validated R&D results that support decisions to move to the industrialisation stage. The first release was launched in 2011.

1 Regulations (EC) 549-550-551-552/2004, OJ L96, 31.3.2004, p1-26

2 http://ec.europa.eu/transport/air/sesar/european_atm_en.htm

3 Regulation (EC) 219/2007 OJ L64, p.1, 27.2.2007

4 European organisation for the safety of air navigation

C.4.2. European Rail Traffic Management System (ERTMS)

ERTMS (European Rail Traffic Management System) is a train signalling and speed control system based on technical specificities that are common to all rail networks throughout Europe. It is replacing, progressively, the more than 20 national signalling and speed control systems currently in use - thereby reducing the over cost of cross-border rail traffic by decreasing the risk of interoperability failures and subsequently improving safety, as well as smoothing cross-border rail operations.

ERTMS deployment policy at EU level targets high speed and rail freight traffic. Its installation is compulsory on new high speed lines, as well as on existing high speed lines on which signalling systems are significantly renewed. Regarding trackside equipment for conventional lines, ERTMS deployment is compulsory on lines receiving EU co-funding. In addition, a priority network composed of six major freight corridors and areas is expected to be equipped according to fixed deadlines, in 2015 or 2020. This future core ERTMS network will cover around 25,000 km. With regard to onboard equipment, the EU set a priority on rail freight locomotives, and requests that new locomotives ordered after 1 January 2012 or put into service after 1 January 2015 are equipped with ERTMS.

A major condition for the successful deployment of ERTMS is the availability of a unique technical standard that ensures the compatibility of all trackside and onboard ERTMS equipment in Europe. Such an interoperability standard has existed since April 2008. To fit further requests from the sector the European Rail Agency issued its recommendation for an updated standard, compatible with the 2008 standard and prepared in cooperation with the major stakeholders of the rail sector. This updated standard, known as “baseline 3”, was adopted by the Commission in November 2012.

To facilitate common efforts, in 2007 and 2009 the EU allocated a total amount of €500 million to ERTMS development and deployment, and appointed a Coordinator, Mr Karel Vinck, whose current mandate runs until 2013. In the frame of calls for proposals published in May 2011, the EU allocated an additional amount of €100 million to further support the development and deployment of ERTMS (see http://tentea.ec.europa.eu/en/ten-t_projects/ten-t_projects_by_transport_mode/ertms_european_rail_traffic_management_system.htm). For the new call for proposals published in November 2012, €100 million has been earmarked.

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
Deployment of ERTMS on the corridor Antwerp-Basel/Lyon	BE, FR, LU	€89	Ongoing
Deployment of ERTMS on Corridor D : Valencia to Budapest	ES, FR, IT, SI	€75	Ongoing
Trackside ERTMS equipment on Italian part of Corridor A (600 km)	IT	€33	Ongoing
Ausrüstung der Eisenbahnstrecke von Emmerich (Grenze) bis Basel (Grenze) mit ETCS als Teil des Korridors A Rotterdam - Genua	DE	€23.3	Ongoing
Deployment of ERTMS in Sweden	SE	€22	Ongoing
ERTMS Implementation on the Railway Corridor D (Valencia - Budapest)	ES, FR, IT, SI	€21	Ongoing
Corridor E: ERTMS trackside equipment in the Czech Republic	CZ	€20.8	Ongoing
Upgrade of Spanish high-speed lines and trains to ERTMS 2.3.0.d	ES	€18.4	Ongoing
Development of ERTMS/ETCS Level 1 system on the E20/CE20 railway line, section Kunowice-Warszawa	PL	€15.4	Ongoing
Deployment of ERTMS trackside equipment on the Railway Corridor B Stockholm-Naples/Subpart Fortezza to Verona of the Italian Corridor B part (Brennero-Verona-Naples)	IT	€15	Ongoing
Facilitating and speeding up ERTMS deployment	AT, BE, DE ,DK ,ES ,FI ,FR , IT, PL, SE, UK	€15	Ongoing
ERTMS deployment on Corridor B (Stockholm-Naples) – Austrian section	AT	€12	Ongoing
ERTMS implementation on the Railway Corridor C (Antwerpen - Lyon / Basel)	BE, FR, LU	€11.6	Ongoing
Serial fitment of onboard ETCS equipment SRS 2.3.0 in 109 freight locomotives.	DE, NL	€9.1	Completed

