RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR

IMPLEMENTATION PLAN

OF RAIL FREIGHT CORRIDOR 7 „ORIENT CORRIDOR”

based on Regulation (EU) No 913/2010 of the European Parliament and of the Council of 22 September 2010 concerning a European rail network for competitive freight

November 2013

Content

I. List of abbreviations

AA	Authorized Applicant
AB	Allocation Body
AG	Advisory Group
CFR	National Infrastructure Manager of Romania (Compania Nationala de Cai Ferate) - *IM, Romania*
CID	Corridor Information Document
C-OSS	Corridor One-Stop-Shop
EB	Executive Board
GYSEV	Raab–Oedenburg–Ebenfurter Eisenbahn AG (Győr-Sopron-Ebenfurti Vasút Zrt.) - *IM, Hungary & Austria*
IM	Infrastructure Manager
IT tool	Information Technology tool
MÁV	Hungarian State Railways Company Limited by Shares (MÁV Magyar Államvasutak Zrt.) - *IM, Hungary*
MB	Management Board
NRIC	National Railway Infrastructure Company, State Enterprise (НКЖИ (Национална компания железопътна инфраструктура) - *IM, Bulgaria*
OSE	Hellenic Railways (Οργανισμός Σιδηροδρόμων Ελλάδος) - *IM, Greece*
OSS	One Stop-Shop
ÖBB	ÖBB-Infrastruktur AG - *IM, Austria*
PaP	Pre-arranged path
PCS	Path Coordination System
RFC7	Rail Freight Corridor No.7
RNE	RailNetEurope
RU	Railway Undertaking
SZDC	Railway Infrastructure Administration, State organisation (Správa zeleznicní dopravní cesty, státní organizace) - *IM, Czech Republic*
TCCCOM	Traffic Control Centres Communication
TIS	Train Information System
TMS	Transport Market Study
UIC	International Union of Railways
VPE	Hungarian Rail Capacity Allocation Office (Vasúti Pályakapacitás-elosztó Kft.) - *AB, Hungary*
WG	Working Group
ZSR	Railways of the Slovak Republik (Zeleznice Slovenskej republiky) - *IM, Slovak Republic*

II. Introduction

II.1. Legal background

The Commission of the European Union proposed in 2008 the creation of a European rail network for competitive freight, consisting of international corridors. The aim is to achieve reliable and good quality railway freight services to be able to compete with other modes of transport.

The rail transport for goods has been experiencing difficulties in Europe for more than thirty years for a number of reasons: changes in industry, the development of motorways, and new logistic requirements on the part of companies. In order to respond to these difficulties, the Community has launched an active transport policy for the revitalisation of rail transport based on progressively opening up transport services to competition (effective for all freight since 1 January 2007) and developing the interoperability of rail systems.

The Commission's objective to initiate **Regulation 913/2010/EU (hereinafter: "the Regulation")** was to improve the service provided by the infrastructure managers to international freight operators. Several initiatives have contributed to the creation of the corridors' concept: the 1st railway package (Directives 2001/14/EC and 2001/12/EC), the TEN-T (trans-European transport network) programme, cooperation between Member States (MS) and IMs within the framework of ERTMS, and the deployment of TSI TAF (Technical Specification for Interoperability Application of telematics to freight).

Through the new regulation the Commission would like to act in the following main areas corresponding to the process of harmonization:

- improving coordination between Infrastructure Managers
- improving the conditions of access to infrastructure;
- guaranteeing freight trains adequate priority,
- and improving inter-modality along the corridors.

In order to reach these goals the European Union designated 9 international rail freight corridors (RFC) in the EU rail network where approx. 80 % of freight could run yearly. Most of these designated freight corridors should be established by 10 November 2013, which date is binding for all participating countries. In order to build up the corridors the regulation describes all rules and conditions to harmonise and unify the proceedings.

II.2. Aim of the Implementation Plan

The purpose of this document is to create an inventory of the numerous tasks that derive from the establishment and the operation of Orient Corridor. Seeing that the Regulation allotted a very limited time period for IMs to create the rail freight corridors, it was necessary to concentrate on the essential steps that need to be taken. In the past few years the member companies of the Management Board tried to define the conditions of operation of the corridor by systematically listing the tasks, analysing the possible procedures, and choosing the most feasible solutions for every single field of activity.

This document summarizes the conclusions reached, and contains the commonly accepted rules applicable along the corridor.

It also serves as a management tool for the MB, a basic document that shall be regularly updated with newly defined solutions, so it will become a point of reference that can continuously support the work of involved companies.

The Implementation Plan aims to present to the Executive Board and to the European Commission the main characteristics of the corridor, the measures taken so far and the planned procedures of corridor operation.

The Implementation Plan is also to be published on the website of RFC7, in order to ensure transparency, encourage networking with other corridors and to attract the interest of the potential business partners.

II.3. AIM OF RFC7 MB MEMBERS

Rail Freight Corridor 7 is defined by the Regulation to run through the Prague-Vienna/Bratislava-Budapest –Bucharest-Constanta and –Vidin-Sofia-Thessaloniki-Athens axis. Number 7 is a special number for us: our cooperation, our common work and efforts are based on seven participating countries, such as Czech Republic, Austria, Slovakia, Hungary, Romania, Bulgaria and Greece.

The railway infrastructure-manager and capacity-allocation companies responsible for establishing and running RFC7 are committed

- to develop a railway corridor in harmony with freight market demand,
- to offer reliable, high-quality, competitive transport services in order to increase this market demand,
- to operate the infrastructure cost-effectively on the long run through harmonization of technical and procedural conditions,
- to build on the opinion of business partners to attain their satisfaction,
- to be a worthy part of the European railway network by becoming an essential connection between Central Europe and South-East Europe, and form a link to Asia through the Black Sea and Aegean Sea ports,
- to contribute to increasing the market share of the environmentally most friendly land transport mode, and thereby
- to facilitate the environmentally sustainable development of the European economy and the achievement of a better quality of life for its people.

III. General characteristics of Orient Corridor

III.1. CORRIDOR DESCRIPTION

Orient Corridor runs form Central-Europe to Eastern- and Southern-Europe, connecting the most of the Member States among the nine rail freight corridors determined by the Regulation, namely seven: Czech Republic, Austria, Slovak Republic, Hungary, Romania, Bulgaria and Greece, between the cities of Prague-Vienna/Bratislava-Budapest — Vidin-Sofia-Thessaloniki-Athens as well as Budapest — Bucharest-Constanta.

Map 1 – Rail Freight Corridor 7 according to Regulation 913/2010/EU

Besides the main lines along the principal route outlined in the Regulation 913/2010/EC, the Corridor includes alternative routes frequently used for re-routing trains in case of disturbance on the main lines, and connecting lines, sections linking terminals and freight areas to the main lines. The length of RFC7 main and alternative lines (without taking into consideration the connecting lines) is almost 5900 km.

The length of the corridor route sections are very different among the involved countries, Austria has the shortest one with about 350 km (approx. 6% of the whole corridor) and Romania has the longest part, about 2200 km corridor line (approx. 37 % of the total length).

In geographical terms, there are three countries which have sea connection therefore their opportunities to sea ports and terminals are substantial for the corridor. At the same time, the Danube, the biggest river in Europe and an important international river transport route, connects five of the corridor countries, including most of the landlocked ones.

Countries are different from the economic background point of view as well. Six of them rely greatly on the EU Cohesion Fund policy therefore their infrastructure mostly develops on the basis of the division of EU funds. Most of these countries have no high-speed lines at all, and the quality of infrastructure needs development at many sections.

The main technical characteristics of the corridor overall are as follows.

- The total length of main lines is approx. 3,900 km, and the length of alternative and connecting lines is almost 2,500 km altogether.
- About two-thirds of the total length of the main route includes double-track sections, and about one-third is single-track, plus a 33 km three-track section is also included. The proportion of double-track sections is somewhat lower in the alternative and connecting lines (58%).
- Traction power is 25 kV AC on the biggest part of the main lines (almost 2,900 km, 77%) and on approx. 58% of alternative and connecting lines. Diesel traction is applicable on almost 15% of the main route and 24% of the alternative one, while at the remaining sections 15 kV AC and 3 kV DC traction power is used.
- The allowed axle load is 22,5 t (or more) on 60% of the main line sections and 20 t on the rest. The proportion is similar in case of alternative lines, too.
- Trackside ERTMS has been installed on a relatively short part of the corridor, i.e. 360 km, but it is under realization on a major part of its lengths, i.e. along 2,000 km. Rolling stock equipped with on-board ETCS unit is in operation mainly by Austrian, Bulgarian and Greek railway undertakings, but installation is underway in other involved counties, too.

The detailed description of Rail Freight Corridor 7 is found in Annex 7 and in the Transport Market Study that forms part of this Implementation Plan. It contains a precise definition of beginning and ending points and all terminals designated to the Corridor.

You can find in the TMS the systematic collection of all infrastructure parameters, a detailed description of available capacity and bottlenecks along the Corridor, as well as an overview of existing traffic patterns.
Line characteristics are described with: type of line (main, alternative or connecting), section overlapping with other corridor, length of section (in km), number of tracks, electric traction, maximum length of train (in meter), line category regarding axle load, max weight/axle for extraordinary shipments, max slope, profile (P/C), loading gauge, max speed (km/h), ERTMS equipment, and services (intermodal terminals/keeper, marshalling yards/keeper, other service facilities e.g. refuelling, Ro-La, scale) on the line section.

As railway lines and terminals together specify the Corridor, terminals are also described in the TMS. All terminals along designated lines have been determined as part of the corridor as well, except if a terminal does not have any relevance for the traffic in the corridor. The marshalling yards, major rail-connected freight terminals, rail-connected intermodal terminals in seaports, airports and inland waterways belong to the terminals presented in the TMS. Stations are described by: number of tracks, max. lengths of the tracks, cross-border operation, average time of operation duration. Terminals are described with location on corridor, character, number of tracks, maximum lengths of tracks, storing capacity, opening hours.
Connection lines from the corridor main lines to these terminals, and vice versa, have been described as well.

Both the TMS and the Investment Plan of the Implementation Plan contain information about the main infrastructural and capacity bottlenecks identified along the corridor as well.
Most limiting factors are:

- low capacity,
- speed limit,
- limited length of trains,
- limited axle load,
- not electrified sections,
- lack of adequate safety equipment (signalling track circuits with 25 Hz frequency, ETCS, GSM-R, etc.).

III.2. Relation to other corridors

Orient Corridor has connections with the following other RFCs:

- in Prague with Rail Freight Corridor 9 (to be set up by 10 November 2013)
- in Bratislava/Vienna with Rail Freight Corridor 5 (to be set up by 10 November 2015)
- in Budapest with Rail Freight Corridor 6 (to be set up by 10 November 2013)

Common line sections of rail freight corridors are described in the Transport Market Study.

RFC7 also overlaps greatly with the routes of other corridor conceptions, such as

- TEN-T priority axis 22, which runs from Nürnberg and Dresden to Constanta and Athens (common line from Prague to Constanta and Athens),
- ERTMS E which runs from Dresden to Constanta (common line from Prague to Constanta),
- RNE corridor 10, which runs from Hamburg to Budapest (common line from Prague to Budapest) and RNE corridor 9, which runs from Vienna to Kulata and Constanta as well as to Varna, Burgas and Svilengrad (common line from Vienna to Constanta and to Kulata).

We believe that the overlap with other railway corridor concepts facilitates the development of the freight corridor, partly thanks to the existing cooperation in their framework, partly due to the fact that EU co-funding is mostly allocated to line sections that form part of an international axis and therefore can have major European added value.
As all of the above-mentioned corridor concepts have the starting point in Germany, the Transport Market Study also analyses the possible conditions and pros and cons of the extension of RFC7 to Germany.

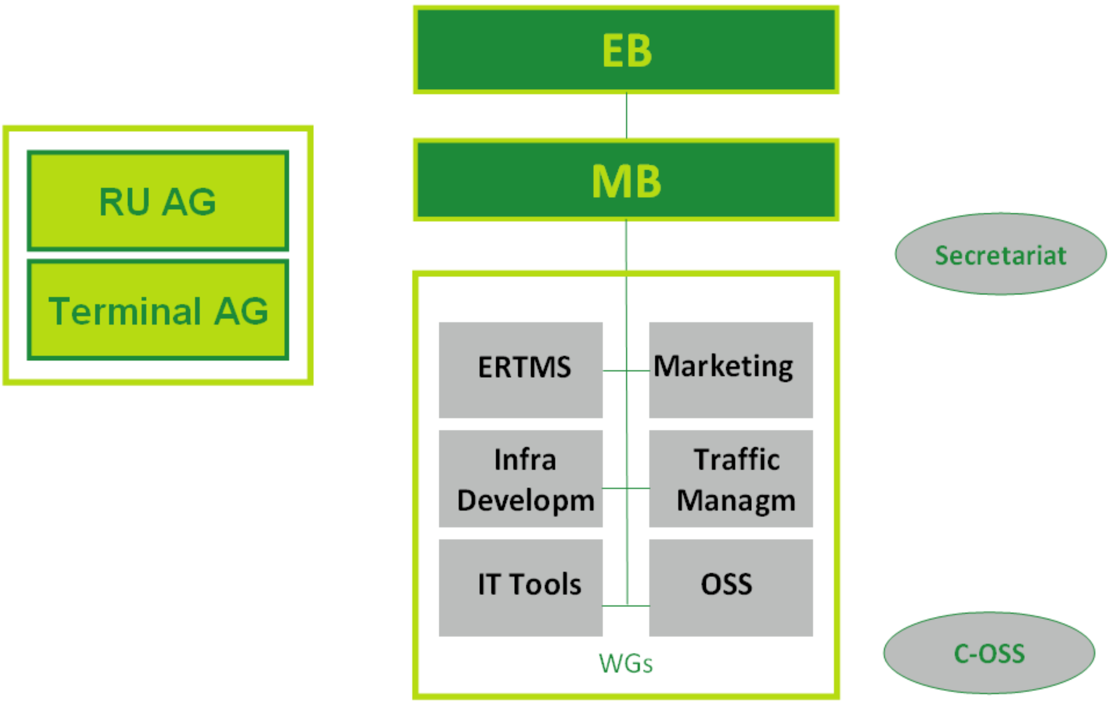
The parameters of lines and terminals described in the Implementation Plan of Orient Corridor can change over time due to infrastructure investments along the corridor.
Possible requests or comments received from the Advisory Groups or Applicants of RFC7, together with results of the Customer Satisfaction Surveys, will be taken into account by MB member companies when making decisions about necessary developments or alterations, too.
The circle of countries and companies (and thus of line sections and terminals) belonging to Orient Corridor may also change later due to European Commission incentives or because of changing needs of the transport market.

IV. Organization of the corridor

Creation of an international transport corridor that crosses many countries and involves several companies is a complex process that requires the cooperation of many parties. As the activities of stakeholders have to be coordinated on different levels, setting up of an effective organizational structure with simple communication method and fast decision-making procedure is a must.

The operative bodies of RFC7 were established partly following the Regulation, partly with a view to the practical needs of corridor work identified by the companies establishing the Management Board.

The setup of Orient Corridor organizational units is illustrated in this schematic picture.



IV.1. Executive Board

The highest level body assigned to the corridor is the Executive Board, which was established on RFC7 by the Ministers in charge of transport in the involved countries in June 2011 (Memorandum of Understanding forms Annex 1 of the Implementation Plan). The organization is responsible for supervision of corridor activity and for defining the general objectives and the framework for capacity-allocation along the corridor. They are addressed in case of issues beyond the competence of IM and AB companies or when a conflict of interest arises between them. EB of RFC7 has been regularly informed by the MB about the actual status and pending questions of corridor work.

IV.2. Management Board

The infrastructure manager and capacity allocation companies obliged to set up the Management Board based on the Regulation had their first meeting on RFC7 matters in early 2011. The body was officially established in September 2011 by the signature of a Memorandum of Understanding (see Annex 2) by the eight infrastructure managers and one capacity allocation body of the corridor, namely

- **ÖBB-Infrastructure –** ÖBB-Infrastruktur AG - *IM, Austria*
- **SŽDC –** Railway Infrastructure Administration, State organisation (Správa zeleznicní dopravní cesty, státní organizace) - *IM, Czech Republic*
- **ŽSR –** Railways of the Slovak Republik (Zeleznice Slovenskej republiky) - *IM, Slovak Republic*
- **MÁV –** Hungarian State Railways Company Limited by Shares (MÁV Magyar Álllamvasutak Zrt.) - *IM, Hungary*
- **GYSEV –** Raab–Oedenburg–Ebenfurter Eisenbahn AG (Győr-Sopron-Ebenfurti Vasút Zrt.) - *IM, Hungary & Austria*
- **VPE** - Hungarian Rail Capacity Allocation Office (Vasúti Pályakapacitás-elosztó Kft.) - *AB, Hungary*
- **CFR –** National Infrastructure Manager of Romania (Compania Nationala de Cai Ferate) - *IM, Romania*
- **NRIC –** National Railway Infrastructure Company, State Enterprise (НКЖИ (Национална компания железопътна инфраструктура) - *IM, Bulgaria*
- **OSE –** Hellenic Railways (Οργανισμός Σιδηροδρόμων Ελλάδος) - *IM, Greece*

The Management Board is the main operative body of the corridor, its members have to make fundamental decisions, so they hold meetings more frequently, yearly 4-5 sessions are convened since 2011. The Management Board makes its decisions on the basis of mutual consent of its members.
Conclusions of MB meetings are recorded in minutes and decision lists. They are shared in circular e-mails and on an internet site accessible for each member, together with the preparatory material, presentations and basic documents produced by the MB.

The members of RFC7 MB have analysed the conditions of possibly forming an EEIG for the purpose of corridor management, but the administrative steps have not been taken for EEIG establishment, as railway-technical procedural conditions were more urgent to identify for the sake of corridor establishment. Members may consider forming an EEIG later.

Taking account of the volume and the types of tasks identified by MB members in respect of corridor formation, the MB has decided to set up six Working Groups and a Secretariat to support its work. Decisions of the Management Board are usually based on the proposals and background material compiled by these organizations.

The Internal Rules and Procedures of the MB were approved in January 2012. The document describes the tasks and responsibilities of the MB, the Working Groups and the Secretariat, defines the rules of convening meetings, the procedure of decision-making, the means of communication and the basic conditions of financial management of corridor activities. The common costs of MB operation are jointly covered by the involved companies.

IV.3. Working Groups

The MB has looked closely at each provision of the RFC Regulation, identified the basic structure of activities, and systematically divided the tasks to the expert groups most competent in the particular fields. As a result, six Working Groups have been established, each composing of expert members from every MB member company, to deliver the required measures.

Each Working Group's work is co-ordinated by a Head of WG designated by the Management Board therewith possibly each infrastructure manager can direct one WG. The head of WG is responsible for the organization and co-ordination of the work in the respective WG according to the decisions and expectations of the MB and according to the aims and rules set out in the Regulation.

Every WG keeps a record of the activities, documents, consultations and decisions made by the WG. Heads of WGs inform the MB about the activity of the WG via the Secretariat for every MB meeting, or take part in the MB meeting upon request of the MB.

The following Working Groups are set up and operated:

1. Marketing WG
2. Traffic Management WG
3. One-Stop-Shop WG
4. Infrastructure Development WG
5. ERTMS Deployment WG
6. IT Tools WG

The tasks of each WG are included in the Internal Rules and Procedures, and they are also governed by the necessity arising in the process of corridor work. Though the topics of WGs overlap, their main fields of competence are summarized in the below table.

Marketing WG	transport market study, satisfaction survey, performance objectives and monitoring, definition of pre-arranged paths and reserve capacity, authorized applicants
Traffic Management	coordination of works, harmonization of traffic management btw

WG	IMs & w Terminals & in case of disturbance, priority rules, performance objectives and monitoring,
One-Stop-Shop WG	C-OSS operation rules, corridor information document, definition of pre-arranged paths and reserve capacity, coordination of capacity-allocation btw C-OSS & IMs & Terminals, authorized applicants
Infrastructure Development WG	investment plan, inventory of projects and financial resources, harmonization of investments along corridor
ERTMS Deployment WG	enhancing ERTMS deployment, ensure consistency with ERTMS E corridor
IT Tools WG	identification of necessary IT tools, facilitating their introduction by every involved IM and AB

Through in-depth investigation and cooperation, the professionals of Working Groups analyse several aspects of the corridor tasks, summarize existing procedures country-by-country in their field of competence, and examine numerous possible solutions. They make serious efforts to define operational conditions which are applicable in every involved member state by the IMs and the AB. Their proposals form a major input for the Management Board for the essential decisions.

IV.4. RFC7 Corridor One-Stop-Shop

The body responsible for capacity allocation of the corridor is the C-OSS established inside the only independent AB member of the MB, i.e. VPE. The conditions of its operation are presented in detail in Chapter VII. of the Implementation Plan.

The supervisor and the responsible for establishment of C-OSS is the Management Board of RFC7, while the management of the C-OSS's daily professional tasks shall be handled by VPE.