Retrofit of 90 Siemens ES64F4 E-locomotives with Alstom ETCS L2 equipment for usage on EU freight corridors and various conventional networks	NL	€9	Completed
Project and development of ETCS level 1 system at the section of the E 65, CMK, railway line Grodzisk Mazowiecki - Zawiercie	PL	€8.8	Ongoing
ERTMS deployment on Corridor E (Dresden-Constanta) Austrian vehicles	AT,HU	€7.3	Ongoing
Migration towards ERTMS/ETCS for Trenitalia on-board equipment	IT	€7	Ongoing
ERTMS deployment on Corridor E (Dresden-Constanta) Trackside equipment	AT	€6.9	Ongoing
Prototyping, testing, renewed authorisation for placing in service and the retrofit of Siemens ES64U2 locomotives with ETCS L1/L2 2.3.0.d for Corridor A, B and E networks in DE, AT, HU and CH	NL	€6.8	Ongoing
Study and implementation of major parts of the Corridor Freight Regulation 913/2010	AT, BE, DE, DK, HU, IT, NL, SI, SK, UK	€6.5	Ongoing
Prototyping, testing, certifying and retrofitting of Alstom Prima locomotives for usage on the TEN T corridors	DE, ES, FR, LU	€6.3	Ongoing
EEIG ERTMS Users Group – testing activities	BE, DE, ES, FR, IT, NL, SE, UK	€6	Ongoing
Mise en place de l'ERTMS sur les rames THALYS	BE, DE, FR, NL	€4.8	Completed
Ausrüstung von Lokomotiven der Railion Deutschland AG	DE, NL	€4.8	Completed
ERTMS implementation on the railway corridor Rotterdam Genoa - Netherlands Part - Kijfhoek and Zevenaar	NL	€4.7	Ongoing
Upgrading of ERTMS system on Trenitalia fleet to 2.3.0.d version	IT	€4.6	Ongoing
ERTMS implementation the Railway Corridor Rotterdam Genoa Netherlands part - Section Port Railway of Rotterdam	NL	€4.5	Completed
ERTMS deployment on high-speed line Madrid-Castilla la Mancha-Comunidad Valenciana-Murcia: Section Albacete-Alicante	ES	€4.4	Ongoing
Retrofitting of ETCS onboard equipment for locomotives to run in ERTMS Corridor A	NL	€3.3	Ongoing
Support to the ERTMS Consolidation	BE, DE, ES, FR, IT, NL, SE, UK	€3	Ongoing
Programme management office for the ERTMS deployment on the corridor from Rotterdam to Genoa	DE, IT, NL	€2.7	Ongoing
Hochrüstung der Strecke Berlin - Halle/Leipzig (VDE 8.3) von ETCS Level 2, SRS 2.2.2+ auf ETCS Level 2, SRS 2.3.0d	DE	€2.5	Ongoing
ETCS deployment on Corridor VI: Žilina – Čadca – State Border SK/CZ	SK	€2	Ongoing
ERTMS upgrade of existing locomotives to ensure compatibility with SRS 2.3.0d for use in the Betuwe line.	NL	€2	Ongoing
Upgrade of Roma-Napoli and Torino-Novara high speed lines in order to ensure compatibility with version 2.3.0d	IT	€2	Ongoing
Retrofitting of MÁV-TRAKCIÓ locomotives with ETCS equipment to be operated on Corridor "E"	AT, CZ, DE, HU, RO, SK	€2	Ongoing
ERTMS deployment on Corridor B (Stockholm-Naples) Austrian vehicles	AT	€1.9	Ongoing
Simulation Environment for Fast ERTMS Validation	BE, DE	€1.4	Ongoing
Retrofitment of locomotives with onboard ETCS equipment	AT, BE, DE, NL	€1.2	Ongoing
Programme Management Office (PMO) for the ERTMS deployment on the corridor from Rotterdam to Genoa	DE, IT, NL	€1.1	Completed
Retrofitting of 9 ES64U4 "Husarz" (EU44) locomotives with ETCS SRS 3.x.0 and line tests on the railway infrastructure equipped with ETCS Level 1 and 2 SRS 2.3.0d in Poland, Czech Republic and Austria	AT,CZ,PL	€1.1	Ongoing
Upgrade of ETCS system to 2.3.0d in the Betuwe Route	NL	€1	Ongoing
Migration of the French East European High Speed Line to Specification Baseline 2.3.0.d	FR	€1	Ongoing
Equipment of freight locomotives with ETCS on-board-units according to SRS 2.3.0.d	DE	€0.9	Ongoing
Preparatory studies for the implementation of additional measures on ERTMS Corridor Rotterdam – Genoa and ERTMS Corridor Antwerp – Basel - Lyon	BE, DE, FR, IT, LU, NL	€0.8	Ongoing
Fitting of ETCS onboard equipment to Traxx DABNLs	NL	€0.5	Ongoing
TOTAL		**€503.4**	

C.4.3. River Information Services (RIS)

River Information Services (RIS) employ harmonised information services in support of traffic and transport management in inland navigation, including interfaces to other transport modes. RIS facilitates inland navigation and eases the integration of inland waterway transport into the overall co-modal transport chain. RIS also contributes to the safety, efficiency and environmental-friendliness of this mode of transport.

In a nutshell, RIS provides geographical, hydrological and administrative information on the waterway and enables the electronic reporting of cargo and voyage data and the tracking and tracing of vessels. Potential users range from public authorities, skippers and fleet operators, transport logistics providers and last but not least ports and terminals. The information provided supports amongst others navigation, traffic management, accident abatement, fleet management, transport planning, execution and monitoring. The initial conceptual and technical development of RIS took place in the European Framework Programmes for research and technological development and was actively supported by the Member States and waterway authorities and the industry concerned.

RIS is today regulated through both Directive 2005/44/EC, which defines binding rules for data communication and RIS equipment as well as the minimum level of RIS Services, and the Commission Regulations defining the technical guidelines and specifications identified under the Directive. The latter encompass technical guidelines for RIS as well as technical specifications in the area of notices to skippers, vessel tracking and tracing (Inland AIS), electronic chart display and information system for inland navigation (Inland ECDIS) and electronic ship reporting (all to be compatible in particular with maritime specifications with respect to mixed traffic areas). The Directive provides the framework for the deployment of harmonised and interoperable RIS systems and services, and constitutes, together with the Commission Regulations, the legal reference framework. The deployment of RIS is supported through the TEN-T framework. Under the previous TEN-T programming period, a limited number of RIS projects were realised. However the 2007-2013 TEN-T Multi-Annual Programme extended the support for RIS deployment. Projects focus on the coordinated deployment of enabling infrastructure and RIS provision. As a result of the first RIS call for proposals within the current TEN-T Multi-Annual programming period in 2008, six projects were successfully started and include a total EU contribution €16 million. A second call for proposals in 2010 selected five successful projects with a total EU contribution of €7.1 million. In 2011, four additional projects were selected under the Multi-Annual Call representing a TEN-T total financial support of €10.2 million. The four projects selected are major ones, either ensuring a continuation of previous projects (RIS in Flanders III, Implementation of RIS on the Wester-Scheldt II, IRIS Europe III) or developing new concepts (VTMC of the future). The implementation of RIS across Europe is further supported by the Structural Funds as well as IPA (Instrument for Pre-Accession Assistance).

Ongoing and completed projects financed by the 2007-2013 TEN-T Programme (TEN-T support figures refer to the initially adopted Decision)	**Member State(s)**	**TEN-T support (in million)**	**Project status**
IRIS Europe II	AT, BE, BG, CZ, FR, HU, NL, RO, SK	€5.8	Ongoing
Full deployment of Inland-AIS transponders	DE, NL	€5	Ongoing
Vessel Traffic Management Centres of the Future	DE, NL	€3.9	Ongoing
Study and implementation of AIS monitoring network	NL	€3.2	Ongoing
Studies for the Development of the RIS Operability along the Northern Italy Waterway System	IT	€2.5	Ongoing
Implementation of RIS in Flanders	BE	€1.9	Completed
Pilot implementation on the Lower Oder RIS	PL	€1.6	Ongoing
Services d'information fluviale II (SIF II)	FR	€1.2	Ongoing
Deployment of Inland AIS transponders in Flanders and the Netherlands	BE,NL	€0.8	Ongoing
Implementation of RIS in Flanders II	BE	€0.6	Ongoing
Implementation of RIS in Flanders III	BE	€0.6	Ongoing
Implementation of RIS on the Westerscheldt River II	BE,NL	€0.5	Ongoing
Implementation of RIS on the Westerscheldt river	BE,NL	€0.5	Ongoing
Implementation of Fairway Information Services	NL	€0.4	Completed
TOTAL		**€28.4**	

C.4.4. Vessel Traffic Monitoring and Information Systems (VTMIS)

Europe is highly vulnerable to the risks of maritime accidents and pollution, as confirmed by a number of major catastrophes such as the loss of the passenger ship ESTONIA and of the oil tankers ERIKA and PRESTIGE.

In such a context, the setting-up within the EU of a Vessel Traffic Monitoring and Information System (VTMIS) contributes to navigation safety, notably in heavily congested or environmentally sensitive areas. It also contributes to more efficient management of the maritime transport chain.

The development of an EU VTMIS is the main objective of Directive 2002/59/EC, as amended. It includes the requirement for ships to be fitted with equipment enabling short-range transmission of their identity and position (AIS - Automatic identification Systems) and to notify of their arrival and departure from EU ports.

Member States also have to establish appropriate shore-based infrastructure for the monitoring of maritime traffic in their waters.

In line with the Directive, the Commission initiated the development of an electronic network for the transmission of data between Member State maritime administrations, SafeSeaNet. This is now operated by EMSA and enables a better monitoring of ships bound for or in transit in European waters and of the cargoes they carry. About five million ship position reports and 10,000 notifications (information about ship calls, dangerous goods on board, and incidents) are exchanged daily through the SafeSeaNet system, linking the 22 EU coastal countries, Iceland and Norway (and Croatia as from accession). Landlocked EU countries also have web access to the system as data requesters.

The success of SafeSeaNet is demonstrated not only by its contribution to maritime safety, but also by its further development to carry even more types of message about ships and their cargo (reporting formalities), contributing to the facilitation of trade and increasing the efficiency of national administrations in Member States (ref Directive 2010/65/EU on reporting formalities for ships).

Further to the modification of Directive 2002/59/EC by Directive 2009/17/EC, the scope of the EU VTMIS has been expanded with a view to enhancing the safety and efficiency of maritime traffic, providing, among others, for the inclusion of monitoring requirements for fishing vessels and improving the response of authorities to incidents with clear obligations for the process of accommodation of ships in need of assistance.

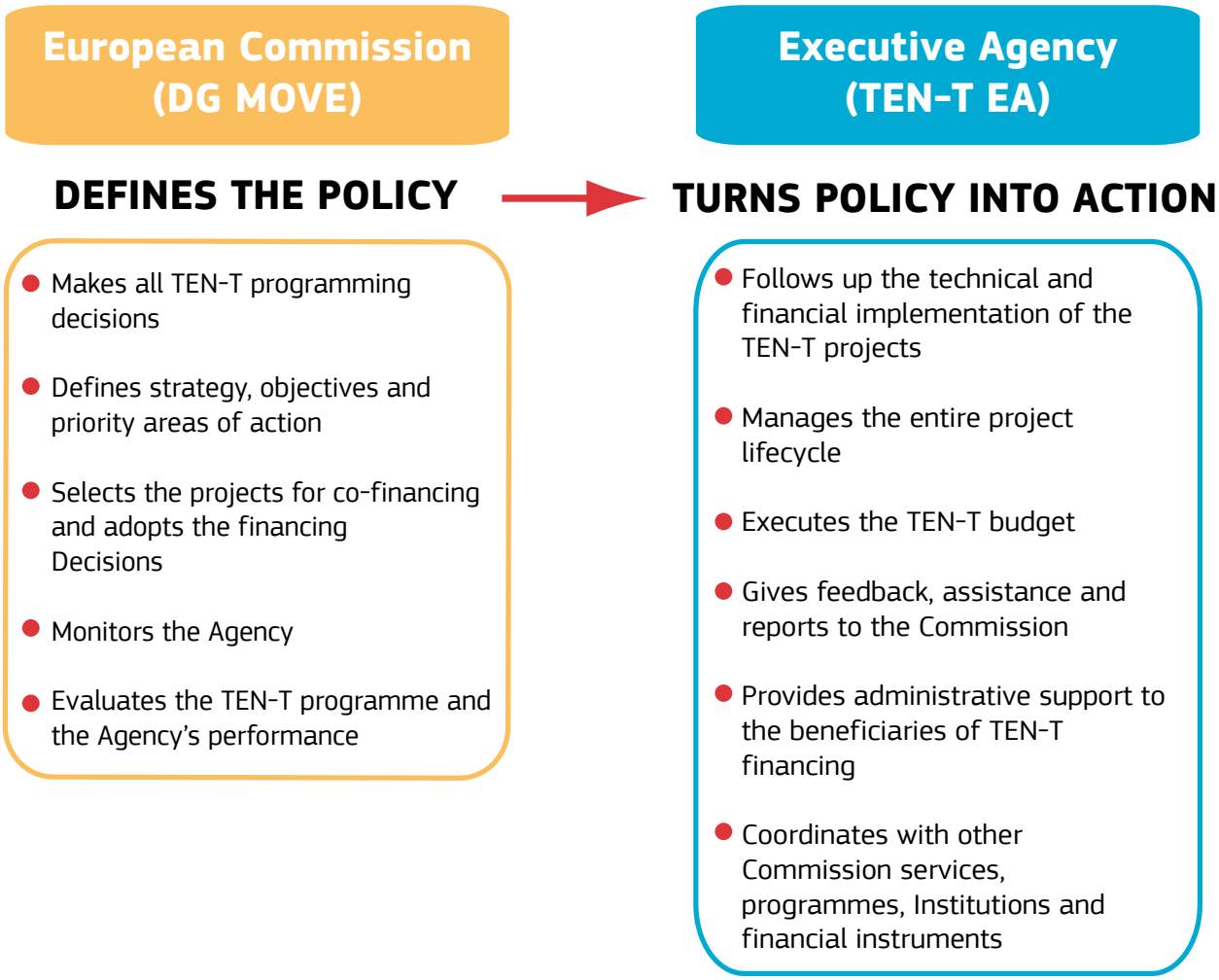
Another important provision of the new Directive concerns the setting up of the EU Data Centre for the Long-Range Identification and Tracking of ships (EU LRIT DC), which enables the identification and monitoring of vessels flying the flags of the EU Member States all around the world for safety, security and environmental purposes. This Data Centre was set by the European Maritime Safety Agency (EMSA) in Lisbon and has been operational since May 2009.

C.5. Trans-European Transport Network Executive Agency (TEN-T EA)

The Trans-European Transport Network Executive Agency's (TEN-T EA) mission is to support the European Commission and TEN-T project managers and promoters, by ensuring the technical and financial management of the projects and the successful implementation of the TEN-T Programme.

The TEN-T Programme finances European projects in all transport modes and supports the development of European transport infrastructure with high added value for the entire EU. The Commission has delegated to the Agency the task of implementing the operational budget linked to the TEN-T Programme, under the supervision of DG Mobility and Transport (MOVE).