VPE shall carry out all the tasks and duties related to the C-OSS mentioned in Regulation 913/2010/EU, in particular:

- Single contact point for applicants to request and to receive answers regarding rail infrastructure capacity of pre-arranged train paths and reserve capacity of the corridor.
- As a coordination point, provides basic information concerning the allocation of the infrastructure capacity. It shall display infrastructure capacity available at the time of request and its characteristics in accordance to pre-defined parameters for trains running in the freight corridor.
- Decides regarding applications for pre-arranged paths both for the yearly timetable and for the running timetable. It allocates in line with Directive 2012/34/EU and informs the concerned IMs and ABs of these applications and decisions taken without delay.

- Forwards any request/application of infrastructure capacity which cannot be met by the Corridor OSS to the competent IM/IMs and AB/ABs and communicates their decisions to applicants.
- Keeps reserve capacity available within final working timetables (30 days before the train running) to allow for a quick and appropriate response to ad hoc requests for capacity.
- Provides information for customers on the content of the Corridor Information Document and coordinates the preparation and updating process of Book 1 (Generalities), Book 2 (Network Statement Excerpts) and Book 4 (Procedures for Capacity and Traffic Management).
- Keeps an online path request register available to all interested parties.
- Has connection with all national OSS along the corridor and the other RFC C-OSSs.
- Has connection with RFC 7 Secretariat and OSS WG when it is needed.

IV.5. SECRETARIAT

The Management Board of RFC7 decided to operate a Secretariat, which provides the appropriate administrative support to enable the MB to carry out its work, ensures that the tasks of the MB are properly co-ordinated, and organises all other associated aspects of corridor activity.

At the MB meeting on 15th November 2011 the members agreed that MÁV Co. shall fulfill the tasks of the Secretariat until no independent legal organization is set up for the corridor. Taking into account that RFC7 Secretariat activity is of common interest of every Party, its cost is covered jointly by the MB member IMs and AB.

According to the Internal Rules and Regulations of the Management Board, the MB manages its finances from the annual contribution of members, therefore a separate agreement had to be made about the activity of Secretariat and the financial management of the common costs of the MB. The conditions of the agreement were agreed by the MB in November 2012, and the document was signed by every company in February 2013.

Responsibilities of the Secretariat are listed in the Internal Rules and the Secretariat Agreement as follows.

- Corresponds on behalf of the MB with third parties (one-channel communication).
- Coordinates the work of MB in other associations and organisations to represent the interests of the MB and its members.
- Organises the MB and Advisory Groups meetings.
- Prepares proposals for agendas of MB and AG meetings.
- Coordinates the preparation of the working documents for MB, AG and EB meetings.
- Reports to the EB on the main developments of the RFC7.
- Draws up the minutes of the MB, AG meetings.

- Monitors deadlines of corridor activities, and initiates corridor work accordingly.
- Monitors EU legislation related to RFC.
- Archives documents created in the framework of corridor activities.
- Prepares quarterly reports about corridor activities for ordinary MB meetings.
- Prepares reports about corridor activities to third parties.
- Up-dates the content of the corridor website.
- Coordinates the preparation and updating of the Implementation plan.
- Records the costs of corridor activities of the MB.
- Prepares applications for EU funding.
- Prepares proposal for the annual budget of the MB.
- Concludes and manages contracts on behalf the MB (in line with budget plan approved by MB).
- Although the communication with national regulatory bodies of Member States is a national competence, the Secretariat is the body which shall be informed on investigations and their results in connection with RFC7. Collected information has to be submitted to the MB.
- Carries out its activity in harmony with MB decisions and instructions, and accordingly shall be entitled to ignore the instructions of single members of the MB.

IV.6. Advisory Groups

Involvement of business partners in rail freight corridor establishment and operation is important for the IMs and AB of the corridor, because transport services cannot be provided without their active participation in the production process.

Terminals and Railway Undertakings are in different relation with IMs, as Terminals and IMs are both on the Operator side, while RUs are on the User side of infrastructure. As a consequence there are several aspects in respect of information supply and procedures that IMs have to harmonize with Terminals.

A complete list was prepared of Railway Undertakings contracted with involved IMs and of Terminals along the corridor in early 2012, and, the MB of RFC7 informed all these companies about the act of rail freight corridor formation and invited them for an initial meeting on national level.

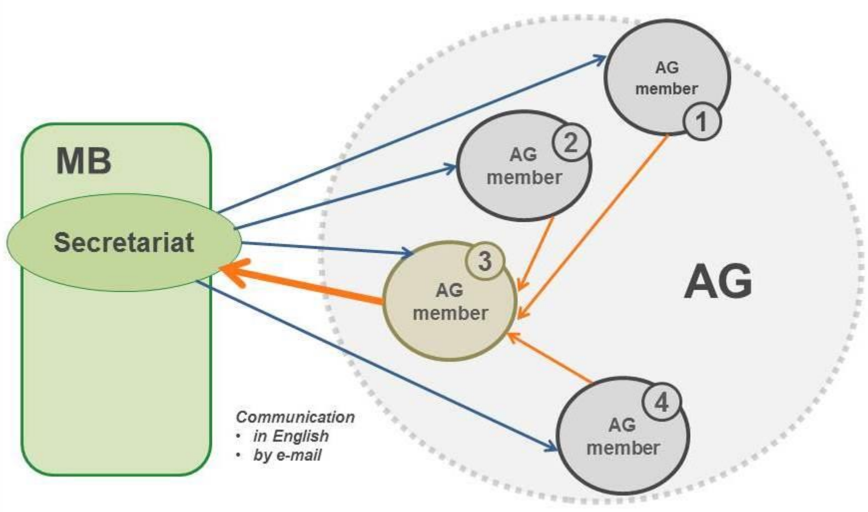
Each involved IM sent out the notifications to the companies in their country, and held a National AG Information Day for interested partners until October 2012. The aim of domestic meetings was to supply some basic information about RFCs and raise the interest of partners, and also to have an impression about the first opinion of RUs and Terminals on the corridor concept.

The Kick-off Meetings of Advisory Groups of RFC7 were organized on 30 October 2012.

By then the Rules of Consultation between the MB and AGs had already been defined and approved by the MB, and they were presented to partners on the spot, together with the basic provisions of the Regulation and the topics expected to be discussed with the AGs in the coming months.
Participants of the Kick-off Meetings signed Letters of Intent about setting up of the Advisory Groups of RFC7, one document for each AG.

Since October 2012, the MB has consulted AG members at AG meetings and in e-mail circular letters. The opinion of AGs have been asked in respect of the content of the Transport Market Study, the Investment Plan, the C-OSS Operation Rules and Priority Rules. Some of their proposals have been accepted, some others are under discussion inside the Working Groups of the MB.
AG members have also been informed about the IT tools that shall be applied in the framework of operating the rail freight corridors.

As principally Secretariat acts as a single channel of communication between MB and AGs, it spreads material for consultation to every company registered as AG member, and receives feedback from the Leaders of the two AG only, which contains the opinion of all AG members.
The flow of information is illustrated below.



The timing and content of consultation with AGs will be decided by MB based on the progress of work and the new topics arising in the coming period.

The Letters of Intent signed by initial AG members and the Rules of AG Consultation are enclosed as Annexes 3 and 4 of the Implementation Plan.

Railway undertakings and terminals who have not joined the AGs also have a chance to consult in freight corridor matters through the Secretariat of RFC7.

IV.7. EU LEVEL COOPERATION

The entry into force of Regulation 913/2010/EU created the legal framework for the development of corridors. The on-going work, the implementation of the requirements highlights more and more issues of common interest to several corridors and the need for harmonisation of rules and processes between corridors. It implies a need for effective coordination between the different Rail Freight Corridors, the National Ministries and Regulatory Bodies. Therefore the European Commission is facilitating this coordination in the following ways:

The **Corridor Group meetings** are the platforms where the chair persons of the Management Boards of the Rail Freight Corridors can exchange experience and discuss issues regarding the implementation of the RFCs. Directorate B of DG-MOVE participates in these meetings to answer questions and discuss relevant issues and provide necessary information. These meetings are organised quarterly, where the RFCs' representatives are asked to present the latest achievements of the establishment of the corridors. Reviewing progress in the process of the implementation has the priority, activities particularly are focused on examining specific issues and ensuring the swift delivery of the Implementation Plan foreseen in the Rail Freight Regulation and based on the Transport Market Study.

Twice a year the Commission organises a joint meeting of representatives of all Member States, Regulatory Bodies and Infrastructure Managers participating in a Rail Freight Corridor, the forum is called **SERAC meeting.** These meetings are ideal occasions to tackle legal, operational and other specific issues to be addressed jointly by all concerned Member States, Regulatory Bodies and IM-s, and/or common difficulties with the practical implementation of Regulation 913/20108/EU.

The coordinators of the DG-MOVE also participate frequently in the Executive and **joint Executive/Management Board meetings** of the individual corridors to ensure that the specific issues of these corridors can be addressed in an appropriate way.

DG-MOVE keeps **close contact with RNE** and the Regulatory Bodies to discuss relevant questions. The common operational guidelines provided by RNE contribute to a harmonised development of the corridors, even if they are not endorsed by the Commission and thus have no legal status.

In order to maintain the transparency and facilitate the exchange of information all documents (minutes of the meetings, notes of the Commission, documents of some corridors (with their agreement) will be available via CIRCABC database to the members of the Corridor Group and SERAC group.

These platforms and communication channels contribute to a harmonised and common approach for the implementation of the Rail Freight Corridors on a European level.

IV.8. Marketing & communications

The prime objective is to raise awareness about RFC7 and strengthen the relationship with the B2B clients. The ultimate goal of our marketing strategy is to help the clients grow their business.

With a cost effective methodology we took into consideration that our marketing approach must be multi-faceted, realistic and implemented consistently over time. We professionally understand our business target user group behaviour and we can translate it into solutions that meet business and RFC7's objectives. Our communication attends on the 3 advanced functions: we would like to inform, teach and entertain our clients with a competitive promoting solution tools in circle of multi-disciplinary communication.

During the implementation phase, our marketing department's task is to translate creative concepts into a full program that goes live. Retaining the strict and sensitive verbal business communication, we have ventured to leave the conventional visual tools behind, and started to focus on impressive visual concepts based on prominently direct messages with short but understandable communication and eye-catching graphic illustration. Thanks to the commercial potential of storytelling (which ideally means that we can find the essence of any client needs on a higher communication level), we can simultaneously articulate our core values and improve the user experience by playful and innovative online marketing tools like HTML5 info-graphics on a clear-out and intelligent web design because digital technology makes it easier to customers to engage our solutions. Implementation includes a complex array of work-streams, from the strong PR activity across technology and content management to inspiring print visual materials. We believe in the user experience design which can support any decision making, so we combined the strongest elements of marketing, strategy, design and technology, because attracting anybody is one thing, but keeping it for long-term is another for measurable results.

In our vocabulary business marketing stands for getting to precisely know our target groups on European Union transport market. We believe that any marketing strategy is based on expertise, not on budget.

RFC7 website

The webpage of RFC7 was developed in December 2012 after a long working and decision period on its concept (structure, content and design). It works with four domains on the addresses www.rfc7.eu, www.rfc7.com, www.corridor7.eu and www.corridor7.com (all of them links to www.rfc7.eu).
This platform was planned to be used to facilitate access to information concerning the use of the main infrastructure and available services on the freight corridor in order to have a comprehensive, transparent and user-friendly solution how to find data and information for the customers and visitors all kind of levels. Therefore the Management Board decided to use the website for two main purposes: on the one hand for communication among Executive Board, Management Board, Working Groups or Advisory Groups members, and on the other hand for sharing information with business partners interested in using the

corridor. In accordance with that aim a browser-independent, multi-layer solution was developed with password access to specialised contents and with editable menu, submenu and textual content. The duty of the Management Board is to regularly update the content, publish documents, to develop the structure according to the incoming customer needs.

During the determination of website elements we concentrated on the usability of the website (with the harmony of high level information, interactivity and design). The strategy was to develop a specific, measurable, attainable, realistic and time-based (smart) tool with:

- user-centric guideline, which means to ensure the quickest and easiest way to show the information from all corridors;
- ensure prompt content, which means that the professionals of the corridors have own „administration flat" what they have to update;
- user friendly services as easy way to reach and manage the services;
- user-friendly design.

The objective is to make the website an always-changing and updated platform of communication.

V. Essential elements of the Transport Market Study

The Transport Market Study was prepared by the Marketing Working Group of the RFC7, with the support of internal human resources of ZSR research institute.
The study was elaborated based on data provided by the infrastructure manager companies and allocation body of the corridor, and information from relevant external studies were also utilized.
The opinion of Advisory Groups of the corridor was requested for the draft document, their suggestions were taken into account during finalization of the study.

The main aim of the Transport Market Study was a support of increasing the qualitative terms and competitiveness of international rail freight transport.

The study deals with:

- establishment of rail freight corridor 7 (RFC 7) Prague-Bratislava/Vienna-Budapest-Bucharest-Constanta-Vidin-Sofia-Thessaloniki-Athens- Pireus,
- complete and precise data on current technical and technological condition of the corridor,
- capacity analysis, structure and level of the charges,
- impact of intended investments,
- quantification of the most important benefits of establishing the corridor.

Based on elaborated partial analysis, the measures and recommendations for the establishment of rail freight corridor 7 – including management of paths, improving coordination, communication and, ultimately, promotion of rail freight performance on corridor – are specified.

The complete Transport Market Study is enclosed as Annex 5 of the Implementation Plan.

V.1. Analysis of the "as-is" situation

Analysis of current situation assesses each corridor country apart. At first the current situation of economy and of transport is evaluated in each country, and then transport flows and technical level of the corridor are analysed for the purpose of drafting main and alternative lines. The general socio-economic situation is described also in Germany because Germany is a country with an important influence on RFC7.

Analysis of access charges and transport time is carried out comprehensively for all countries.

Finally, SWOT analysis of strengths and weaknesses, opportunities and threats was carried out in respect of the planned corridor.

V.1.1. Comparison of road and rail transport performances

Based on partial analyses carried out in respective countries, we can conclude that, there is a dynamic increase of road transport and stagnation of rail transport in most countries, except for Romania and Greece. Therefore, share of rail transport in total traffic volume decreases, especially in the Central European region.

Rail share decreases more on the less important lines (regional lines, connecting lines without presence of terminals, etc.), while a moderate increase can be observed on the main lines and on the corridor lines.

The share of intermodal transport increases inside total rail traffic volume.

Therefore, one of the possible solutions to increasing rail flexibility is not only to improve the technical parameters of lines (thus shortening transport time), but also to support the intermodal transport in combinations road-rail-road and water-rail-road.

The study also contains a comparison of transportation times on road infrastructure and on rail infrastructure

V.1.2. Comparison of infrastructure access charges

In order to compare the levels of charges, as the structure and form of charges is different in the countries of rail freight corridor 7, the evaluation is carried out in relation to train-km (comparison based on average rates in relation to train-km is used in international studies, e.g. Charges for the Use of Rail Infrastructure 2008).

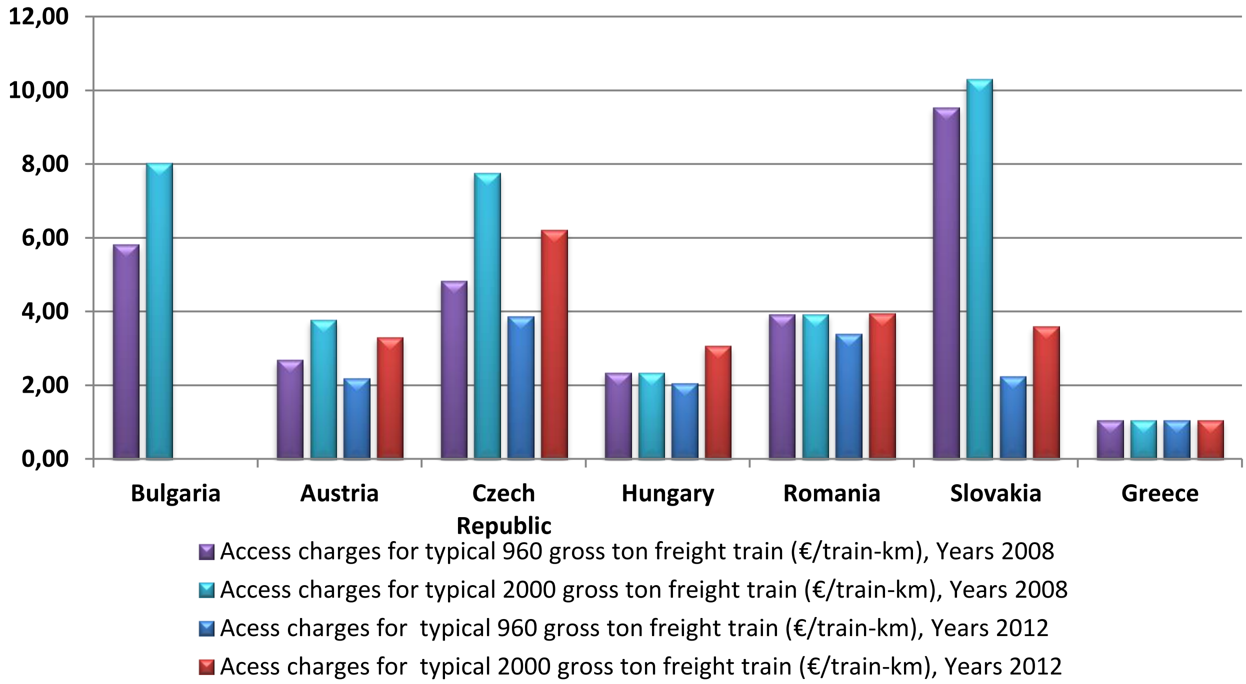
In general, each country of rail freight corridor 7 has implemented, in larger or smaller extent, Regulation of the European Commission under the Directive of the European Parliament and the Council No 2001/14/ES of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification. Comparison of rail infrastructure access charges in 2008 and in 2011 on the basis of train-km is shown in the following table and diagram.

Table 1: Comparison of rail infrastructure access charges in €/train-km

Country	Charges for the Use or Rail Infrastructure 2008*		Access charges in 2012**	
	Access charges for typical 960 gross ton freight train (€/train-km), Years 2008	Access charges for typical 2000 gross ton freight train (€/train-km), Years 2008	Access charges for typical 960 gross ton freight train (€/train-km), Years 2012	Access charges for typical 2000 gross ton freight train (€/train-km), Years 2012
Bulgaria	5,82	8,03	n/a	n/a
Austria	2,68	3,78	2,18	3,30
Czech Republic	4,83	7,76	3,87	6,22
Hungary	2,34	2,34	2,05	3,07
Romania	3,93	3,93	3,40	3,95
Slovakia	9,54	10,31	2,24	3,60
Greece	1,05	1,05	1,05	1,05

*source: Charges for the Use of Rail Infrastructure 2008
** source: Data provided by members of RFC7 Commission, 1€ = 293,14 HUF, 1€ = 4,2379 RON, 1€ = 24,815 Kč

Diagram 1: Comparison of rail infrastructure access charges in €/train km



As presented in the table and the diagram, in the past, the Slovak Republic belonged to the EU countries with the highest rail infrastructure access charges. It has changed from 1 January 2011 by modification of the structure and the level of rail infrastructure access charges.

Based on the analysis of the structure and the level of rail infrastructure access charges, we can conclude that charging policy of respective countries does not have negative effect on the establishment of the rail freight corridor.

V.1.3. Capacity analysis

Based on the capacity analysis, we can conclude that the planned corridor has sufficient free capacity, so the present infrastructure would be capable of serving an increased rail transport flow without major changes. However, for smooth absorbing of a potential extra transport volume, it is necessary, to eliminate the capacity-restrictive sections on the corridor. The most capacity-restrictive line sections are on the territory of the Czech Republic and Slovakia.
The reasons for the high rate of capacity utilization are:

- Czech Republic: strong traffic volumes,
- Slovakia: short section of a single track line inside the node of Bratislava.

Table 2: Summary of lines with high rate of capacity utilization

Country	Lines with capacity utilisation higher than 90%
Bulgaria	n/a
Czech Republic	Poříčany - Pardubice (65 km)
	Choceň - Česká Třebová (25 km)
Greece	has no line with capacity utilization higher than 90%
Hungary	has no line with capacity utilization higher than 90%
Austria	has no line with capacity utilization higher than 90%
Romania	has no line with capacity utilization higher than 90%
Slovakia	Bratislava hl. st. - Bratislava Nové Mesto (6 km)

Majority of corridor lines with capacity utilization under 50% are on the territory of Slovakia and Hungary.

V.1.4. SWOT analysis

Within SWOT analysis, the particular strengths and weaknesses, opportunities and threats associated with establishment of RFC 7 are identified, on the basis of evaluating the respective factors that derive from creation of the corridor. By interdependency of strengths and weaknesses on the one hand and opportunities and threats on the other hand, we can obtain new information about the current status and about the benefits stemming from the establishment of the rail freight corridor.
In processing and evaluating the individual factors, the opinions of all countries, involved in the establishment of RFC 7, have been taken into account.