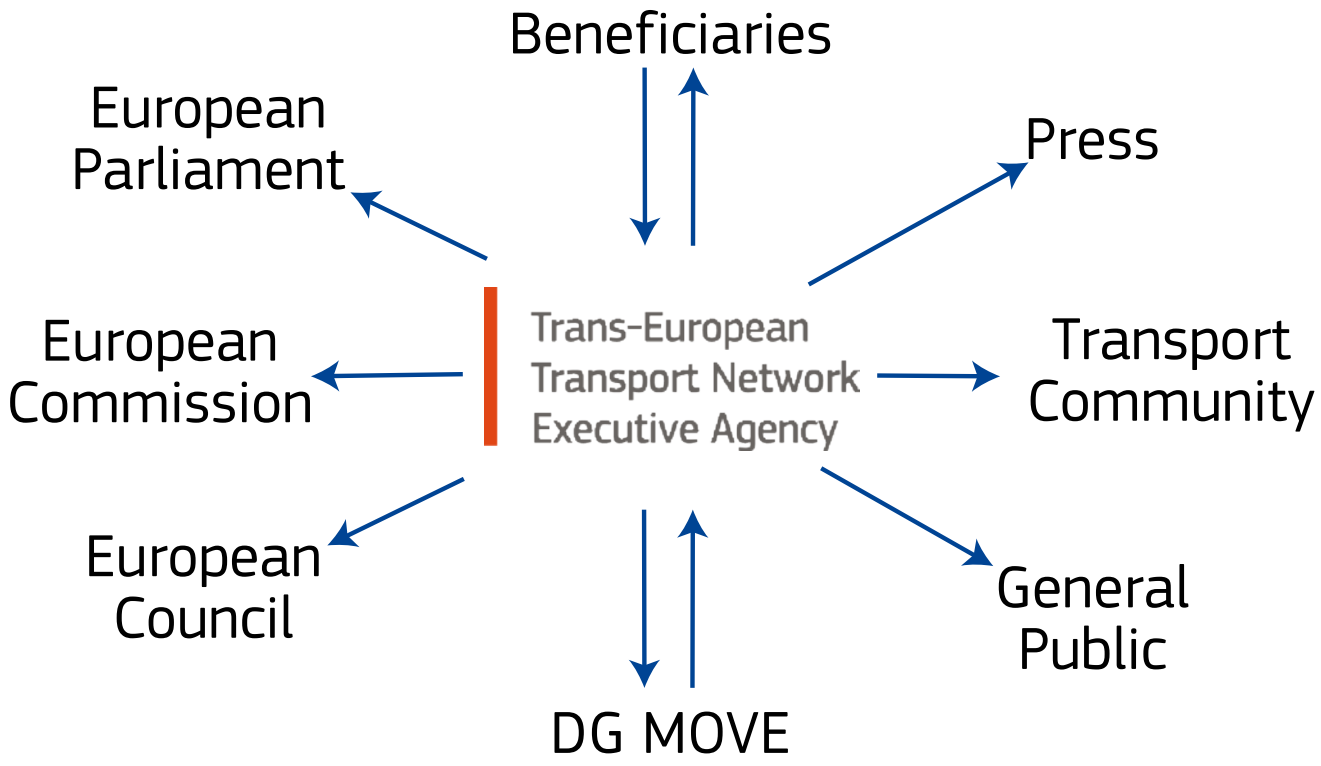
The breakdown of tasks between DG MOVE and the Agency is illustrated below:



In its daily work, the Agency aims to:

- ensure the efficient and transparent technical and financial management of projects and events co-financed under the TEN-T budget
- provide added-value knowledge, information and insight to the Commission in support of the TEN-T Programme's implementation, programming and publicity
- deliver expert technical support to project promoters
- offer high-quality administrative support, as requested by the Commission.

2012 is the Agency's fourth full year of operation and responsibility for the management of TEN-T projects, from both the 2000–2006 and 2007-2013 Financial Perspectives. This year, the Agency has concentrated on two specific objectives for its operational activities, namely to:



- Give continued support to the completion of TEN-T infrastructure, through the effective and efficient technical and financial management of the TEN-T Programme and projects, demonstrating the added value and expertise of the Agency.
- Support, in particular, the development of a smart infrastructure funding strategy.

The Agency has carried out a number of key tasks in the past year which are helping it to meet these objectives. They include:

- Continued follow-up/closure of projects from the 2000-2006 TEN-T Programme and implementation of projects selected under the 2007, 2008, 2009 and 2011 Calls for Proposals.
- Finalising the Decisions for projects selected for financial support in the 2011 Call for Proposals under the Multi-Annual Programme (MAP) in the fields of RIS, MoS and ERTMS.
- Planning, preparation, organisation and administration of the 2011 Annual Call for Proposals and the related external evaluation exercise.
- For both the Annual and Multi-Annual Calls, the Agency provided support to DG MOVE in the internal evaluation and final selection process and in preparing the documentation to present the results to the TEN Financial Assistance Committee (FAC).
- Responding to requests for Amendments of financing Decisions.
- Supporting DG MOVE in the preparation of the 2012 Annual and Multi-annual Work Programmes, as well as an amendment of the Annual Work Programme to include €100 million for the Europe 2020 Project Bond Initiative. The Agency also provided its expertise and know-how in preparing the call texts explaining the requirements needed for submission of proposals. In order to improve the response to calls for proposals the Agency organised an Info Day on 29 November 2012 to inform applicants about priorities, modalities and procedures for submitting the best possible proposals for TEN-T funds under the annual and multi-annual calls for proposals 2012. This is particularly important as it coincides with the end of the current Programme and the optimal use of the remaining TEN-T funds will be critical to the good implementation of the whole Programme.
- Following up of key reporting (Action Status Reports (ASRs) and Strategic Action Plans (SAPs) used to review project planning and performance. The past year was a key period for analysing the MAP projects, and their ability to absorb funds allocated to them by the end of 2015. Annual follow-up of the MAP Project Portfolio Review, carried out in May 2010, was also undertaken to review, analyse and evaluate technical and financial progress and the updated implementation plans of TEN-T projects selected under the 2007 Multi-Annual Programme.

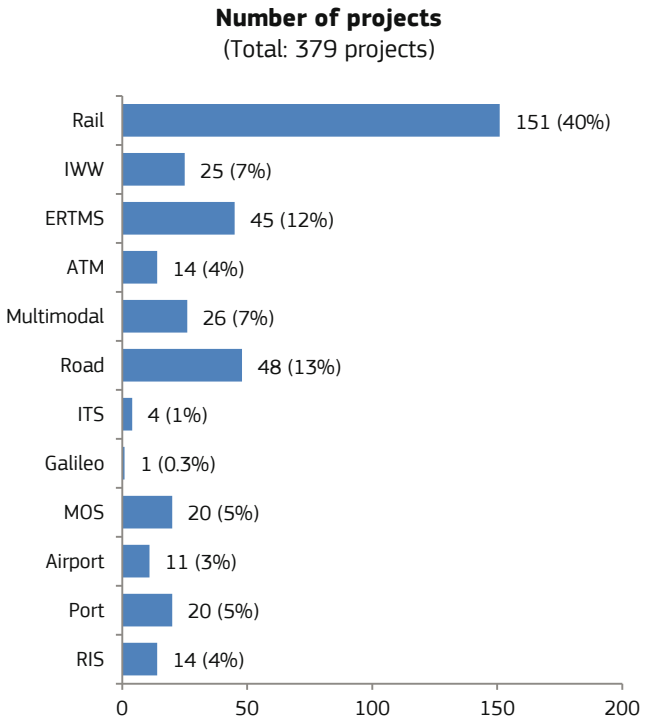
- Development of a new system for obtaining reasonable assurance that beneficiaries respect EU procurement Directives.
- Increased monthly monitoring of budget implementation and improvements in financial management: 98% of operational payment claims were paid on time in the first half of 2012, representing an increase of 20% compared to the same period in 2011. Involving TEN-T beneficiaries to discuss and improve financial and project management issues through the Good Practice Working Group. Two formal meetings took place in 2012.
- Continuation of information and communication efforts, including continuous updates of its website with project news, achievements and information; a new Twitter feed, events, press relations and the production of key publications such as "10 (More) out of TEN", highlighting TEN-T project implementation successes. The Communication Team also implemented the Commission's new visual identity across the Agency in early 2012.
- Development of the Agency's Financial Engineering sector in supporting Public-Private Partnerships (PPPs) and monitoring the LGTT and the Marguerite Fund. The team collaborates with DG MOVE, the EIB (EPEC) and DG REGIO on various issues related to strengthening the institutional capacity of Member States to undertake PPPs, and the establishment of the pilot phase of the Project Bond Initiative.

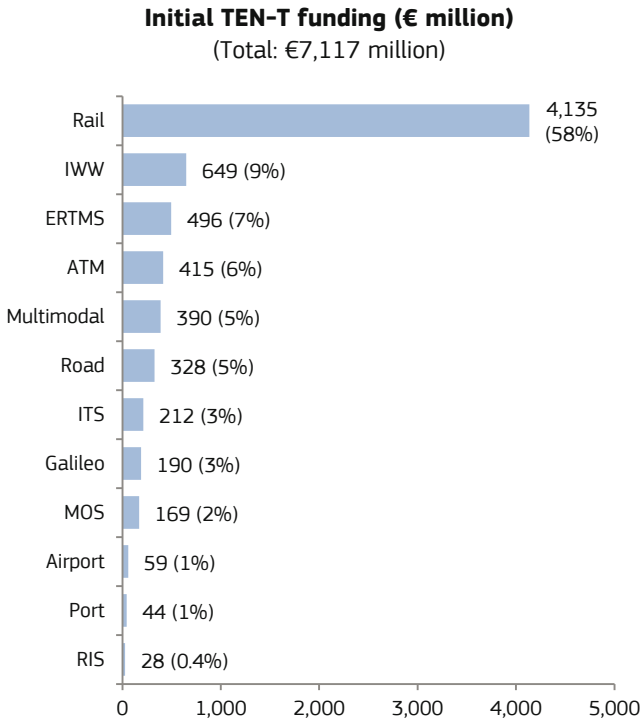
The main challenges for 2013 will be preparing for the possible future extension of the Agency's mandate, the implementation of the next financial perspective and the future implementation of the Connecting Europe Facility (CEF), while at the same time continuing to improve the technical and financial management of the TEN-T projects and fully demonstrating the added value of the TEN-T EA in contributing to the effective implementation of the TEN-T Programme.

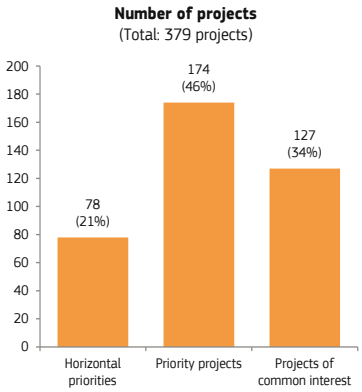
Section D - Statistics on TEN-T funding

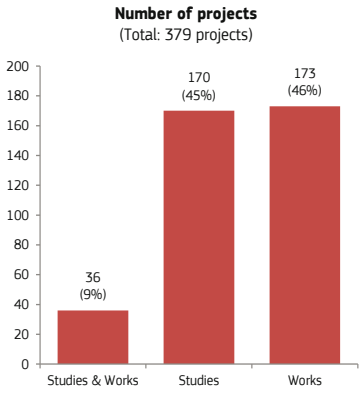
TEN-T programme

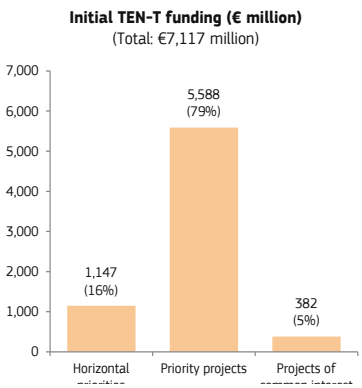
€8 billion has been allocated by the EU to the TEN-T programme for 2007-2013, in order to support studies or works which contribute to the TEN-T programme objectives. Some 379 projects amounting to €7.1 billion (referring to initially adopted decisions) have already been established under the current financial perspective through the selection via calls for proposals between 2007-2011. The following statistics present some key figures regarding the projects financed by the TEN-T programme and monitored by the TEN-T Executive Agency under the current 2007-2013 financial perspective (Ongoing and completed projects, state-of-play on 12 November 2012). The charts below illustrate the number of projects supported, as well as the corresponding budget by transport mode and type of project.