SWOT analysis generates a conceptual aspect for system analysis. It aims at the key factors for further strategic decision making.

Evaluation primary factors are:

- partnerships
- technical aspect
- capacity
- charges
- flexibility (time aspect)

Table 3: SWOT analysis at the corridor level

Strengths	Weaknesses
Partnership strengthening. Good technical conditions (in comparison with the other parts of national networks). Sufficient free capacity (especially in Slovakia, Hungary, Greece). Ecological transport mode. Effective bulk transportation. Safety.	Low state contribution to infrastructure costs → high infrastructure access charges. Low technical level, out-of-date infrastructure, high rate of failures. Lack of foreign language knowledge. Lack of free capacity on some lines (Czech Republic, Romania) for freight transport increase. Small flexibility. Low line speed (outside modernized sections). Restrictions on border lines (in many cases these are single track lines with increased capacity).
Opportunities	**Threats**
Government transport policy (transport reforms). Organizational reform. Improvement of cooperation between corridors. Establishment of new partnerships. Cross-border cooperation (in improvement of technical parameters of border lines). Mutual cooperation in remedying the deficiencies in corridor establishment. Support of RoLa. Performance increase in cross-border stations. Support to intermodal transport. Confidence trains (without technical/commercial inspections). Elimination of waiting times at cross-border stations. Harmonization of annual timetabling between respective countries. Increase of road freight transport costs. Incorporation into logistic processes, into existing large logistic centres. Acquisition of new transportations, construction of branch tracks to newly-built industrial parks, companies (car companies). Connecting to logistic centres. Construction of intermodal transport terminals. Support of branch tracks. Shift of dangerous transport to safer transport mode (shift from road to rail). State policy support (legislation arrangement). Track modernization. Doubling of the tracks, ERTMS deployment. Development of terminals, infrastructure and industry around the terminals. Construction of terminals.	Differences in performance regimes. Economic crises. Intermodal alternatives. Re-evaluation of EU mega trucks. Increased performance can lead to increasing of fault rate. Prioritizing road transport. Non-competitive running times of long distance trains. No interface with logistic chains and centres. Mass transportation attenuation. High costs of .sidings Unfavourable state transport policy. Increased difficulty of short distance passenger traffic in the surrounding of centres. Giving priority to passenger traffic rather than freight traffic.

Implementation of the measures only in some countries will not lead to significant increase in the competitiveness of international rail freight transport. Therefore, it is necessary to implement the measures jointly, based on mutual agreement of all member states of the corridor.

V.2. ESTIMATED CHANGES OF TRANSPORT FLOWS

V.2.1. Traffic volume scenarios

Estimated changes of transport flows on corridor RFC 7 are simulated in 3 scenarios. The basic characteristics of the scenarios are as follows:

Optimistic scenario – characters of economic revival from 2013, sustainment of positive economic indicators up to 2021, modernization and reconstruction of lines according to planned schedule, yearly decreasing of waiting times on borders, flexibile elimination of technical and capacity problems, increasing of RU´s flexibility during handover of trains on borders, increase of transport volumes is supported by high ratio of new intermodal transport, low growth of demand after bulk substrata traffic.

Medium scenario - slow economic revival from 2013, gradual improvement of economic indicators, modernization and reconstruction with 1-2 years delay, yearly decreasing of waiting times on borders, increasing of RU´s flexibility during handover of trains on borders, increase of transport volumes is supported by high ratio of new intermodal transport, stagnation of demand for bulk substrata traffic.

Pessimistic scenario - characters of economic revival from 2015, sustainment of positive economic indicators from 2015, modernization and reconstruction with 2-3 years delay, slow yearly decreasing of waiting times on borders, slow increasing of RU´s flexibility during handover of trains on borders, slight increase of transport volumes is supported by the slight ratio of new intermodal transport, stagnation of demand for bulk substrata traffic.

The following diagram and table illustrate the general prognosis of the transport demand growth, needed for the puposes of this Study.

Diagram 2: Development of transport volumes in Million tkm according to particular scenarios

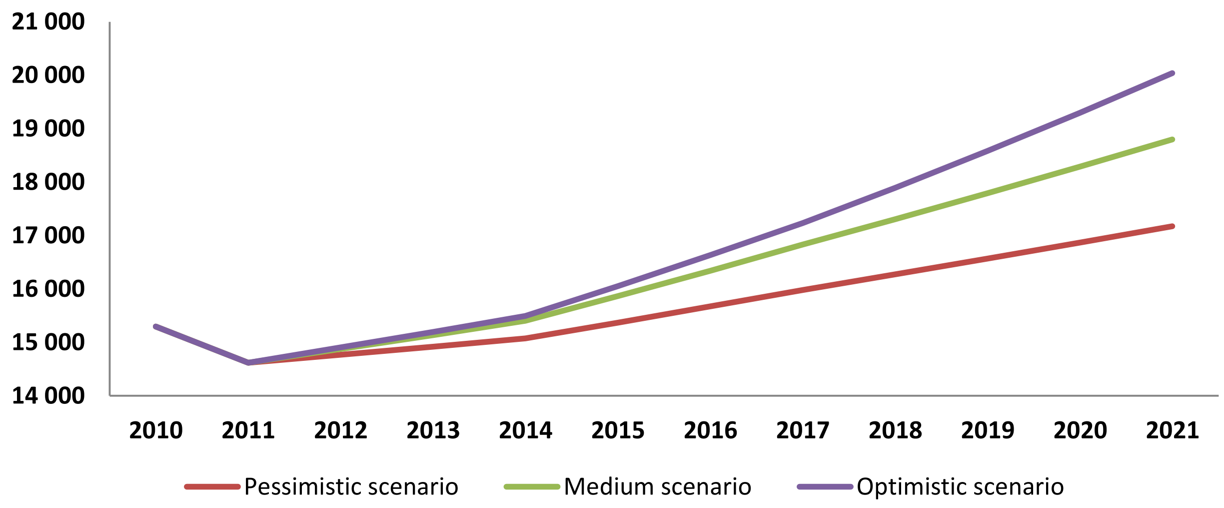


Table 4: Development of transport volumes in Million tkm according to particular scenarios (yearly)

Years	2012	2015	2018	2021
Pessimistic scenario	14 768,9	15 370,3	16 270,0	17 173,9
Medium scenario	14 875,2	15 864,5	17 301,8	18 799,0
Optimistic scenario	14 904,0	16 051,4	17 891,4	20 039,1

Notice: development on main lines

V.2.2. Risks of prognosis

The most important influence which coud considerably change the prognosis is the estimated time period of the economic crisis. The longest time period of economic crisis is in the pessimistic scenario, i.e. up to the end of 2014. The lenght of economic crisis will result in decreasing of investments, so enhancement of the technical status of infrastructure and elimination of capacity barriers will slow down, and waiting times on borders will increase, which require extra flexibility of RU´s, too. In most involved countries EU co-financing forms an essential basis for development of the technical status of infrastructure. Using of money from the subsidy funds of EU for modernisation and reconstruction of railway lines and stations contributes not only to the enhancement of technical status of infrastructure but to the growth impulse of economy as well. Delay in using money from subsidy funds of EU for modernisation and reconstruction of railway lines and stations can lead to the decrease of potential positive effects for the economy of the particular countries.

The other factor that may effect the reliability of the prognosis is the growth of freight transport by other modes of transport, while railway transport may stagnate. For this reason it is very important for the competitiveness of railway freight transport to provide high-quality infrastructure, cooperation and coordination of neighbouring IMs as well as flexibile cooperation between small and incumbent RUs by handover of trains on borders.

The low level of technical equipment at border sections and stations causes higher problems than similar bad parameters at inland sections. Such technical limitations may be: low speed, single track and non-electrified lines.

V.3. Socio-economic benefits stemming from the establishment of RFC7

The most important socio-economic benefits stemming from the establishment of the rail freight corridor are:

- reduction of waiting times at the borders (micro effect),
- reduction of transport times in freight transport (impact of investments),
- reduction of external costs (macro effect).

The estimated changes of the structure of transport flows can also become an important socio-economic advantage deriving from operating the corridor.

The parameters of different socio-economic effects (micro and macro) of creating RFC7 are calculated based on performances realized on the main lines of the corridor (see Table 10), due to the fact that the key-performances on the corridor are focused, i.e. the alternative and connecting lines support the increase of performances on the main lines.

V.3.1. Reduction of waiting times at the borders

Today the waiting times at the borders of RFC7 are often quite long. The actors causing the lengthy waiting times at the border crossings are:

partly the RU´s: **internal processes of RUs** (mostly waiting for locomotive and/or staff of the cooperating RU, technical control, etc.),

partly the IM´s: **lack of interoperabiliy of infrastructure** (the differences on the corridor are mostly in the electric systems, signalling devices, technical equipment of border stations and lines),
low capacity (e.g: single track line, restricted capacity of stations / line section),
restricted speed (e.g. max. speed of 60 km/hod).

Infrastructue Managers can decrease waiting times by enhancement of interoperability and communication, by modernisation and reconstruction of lines.

Railway Undertakings can decrease waiting times (from technical point of view) by enhancement of flexibility and cooperation during exchange of trains at the borders, by using multi-system locomotives, by certification of locomotive drivers, or by operating one RU on more infrastructures, thus performing the train transport by one RU on the whole route. Practice proves that small RUs have the longest waiting times at borders due to the lack of locomotives or staff.

Ad-hoc trains usually have higher waiting times at borders than regular trains.
In case technical or commercial inspections are needed at the border station, it may increase the duration of the procedure by 30–90 minutes.
The length of waiting times at borders ranges from 10 minutes to 48 hours.

The average waiting times are:

- for incumbent RUs: 10–40 minutes,
- for smaller RUs operating on more infrastructures: 0-5 minutes,
- for smaller cooperating RUs: 2–10 hours.

One of the possible solutions to improve waiting times from the RUs point of view is the increasing of „confidence trains“, which mean trains running without technical / commercial inspections. Such kind of trust could be applied not only for regular trains but also for ad-hoc trains, as the number of ad-hoc trains is rapidly increasing: today the proportion of ad-hoc trains is 40%, and that of regular trains is 60%.

The folowing sheet summarizes actual data, and also contains prognosis up to year 2021.

Table 5: Waiting times at the borders (actual status/ prognosis)

Country	Station*	Reality		Prognosis 2021
		Waiting time at the border	Average waiting time	Average waiting time
Bulgaria	Vidin (RO/BG)	n/a	n/a	n/a
	Kulata (BG/GR)	n/a	n/a	n/a
Czech Republic	Břeclav (CZ/AT)	3-60min	30	5
Greece	Promachonas (BG/GR)	220	220	30
Hungary	Rajka (SK/HU)	n/a	n/a	n/a
	Komárom SK/HU)		25	5
	Lőkösháza (HU/RO)	30 min	30	5
Austria	0 min (handover of trains is realized on the network of Czech Republic and Hungary)			
Romania	Curtici (HU/RO)	100 - 240 min	140	30
	Calafat (RO/BG)	100 - 240 min	140	20
Slovakia	Kúty (CZ/SK)		120	20
	Štúrovo (SK/HU)		140	20

** the waiting times at stations situated on the main lines are used for the purposes of calculation*

The calculation method is:
Reduction of waiting times at the borders = (average waiting times in 2011 – average waiting times in year X [year 2012 - 2021]) x (number of trains in particular border lines)

Socio-economic benefits were calculated for every year by taking into account the following factors:
- reduction of waiting times at the borders (calculated by using the above scheme)
- estimated volume of freight transport at the borders according to the transport prognosis
- time of implementation 2012 – 2021
- expected improvement of technical status
- value of the time bound to cargo (2010): 1,28 €/t.hour.

The value of the time is indexed from the end of the year 2010 to the next years of analysis + 1% (estimated annual rate of the growth of GDP/ habitant).

The reduction of waiting times concerns only stations and estimated freight transport volumes on the main lines.

Table 6: Final Net Present Value (NPV)

Reduction of waiting times at the borders in €	
NPV 2021 (pessimistic scenario)	128 713 568
NPV 2021 (medium scenario)	141 207 475
NPV (optimistic scenario)	146 019 575

Notice: external contribution on main lines

V.3.2. Financial evaluation of external costs (macro level)

The creation of a European rail network for competitive freight can lead to the increase of rail freight transport share at the expense of the existing as well as the newly generated road transport. By diverting goods from road to railway the negative impacts of transportation (e.g. congestions, accidents, pollution, climate change) can be decreased.

The level of the external impacts is evaluated based on unit costs to ton-kilometre, following the instructions listed in the Handbook on estimation of external cost in transport sector (2007) prepared by the consortium led by CE Delft on behalf of DG TREN.

The following factors were used for the derivation of the value of unit costs:
- development of GDP and purchasing power parity per capita,
- for air pollution, we have also integrated another factor in the calculation: 1% annual decrease due to technological improvements which lead to the reduction of emission.

Table 7: External costs in eurocent to ton-kilometre

Freight transport	Congestion	Accidents	Air pollution	Noise	Climate changes	Total
Truck	2,17	0,03	0,22	0,09	0,22	**2,73**
Freight train	0,01	0,01	0,07	0,04	0,1	**0,23**

Source: Handbook on estimation of external cost in transport sector (2007), prepared by the consortium led by CE Delft on behalf of DG TREN

External benefits were calculated on the basis of unit costs for freight transport according to the above-described scenarios of transport demand development. The results are presented in the following table.

Table 8: Final NPV (2021) in € according to particular scenarios

External costs in €	
NPV (2021) pessimistic scenario	104 015 168
NPV (2021) medium scenario	170 585 805
NPV (2021) optimistic scenario	208 441 878

Notice: external contribution on main lines

V.4. EXPECTED IMPACT OF PLANNED INVESTMENTS

The enhancement of the technical satus, modernisation and reconstruction of infrastructure can increase the capacity of the lines and shorten transport times. The decrease of transport times is determinated based on the estimated change in technical speed. The main focus is on line sections with maximal technical speed lower than 100 km/h (data based on „as-is situation").

The below table summarizes the planned major investments on the corridor and their expected impact.

Table 9: Expected investments into RFC 7 (main and alternative lines)

Country	Expected investments	Impact of investments
Bulgaria	Modernization of corridor section Vidin - Sofia	Increase of speed, enhancement of technical parameters, reduction of transport times
Czech Republic	New terminal in Česká Třebová	Increase of demand for railway transport
	Construction of new logistic centres in Brno, Pardubice	
	Modernization of TEN–T net from the subsidy funds of EU	
Greece	Construction of freight terminal in Thriassio Pedio (nearby Athens) incl. intermodal transfer devices (track portal cranes), maintenance center, parking area and other complex services for freight transport	Increase of demand for railway transport, enhancement of quality of railway services
	Modernization works on line section Strymonas – Promachontas: increase of speed from 30 to 100 km/h, introduction of GSM-R, ETCS level 1	Increase of speed for freight transport, increase of capacity, reduction of transport time, enhancement of technical parameters
Hungary	Szolnok - Szajol - track rehabilitation	Decrease of possessions
	Gyoma - Békéscsaba - track rehabilitation	Decrease of possessions
	Murony - Békéscsaba - second track	Increase of capacity, elimination of restrictive sections, enhancement of technical parameters, decrease of transport time
	Békéscsaba - Lőkösháza border - second track	Increase of capacity, elimination of restrictive sections, enhancement of technical parameters, decrease of transport time
	Budapest-Ferencváros - Lőkösháza border – installation of ETCS 2	Enhancement of technical parameters and the quality of provided services
	Győr – Sopron – second track	Increase of capacity
	Budapest-south connecting railway bridge - renewal	Enhancement of technical parameters
	Vác station – renewal , Vác – Verőce section renovation	Increase of capacity, enhancement of technical parameters
Austria	Upgrade of the section Wien – Břeclav to 160 km/h instead of 140 km/h	Increase of speed especially for passenger transport
	Completion of ETCS 2 instead of national control system or ETCS 1	Increase of capacity

Country	Expected investments	Impact of investments
	Full coverage with GSM-R	Enhancement of the quality of provided services
	Loading gauge upgrade to LPR 1 (Gabarit C) instead of national ZOV 7	Enhancement of technical parameters
Romania	Modernization of corridor started and is expected to be completed by 2020	Increase of capacity, elimination of restricting sections, enhancement of technical parameters (160 km/h for passenger trains and 120 km/h for freight trains, introduction of ERTMS / ETCS 2)
Slovakia	Modernization of railway station Bratislava hl. st.	Elimination of restrictions
	Completion of GSM–R	Increase of capacity, enhancement of the quality of provided services
	Modernization of the line Kúty - Bratislava Lamač for the speed 160 km/h and ETCS	Enhancement of the quality of provided services

V.5. Conclusions of TMS

Based on the conclusions drawn by the Transport Market Study, a recommendation was made for the list of lines and terminals that constitute Orient Corridor.

Corridor is identified by definition of:
- main lines,
- alternative lines (for re-routing),
- connecting lines (connect terminals with main lines),
- terminals.

Map 2 and Table 10 below illustrate and present in detail the exact definition of Rail Freight Corridor 7 as suggested by the TMS.

V.5.1. Suggested map of Rail Freight Corridor 7

Map 2: Suggested route map of Rail Freight Corridor 7

V.5.2. Complex definition of the route of RFC 7

Table 10: Complex definition of the route of RFC7

Country	Character	Line section / Terminal / Marshalling yard
Czech Republic	Main lines	Praha – Poříčany
		Poříčany – Kolín
		Kolín – Pardubice
		Pardubice - Česká Třebová
		Česká Třebová – Svitavy
		Svitavy – Brno
		Brno – Břeclav
		Břeclav/Hohenau (CZ/AT)
		Břeclav/Kúty (CZ/SK)
	Alternative lines	Kolín - Kutná Hora
		Kutná Hora - Havlíčkův Brod
		Havlíčkův Brod - Křižanov
		Křižanov - Brno
	Connecting lines	Děčín – Kralupy n.V. -Praha
		Děčín – Nymburk - Kolín
	Terminals	Praha Uhříněves
		Praha Žižkov
		Česká Třebová
		Brno Horní Heršpice
		Lovosice (50km from corridor)
	Marshalling yards	Kolín seř. nádraží
		Praha - Libeň
		Pardubice
		Česká Třebová
		Brno Maloměřice
		Břeclav přednádraží
		Havlíčkův Brod
Austria	Main line	Břeclav/Hohenau (CZ/AT)
		Hohenau - Gänserndorf
		Gänserndorf - Wien Zvbf
		Wien Zvbf - Nickelsdorf
		Nickelsdorf/Hegyeshalom (AT/HU)
	Alternative lines	Wien Zvbf – Achau - Ebenfurth
		Ebenfurth -Wolkaprodersdorf
		Wolkaprodersdorf/Sopron (AT/HU)
		Ebenfurth – Wiener Neustadt
		Gänserdorf – Marchegg
		Marchegg/Devínska Nová Ves (AT/HU)
		Parndorf – Kittsee
		Kittsee/Bratislava Petržalka (AT/SK)
		Gramatneusiedl - Wampersdorf
		Wien Zvbf – Wiener Neustadt via Baden
		Wiener Neustadt – Sopron via Loipersbach-Schattendorf

Country	Character	Line section / Terminal / Marshalling yard
		Schattendorf/Sopron (AT/HU)
	Connecting line	Wien Zvbf – Wien Freudenau – Wien Nordwestbahnhof
	Terminals	Wien Freudenau
		Wien Nordwestbahnhof
		Wien Inzersdorf (planned)
	Marshalling yard	Wien Zentralverschiebebahnhof
Slovakia	Main lines	Břeclav/Kúty (CZ/SK)
		Kúty - Devinska N.Ves
		Devínska N.Ves - Bratislava hl.st.
		Bratislava hl.st. - Rusovce
		Rusovce/Rajka (SK/HU)
		Bratislava hl.st.- Nove Zamky
		Nove Zamky - Komano
		Komarno/Komarom (SK/HU)
		Nove Zamky - Sturovo
		Sturovo/Szob (SK/HU)
	Alternative lines	Marchegg/Devínska Nová Ves (AT/SK)
		Kittsee/Bratislava Petržalka (AT/SK)
		Kúty - Trnava
		Trnava – Bratislava východ
		Trnava - Galanta
	Connecting lines	Bratislava hl.st. -Dunajská Streda
		Dunajská Streda - Komarno št.hr.
	Terminals	Bratislava UNS – Intrans, Slovnaft
		Bratislava Pálenisko – SpaP
		Sládkovičovo - Lörinz
		Štúrovo – Business park Štúrovo
		Dunajská Streda - Metrans
	Marshalling yards	Bratislava východ
		Nové Zámky
		Štúrovo
Hungary	Main lines	Rusovce/Rajka (SK/HU)
		Nickelsdorf/Hegyeshalom (AT/HU)
		Hegyeshalom - Tata
		Tata - Biatorbágy
		Biatorbágy - Kelenföld
		Kelenföld - Ferencváros
		Komarno/Komarom (SK/HU)
		Ferencváros - Kőbánya felső
		Kőbánya felső - Rákos
		Rákos - Újszász
		Újszász - Szolnok
		Szolnok - Szajol
		Szajol - Gyoma
		Gyoma - Murony
		Murony - Lőkösháza
		Lőkösháza/Curtici (HU/RO)
		Ferencváros - Kőbánya-Kispest