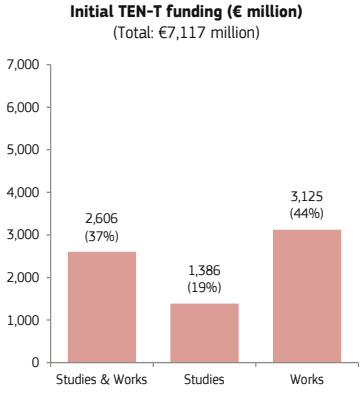








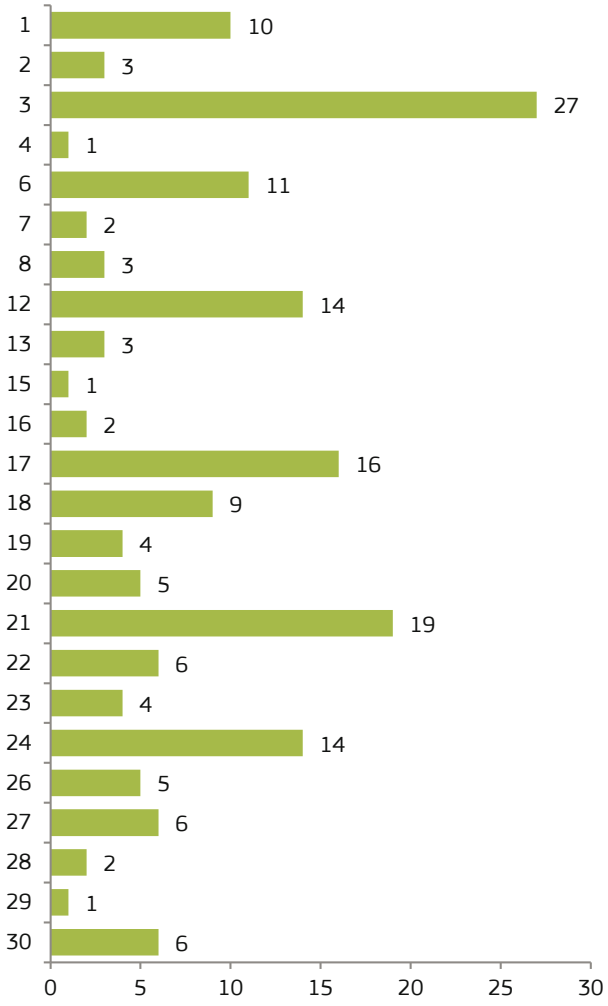




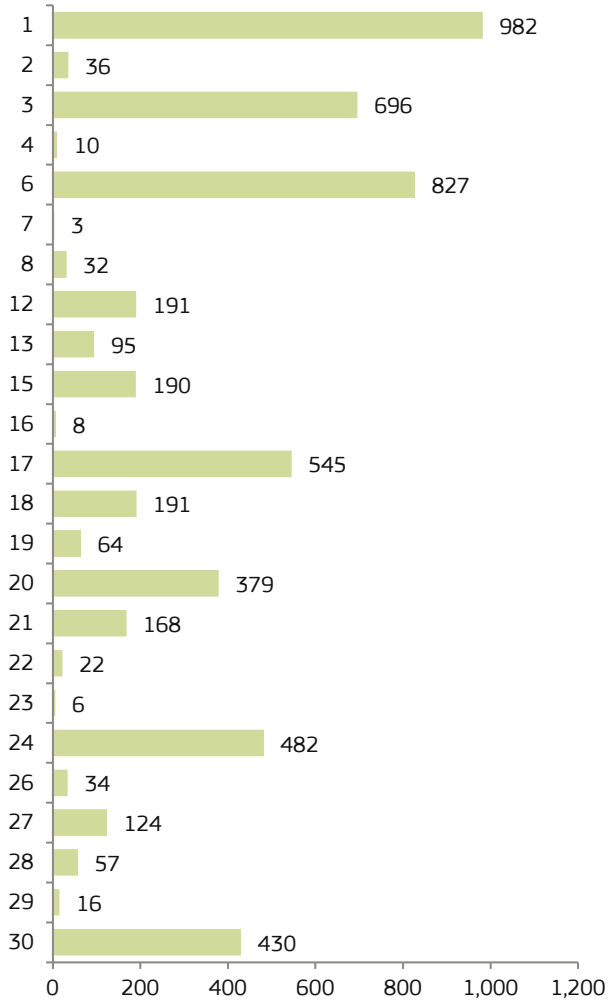
Priority Projects

Out of the 379 already established projects, 174 belong to the TEN-T Priority Projects, representing €5.6 billion (79% of the total funding). This represents the initial Multi-Annual allocation to Priority Projects, as well as the allocations to Priority Projects supported under the Annual calls and the 2009 EERP call. The charts below illustrate the number of supported projects by Priority Project.

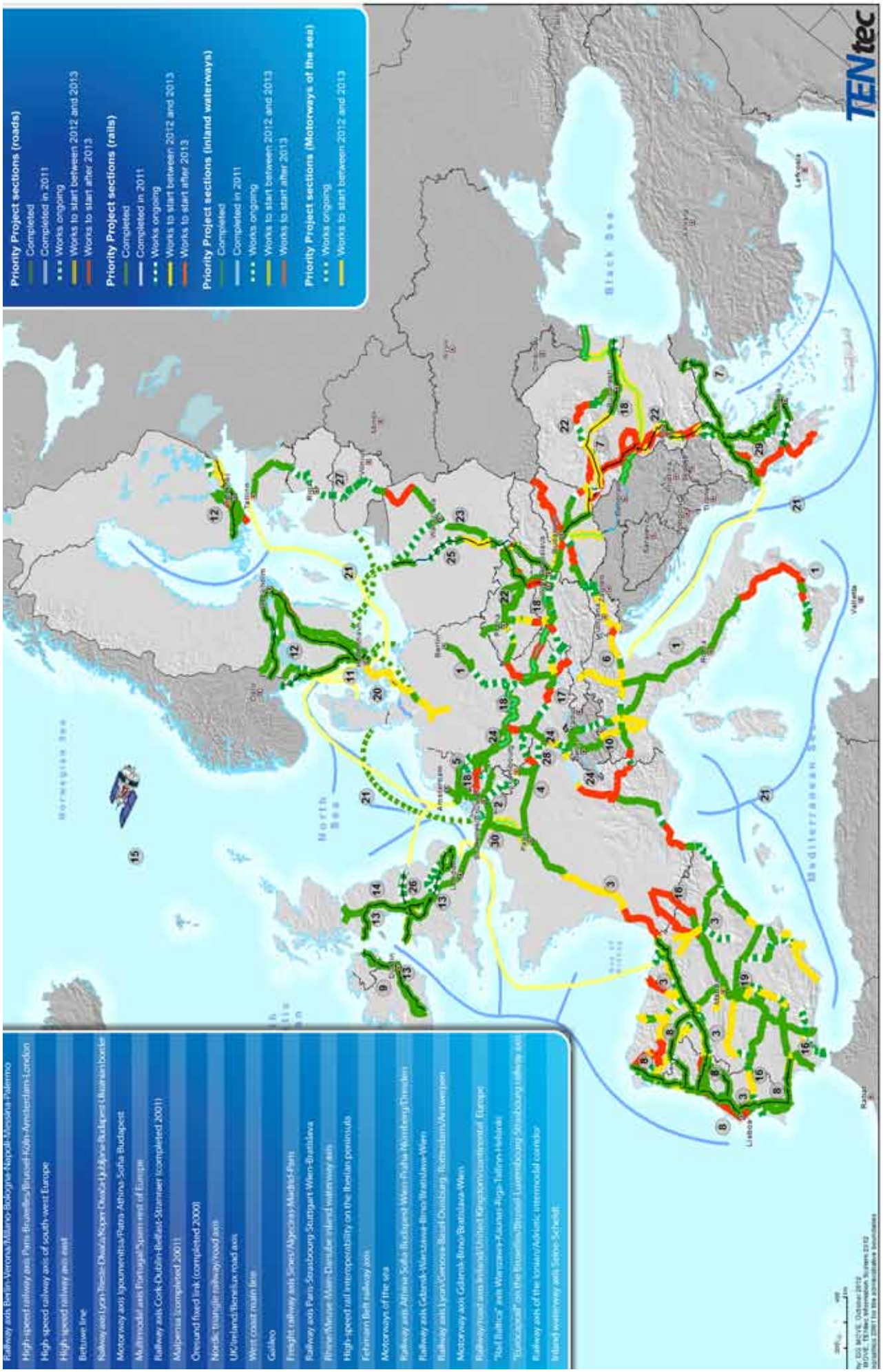
Number of projects
(Total: 174 projects)

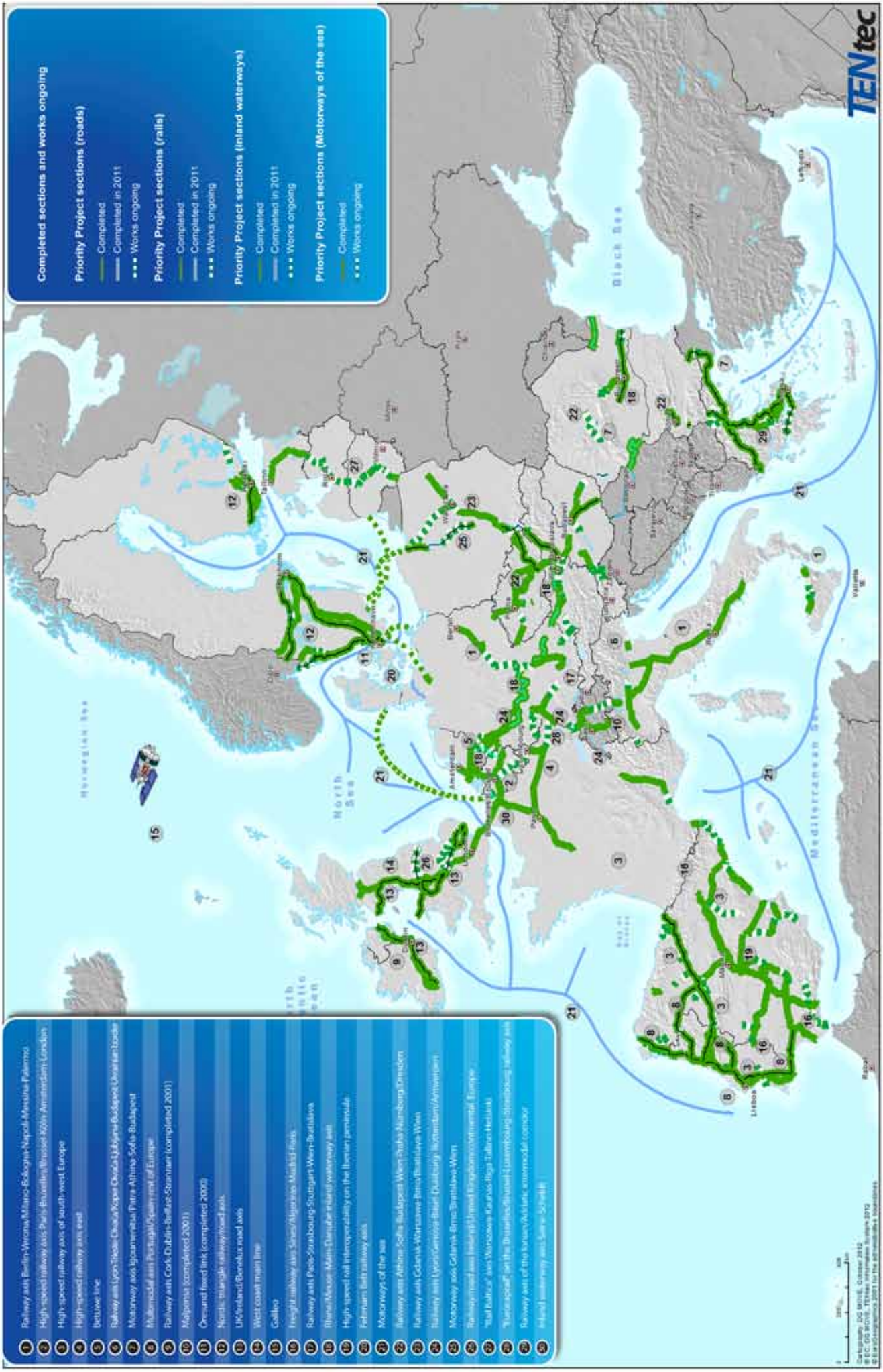


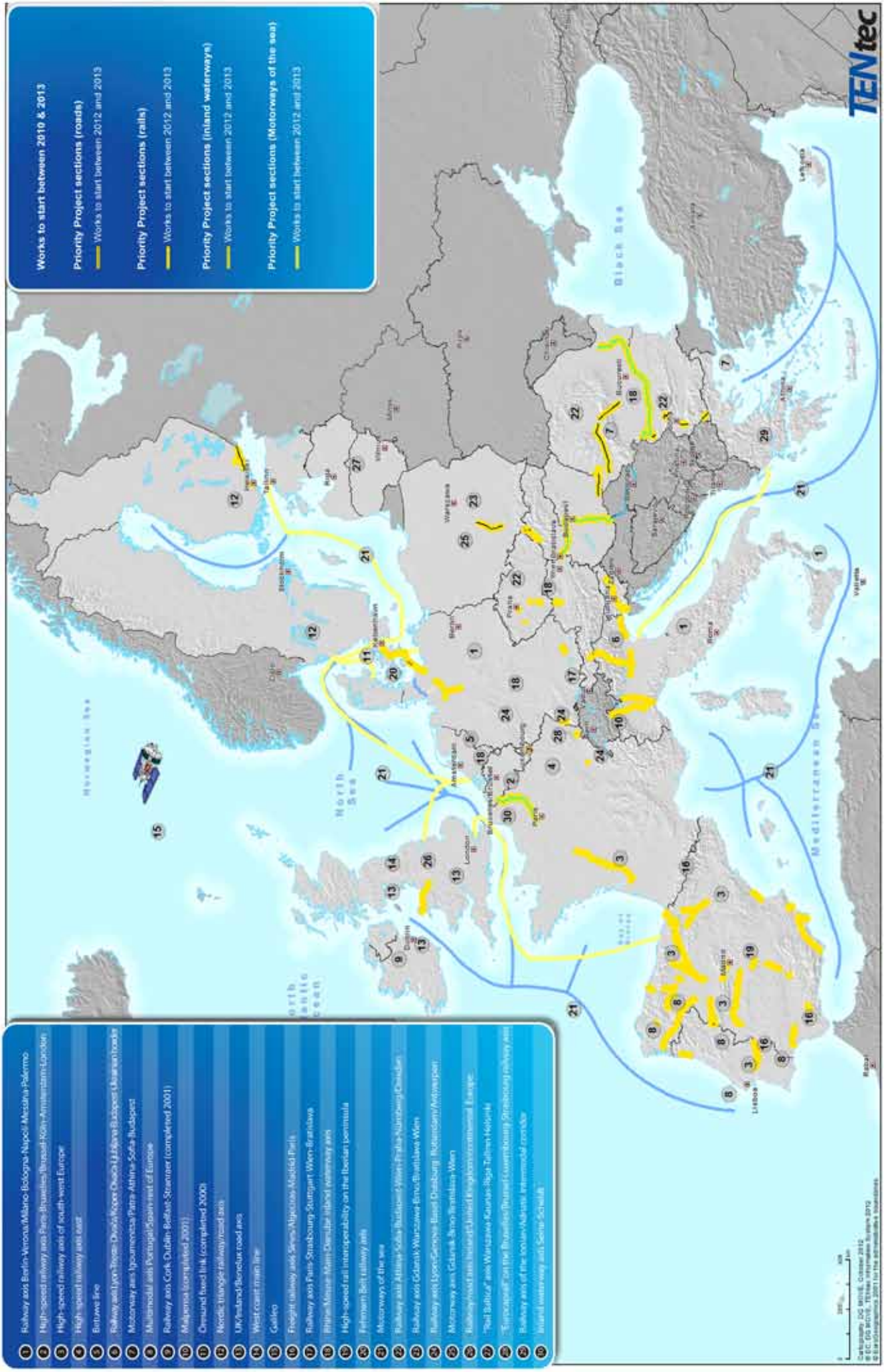
Initial TEN-T funding (€ million)
(Total: €5,588 million)