Country	Character	Line section / Terminal / Marshalling yard
		Kőbánya - Kispest - Vecsés
		Vecsés - Albertirsa
		Albertirsa - Szolnok
		Sturovo/Szob (SK/HU)
		Szob - Vác
		Vác – Kőbánya felső
	Alternative lines	Wolkaprodersdorf/Sopron (AT/HU)
		Sopron - Pinnye
		Pinnye - Fertőszentmiklós
		Fertőszentmiklós - Petőháza
		Petőháza - Győr
		Vác - Rákospalota-Újpest
		Szajol - Püspökladány
		Püspökladány - Biharkeresztes
		Biharkeresztes/Episcopia Bihor (HU/RO)
		Rákospalota-Újpest - Angyalföld elág.
		Angyalföld elág.-Kőbánya felső/Rákos
		Vác - Vácrátót
		Vácrátót - Galgamácsa
		Galgamácsa - Aszód
		Aszód - Hatvan
		Hatvan - Újszász
	Connecting lines	Ferencváros - Soroksári út
		Soroksári út - Soroksár
		Soroksár - Soroksár-Terminál
	Terminal	Sopron LSZK
		Győr LCH
		Székesfehérvár
		BILK
		Budapest Szabadkikötő (port)
		Szolnok
		Debrecen
		Szeged-Kiskundorozsma
		Békéscsaba
Romania	Main lines	Lőkösháza/Curtici (HU/RO)
		Curtici - Arad
		Arad - Simeria
		Simeria - Coslariu
		Coslariu - Sighişoara
		Sighişoara - Braşov
		Braşov - Predeal
		Predeal - Brazi
		Brazi - Bucureşti
		Bucureşti - Feteşti
		Feteşti - Constanţa
		Arad - Timişoara
		Timişoara - Orşova
		Orsova - Filiaşi

Country	Character	Line section / Terminal / Marshalling yard
		Filiaşi - Craiova
		Craiova - Calafat
		Calafat/Vidin (RO/BG)
	Alternative lines	Biharkeresztes/Episcopia Bihor (HU/RO)
		Episcopia Bihor - Coslariu
		Simeria - Gura Motru
		Craiova - Bucuresti
		Videle - Giurgiu
		Bucuresti - Giurgiu
		Giurgiu/Giurgiu Border (RO/BG)
	Terminal	Bucurestii Noi
		Semenic (Timisoara Sud)
		Brasov Triaj
		Medias
Bulgaria	Main lines	Calafat/Vidin (RO/BG)
		Vidin - Sofia
		Sofia - Kulata
		Kulata/Promachonas (BG/GR)
	Alternative lines	Sofia - Svilengrad
Greece	Main lines	Athens RS - SKA
		Pireus (ikonio port) – Thriassio (operation in 2013) Thriassio – SKA (SKA= operation center)
		SKA – Inoi
		Inoi – Thiva
		Thiva – Tithorea
		Tithorea – Lianokladi
		Lianokladi - Domokos
		Domokos – Palaiofarsalos
		Palaiofarsalos –Mesourlo- Larissa
		Larissa - Evangelismos
		Evangelismos – Leptokaria
		Leptokaria – Katerini
		Katerini- Plati
		Plati-Sindos- Thessaloniki (rail way yard)
		Thessaloniki (rail way yard) – Mouries
		Mouries – Strimonas
		Strimonas – Promachonas
		Kulata/Promachonas (BG/GR)
	Connecting lines	Larissa - Volos Port
		Thessaloniki (rail way yard)-Thessaloniki Port
		Athens RS - Piraeus
	Terminal	TRIASSIO PEDIO (intermodal freight center) Ikonio port Pireus (operation in 2013)
		Volos Port
		Thessaloniki Port
	Marshalling yards	Inoi
		Lianokladi
		Thessaloniki (rail way yard)

Country	Character	Line section / Terminal / Marshalling yard
		Sindos
		Strimonas
		Promachonas Kulata (Border Station)

Deatiled technical parameters of lines and stations are in Annex B, sheets B 5 and B 8 of the Transport Market Study.

To fulfill the expected benefits stemming from the establishment of the freight corridor, it is necessary to provide for the motivation of RUs so that they increase their flexibility and consequently the total time of transport (from consignor to consignee) will decrease. In order to reach this goal, financial support is highly needed for modernization and reconstruction of infrastructure as well as for establishment of rail freight corridors in accordance with Regulation 913/2010 (set up of Corridor-OSS, meetings with customers, promotion of corridor, new information systems and technologies, conducting of satisfaction surveys, transport market studies, etc.).

A lot of European studies and also practical experience of infrastructure managers confirm that a great deal of the goods transported today on the lines of future rail freight corridor 7 originates in German ports, nevertheless, the member IMs of RFC7 do not consider it necessary to extend the initial freight corridor towards Germany in the very first stage (during the process of corridor establishment). One of the main reasons is that capacity situation in Germany differs from the capacity situation in member countries of initial corridor RFC7 (i.e. German lines have strong traffic flows, while present RFC7 line sections have weak traffic flows), so Germany needs to deal with other type of issues than RFC7 countries. This position will high probably change in the future, and for the time being members of corridor RFC 7 prefer to have Germany in an observer status in the first stage and in member status in the later stages.

Another point of perspective traffic flows in the future is the possibility of corridor extension to Turkey, after accomplishment of Marmaris Project in Turkey (Bosporus Tunnel). The future corridor RFC7 would then connect Asia, Black Sea and Mediterranean Ports with Central and Western Europe.

V.5.3. Definition of Pre-arranged Paths of RFC7

The set of pre-arranged paths of Orient Corridor for year 2014 has been defined jointly by OSS WG and Marketing WG of the corridor.

The list of pre-arranged paths was assembled based on:

- the results of the TMS in respect of existing and expected traffic flows in rail freight transport and rail passenger transport,
- the amount of paths and train parameters from the past annual time tabling, and

- the existing framework agreements (on SŽDC: main line Praha – Česká Třebová, on ŽSR: connecting line Bratislava – Dunajská Streda – Komárno).

The definition of pre-arranged paths is carried out in line with RNE Guideline for Pre-arranged Paths.

Based on capacity analysis and market demand analysis (usage of existing RNE catalogue paths) the following pre-arranged paths are suggested by the Transport Market Study:

1. CZ – SK – HU: Petrovice - Kúty - Rajka , 2200 t, 690m
2. CZ – SK – HU: Petrovice - Kúty - Rajka , 2200 t, 690m
3. CZ – SK – HU: Děčín - Kúty - Rajka , 2000 t, 690 m
4. CZ – SK – HU – RO: Petrovice - Kúty – Rajka - Curtici -Malina , 2000 t, 540 m
5. CZ –SK – HU- RO: Děčín- Kúty - Štúrovo - Curtici, 2000 t, 690 m
6. CZ- SK – HU – RO-BG: Petrovice - Kúty - Komárom- Curtici- Sofia , 2000 t, 620 m
7. CZ– SK – HU – RO: Děčín - Kúty - Rajka -Ciumesti , P/C 45/375, 1500 t, 550 m
8. CZ– SK – HU – RO: Děčín - Kúty - Rajka - Ferencváros, P/C 45/375, 1500 t, 550 m
9. CZ– SK – HU – RO: Děčín - Kúty - Rajka - Ferencváros , P/C 45/375, 1500 t, 550 m
10. CZ– SK – HU – RO: Děčín - Kúty - Rajka - Ferencváros , P/C 45/375, 1500 t, 550 m
11. HU- RO- BG- GR: Ferencváros – Curtici – Kulata– Promachonas - Thessaloniki- Larissa/Volos- Larissa-SKA- Thriassio – Port Ikonio Pireaus, SKA- Athens RS- Pireaus, 1250 t, 580 m
12. SK – HU : Petrovice – Kúty – Bratislava UNS - Rajka – Hegyeshalom- Ferencváros, P/C 70/400,1500 t, 580m
13. SK – HU : Petrovice – Kúty – Bratislava UNS - Rajka – Hegyeshalom, P/C 70/400, 1500 t, 580 m
14. CZ – HU: Brno Maloměřice – Kúty - Bratislava UNS - Komárom – Ferencváros, P/C 70/400, 1500 t, 580 m,
15. CZ - HU: Brno Maloměřice – Kúty - Bratislava UNS - Štúrovo – Vác – Ferencváros – Soroksár Terminal; P/C 70/400, 1500 t , 580 m
16. SK – HU – RO: Bratislava UNS - Štúrovo – Vác – Ferencváros – Szolnok- Lőkösháza – București; - Constanta P/C 45/375, 1500 t, 550 m
17. SK- HU – RO: Bratislava UNS - Štúrovo – Vác – Ferencváros – Szolnok – Biharkeresztes - Cluj Napoca; P/C 45/375, 2000 t, 600 m
18. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m
19. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m
20. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m
21. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m

Note: paths 1-2, 7-10 and 12-13 shall have time connection with paths 18-21.

Detailed information about the process of PaP definition and allocation is found in the C-OSS Operation Rules chapter of the Implementation Plan.

V.5.4. Definition of reserve capacity

Observations of the Transport Market Study in respect of reserve capacity are as follows.

"Reserve capacity shall allow for a quick and appropriate response to ad-hoc requests" (Article 14, point 5 of Regulation 913/2010).
Based on capacity analysis, market demand analysis (usage of existing RNE catalogue paths) and the relatively high number of suggested pre-arranged paths (21 pairs), it is possible to suppose that not all pre-arranged paths will be sold during the annual timetabling process. Unbooked pre-arranged paths are then recommended (in accordance with RNE Guidelines Pre-arranged path and Corridor OSS) to be used as Reserve capacity.

"Time limite for capacity reserve shall not exceed 60 days." (Article 14, point 5 of Regulation 913/2010).
Market demand analysis showed that more than 90% of ad-hoc path reqests are submitted less than 5 days before the requested train departure. IMs have a flexible approach to such short-term path requests, and they are able to allocate the paths within a few minutes or hours. As pre-arranged paths and reserve capacity shall be allocated by Corridor-OSS (Article 13, point 3 of Regulation 913/2010), and the national information systems for operation are not fully connected with Corridor-OSS IT-tool (PCS), it would be more convenient to keep the allocation of very short-term path requests on the national level, which is flexible enough to handle them.
Consequently, the recommended time limit for capacity reserve is no less than 30 days.

Detailed information about the process of reserve capacity definition and allocation is found in the C-OSS Operation Rules chapter of the Implementation Plan.

V.6. Utilization of comments made by Advisory Groups

Before finalization of the TMS, the opinion of the Advisory Groups of RFC7 was requested. Below you find the description of how they were considered during completion of the study.

1. Extension of RFC7 towards Germany

AG of Terminals		
Bohemia Kombi	**Business Park Štúrovo**	**RCA + Wiencont**
Yes. It is desirable to connect RFC7 from Prague with the cross point of both RFC3 and RFC8 (in Hannover?)	Definitely yes, Germany is one of our main destination in goods and transport flow	From our point of view it's right that most of the traffic flows starts or ends in Germany and further Western Countries not only in ports. But as it was mentioned in the market study, the corridor itself has a fully other structure and fully other challenges to make it more attractive than the German network. To focus the work we suggest starting the corridor as defined in CZ; including the location of Lovosice (as mentioned by Mr. Fiser from Bohemiacombi) makes absolutely sense.
Not accepted	Not accepted	Accepted

AG of RUs	
Metrans Danubia	**CFR Marfa**
RFC7 should extend, especially towards the port Hamburg and Bremenhaven. It will ensure connection between biggest German ports and Central Europe.	The extension would be unnecessary for the time being.
Not accepted	Accepted

The TMS does not support the extension of RFC7 towards Germany, because:

- the German IM, DB Netz prefers to extend RFC8 towards Prague as connection to the transport flow of SZDC;
- the capacity situation in Germany (strong traffic flows, lack of capacity) differs from that of RFC7 member countries (weak traffic flows, sufficient or surplus of capacity).

2. Extension towards Turkey

AG of RUs	
CFR Marfa	**RCH**
It could be a plus, the extension towards Turkey could determine new customers to use this corridor and bring new traffic on the corridor.	It could be advantageous to extend towards Turkey could determinate new customers to use this corridor and bring new traffic on the corridor
Accepted	Accepted

AG of Terminals		
Bohemia Kombi	**Business Park Štúrovo**	**RCA + Wiencont**
positive	Turkey is not in connection with our activities	From our point of view this extension is absolutely useful.
Accepted	Not accepted	Accepted

The TMS concluded that extension towards Turkey is useful even though not all members of AGs are involved in the traffic flows towards Turkey.

3. Definition of lines and terminals of RFC 7

AG of RUs	
Metrans Danubia	**RCH**
We suggest putting the line Bratislava Petržalka - Bratislava Petržalka border as the main line	We suggest Szob border - Vác -Budapest line be considered as main line. We advice to join Hegyeshalom border -Győr-Komárom-Budapest line (1)(with sections Rajka border - Hegyeshalom and Sopron border-Győr-Komárom border - Komárom) and Szob border -Vác-Budapest line (70) with lines Budapest-Cegléd (100a) und Budapest-Újszász (120a) regarding the elements of railway circle of Budapest
Not accepted	Accepted

AG of Terminals		
Bohemia Kombi	**Business Park Štúrovo**	**Final AG Terminals (decision of RCA + Wiencont)**
We recommend to fill in Terminal Lovosice (50 km from Prague) and Megahub Hannover	We do not agree with definition of Hungarian main and alternative lines. Line Szob border - Vác - Rákospalota - Újpest - Angyalföld elág. - Kőbánya felső should be considered as a main line	The general definition of the corridor is from the terminals perspective clear.
Accepted (Lovosice)/ Not accepted (Hannover)	Accepted	-

The proposals of Metrans Danubia and Bohemia Kombi were not accepted, because:

- line Bratislava Petržalka – border SK/AT is the main line on RFC5 and only alternative line on RFC7;
- due to non-extension of RFC 7 towards Germany, Hannover cannot be the part of RFC7

VI. Performance objectives and monitoring

Management Board of RFC7 made decisions on performance-related issues based on the proposals prepared mainly by Marketing WG, Traffic Management WG and OSS WG of the corridor. The below description reflects the major topics discussed and decisions made by RFC7 MB in this field.

VI.1. PERFORMANCE OBJECTIVES - QUALITY OF SERVICE

The timeframe for allocation of pre-arranged paths and reserve capacity is described in the RNE Guidelines for Pre-arranged paths and C-OSS, and RFC7 intends to apply the provisions therein.
Response time to questions of customers related to the information function of C-OSS shall be: as soon as possible, but max. within 5 working days.
IT tools helping to C-OSS to answer the questions of customers are CIS, interactive maps with corridor description (national in the first stage, common in a later stage), common databases (RNE database – Frequently asked question, RNE project CHRISTINA, the future RNE project Benchmark of NS and CIS).

The punctuality of corridor trains shall be min. 75% in the first year of operating the corridor.
The process for monitoring performance is described in RNE Guidelines for Punctuality targets.
Delay codes follow the UIC coding system.

Planned common IT tool for monitoring of quality is TIS, however in the first stage (until full implementation of TIS by all members of RFC7) the quality reports will be compiled from national IT systems. RFC7 will make use of RNE work and experiences in Train performance management.
The following indicators of quality should be monitored:

- Response time of C-OSS to questions of customers
- Total transport time of corridor trains
- Delays in minutes and codes of delays (if delays were caused by IM/ RU / third party)
- Dwelling time in border stations

VI.2. PERFORMANCE OBJECTIVES - CAPACITY OF THE CORRIDOR

As discovered by the Transport Market Study, Orient Corridor is relatively in a good situation in respect of capacity, so the Management Board does not expect major overload due to path requests for freight transport. Nevertheless, railway infrastructure manager companies involved intend to enhance railway operation improving the state and capacity of their infrastructure. The removal of bottlenecks will be in line with the suggestions of the Transport Market Study (Table B7) and the Investment Plan of the corridor.

The Management Board plans to increase allocated pre-arranged paths and reserve capacity by min. 2% annually.

For the purposes of the next TMS studies, all kind of corridor flows will be monitored, i.e. not only trains with capacity allocated from PaPs, but also from tailor-made paths, catalogue paths and ad-hoc paths . At the first stage, the traffic flows will be monitored by national systems and compiled together, later the usage of TIS is assumed (monitored indicators are described in chapter VI.4).

VI.3. Promoting compatibility between performance schemes

Actual performance schemes differ from country to country. In the future the usage of European performance regime is estimated. Details of EPR are described in the EPR Handbook, its implementation will follow after conclusion of the EPR project on RNE/UIC level.

VI.4. Monitoring of performance

The following indicators of performance shall be monitored:

- Number of corridor trains per month
- Number of the border crossing allocated/used path corridor trains
- Length of path

The process for monitoring performance is described in RNE Guidelines for Punctuality targets.
Delay codes follow the UIC coding system.

Performance will be monitored by national systems at the first stage, then by TIS later on.

Next performance indicators which should be monitored for TMS purposes:

- Number of trains on corridor with capacity allocated by national OSS
- Tonnes
- Gross tonnes km
- Train km

VI.5. Satisfaction Survey

The Marketing WG analysed whether it is advisable for RFC7 to prepare its own Satisfaction Survey before November 2013, or it is sufficient to join the comprehensive Satisfaction Survey to be carried out by RNE in 2014.

Although a detached survey on corridor level could also serve as a promotion tool towards railway undertakings, it would be difficult to compare its results with the results of the RNE survey, if RFC7 questionnaire is somehow different from RNE questionnaire. New topics might also arise after starting to operate the corridor, which can be added to the RNE survey, as it is expected to start in September 2014. The web-based questionnaire to be applied by RNE is also more user-friendly than the e-mail questionnaire which would be the method in case of an own RFC7 survey.

After considering the pros and cons of both solutions, the MB of RFC7 decided to take part in the Satisfaction Survey to be carried out by RNE for all six initial rail freight corridors.
The proposal is to carry out the RFC CSS field phase in September 2014 for the first time with the results being available mid-October. Based on a rough estimation, the number of RFC7 users who will be invited to participate in the survey will be approx. 150-200 with overlaps.

VII. C-OSS Operation Rules

Members of the RFC7 MB have agreed that VPE undertakes the role of being 'representative C-OSS' of RFC7 until a period of 2 years, so one employee of VPE will carry out the tasks of C-OSS of the corridor. An agreement has been signed by member companies about the conditions of running the sole capacity-allocation body of the corridor. The operation of the C-OSS by VPE started in April 2013 in test mode and continues from 8 November 2013 in real operational mode.

OSS WG of RFC7 summarized in one document the basic rules of operating the C-OSS based on available information from capacity-allocation bodies of involved countries and the discussions inside RNE in this matter.

VII.1. Glossary / Abbreviations

AB	Allocation Body In this document, only the term Infrastructure Manager (IM) is applied. It refers to IMs and also – if applicable – to Allocation Bodies (ABs).
Allocation	Means the allocation of railway infrastructure capacity by an Infrastructure Manager or Allocation Body. When the Corridor OSS takes the allocation decision as specified in Art. 13(3) of 913/2010, the allocation itself is done by the Corridor OSS on behalf of the concerned IMs, which conclude individual national contracts for the use of infrastructure based on national network access conditions.
Applicant/Applicants	Definition in Directive 2012/34/EU: a railway undertaking or an international grouping of railway undertakings or other persons or legal entities, such as competent authorities under Regulation (EC) No 1370/2007 and shippers, freight forwarders and combined transport operators, with a public-service or commercial interest in procuring infrastructure capacity.
Catalogue path (CP)	Any kind of pre-constructed path if it is not a prearranged path on a Rail Freight Corridor according to Regulation 913/2010.
CID	Corridor Information Document
Connecting point	A point in the network where two or more Corridors share the same infrastructure and it is possible to shift the services applied for from one Corridor to the other.
C-OSS	A joint body designated or set up by the RFC organisations for Applicants to request and to receive answers, in a single place and in a single operation, regarding infrastructure capacity for freight trains crossing at least one border along the freight Corridor (EU Regulation No 913/2010, Art. 13). The Corridor One-Stop Shop.