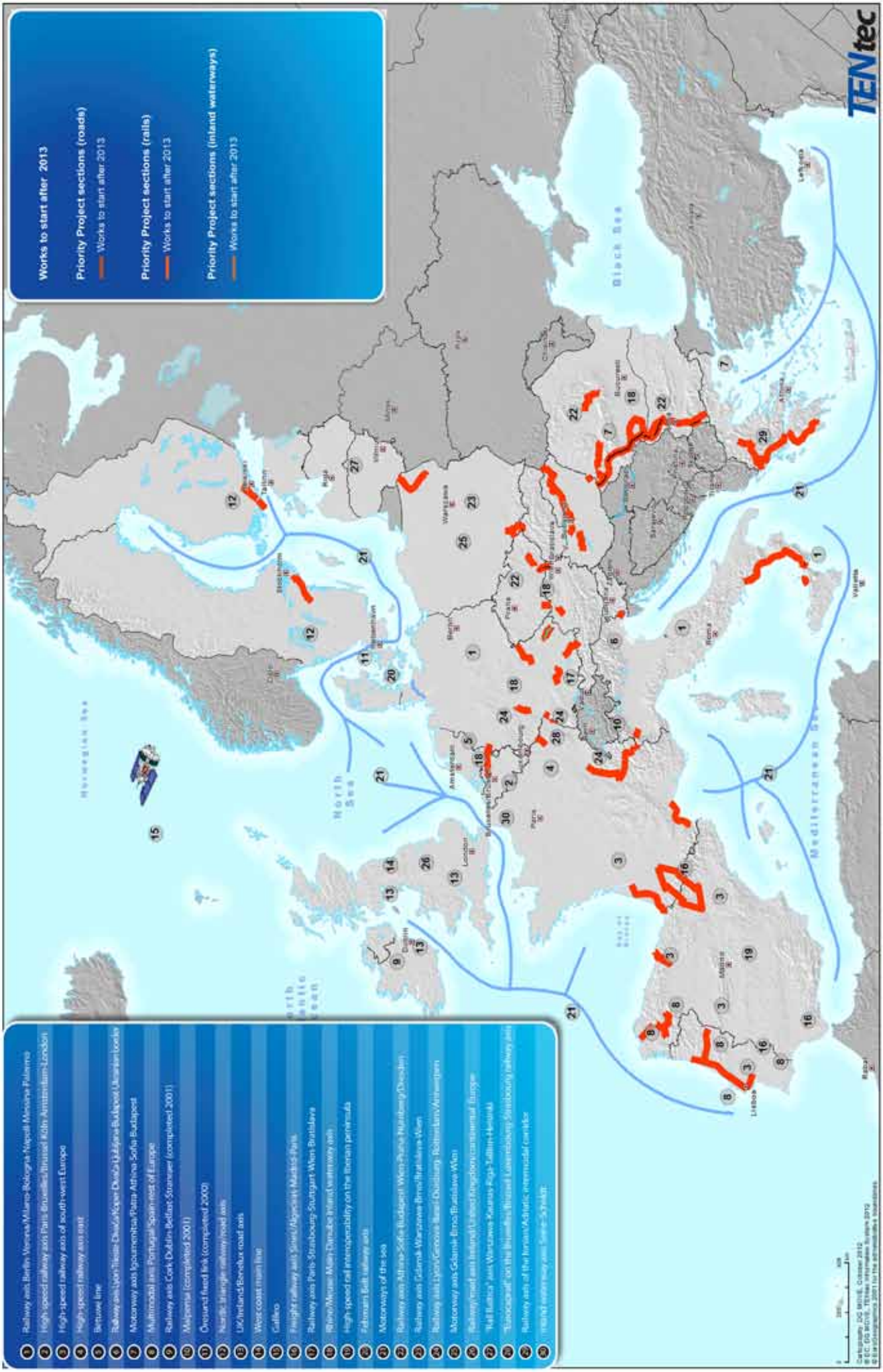


Section E - Maps




Completed sections and works ongoing
Priority Project sections (roads)
Completed
Completed in 2011
Works ongoing
Priority Project sections (rails)
Completed
Completed in 2011
Works ongoing
Priority Project sections (inland waterways)
Completed
Completed in 2011
Works ongoing
Priority Project sections (Motorways of the sea)
Completed
Works ongoing
TENtec
North Sea
Mediterranean Sea
Black Sea


Works to start between 2010 & 2013
Priority Project sections (roads)
Works to start between 2012 and 2013
Priority Project sections (rails)
Works to start between 2012 and 2013
Priority Project sections (inland waterways)
Works to start between 2012 and 2013
Priority Project sections (Motorways of the sea)
Works to start between 2012 and 2013
TENtec
North Sea
Mediterranean Sea
Black Sea


Works to start after 2013
Priority Project sections (roads)
Works to start after 2013
Priority Project sections (rails)
Works to start after 2013
Priority Project sections (inland waterways)
Works to start after 2013
TENtec
Black Sea
North Sea
Mediterranean Sea
Norwegian Sea