Dedicated capacity	Capacity which has to be foreseen by the Corridor Organisations to fulfil the requirements of Regulation 913/2010. It refers to pre-arranged paths and reserve capacity.
Feeder/outflow (F/O)	Any path/path section prior to reaching an operation point on RFC (feeder path) or any path/path section after leaving the RFC at an operation point (outflow path). The feeder and/or outflow path may also cross a border section which is not a part of a defined RFC.
Flexible approach	When an Applicant requests adjustments to a pre-arranged path, as e.g. different station for change of drivers or shunting, that is not indicated in the path publication. Also if the Applicant requests feeder and/or outflow paths connected to the pre-arranged path and/or a connecting path between different RFCs, these requests will be handled with a flexible approach.
Force majeure	An unforeseeable exterior factor, which could also infer urgent and safety critical work.
Handover point	Point where the responsibility changes from one IM/AB to another.
IM	Infrastructure Manager In this document, only the term Infrastructure Manager (IM) is applied. It refers to IMs and also – if applicable – to Allocation Bodies (ABs).
Interchange point	Location where the transfer of responsibility for the wagons, engine(s) and the load of a train goes from one RU to another RU. Regarding a train running, the train is taken over from one RU by the other RU, which owns the path for the next journey section.
MB	Management Board of the Corridor
Overlapping section	National infrastructure sections where two or more Corridors share the same infrastructure.
PCS	Path Coordination System, formerly known as Pathfinder, developed by Rail Net Europe (RNE). Basic working tool for the C-OSS.
Pre-arranged path (PaP)	A pre-constructed path on a Rail Freight Corridor according to the Regulation 913/2010. A PaP may be offered either on a whole RFC or on sections of the RFC forming an international path request crossing one or more international borders.
Pre-constructed path product	Any Kind of pre-constructed path, i.e. a path constructed in advance of any path request and offered by IMs; applicants can then select a product and submit a path request. Pre-constructed path products are either: - Pre-arranged paths (PaP) on Rail Freight Corridors or - Catalogue paths (CP) for all other purposes
RB	Regulatory Body
Reserve capacity (RC)	Capacity – e.g. Pre-arranged paths kept available during the running timetable period for ad-hoc market needs (Art 14 (5) Regulation 913/2010).

RFC	Rail Freight Corridor. A Corridor organised and set up in accordance with Regulation 913/2010.
RFC-Handbook (DG MOVE working document)	Handbook on Regulation concerning a European rail network for competitive freight.
RU	Railway Undertaking
TMS	Transport Market Study
WG	Working Group
X-/+(19, 16…)	First day of the annual timetable and the months prior to/subsequent to
Y-(30, 23…)	First day of train running and the days prior to

VII.2. Background

The Regulation (EU) 913/2010 of the European Parliament and the Council of 22 September 2010 lays down rules for the establishment and organisation of international rail corridors for competitive rail freight with a view to the development of a European rail network for competitive freight and it sets out rules for the selection, organisation, management and the indicative investment planning of freight corridors.

The railway infrastructure managers (IMs) and allocation bodies (ABs) of the Czech Republic, Slovak Republic, Austria, Hungary, Romania, Bulgaria and Greece established the Management Board (MB) of Rail Freight Corridor (RFC) 7 – Orient Corridor by signature of a Memorandum of Understanding on 9th September 2011.

According to Article 13 (1) of the Regulation, the management board for a freight corridor shall designate or set up a joint body for applicants to request and to receive answers, in a single place and in a single operation, regarding infrastructure capacity for freight trains crossing at least one border along the freight corridor (hereinafter referred to as a ‘one-stop shop’).

According to the decision of the MB meeting on 1st October 2012, the members agreed that one employee of VPE will carry out the tasks of C-OSS of RFC 7, as VPE undertakes the role of being ‘representative C-OSS’ (i.e. one MB member company in the Corridor acting on behalf of all members, supported by IT tool) of RFC 7 until a period of 2 years. The operation of the C-OSS by VPE started in April 2013 in test mode and continues from 8 November 2013 in real operational mode.

The working language of the RFC 7 C-OSS is English, so daily operation, prepared documents and possible meetings are held in English in the framework of RFC 7 C-OSS activity.

VII.3. Requirements

VII.3.1. Defined by Regulation 913/2010

According to Art. 13 of the Regulation 913/2010, the requirements for the C-OSS's role are defined as follows:

- Contact point for Applicants to request and receive answers regarding infrastructure capacity for freight trains crossing at least one border along a Corridor
- As a coordination point provides basic information concerning the allocation of the infrastructure capacity. It shall display the infrastructure capacity available at the time of request and its characteristics in accordance to pre-defined parameters for trains running in the freight Corridor
- Shall take a decision regarding applications for pre-arranged paths and reserve capacity
- Forwarding any request/application for infrastructure capacity which cannot be met by the C-OSS to the competent IM(s) and communicating their decision to the Applicant
- Keeping a path request register available to all interested parties.

The C-OSS shall provide the information referred in article 18, included in the Corridor Information Document drawn up, regularly updated and published by the RFC MB:

- Information contained in the Network Statements regarding railway lines designated as a Rail Freight Corridor
- A list and characteristics of terminals, in particular information concerning the conditions and methods of accessing the terminal
- Information about procedures for:

    o Set up of the C-OSS
    o Allocation of capacity (pre-arranged paths and reserve capacity) to freight trains
    o Applicants
    o Procedures regarding traffic management on the Corridor as well as traffic management in the event of disturbances

- Information regarding the Implementation Plan with all connected documents.

VII.3.2. Described in the Handbook to Regulation 913/2010

In addition to the Regulation, the European Commission published a Handbook in which a number of recommendations regarding the tasks to be carried out by the C-OSS are made. Although the Handbook is not legally binding (it has only an advisory and supportive character), there is no reason to not refer to it at all. RFC 7 will of course fulfil the binding requirements of the Regulation but, if applicable, will also refer to proposals/concepts described in the Handbook.

VII.4. Documentation related to the RFC 7 C-OSS

Documents, which could contribute to the C-OSS operation are as follows:

- EU Regulation 913/2010 (including the Handbook to the Regulation): spells out the overall framework for setting up the C-OSSs
- EU Directive 2012/34 Establishing a single European railway area
- RNE Process Handbook for International Path allocation (For Infrastructure Managers)
- RNE Guidelines for Pre-Arranged Paths
- RNE Guidelines for the Coordination and Publication of Works on the European Rail Freight Corridors.
- RNE Guidelines for Punctuality Targets.
- RNE Guidelines for Freight Corridor Traffic Management
- RNE PCS Process Guidelines
- RNE Guidelines for C-OSS

VII.5. Applicants

According to Article 15 of Regulation 913/2010 an Applicant may directly apply to the C-OSS for the allocation of PaPs/reserve capacity. If the PaP/reserve capacity was allocated by the C-OSS accordingly, the Applicant should appoint to the C-OSS within the time, as decided by the MB, the designated railway undertaking(s), which will use the path/reserve capacity on behalf of the Applicant. The designated railway undertaking has therefore to conclude the necessary individual contracts with the IMs or ABs concerned relying on the respective national network access conditions. The rights and obligations of Applicants will be described in the Corridor Information Document (CID).

VII.6. Tasks of the RFC 7 C-OSS

VII.6.1. Based on Article 12 of Regulation 913/2010

As the C-OSS shall display infrastructure available at the time of request (Art. 13.2), it would be practical if the C-OSS was involved at an early stage in this process and could communicate the impact on the available capacity on Corridor sections as an input for RFC 7 MB decisions regarding the number of pre-arranged paths (PaPs) to be published.

VII.6.2. Based on Article 13 of Regulation 913/2010

According to Article 13 the tasks of the C- OSS are to:

- Give information regarding access to the Corridor infrastructure

- Give information regarding conditions and methods of accessing terminals attached to the Corridor
- Give information regarding procedures for the allocation of dedicated capacity on the Corridor
- Give information regarding infrastructure charges on the Corridor sections
- Give information on all that is relevant for the Corridor in the national network statements and extracted for the CID
- Allocate the Corridor pre-arranged paths, as described in Art. 14 (3), and the reserve capacity, as described in Art. 14 (5) and communicate with the IM of the Corridor regarding the allocation (please see Section 7 for further description)
- Keep a register of the contents described in Art. 13 (5)
- Establish and maintain communication processes between C-OSS and IM, C-OSS and Terminals attached to the Corridor, as well as between C-OSSs.
- Report to the RFC 7 MB regarding the applications, allocation and use of the Pre-arranged Paths, as input for the report by the RFC 7 MB, referred to in Art. 19 (3).

VII.6.3. Based on Article 16 of Regulation 913/2010

- The C-OSS shall be able to provide information regarding traffic management procedures on the Corridor; this information will be based on the documentation drawn up by the RFC 7 MB and on the RNE Guidelines for Freight Corridors Traffic Management.

VII.6.4. Based on Article 17 of Regulation 913/2010

- The C-OSS shall be able to provide information regarding traffic management procedures in the event of disturbances on the Corridor; this information will be based on the documentation drawn up by the RFC 7 MB and on the RNE Guidelines for Freight Corridors Traffic Management.

VII.6.5. Based on Article 18 of Regulation 913/2010

Mandatory tasks for the C-OSS based on Art. 18 are to:

- Give information regarding access to the Corridor infrastructure
- Give information regarding conditions and methods of accessing terminals attached to the Corridor
- Give information regarding procedures for allocation of dedicated capacity on the Corridor
- Give information regarding infrastructure charges
- Give information on all that is relevant for the Corridor in the national network statements and extracted for the CID
- Give information concerning procedures referred to in Articles 13,14,15,16 and 17 of Regulation 913/2010.

Based on the RFC 7 Corridor OSS Agreement the C-OSS coordinates the preparation and updating process of Book 1 (Generalities), Book 2 (Network Statement Excerpts) and Book 4 (Procedures for Capacity and Traffic Management).

VII.6.6. Based on Article 19 of Regulation 913/2010

- The Article lays down the requirements that the RFC 7 MB shall monitor the performance of rail freight services on the Corridor (Art. 19 (2)) and shall perform a customer survey (Art. 19 (3)). The results shall be published once a year.
- According to the RNE Guidelines for Train Performance Management, the involvement of the RNE Corridor Managers is requires during a transition period where RFC 7 is overlapping the RNE corridors. This transition period lasts until the RFC 7 is operative and RNE corridors have handed over the tasks on these sections.

VII.6.7. Customer Confidentiality

- The C-OSS is carrying out his assigned working task on behalf of the RFC 7 Managing Board consistent of cooperating IM in a RFC. The task shall be carried out in a non-discriminatory way and under customer confidentiality keeping in mind that the applicants are competing in many cases for the same capacity and transports. The functionality of the C-OSS is based on trust between all involved stakeholders.

VII.7. CONSTRUCTION, PUBLICATION AND ALLOCATION OF PRE-ARRANGED PATHS

The basic requirements regarding PaPs are laid down in Article 14 of Regulation 913/2010.

Also the RNE Guidelines for PaPs establish rules for the setup and allocation of PaPs and the related responsibilities. But if the RFC 7 MB considers the whole life cycle of the PaPs, it is recommended to include additional phases.

The life cycle can be broken down into the following 6 phases:

1. Preparation phase X-19 – X-16
2. Coordination/Construction phase X-16 – X-12
3. Delivery and publication phase X-12 – X-11
4. PaP application phase X-11 – X-8 for the annual timetable
5. Allocation phase X-8 – X+12 (with sub phases below):
    - Pre-booking phase by RFC 7 C-OSS X-8 – X-7,5
    - RFC 7 C-OSS gives back non-requested PaPs to IMs based on RFC 7 MB decision X-7,5
    - Constructing tailor made solution X-7,5 – X-5,5
    - Publication deadline of draft offer to the Applicants X-5
    - IMs forward non-used PaPs to RFC 7 C-OSS to be used for late path requests X-5

- Observations from Applicants X-5 – X-4
- Post processing and final allocation for annual timetable X-4 - X-3,5
- Allocation phase for late path request X-4 - X-2
- Publication reserve capacity for ad hoc traffic X-2
- Allocation phase for ad hoc path requets X-2 – X+12

6. Evaluation phase X+12 – X+15

Table 1

Period	Participant	Activity
X-19 – X-16	C-OSS, MB, AG, Marketing WG, Secretariat	Preparation phase
X-16 – X-12	C-OSS, IM, MB	Construction phase
X-12 – X-11	C-OSS, IM, MB	Approval and publication
X-11	C-OSS, IM	Day of publication
X-11 – X-8	Applicant, C-OSS	Application for the Annual Timetable
X-8	Applicant, C-OSS	Deadline for submitting path requests
X-8 – X-7,5	C-OSS, Applicant	Pre-booking phase
X-7.5	C-OSS, IM, MB	Forwarding requests with feeder/outflow path sections (e.g. first/last mile) or Tailor-made to IMs Possible returning of some remaining (unused) pre-arranged paths to the competent IMs – based on the decision of the Corridor MB – for use during the elaboration of the Annual Timetable by the IMs Update of PaP Catalogue
X-7,5 – X-5,5	IM, C-OSS	Path construction phase
X-5,5	IM, C-OSS	Finalisation of path construction for requested feeder/outflow path sections by the IMs and delivering of the results to Corridor OSS for information and development of the draft timetable
X-5	C-OSS, IM	Publication of the pre-arranged paths draft offers – including sections provided by the IMs for requested “flexible approaches” by the C-OSS IMs forward non-used PaPs to C-OSS to be used for late path requests
X-5 – X-4	Applicant, C-OSS	Observations phase
X-4 – X-3,5	IM, C-OSS, Applicant	Post processing and final allocation for Annual Timetable
X-8 – X-4	Applicant, C-OSS	Late path request application phase
X-4 – X-2	C-OSS, IM, Applicant	Late path request allocation phase
X-4 – X-2	IM, C-OSS, MB	Planning (production) reserve capacity for ad-hoc traffic in case of non-remaining PaPs
X-2	C-OSS, IM	Publication reserve capacity for ad-hoc traffic
X-2 – X+12 (Y-30)	Applicant, C-OSS, IM	Application and allocation phase for ad hoc path requests
X+12 –	C-OSS, IM, MB,	Evaluation phase

X+15	Marketing WG	

VII.7.1. Preparation of PaPs

Period: X-19-X-16

Participant: C-OSS, RFC 7Secretariat, Marketing WG, AG, MB

Activity:

The preparation of PaPs is based on the TMS (and its subsequent revised versions) and the Capacity Framework defined by the EB. The Marketing WG is responsible for preparing and updating the TMS if the MB decides so.

The MB shall evaluate the need for capacity to be allocated to freight trains running on the RFC taking into account the TMS, the requests for infrastructure capacity relating to the past and present working timetables and the framework agreements. The AGs have the opportunity to make proposals regarding PaPs at meetings organised by MB and the Secretariat.

The contacting and coordinating body among WGs and AGs is the Secretariat. Further on this contact role can be assigned to the C-OSS based on MB decision. Additionally, if the MB decides so, the C-OSS can be involved in decision-making procedures regarding PaPs.

The C-OSS shall communicate the MB decision to the IMs. The PaPs to be constructed are contained in an excel sheet, which shall be filled in with the following necessary data: arrival and departure times, train parameters (maximum length, speed, load) and the length of the PaP section.

The C-OSS shall prepare application forms for cases when train paths cannot be applied through PCS (partially or at all). The preparation of these forms also takes place in this stage.

Table 2

Period:	Participant:	Task:	Tool:	Outcome:
X-19 - X-16	RFC 7 Secretariat	Contact with Marketing WG and AGs	E-mail/phone	Start of preparation phase
	C-OSS	Preparation of application forms.		Application forms
	Marketing WG	Revisal of TMS	Statistics	Valid TMS
	AG	Proposition regarding PaPs.	TMS	Marketable PaPs
	MB	Decision making with the involvement of WGs and C-OSS	TMS, AG proposals	Number of PaPs to be constructed
X-16	C-OSS	Communication of MB decision to IMs.	Excel file	End of preparation phase

VII.7.2. Construction of PaPs

Period: X-16-X-12

Participant: C-OSS, IM, MB

Activity:

The IMs shall construct the PaPs based on MB decision. The construction takes place in the national systems. Based on MB decision the C-OSS shall be in contact with the IMs, coordinate the construction processes, thus ensuring the harmonization at border points.

The C-OSS shall be informed by the IMs in case any problem arise when constructing the PaPs.

After construction, IMs forward the excel sheet containing PaP data to the C-OSS, then the C-OSS can send it to the MB for approval.

Table 3

<table>
<tr><th>Period:</th><th>Participant:</th><th>Task:</th><th>Tools:</th><th>Outcome:</th></tr>
<tr><td>X-16</td><td rowspan="3">IM</td><td>Receiving PaPs to be constructed from the C-OSS</td><td>Excel file</td><td>Start of constructing phase</td></tr>
<tr><td rowspan="3">X-16 - X-12</td><td>Construction of PaPs.</td><td>National IT systems</td><td>Constructed PaP-sections in the national systems</td></tr>
<tr><td>Contact with C-OSS.</td><td rowspan="2">E-mail/phone/fax</td><td rowspan="2">Harmonised paths</td></tr>
<tr><td>C-OSS</td><td>Contact with IM.</td></tr>
<tr><td rowspan="2">X-12</td><td>IM</td><td>Delivery of PaPs to C-OSS.</td><td rowspan="2">Excel file</td><td>Constructed PaPs at C-OSS</td></tr>
<tr><td>C-OSS</td><td>Forwarding PaPs to MB for approval.</td><td>End of constructing phase</td></tr>
</table>

VII.7.3. Publication of PaPs

Period: X-12 – X-11

Participant: C-OSS, IM, MB

Activity:

Before publication, a formal approval by the RFC 7 MB has to be made, which states that the IMs have produced PaPs that meet the requirement of the RFC 7 MB regarding the number of paths and the harmonisation at border points. After approval PaPs can be uploaded to PCS.

PCS import can also be done by the IM. If interface connection is given, PaPs appear in PCS after being allocated in the national system. In case having no interface connection, PaPs have to be imported manually by the C-OSS. PaP data shall be entered in an excel sheet (template) specified by RNE. Once when the excel file is uploaded PCS validates it and reports for:

- format errors, when uploaded file does not satisfies the predefined rules,
- data issues (errors and warnings), when PCS cannot resolve some entity from the Excel e.g. operation point, activity type.

All errors must be fixed in order to import the PaP, while the warnings can be resolved after the import. It means that acceptance status for the agencies with data warning is set to yellow ("Being processed"). The competent IM or the C-OSS on behalf of the IM shall fix these issues.

After the import, the PaPs are not published. The publishing is done automatically by PCS (every night), when all warnings have been fixed and the acceptance indicators are set to green.

PaP Catalogue shall be available on the Corridor website in the form of an excel sheet. Uploading and updating of the PaP Catalogue shall be carried out by the C-OSS.

On the day of publication IMs have to indicate on their website, as well as in their Network Statements (NS), that Corridor Paths are available (via link to the Corridor website).

Table 4

<table>
<tr><th>Period:</th><th>Participant:</th><th>Task:</th><th>Tools:</th><th>Outcome:</th></tr>
<tr><td>X-12</td><td rowspan="2">MB</td><td>Verification of PaPs.</td><td></td><td>Start of publication phase</td></tr>
<tr><td rowspan="3">X-12 - X-11</td><td>Approval of PaPs.</td><td></td><td>PaPs ready to be uploaded to PCS</td></tr>
<tr><td>IM
C-OSS</td><td>Importing PaPs to PCS</td><td>Via interface or excel template</td><td>Uploaded PaPs</td></tr>
<tr><td rowspan="2">C-OSS</td><td>Checking uploaded PaPs data.</td><td>PCS</td><td>PaPs ready for publication</td></tr>
<tr><td rowspan="2">X-11</td><td rowspan="2">Publication of PaPs.</td><td>PCS
RFC website</td><td>PaPs available</td></tr>
<tr><td>IM</td><td>National website
NS</td><td>End of publication phase</td></tr>
</table>

VII.7.4. Annual Timetable Process

VII.7.4.1. Application for the Annual Timetable

Period: X-11 – X-8

Participant: Applicant, C-OSS

Activity:

PaPs can be requested through PCS only, national systems cannot be used on that purpose. However the C-OSS shall provide solutions for any cases when PCS cannot be used for path requesting (partially or at all).

Procedures for path requesting via PCS are detailed in the PCS Reference Manual.

In exceptional cases path requests can be submitted on paper by filling in an application form and forwarding it to the C-OSS via E-mail or Fax. In that case the C-OSS shall be responsible for the verification of the right to place a path request. In PCS the verification shall be done during the registration process. After the verification on behalf of the Applicant the C-OSS shall place the request in PCS, based on the received application form. The C-OSS will also act the same in further processes – on behalf of the Applicant based on the submitted answers.

Applicants can submit requests for PaPs, PaPs with F/O paths and for PaPs involving more than one Corridor.

The deadline for submitting annual requests is X-8, the second Monday of April. The C-OSS shall accumulate the requests (automatically in PCS), check the quality of the content, and inform Applicants if some data is missing or incorrect.

Receiving an appplication the PCS shall request a relevant train number from the competent IMs. The IMs shall provide the relevant train number till X-7.5.

Application process in PCS:

Table 5

Period:	Participant:	Task:	Tools:	Outcome:
X-11	C-OSS	Publication of PaPs.	PCS RFC website	Start of requesting phase
X-11 - X-8	Applicant	Submitting path request.	PCS	Submitted request
	C-OSS	Receiving path request		Received request
X-8	Applicant C-OSS	Deadline for submitting path requests for the Annual Timetable.		End of requesting phase

Application process by paper:

Table 6

Period:	Participant:	Task:	Tools:	Outcome:
X-11	C-OSS	Publication of PaPs.	PCS RFC website	Start of requesting phase
X-11 - X-8	Applicant	Contact with the C-OSS	E-mail/phone/fax	Possible request
	C-OSS	Verification of the right to place a path request based on the information given by the IMs.		Verified rights

		Providing application form for the Applicant.	E-mail/fax	Request can be submitted
	Applicant	Filling in the application form and forward to the C-OSS.		Submitted request
	C-OSS	Receiving application form and enter the path request in PCS on behalf of the Applicant.	E-mail/fax PCS	Received request
X-8	Applicant C-OSS	Deadline for submitting path requests for the Annual Timetable.		End of requesting phase

VII.7.4.2. Pre-booking PaPs

Period: X-8 – X-7.5

Participant: C-OSS, Applicant, IM

Activity:

The C-OSS shall decide on the allocation of PaPs requests. In case an application contains F/O paths, the C-OSS shall forward the application to the competent IMs after pre-booking the related PaP sections. Then these IMs must consider the application as sent on time (as before the X-8 deadline).

In case of a conflicting PaP (multiple request on the same PaP), the C-OSS shall make priority calculations (according to the priority rules) and pre-allocate the PaP to the Applicant with higher priority value.

In order to make the right priority calculations IMs must provide the distances for the C-OSS, either by stating kilometre data in the Network Statement or by communicating it via E-mail or Fax as soon as possible.

The C-OSS shall offer alternative PaP for the Applicant with lower priority till X-7.5. A preliminary contact with the Applicant would be advisable, checking for the earliest/latest arrival/departure time, which could still meet the Applicant's needs, thus an acceptable offer can be sent.

If the C-OSS is unable to meet any suitable alternative, or there is no alternative at all, the application shall be forwarded to the competent IMs for Tailor made solution. Then these IMs must consider the application as sent on time (as before the X-8 deadline).

In order to forward the applications as soon as possible to the involved IMs, a deadline should be set by which the Applicant shall accept or reject the alternative offer. Considering the fact that a preliminary agreement took place between the Applicant and the C-OSS, the given alternative offer at X-7.5 is just a formal act. Due to this reason a 2 weeks response time should be enough: the Applicant shall communicate the decision till X-7.

If an application involves more than one Corridor, the concerned C-OSSs shall contact with each other and set the coordinating role. The coordinating role can be set in PCS according to the Reference Point given by the Applicant and can be changed later among the C-OSSs depending on the situation.

The C-OSS shall communicate the allocation decisions to the competent Applicants and IMs via PCS and/or via E-mail or Fax.

Process for applications without conflict:

Table 7

Period:	Participant:	Task:	Tools:	Outcome:
X-8	C-OSS	Receiving application.	PCS E-mail/fax	Start of pre-booking phase
X-8 - X-7.5	C-OSS	Pre-allocation of the requested PaP. Requesting train number from the competent IMs.	PCS E-mail/fax	Pre-allocated PaP
X-8 - X-7.5	C-OSS	Sending F/O request (if the application contains) to the competent IMs.	PCS E-mail/fax	F/O request (if the application contains) sent
X-8 - X-7.5	IM	Providing relevant train number to the Application/Dossier.	PCS E-mail/fax	
X-7.5	C-OSS	Communication of the decision to the Applicant	PCS E-mail/fax	Applicant noticed
X-7.5	Applicant	Receiving communication.	PCS E-mail/fax	End of pre-booking phase

Process for applications with conflict and available alternative:

Table 8

Period:	Participant:	Task:	Tools:	Outcome:
X-8	C-OSS	Receiving application.	PCS E-mail/fax	Start of pre-booking phase
X-8 - X-7.5	C-OSS	Priority calculation on the conflicted requests.	PCS Data provided by IMs	Requests with priority values.
X-8 - X-7.5	C-OSS	Pre-allocation of the PaP for the Applicant with the higher priority. Requesting train number from the competent IMs.	PCS E-mail/fax	Waiting for Alternative
X-8 - X-7.5	C-OSS	Send F/O request (if the application contains) to the competent IMs.	PCS E-mail/fax	F/O request (if the application contains) sent
X-8 - X-7.5	IM	Providing relevant train number to the Application/Dossier.	PCS E-mail/fax	
X-8 - X-7.5	C-OSS Applicant	Searching for alternative PaP.	E-mail/phone	Available alternative
X-8 - X-7.5	C-OSS	Reservation of alternative PaP for the Applicant with lower priority.	PCS E-mail/fax	Alternative reserved
X-7.5	C-OSS	Communication of the decision to the Applicant with higher priority.	PCS E-mail/fax	Applicant noticed
X-7.5	C-OSS	Communication of the decision to the Applicant with lower priority.	PCS E-mail/fax	Applicant noticed
X-7.5	Applicant	Receiving communication.	PCS E-mail/fax	End of pre-booking phase

Process for applications with conflict and no suitable alternative:

Table 9

Period:	Participant:	Task:	Tools:	Outcome:
X-8	C-OSS	Receiving application.	PCS E-mail/fax	Start of pre-booking phase
X-8 - X-7.5		Priority calculation on the conflicted requests.	PCS Data provided by IMs	Requests with priority values.
		Pre-allocation of PaP for the Applicant with the higher priority. Requesting train number from the competent IMs.	PCS	Waiting for alternative
	IM	Providing relevant train number to the Application/Dossier.	PCS E-mail/fax	
	C-OSS Applicant	Searching for alternative PaP.	E-mail/phone	No suitable alternative
	C-OSS	Forwarding the application to the competent IMs for Tailor made solution.	PCS	Tailor made
X-7.5		Communication of the decision to the Applicant with higher priority.	PCS E-mail/fax	Applicant noticed
		Communication of the decision to the Applicant with lower priority.		
	Applicant	Receiving communication.		End of pre-booking phase

The processes described above are valid for cases when the application was submitted on paper filling in the given application form. The C-OSS shall implement the processes in PCS and notify the Applicant by E-mail or Fax.

The processes described above shall be repeated until every application will be in one of the following 3 status:

- Reserved
- Reserved alternative
- Tailor made

More and detailed descriptions can be found in the Annexes.

The C-OSS shall keep a register, based on Article 13 (5) of the Regulation, of all activities performed by the C-OSS concerning the allocation of infrastructure capacity, and keep it available for Regulatory Bodies, ministries and concerned Applicants. For this purpose PCS shall be used.

The C-OSS shall ensure the ongoing update of the register and manage access to it for the above-mentioned parties. The content of the register will only be communicated to these interested parties on request.

VII.7.4.3. Forwarding applications to the competent IMs

Period: X-7.5

Participant: C-OSS, IM

Activity:

After deciding on the allocation of PaPs the C-OSS shall forward the applications which cannot be met and the applications with F/O paths to the competent IMs for construction.

Forwarding will take place in PCS by the C-OSS after clicking „Request Tailor-Made” and „Send F/O request to IMs” buttons. The competent IMs will receive an automatically generated E-mail about the tasks.

In case interface connection is given the requests forwarded in PCS will be automatically shown in the national systems. If there is no interface connection, the IMs shall request the related paths manually in their national systems.

Table 10

<table>
<tr><th>Period:</th><th>Participant:</th><th>Task:</th><th>Tools:</th><th>Outcome:</th></tr>
<tr><td rowspan="3">X-7.5</td><td>C-OSS</td><td>Forwarding applications cannot be met or having F/O.</td><td rowspan="2">PCS</td><td>Start of forwarding phase</td></tr>
<tr><td rowspan="2">IM</td><td>Receiving applications.</td><td>Paths to be requested in the national systems</td></tr>
<tr><td>Path request in the national system (automatically if there is interface connection with PCS).</td><td>National IT systems</td><td>End of forwarding phase</td></tr>
</table>

VII.7.4.4. Giving back unused PaPs to IMs

Period: X-7.5

Participants: MB, C-OSS, IM

Activity:

Each year between X-8 and X-7,5 the MB has to make a decision about which PaPs to be kept at X-7,5. The MB should decide at that time, if it hands on decision power to the C-OSS.

The IM may then use the capacity for other requests received at X-8 or can ensure the availability of sufficient reserve capacity for the ad-hoc requests.

Based on MB decision the C-OSS shall return the PaPs to the IMs. The returning takes place by changing status in PCS. After the status change PaPs will be taken out automatically from the Catalogue. The IMs shall withdraw the allocated PaPs in their national system.

In the first year of operation based on MB decision all of the unused PaPs shall remain in the hand of the C-OSS.

Table 11

Period:	Participant:	Task:	Tools:	Outcome:
X-8 - X7.5	MB/C-OSS/IM	Decision on which PaPs to be kept.	TMS	Start of PaP returning phase
X-7.5	C-OSS	Returning PaPs to the IMs	PCS	Returned PaPs
		Update of PaP Catalogue (automatically in PCS)	PCS RFC website	Updated PaP Catalogue
	IM	Withdrawal of PaPs.	National IT systems	End of PaP returning phase

According to the actions made the C-OSS is responsible for updating the PaP Catalogue. In PCS the update is done automatically during the status changes, while the updating of the website shall be provided by uploading an excel sheet or otherwise. The IMs shall also indicate the changes in their national website.

VII.7.4.5. Path construction

Period: X-7.5 – X-5.5

Participant: IM, C-OSS

Activity:

The IMs shall be responsible for the construction and allocation of the requested paths.

The C-OSS shall ensure that the results will be delivered till X-5.5 and be responsible for the harmonised paths. The C-OSS shall be informed by the IMs in case any problem arise during the path construction.

The constructed timetable will be automatically uploaded from the national system to PCS, if interface connection is given. In case of no interface connection, the timetable data shall be entered manually by IM. Thereafter the IM shall set all acceptance indicators to „green", so that the C-OSS can communicate the Draft Offer.

The acceptance indicators of PaPs are handled by the C-OSS on behalf of the IM. Draft Offer can only be sent if all lights are set to green.

Table 12

Period:	Participant:	Task:	Tools:	Outcome:
X-7.5 - X-5.5	IM	Request paths in the national system (automatically if there is interface connection with PCS).	National IT systems	Start of path construction

		Construction.		Constructed timetable in the national system
		Contact with the C-OSS	E-mail/phone/fax	Harmonised paths delivered on time
	C-OSS	Contact with the IMs		
	IM	Enter timetable data in PCS-s (automatically uploads from national system if connected to PCs), set lights to green.	PCS	End of path construction

VII.7.4.6. Sending Draft Timetable to the Applicant

Period: X-5

Participant: C-OSS, Applicant, IM

Activity:

Draft Timetable shall be communicated via PCS by the C-OSS clicking on „Send Draft Timetable" button. In case of Tailor made applications, or applications with F/O paths „Send Draft Timetable" button will only be activated, when all participating IMs delivered their result and set their acceptance indicators to green.

In case of applications involving more than one Corridor, Draft Offer can only be communicated by the Coordinating C-OSS.

After submitting Draft Offer Applicants will be notified by an automatically generated E-mail from PCS, so they can observe and comment the delivered timetable. Thenceforth all submitted applications (with the exception of Tailor made) shall be in „Drafted" status.

In case the application was submitted on paper, after submitting the Draft Offer, the C-OSS shall forward an exported Draft Timetable from PCS to the Applicant via E-mail or Fax.

Table 13

Period:	Participant:	Task:	Tools:	Outcome:
X-5.5	IM	Setting all lights to green	PCS	Start of submitting Draft Timetable
X-5	C-OSS	Sending Draft Timetable to the Applicant.	PCS E-mail/fax	„Drafted"
	Applicant	Receiving Draft Timetable from C-OSS.		End of submitting Draft Timetable

VII.7.4.7. Giving back unused PaPs to C-OSS

Period: X-5

Participant: IM, C-OSS

Activity:

IMs, if decide so, can give back unused PaPs to the C-OSS to be used for late path or ad-hoc requests.

IMs shall allocate the returned PaPs in their national systems. Next in PCS PaPs' status have to be changed back (they shall not be uploaded again, since they have been already in PCS). The C-OSS shall be responsible for updating the PaP Catalogue according to the actions.

Table 14

Period:	Participant:	Task:	Tools:	Outcome:
X-5	IM	Decision on which PaPs to be given back to C-OSS.	National IT systems	Start of returning phase
	IM	Allocation of returned PaPs in the national systems.		Allocated PaPs in the national systems
	IM C-OSS	Change of PaP status.	PCS	Returned PaPs.
	C-OSS	Update of PaP Catalogue (automatically in PCS).	PCS RFC website	End of returning phase

VII.7.4.8. Observations from Applicants, post-processing and acceptance

Period: X-5 – X-4

Participant: Applicant, C-OSS, IM

Activity:

After receiving Applicants have one month to make comments on the Draft Offer, and request modifications if it is necessary.

If the Applicant accepts the Draft Offer, the acceptance indicators shall be switched to green.

After acceptance, the C-OSS can submit Final Offer.

In case modifications are needed the Applicant can communicate the decision to the C-OSS by setting lights to red and clicking on „Release post-processing”. Thereafter the application changes to „Post-processing” state.

Only Tailor made applications or F/O paths can be modified, PaPs can not. Therefore if the Applicant decides to reject the requested PaP, the application has to be withdrawn and a new (late) request shall be submitted.

The Applicant shall communicate the required modifications to the C-OSS, who will forward them to the concerned IMs. IMs shall modify the timetable in their national system and in

PCS as well. When all modification is done, IMs set their acceptance indicators to green so that the C-OSS can submit Final Offer.

In case the Application was submitted on paper, the Applicant shall communicate the acceptance or the rejection and the required modifications to the C-OSS via E-mail or Fax. The C-OSS shall implement the changes in PCS acting on behalf of the Applicant, and send the Final Offer via E-mail or Fax.

Process if the Applicant accepts Draft Timetable:

Table 15

<table>
<tr><th>Period:</th><th>Participant:</th><th>Task:</th><th>Tools:</th><th>Outcome:</th></tr>
<tr><td>X-5</td><td>C-OSS</td><td>Submitting Draft Timetable to the Applicant.</td><td>PCS
E-mail/fax</td><td>Start of acceptance phase</td></tr>
<tr><td>X-5 – X-4</td><td>Applicant</td><td>Setting the acceptance indicators to green.</td><td rowspan="2">PCS
E-mail/fax</td><td>Final Offer can be sent</td></tr>
<tr><td>X-4</td><td>C-OSS</td><td>Submitting Final Offer to the Applicant.</td><td>End of acceptance phase</td></tr>
</table>

Process if the Applicant does not accept Draft Timetable:

Table 16

<table>
<tr><th>Period:</th><th>Participant:</th><th>Task:</th><th>Tools:</th><th>Outcome:</th></tr>
<tr><td>X-5</td><td>C-OSS</td><td>Submitting Draft Timetable to the Applicant.</td><td>PCS
E-mail/fax</td><td>Start of acceptance phase</td></tr>
<tr><td rowspan="7">X-5 - X-4</td><td rowspan="2">Applicant</td><td>Setting the acceptance indicators to red.</td><td></td><td>Draft Timetable rejected</td></tr>
<tr><td>Clicking on „Release post-processing” button.</td><td>PCS
E-mail/fax</td><td rowspan="5">Post-processing phase</td></tr>
<tr><td>Applicant
C-OSS</td><td>Contact with C-OSS.</td><td>E-mail/phone/fax</td></tr>
<tr><td>C-OSS</td><td>Forwarding the required modifications to the competent IMs.</td><td rowspan="2">PCS</td></tr>
<tr><td rowspan="3">IM</td><td>Receiving required modifications from C-OSS.</td></tr>
<tr><td>Construction of modified timetable.</td><td>National IT systems</td></tr>
<tr><td>Entering timetable data in PCS (automatically uploads from national system if connected to PCs), setting lights to green.</td><td rowspan="2">PCS</td><td>Final Offer can be sent</td></tr>
<tr><td>X-4</td><td>C-OSS</td><td>Submitting Final Offer to the Applicant.</td><td>End of acceptance phase</td></tr>
</table>

VII.7.4.9. Final allocation

Period: X-4 – X-3.5

Participant: C-OSS, Applicant, IM

Activity:

Final Offer can be submitted by the C-OSS if all IM and Applicant acceptance indicators are set to green, thus no further modifications are needed.

In case of applications involving more than one Corridor Final Offer can only be communicated by the Coordinating C-OSS.

Final Offer has to be accepted by the Applicant till midnight X-3.5. If all lights are set to green the application will move to „Active Timetable” phase after clicking on the „Accept Final Offer” button, or automatically at midnight X-3.5.

In case the Application was submitted on paper, the C-OSS shall communicate the Final Offer (exported from PCS) to the Applicant via E-mail or Fax. After being accepted (the C-OSS implements the changes in PCS acting on behalf of the Applicant) the application will be changed to „Active timetable” state.

The IMs shall be informed about the allocation by the C-OSS, so that they can allocate Tailor made and F/O paths in their national system. According to PCS, paths will be allocated automatically in national systems as well, if interface connection is given.

Table 17

Period:	Participant:	Task:	Tools:	Outcome:
X-4	C-OSS	Submitting Final Offer to the Applicant.	PCS E-mail/fax	Start of final allocation phase
X-4 - X-3.5	Applicant	Acceptance of Final Offer.		Final allocation/withdrawn
X-3.5	C-OSS	Final allocation.		End of final allocation phase
	IM	Allocation of the paths according to PCS.	National IT systems	

In case of complaints regarding the allocation of PaPs (e.g. due to a decision based on the priority rules for allocation), the Applicants may address the respective regulatory body.

VII.7.5. Procedures for late path requests

VII.7.5.1. Late path requests

Period: X-8 – X-4

Participant: Applicant, C-OSS

Activity:

Late path requests can be submitted for the following PaPs:

- Non-requested PaPs till X-8

- PaPs kept at X-7.5
- PaPs returned at X-5

PaPs can be requested through PCS only, national systems cannot be used on that purpose. However the C-OSS shall provide solutions for any cases when PCS cannot be used for path requesting (partially or at all).

Procedures for path requesting via PCS are detailed in the PCS Reference Manual.

In exceptional cases path requests can be submitted on paper by filling in an application form and forwarding it to the C-OSS via E-mail or Fax. In that case the C-OSS shall be responsible for the verification of the right to place a path request. In PCS the verification shall be done during the registration process. After the verification on behalf of the Applicant the C-OSS shall place the request in PCS, based on the received application form. The C-OSS will also act the same way in the further processes – on behalf of the Applicant based on the submitted answers.

The C-OSS is responsible for publication and updating the PaP Catalogue according to actions made at X-7.5 and X-5. Following the principle „First come-first served" requested PaPs will be automatically removed from the PCS PaP Catalogue excluding the possibility of double booking on the same PaP.

The deadline for submitting late path requests is X-4. The C-OSS shall accumulate the requests (automatically in PCS), check them, and inform Applicants if some data is missing or incorrect.

Receiving an appplication the PCS shall request a relevant train number from the competent IMs. The IMs shall provide the relevant train number till X-2.5.

Table 18

Period:	Participant:	Task:	Tools:	Outcome:
X-8	C-OSS	Publication of PaP Catalogue for late path requests.	PCS RFC website	Start of late path requests phase
	IM		National websites	
X-7.5	C-OSS	Update of PaP Catalogue according to MB decision.	PCS RFC website	Updated PaP Catalogue
X-8 - X-4	Applicant	Submitting late path request.	PCS E-mail/fax	Submitted request
	C-OSS	Receiving application. Receiving application form and entering the path request in PCS on behalf of the Applicant.		Received request
		Update of PaP Catalogue according to the requests (automatically in PCS).	PCS RFC website	Updated PaP Catalogue
X-5		Update of PaP Catalogue according to IM decision.		
X-4		Deadline for submitting late path requests.		End of late path requests phase

VII.7.5.2. Allocation of late path requests

Period: X-4 - X-2

Participant: C-OSS, IM, Applicant

Activity:

According to the principle: „First come-first served" there will be no conflict during the late request procedures. Hence there will be only two kind of processes: PaP request and PaP with F/O request, and their „more than one Corridor involved" variations. There will not be any Tailor made, because if an application contains no PaP, the C-OSS has nothing to do with it.

The C-OSS shall forward applications with F/O paths to the competent IMs by clicking „Send F/O request to IMs" button. The competent IMs will receive an automatically generated E-mail about the tasks.

In case interface connection is given the requests forwarded via PCS will be automatically shown in the national systems as well. If there is no interface connection, the IMs have to request the related paths manually in their national systems.

If an application involves more than one Corridor, the concerned C-OSSs shall contact with each other and set the coordinating role. The coordinating role can be set in PCS by the Applicant giving the Reference Point. Nonetheless the coordinating role can be changed among the C-OSSs later depending on the situation.

The C-OSS is responsible for coordinating the construction process, so that Applicants have enough time for observing the Draft Offer. It would be advisable to send the Draft Offer till X-2.5.

In case the application was submitted on paper, the C-OSS shall communicate the Final Offer (exported from PCS) to the Applicant via E-mail or Fax. After beig accepted (the C-OSS implements the changes in PCS acting on behalf of the Applicant) the application will be changed to „Active timetable" state.

The IMs shall be informed about the allocation by the C-OSS, so that they can allocate F/O paths in their national systems. According to PCS, paths will be allocated automatically in national systems as well, if interface connection is given.

Process for applications containing PaPs only:

Table 19

Period:	Participant:	Task:	Tools:	Outcome:
X-8 -X-4	C-OSS	Receiving application.	PCS E-mail/fax	Start of allocation phase
X-4 - X-2.5		Pre-allocation of the requested PaP. Requesting train number from the competent IMs.	PCS	Draft Timetable can be submitted

	IM	Providing relevant train number to the Application/Dossier.	PCS E-mail/fax	
	C-OSS	Submitting Draft Timetable to the Applicant.	PCS E-mail/fax	Observation
X-2.5-X-2	Applicant	Acceptance of Draft Offer.		Final allocation/withdraw
X-2	C-OSS	Final allocation. Informing competent IMs about the allocation.	PCS	End of allocation phase

Process for applications containing F/O if the Applicant accepts Draft Offer:

Table 20

Period:	Participant:	Task:	Tools:	Outcome:
X-4	C-OSS	Receiving application.	PCS E-mail/fax	Start of allocation phase
X-4 - X-2.5		Pre-allocation of the requested PaP. Requesting train number from the competent IMs.	PCS	F/O request can be sent
		Sending F/O request to the competent IMs.		F/O request sent
	IM	Providing relevant train number to the Application/Dossier.	PCS E-mail/fax	
		Receiving F/O request from C-OSS. Requesting the paths in the national system.	National IT systems	Construction
		Construction.		Constructed F/O paths
	C-OSS	Contact with IM.	E-mail/phone/fax	Harmonised paths
	IM	Contact with C-OSS		
		Entering timetable data in PCS (automatically uploads from national system if connected to PCS), setting lights to green.	PCS	Draft Timetable can be submitted
X-2.5	C-OSS	Submitting Draft Timetable to the Applicant.	PCS E-mail/fax	Observation
X-2.5 – X-2	Applicant	Setting the acceptance indicators to green.		Final allocation
X-2	C-OSS	Final allocation. Informing competent IMs about the allocation.	PCS	End of allocation phase
X-2	IM	Allocation of the paths according to PCS.	National IT systems	

Process for applications containing F/O if the Applicant rejects Draft Offer:

Table 21

Period:	Participant:	Task:	Tools:	Outcome:
X-8 -X-4	C-OSS	Receiving application.	PCS E-mail/fax	Start of allocation phase

X-4 - X-2.5		Pre-allocation of the requested PaP. Requesting train number from the competent IMs.	PCS	F/O request can be sent
		Sending F/O request to the competent IMs.		F/O request sent
	IM	Providing relevant train number to the application/dossier.	PCS E-mail/fax	
		Receiving F/O request from C-OSS. Request the paths in the national system.	National IT systems	Construction
		Construction.		Constructed F/O paths
	C-OSS	Contact with IM.	E-mail/phone/fax	Harmonised paths
	IM	Contact with C-OSS.		
		Entering timetable data in PCS (automatically uploads from national system if connected to PCS), setting lights to green.	PCS	Draft Timetable can be submitted
X-2.5	C-OSS	Submitting Draft Timetable to the Applicant.	PCS E-mail/fax	Observation
X-2.5 – X-2	Applicant	Setting the acceptance indicators to red.		Draft Timetable rejected
		Clicking on „Release post-processing" button.	PCS	Post-processing phase
		Contact with C-OSS.	E-mail/phone/fax	
	C-OSS	Forwarding the required modifications to the competent IMs.	PCS	
	IM	Receiving required modifications from C-OSS.	National IT systems	
		Construction of modified timetable.		
		Entering timetable data in PCS (automatically uploads from national system if connected to PCS), setting lights to green.	PCS	Final allocation
X-2	C-OSS	Final allocation. Informing competent IMs about the allocation.	PCS	End of allocation phase
X-2	IM	Allocation of the paths according to PCS.	National IT systems	

VII.7.6. Procedures for ad-hoc path requests

VII.7.6.1. Planning and publishing reserve capacity

Period: X-4 - X-2

Participant: C-OSS, IM, MB

Activity:

Reserve capacity may consist in:

- non-requested PaPs till X-4
- PaP constructed out of remaining capacity by the IMs after the draft network timetable development
- other defined capacity

Till X-2.5 the MB should be informed about the draft of reserve capacity. The approved reserve capacity (if available) shall be published at X-2 on the Corridor website by the C-OSS and in the national websites by the IMs.

Table 22

Period:	Participant:	Task:	Tools:	Outcome:
X-4	C-OSS	Contact with IM.	E-mail/phone/fax	Start of publication phase
X-4 - X-2	IM	Construction of reserve capacity for the Corridor.	National IT systems	Constructed PaPs
X-2.5	C-OSS	Delivery of the draft of reserve capacity to MB for approval.	E-mail/fax	Reserve capacity plan to be approved
X-2.5 - X-2	MB	Approval of the draft of reserve capacity.		Reserve capacity can be published
X-2	C-OSS	Publication of reserve capacity in the form of PaPs.	PCS RFC website	End of publication phase
	IM	Publication reserve capacity on the RFC.	National website	

VII.7.6.2. Application for reserve capacity

Period: X-2 – X+12

Participant: Applicant, C-OSS

Activity:

Ad-hoc requests can be submitted to the published reserve capacity. In case of no more remaining capacity available on the Corridor the C-OSS shall display on the RFC website (sold out) and forward all applications to the concerned IMs.

PaPs can be requested through PCS only, national systems cannot be used on that purpose. However the C-OSS shall provide solutions for any cases when PCS cannot be used for path requesting (partially or at all).

Procedures for path requesting via PCS are detailed in the PCS Reference Manual.

In exceptional cases path requests can be submitted on paper by filling in an application form and forwarding it to the C-OSS via E-mail or Fax. In that case the C-OSS shall be responsible for the verification of the right to place a path request. In PCS the verification shall be done during the registration process. After the verification on behalf of the Applicant the C-OSS shall place the request in PCS, based on the received application form. The C-

OSS will also act the same way in the further processes – on behalf of the Applicant based on the submitted answers.

The C-OSS is responsible for the publication and for the continuous updating of the PaP Catalogue. Following the principle „First come-first served" requested PaPs will be automatically removed from the PCS Catalogue excluding the possibility of double booking on the same PaP.

Ad-hoc path requests shall be submitted no later than 30 days before the train running (Y-30). The C-OSS shall check the requests and inform Applicants if some data is missing or incorrect.

Receiving an application the PCS shall request a relevant train number from the competent IMs. The IMs shall provide the relevant train number till Y-10.

The RFC 7 Corridor OSS will not treat applications for reserve capacity with a shorter time limit to the first day of operation than 30 days. Requests with shorter time limit should be addressed to the national IMs directly through PCS.

Table 23

Period:	Participant:	Task:	Tools:	Outcome:
X-2	C-OSS	Publication of reserve capacity in the form of PaPs.	PCS RFC website	Start of ad-hoc path requests phase
X-2 – X+12 (Y-30)	Applicant	Submitting ad-hoc path request.	PCS E-mail/fax	Submitted request
	C-OSS	Receiving application. Receiving application form and entering the path request in PCS on behalf of the Applicant.		Received request
		Update of PaP Catalogue according to the requests (automatically in PCS).	PCS RFC website	Updated PaP Catalogue
X+12 (Y-30)	Applicant C-OSS	Deadline for submitting ad-hoc path requests.		End of ad-hoc path requests phase

VII.7.6.3. Allocation of ad-hoc path requests

Period: X-2 – X+12

Participant: C-OSS, IM, Applicant

Activity:

According to the principle: „First come-first served" there will be no conflict during the late request procedures. According to that there will be only two kind of processes: PaP request and PaP with F/O request, and their „more than one Corridor" variations. There will not be any Tailor made, because if an application contains no PaP, the C-OSS has nothing to do with it.

The C-OSS shall forward applications with F/O paths for the competent IMs by clicking „Send F/O request to IMs" button. The competent IMs will receive an automatically generated E-mail about the tasks. Forwarding of F/O has to be done till Y-25 in order to IMs have enough time for construction.

In case of interface connection the requests forwarded in PCS will be automatically shown in the national systems. If there is no interface connection, the IMs have to request the related paths manually in their national systems.

If an application involves more than one Corridor, the concerned C-OSSs shall contact with each other and set the coordinating role. The coordinating role can be set in PCS by the Applicant giving the Reference Point. Nonetheless the coordinating role can be changed among the C-OSSs later depending on the situation.

The C-OSS is also responsible for coordinating the construction process for that Applicants have enough time for observing the Draft Offer. It would be advisable to send the Draft Offer till Y-10

In case the application was submitted on paper, the C-OSS shall communicate the Final Offer (exported from PCS) to the Applicant via E-mail or Fax. After being accepted (the C-OSS implements the changes in PCS acting on behalf of the Applicant) the application will be moved to „Active timetable" state.

The IMs shall be informed about the allocation by the C-OSS, so that they can allocate F/O paths in their national systems. According to PCS, paths will be allocated automatically in national systems as well, if interface connection is given.

Process for applications containing PaPs only:

Table 24

Period:	Participant:	Task:	Tools:	Outcome:
No later than Y-30	C-OSS	Receiving application.	PCS E-mail/fax	Start of allocation phase
No later than Y-10	C-OSS	Pre-allocation of the requested PaP. Requesting train number from the competent IMs.	PCS	Draft Timetable can be submitted
	IM	Providing relevant train number to the application/dossier.	PCS E-mail/fax	
	C-OSS	Submitting Draft Timetable to the Applicant.	PCS E-mail/fax	Observation
Y-10– Y-2	Applicant	Acceptance of Draft Offer.		Final allocation/withdraw
Y-2	C-OSS	Final allocation. Informing competent IMs about the allocation.	PCS	End of allocation phase

Process for applications containing F/O if the Applicant accepts Draft Offer:

Table 25

Period	Participant:	Task:	Tools:	Outcome:
No later than Y-30	C-OSS	Receiving application.	PCS E-mail/fax	Start of allocation phase
Y-30 – Y-25		Pre-allocation of the requested PaP. Requesting train number from the competent IMs.	PCS	F/O request can be sent
		Sending F/O request to the competent IMs.		F/O request sent
Y-25 – Y-10	IM	Providing relevant train number to the application/dossier.	PCS E-mail/fax	
		Receiving F/O request from C-OSS. Request the paths in the national system.	National IT systems	Construction
		Construction.		Constructed F/O paths
	C-OSS	Contact with IM.	E-mail/phone/fax	Harmonised paths
	IM	Contact with C-OSS		
		Entering timetable data in PCS (automatically uploads from national system if connected to PCs), setting lights to green. Providing relevant train number to the application/dossier.	PCS	Draft Timetable can be submitted
No later than Y-10	C-OSS	Submitting Draft Timetable to the Applicant.	PCS E-mail/fax	Observation
Y-10 – Y-7	Applicant	Setting the acceptance indicators to green.		Final allocation
Y-2	C-OSS	Final allocation. Informing competent IMs about the allocation.	PCS	End of allocation phase
According to train running	IM	Allocation of the paths according to PCS.	National IT systems	

Process for applications containing F/O if the Applicant rejects Draft Offer:

Table 26

Period:	Participant:	Task:	Tools:	Outcome:
No later than Y-30	C-OSS	Receiving application.	PCS E-mail/fax	Start of allocation phase
Y-30 – Y-25		Pre-allocation of the requested PaP.	PCS	F/O request can be sent
		Sending F/O request to the competent IMs.		F/O request sent
Y-25 – Y-10	IM	Providing relevant train number to the application/dossier.	PCS E-mail/fax	
		Receiving F/O request from C-OSS. Request the paths in the national system.	National IT systems	Construction

		Construction.		Constructed F/O paths
	C-OSS	Contact with IM.	E-mail/phone/fax	Harmonised paths
	IM	Contact with C-OSS.		
		Entering timetable data in PCS (automatically uploads from national system if connected to PCs), setting lights to green.	PCS	Draft Timetable can be submitted
No later than Y-10	C-OSS	Submitting Draft Timetable to the Applicant.	PCS E-mail/fax	Observation
Y-10 – Y-7	Applicant	Setting the acceptance indicators to red.		Draft Timetable rejected
		Clicking on "Release post-processing" button.	PCS	Post-processing phase
		Contact with C-OSS.	E-mail/phone/fax	
	C-OSS	Forwarding the required modifications to the competent IMs.	PCS	
	IM	Receiving required modifications from C-OSS.	National IT systems	
Y-7 - Y-2		Construction of modified timetable.		
		Entering timetable data in PCS (automatically uploads from national system if connected to PCs), setting lights to green.	PCS	Final allocation
Y-2	C-OSS	Final allocation. Informing competent IMs about the allocation.	PCS	End of allocation phase
According to train running	IM	Allocation of the paths according to PCS.	National IT systems	

VII.7.7. Evaluation phase

Period: X+12 – X+15

Participant: C-OSS, AG, MB

Activity:

Every year the Corridor's performance shall be evaluated based on reports provided by the C-OSS and the IMs. The reports shall contain:

- Number of applications
- Number of applications per PaP
- Number of applications with F/O paths
- Number of Tailor made solutions
- Number of PaPs given back to IMs (X-7.5)
- Number of PaPs received from IMs (X-5)
- Number of unfulfilled applications
- Number of withdrawn applications

- the amount of time the applications spent in each phase
- Punctuality of Corridor trains
- Proposals from AGs
- Decisions of the Regulatory Bodies regarding RFC

The reports can determine the overloaded (more PaPs needed) and the idle sections (less PaPs needed) of the Corridor. The number of F/O paths should be considered as well, as they can be merged into the PaP as a departure or arrival point, if it is needed.

Punctuality reports should identify bottlenecks as sections that need to be improved.

The TMS shall be updated including the results of the already mentioned reports, which serves as a base regarding the PaPs for the next annual timetable.

PaP and allocation reports can be prepared by using the „Search and Reporting" functions in PCS.

IMs and Train Information System (TIS) can provide punctuality reports regarding Corridor trains.

The C-OSS shall be responsible for preparing these reports and forward them to the MB. According to the reports the MB shall evaluate the Corridor's performance and report the results to the European Commission.

Depending on decisions taken in the MB, the C- OSS could be given the task to organise a satisfaction survey of the users of the Corridor. The results of the survey can contribute to the evaluation of the Corridor's performance and shall be published in accordance with Art. 19 (3) in Regulation 913/2010.

Table 27

Period:	Participant:	Task:	Tools:	Outcome:
X+12	C-OSS	Contact with IM.	Email/phone	Start of evaluation phase
		Preparation of reports regarding the allocation of PaPs.	PCS report	Prepared reports
X+12 - X+15	C-OSS IM	Requesting/receiving punctuality reports.	TIS National IT systems	
	AG	Proposition.	E-mail/fax/organised meetings	More effective RFC
	C-OSS	Forwarding reports to the MB	E-mail/fax	Evaluate
	MB	Evaluation of the Corridor's performance.		
X+15	MB	Reporting to the European Commission.		End of evaluation phase
X+15	Marketing WG	Update of TMS.		

VII.8. TOOLS FOR RFC 7 C-OSS

The main working tools for the C-OSS are the three RNE IT tools: Path Coordination System (PCS), Train Information System (TIS), and Charging Information System (CIS).
In order to enjoy the full benefits of these tools, it is in the interest of all involved stakeholders that their national systems are connected to them. The use of these tools is not only related to day-to-day business, but also to additional functions such as reports.

VII.9. PRIORITY CRITERIA FOR THE ALLOCATION OF PRE-ARRANGED PATHS

Basic priority criteria are needed for the C-OSS in order to allocate pre-arranged paths on a Corridor for the annual timetable.

A value calculated according to the total length of the requested path (including feeder and outflow paths and connecting point or sections between corridors) in combination with the length of the requested pre-arranged path and running days can enable the comparison of different applications with each other.

First step: only the path travelled along the Rail Freight Corridor (L_{PAP}) and the running days (Y_{RD}) are taken into account:

$$L_{PAP} \times Y_{RD} = K$$

Second step: if the first step results the same priority value (K), the complete length of the requested path (L_{TP}) has to be taken into consideration and the full formula has to be used:

$$(L_{PAP} + L_{TP}) \times Y_{RD} = K$$

Third step: if the second step results the same priority value (K) “first come-first served” logic will be applied.

In the case of conflict on an overlapping section among more than one corridor above mentioned formulas could be used. Each RFC C-OSS calculates their own value according to the path request. The Applicant, who has higher priority value, will get the conflicted path section.

VII.10. NON-USAGE AND CANCELLATION RULES

VII.10.1. Withdrawal of path requests

Applicants can withdraw requests for the annual timetable after the path requests deadline (X-8) and before final allocation (X-2). Ad-hoc requests can also be withdrawn before the date of allocation. After allocation is done, only cancellation remains possible.

Current national conditions:

Country :	Condition :
Czech Republic	See national Network Statement chapter 4.6 Non-usage/ cancellation rules (http://www.szdc.cz/en/provozovani-drahy/pristup-na-zdc/prohlaseni-2014.html)
Slovakia	Free of charge
Austria	Free of charge
Hungary	Free of charge
Romania	
Bulgaria	
Greece	Free of Charge

VII.10.2. Cancellation

Cancellation takes place after the allocation is done. Applicants can cancel running days or path sections. The cancellation needs have to be addressed to the C-OSS after the allocation as soon as possible, but no later than 30 days before the actual train run, afterwards directly to the competent IMs.

Country :	Cancellation fees :
Czech Republic	See national Network Statement chapter 4.6 Non-usage/ cancellation rules (http://www.szdc.cz/en/provozovani-drahy/pristup-na-zdc/prohlaseni-2014.html)
Slovakia	Please find the relevant rules via the following link : http://www.zsr.sk/buxus/docs//Marketing/SVen/2014/NS2014-2.pdf (from page 53)
Austria	Free of charge
Hungary	Please find the relevant rules via the following link : http://www2.vpe.hu/en/performance-regime (from page 17)
Romania	
Bulgaria	
Greece	Free of charge

VII.10.3. Non-usage conditions

If the Applicant neither use nor cancel in due course its train path or fails to cancel it, or in case of non-RU Applicant the RU has not been designated 10 days before the train run penalty shall be levied according to the Performance Regimes of the member states.

Country :	**Explanations :**
Czech Republic	See national Network Statement chapter 4.6 Non-usage/ cancellation rules (http://www.szdc.cz/en/provozovani-drahy/pristup-na-zdc/prohlaseni-2014.html)
Slovakia	Please find the relevant rules via the following link : http://www.zsr.sk/buxus/docs//Marketing/SVen/2014/NS2014-2.pdf (chapter 6)
Austria	Free of charge
Hungary	Please find the relevant rules via the following link : http://www2.vpe.hu/en/performance-regime (from page 17)
Romania	
Bulgaria	
Greece	Free of charge

VII.11. AVAILABILITY OF THE RFC 7 CORRIDOR OSS

It shall be mandatory for all Applicants to use PCS when they request pre-arranged paths. Other questions can be submitted via e-mail or telephone and be answered accordingly.

As the C-OSS will not be active less than 30 days before the day of operation, there is no need for a facility staffed 24 hours a day, 7 days a week. Regular office hours would be sufficient from the point of view of availability.

Contact data:

Name:	Address:	Phone:	E-mail:
József Ádám Balogh	VPE Rail Capacity Allocation Office Ltd., H-1054 Budapest 48 Bajcsy-Zsilinszky út Hungary	+36 1 301 9931 +36 30 696 8555	baloghj@vpe.hu

VII.12. CORRIDOR INFORMATION DOCUMENT

The structure of Corridor Information Document follows the recommendation of RNE, which is widely accepted and generally applied by rail freight corridors:

Book 1	Generalities
Book 2	Network Statement Excerpts
Book 3	Terminal Description
Book 4	Procedures for Capacity Allocation and Traffic Management
Book 5	Implementation Plan

The first versions **of Book 1 and Book 2** were published on the website of the corridor in January 2013, and their newer versions were uploaded in the beginning of May.

Concerning **Book 3** decision had to be made whether detailed information about Terminals shall be included in the Corridor Information Document, or only references (internet link) to the webpage of Terminals shall be provided in the CID. The MB of RFC7 chose the latter solution because of the number of Terminals, the uncertainty of their data-supply and the difficulty of providing up-to-date information in the CID in case of modification of Terminal data.

The RNE WG Network Statement has approved the proposal of RFC7 Marketing WG regarding the common structure of Terminal information to be published on web pages of Terminals for purposes of corridor operation. RFCs and RNE suggests that the Terminals use the reference “Information Related to RFCs” on their website.

The structure of harmonized Terminal information template complies with the logic of the Network Statements, but in a much simplified manner, adjusted to the Terminals’ context.

Structure of **Book 4** about Procedures for Capacity Allocation and Traffic Management is based on the RNE CID Common Structure Specification.

Book 5, present Implementation Plan of the corridor, will be published after its approval by the Executive Board.

The complete Corridor Information Document will be made accessible for the public on the website of the corridor.

VII.13. AUTHORISED APPLICANTS

According to Article 15 of the Regulation 913/2010 an Authorised Applicant may directly apply to the Corridor OSS for the allocation of pre-arranged train paths/reserve capacity. The designated railway undertaking has to conclude the necessary individual contracts with the IMs or ABs concerned relying on the respective national network access conditions.

Who can be considered as Authorized Applicant

A pre-arranged train path as may be requested if it is running on the territory of

a) the Republic of Austria by undertakings classified into the following classes of NACE Rev. 2 (Annex I of Regulation (EC) No 1893/2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains):
   1) Section B (Mining and quarrying),
   2) Section C (Manufacturing),
   3) Subdivision F42.12 Construction of railways and underground railways,
   4) Division G45 Wholesale and retail trade and repair of motor vehicles and motorcycles, except subdivision G45.2 Maintenance and repair of motor vehicles,
   5) Division G46 Wholesale trade, except of motor vehicles and motorcycles,
   6) Subdivision H49.2 Freight rail transport,
   7) Division H52 Warehousing and support activities for transportation,
   8) Division H53 Postal and courier activities,

b) the Republic of Bulgaria by no other entity,

c) the Czech Republic by applicants other than railway undertakings or the international groupings that they make up, such as shippers, freight forwarders and combined transport operators,

d) the Hellenic Republic by shippers, freight forwarders and combined transport operators, pursuant to paragraph 2 of article 2 of Presidential Decree 41/2005 (Government Gazette 60 A),

e) Hungary by economic organizations as set out by point c of section 685 of act IV of 1959 on the civil code of Hungary, namely state-owned companies, other state-owned economic agencies, cooperatives, business associations, professional associations, European company, grouping, European economic grouping, European grouping of territorial cooperation, companies of certain legal entities, subsidiaries, water management organizations, forest management associations, private entrepreneurs, state and local governments, budgetary agencies, associations, public bodies and foundations in connection with their economic activities;

f) Romania by no other entity,

g) the Slovak Republic by other persons interested in obtaining pre-arranged train paths to operate the railway transport, in particular the combined transport operators, goods consignors and consignees

apart from railway undertakings (hereinafter: RU) or the international groupings that they make up, as set out in Article 15 of the Regulation. Other services listed in Annex II of Directive 2001/14/EC shall not be requested by these Authorised Applicants.

Rights and obligations of Authorized Applicants are described in Book 4 of the Corridor Information Document

VIII. Traffic management on the corridor

VIII.1. Corridor train

The MB of RFC7 found it necessary to define what we consider a "corridor train". The following definition was accepted based on the proposal by Traffic Management WG.
The "corridor train"

- runs on the network of at least 3 different member states, or 2 different member states plus 500 kms on the corridor, and
- uses capacity allocated by C-OSS, and
- the infrastructure capacity for it is allocated from pre-arranged paths.

The MB has the right to add additional international freight trains (coming from different regions of the Corridor) to be treated as corridor trains.

VIII.2. Priority rules

According to the position of DG MOVE of European Commission about priority rules

- RFC Regulation (913/2010/EU) does not require detailed priority rules on corridor level;
- it could be enough if corridors collect the different priority rules IM by IM, but must ensure the common punctuality targets on corridor level;
- the priority rules of each IM shall be published in the Corridor Information Document.

Traffic Management WG of RFC7 has collected the national priority rules, and discussed in detail the possible points of harmonization. Based on their conclusions and the above recommendation of DG MOVE, the MB of RFC7 decided to publish the individual priority rules of involved IMS in the Corridor Information Document, and also established the following common rules regarding priority of trains applicable on corridor level.

VIII.2.1. Short summary of priority rules on the corridor

General principles of prioritization on RFC7

- Faster train has the priority over slower trains.
- If the corridor train is on time, it has the priority.
- In case of conflict between 2 delayed trains, priority is given to the faster train.
- RUs can give priority to specific train within their trains.

Order of priority of train types on RFC7

1. Emergency trains (breakdown, rescue, fire-fighter trains)
2. High speed passenger trains and long distance passenger trains

3. Passenger trains, priority freight trains (including corridor trains) – faster trains have principally priority to slower trains
4. Other freight trains
5. Service trains

VIII.2.2. National priority rules

SZDC

Trains running ahead of scheduled time must not cause delay to trains with higher priority or to passenger train running in scheduled time.

Priority list during the train run (in case of delay, rerouting, track/ signal break down, maintenance works which reduce capacity):

- Trains for help
- Special trains in interest of state authorities
- International trains – EC, IC, international express fast trains (including locomotives running for those trains)
- International stopping trains, domestic express and fast trains, and international express freight trains
- Other freight trains
    a. National express freight trains
    b. Other international freight trains
    c. National fast freight trains
    d. Other national freight trains.

In case of conflict between trains with the same priority has priority:

1. Train with higher value of delay
2. Train with higher speed
3. Freight train with animals or perishable goods before other freight trains

ZSR

Prioritization of train types:

1. Emergency trains
2. special trains of public interest (transport in the state interest)
3. a. International passenger Eurocity and Intercity trains
   b. International passenger Express and Fast trains (including locos for these trains)
4. a. Other international passenger trains
   b. National Eurocity, Intercity, Express and Fast passenger trains
   c. International express freight trains
5. Other national passenger trains,
6. Other freight trains in the following order:
    a. National express trains
    b. Other international freight trains

c. Other national freight trains

In case of the trains of the same priority mentioned above, the trains with higher amount of the delay or with the higher technical speed have priority.
In the freight transport the trains with the live animals or perishable goods and the trains with the guaranteed transport time have priority.

ÖBB

Prioritization of train types:

a. Trains for remedy of operational defects always have priority
b. Long distance passenger trains have priority to other trains
c. Passenger trains "on time" (</=5') and passenger trains with marginal delay have priority to other trains
d. Freight trains "on time" (</=15') and freight trains with marginal delay have priority to trains before their scheduled time or delayed trains
e. Marginal delayed trains have priority to trains "on time" as long as the delay of the train on time does not extend the "on time" level
f. RU's have to define 3 internal levels of quality, trains of the same RU have priority according their level of quality.

"Marginal" means, the train will reach again the "on time" level latest at the second stop afterwards on its run.

If NONE of these criteria can be applied, the decision has to be taken according to:

- Better usage of infrastructure (shorter occupancy of line segment)
- Expected conflicts in the following train run (single track lines, construction works, etc.)
- Keeping of ordered connections
- Long remaining running distance of the train is preferred to a short remaining running distance.

GYSEV

Prioritization of train types:

1. Breakdown trains and urgent trains for help
2. Passenger trains:
    - International
    - National
3. VIP-trains
4. Freight trains:
    - International freight trains with special freight

    Priority rules in operations
    - *Other international trains
    - *National freight trains with special freight
    - Other national trains
5. All other trains (flexible system depending on disposable infrastructure capacity

These rules are not absolute. They can be adapted by traffic controllers for the purpose of enhancing overall steadiness or traffic flow in justified cases.
Principle aim:

- To improve punctuality of all trains
- The best possible use of the capacity on the line

Order will change in certain cases, depending on special interests (e.g. special kind of freight).

MÁV

Categories	Types of train in operation	
	Abbreviation	Complete description
Category 1	F	Special train for protected leader
	SZO	Emergency train (fire, accident, broken engine)
	RJ	Railjet
	EC	EuroCity
	EN	EurooNight
	ICR	InterCityRapid
	IC	Intercity
Category 2	Ex	Internal express train
	Ngy	International fast train
	Kgy	Special fast train (not included in public timetable)
	Gy	Internal fast train
	S	Internal semi fast train
Category 3	SZ	Passenger train
	No	Nostalgia train
	Nko	Corridor Freight Train
	RoLa	RoLa train
	TEC	TEC train (international combined transport train)
Category 4	Nt	International freight train
	Sv	Train with empty coaches
	M	Engine train
	Gt	Internal fast freight train
	T	Internal freight train
	Kt	Shunting freight train
Category 5	Ki	Train for industrial track
	Szo	Service train
	EPR	Simple test train

CFR

Prioritization of train types:

- Especially trains used for works on tracks on case of disruption
- VIP trains
- Long distance passenger trains
- Short distance passenger trains
- Long distance freight trains, trains with perishable goods, trains with dangerous goods,
- Short distance freight trains
- Trains for track works
- Engines.

In case of conflicts (on the same level of priority range), international trains which leave the country (run to the frontiers) have priority.

NRIC

Trains movement regulating takes into account the priority of the categories as given below.

1. Rehabilitation and anti-fire trains and different types of specialized rail self-propelled machines during their movement in order to restore the trains movement after breakdowns, accidents, fires and natural calamities
2. Passenger trains with specific functions
3. Express passenger trains
4. Fast passenger trains
5. International passenger trains
6. Town side passenger trains
7. Ordinary passenger and labour official business trains
8. Mixed trains
9. Feed – locomotives for fast and passenger trains and those on point 1 when they come back after their work on restoration of trains' movement
10. International freight trains for mixed transport
11. Express freight trains
12. Direct freight trains and feed – locomotives for freight trains
13. Local freight trains
14. Working trains
15. Shunting trains, isolated locomotives and all other vehicles.

OSE

Basic prioritization of train types is:

1. InterCity trains
2. Suburban trains
3. Standard passenger trains
4. Freight trains

VIII.3. COORDINATION OF TRAFFIC MANAGEMENT

In the today normal traffic management business bi- or multi-lateral cross-border procedures for communication already exist.
The main strategy is to improve already existing means in order to ensure that all communication needs are fulfilled and that the used tools are integrated and user-friendly at the maximum possible extent.

At this aim the following have been used as a basis for the presented task:

- Train Information System (TIS): a web-based application monitoring international traffic on real time and providing historical information through its reporting function; not all involved parties are currently using such a tool, but a roll-out to other partners is foreseen, RUs and Terminals can use this (presently) free application after making a contract with RNE. For more information please visit: http://tis.rne.eu/;
- Traffic Control Centres Communication (TCCCom) Guidelines: the TCCCom project aimed to improve the communication among cross border dispatching centres. This internet based tool is suitable for both free texts and pre-defined, automatically translated messages.

TIS - Train Information System, as an RNE IT tool can be useful for the IMs and RUs involved. If all of the members will use TIS, each partner can follow their trains along the corridor. Till the TIS full implementation on the whole corridor line, members could use TCCCOM between dispatching centres and „TIS Light" to inform each other.

The agreed coordination procedure should be applied only if no coordination procedures are already in place and well working. This means that already existing channels of bilateral communication should not be replaced by new procedures.
Harmonization along corridor and/or between corridors is difficult and sometimes not advisable due to the different characteristics of the Corridors themselves.

The general aims of the procedure should be always kept in mind in order to right size the need of information flows between partners. Such general aims are:

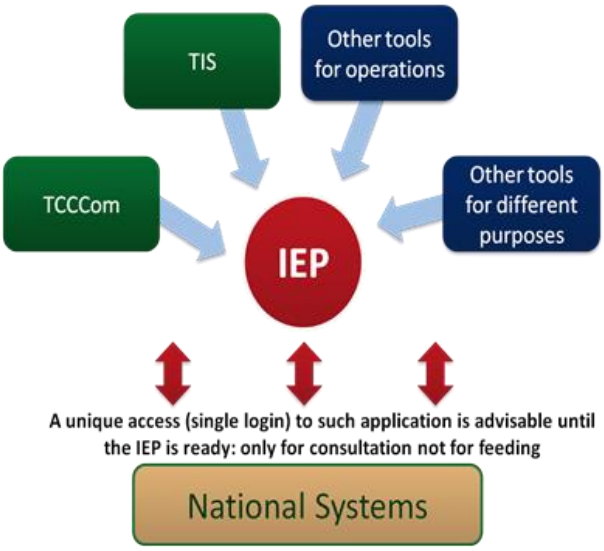
- to make the traffic management easier;
- to have the possibility to take corrective measures as early as necessary

The current availability of tools supporting the communication and the data collection connected with international rail traffic management has been analysed. The conclusion of the analysis is that no new tool is needed and that the already existing IT tools, namely TIS and TCCCom, are compliant to the purposes of rail freight corridors.
In addition, the normal means of communication together with specific templates, shall be used to put in place the procedure here described. As far as the IT tools are concerned, on a time perspective, the following development is considered as necessary:

- SHORT TERM: use of TIS and/or TCCCom (with improvements)
- MEDIUM TERM: TCCCom integrated in TIS

➢ LONG TERM: integrated platform of all systems (for the purposes of this document called IEP – Integrated European Platform)

The long-term perspective is illustrated in the below picture.



» IEP: "Integrated European Platform"
» Procedures, times, actors, rules are already defined in the systems that are proposed to be integrated, therefore they are not specified here

Source of picture:
RNE Guidelines for freight corridor traffic management

VIII.3.1. Coordination of traffic management along the corridor and with Terminals

As required by the regulation, the Traffic Management WG has identified the extent of the involvement in the traffic management procedures of other stakeholders associated to the activity of the Freight Corridors, i.e. the Railway Undertakings and the Terminal Managers (which are represented by the respective Advisory Groups)

» The contribution by the RUs and the Terminal Managers is very important for an efficient traffic management.
» As far as the RUs are concerned, the exchange of information is completely covered by the rules of TAF TSI.
» The Terminal Managers should be also involved in the exchange of information.

VIII.3.2. Traffic management on border sections

Traffic Management WG members agreed to collect the existing cross-border agreements in the national languages as they are, and they will be published on the corridor website Procedures related to the traffic management will be sent in English language and it will be published in the Corridor Information Document.

The related border section information such as

- Agreement between the two states in national languages
- Agreement between IMs about cross-border rail traffic in national languages
- Short description of the border section in English language

- Border Contact Document in English language

are available on the RFC's website.

VIII.4. Coordination of traffic management in events of disturbance

Many unexpected events may have influence on railway traffic, such as:

- Disturbances with big influence and consequences on the traffic (accidents),
- Line interruption,
- Heavy capacity reduction (for lines, stations and shunting yards).

If an RU wants to deviate from the timing of its pre-arranged path, the RU should request a new path and thereby renounce the quality requirements (delay, alternative routes). In this case the new path has to be allocated by the national OSS
In the case of emergency, IM has to inform the national RUs and the neighbouring IMs about the circumstances.

Assistance in the event of disturbance

- IMs can use any RU's locomotive to clear the track
- IMs are responsible to inform the concerned RUs

Diversion of trains

- In the event of non-planned events, trains use alternative routes to destination.
- When a train delay more than 60 minutes, IMs must inform the concerned RUs.

Common train description

Every IM along the Corridor should use the same data for identifying trains (in accordance with OPE TSI)

- Train running number
- Number of wagons
- Train length in meter
- Tonnage

In case of deviations from timetable the following traffic management procedure shall apply:

- IMs – where the event happened - must inform the RUs about the deviation from the timetable.
- Terminals get the information from the IMs.

Each IM is responsible for communicating the given information to the RU which operates the train in their respective network as soon as possible. Additionally, the notified IM shall communicate the information of the affected train/s/ to the related partners in its own country.

The main targets of IMs in case of deviation from timetable are

- the best possible use of the capacity of the Corridor,
- to guarantee the fluidity of operations,
- to improve punctuality of all trains,
- to get back to the regular state as soon as possible.

VIII.5. Coordination of works

Based on the European Regulation 913/2010, the RNE Guidelines for coordination/publications of possessions provide recommendations for the process of coordinating and publishing activities reducing the available capacity on a Rail Freight Corridor. The aim is to use a common tool for gathering and publishing necessary information about capacity restrictions.

In this Guideline the term „possession" will be used instead of „works", because the term better describes the need of the IMs to use their infrastructure for any activities reducing the infrastructure capacity (e. g. maintenance, repair, renewal, enhancement, construction works).

All works on the infrastructure and its equipment that would restrict the available capacity on the corridor should also be coordinated at the level of the freight corridor and be the subject of updated publication.

Nevertheless, as major works greatly depend on availability of EU co-financing in each country, involved IMs may not be able to fully harmonize their planned long-term investments.

VIII.5.1. Aim and principles of coordination of works

Aim of coordination: minimize the restriction on the capacity of International passengers and freight trains and optimize the potentiality along the corridor.

Principles of coordination:

- In the case of a capacity restriction on one section of the Corridor which does not allow re-routings, further restrictions in other sections of the corridor should be avoided, unless they do not affect the total capacity offer (also over a longer period) of the RFC in a negative way.
- In case of total closure the aim should be to plan the maximum amount of works simultaneously if technically possible.
- A capacity restriction on one section of the Corridor which requires re-routing of traffic shall be coordinated with capacity available over alternative routes and border crossings to limit the negative impact on the capacity offer of the RFC. This may be done for example by prohibiting planned capacity restrictions on the alternative route.
- A capacity restriction on one section of the Corridor which requires re-routing of traffic shall be coordinated or combined with additional restrictions on neighbouring sections of the corridor if the same re-routings may be used. If possible, modifying the time of additional possessions shall be taken into consideration.
- Please note that, as far as possible, possessions should not be planned in such a way that they conflict with published PaPs. This demands active communication between the possession planning IMs and the C-OSS.

Both IMs and RUs have long realized the need for better coordination of rehabilitation works and possessions along the corridor in order to:

- reduce the overall impact on traffic,
- harmonize the communication from IMs of rehabilitation works affecting corridor traffic;
- coordinate the processes and timelines at IMs for long and short term planning of timetables and train consequences.

VIII.5.2. Publication of works

IMs should publish an overview of construction works that are expected to impact freight traffic at border crossing points. We consider it is not necessary to set a concrete value from which it is necessary to publish the information regarding the construction works. It may be enough to communicate the works which have a significant impact on the international freight traffic.
The construction works overview (e.g. long term plans for the next TT year) should be published in the Corridor Information Document.

We should set up a mechanism for interconnecting the IMs and get the RUs quickly informed.

Information will be published on the corridor's website and have monthly update (if there are any changes).

We could use a common unified Excel-table and a map about the line section.
If the possession which has major influence for the traffic is longer than 72 hours, it has to be published on the corridor website.
These works have to be published 60 days before the start of the possession.

The communication will specify:
- Place
- Start time
- End time
- Short description of work
- Consequences for traffic on the pre-arranged paths of the corridor (or reserved capacity).
- The extent of international coordination among IMs.

VIII.5.3. Procedure in accordance with the RNE Guideline

- X-24 Initial publication (e. g. for the TT year 2015/2016 planning should start in 2013 October - November at the latest)

- X-17 prior to constructing pre-arranged paths

- X-12 prior to publications of pre-arranged paths at X-11

- X-9 prior to deadline for path request at X-8
- X-4 Update - prior to final allocation and for planning of reserve capacity for ad-hoc trains

List of criteria for publishing

– impact on infrastructure

In order to cover the main activities on a RFC that may reduce available capacity, especially in the early phases of the coordination process (i.e. at X-24 or X-17), the following publication criteria shall be applied:

- Permanent total closure of a line for more than 168 hours (7 days) in a row
- Temporary total closure (e.g. every night) for more than 30 days in a row
- Any other temporary (e.g. 3 hours every afternoon) or permanent capacity restriction for more than 30 days (e.g. closure of one track of a double track line). Included in this category are speed, length or weight restrictions.

– impact on rail traffic

Taking the impact of possessions on rail traffic or published PaPs (including reserve capacity) into account, the following publication criteria shall be applied:

- Possessions requiring the re-routing of trains
- Possessions resulting in delayed handovers at border stations of more than 30 minutes
- Possessions resulting in delays of more than 60 minutes
- Possessions requiring other significant changes of the timetable (e.g. no capacity for ad-hoc train on the line affected by the possession).

These deadlines define the long term planned possessions that we shall publish in the Corridor Information Document. Possessions shall be published on the website of RFC 7 in a form of an Excel table. The RFC 7 is responsible for the content of that but the information has to be provided by the IMs. The information shall be updated if there are any changes.

VIII.5.4. Characteristics of the process

- Regular international meetings, normally 2 per year, (i.e. March and September) or at any time for urgent needs. Representatives of RFC7, IMs and concerned Working Groups (OSS WG, Traffic Management WG, Infrastructure Development WG) will participate in these meetings.
- Meeting of March: sharing information about main works expected.
- Meeting of September: updating of information exchanged in previous meeting and communication about works planned for the second semester of the current year.

Content of information to be shared:

- details about schedule of maintenance,
- details about works bringing about interruptions which affect the planning of timetable,
- analysis of the planning and of the consequences of the works on the transport service, check of any incompatibility.

Results of the process

- Decisions shared between the Infra Managers concerned on the periods of works.
- Decisions about the best way to coordinate works taking into consideration the consequences on the commercial offer.
- Agreement on schedule needed to ensure the process of communications addressed to RUs and the adaptation of the timetable.
- Agreement on the formal procedure to be adopted for the common planning of capacity programme.
- Every IM designate a main contact person to coordinate the communication between IMs.
- The IM responsible for the construction work will prepare a notice of the international freight trains related consequences for the rehabilitation works up to and including the border crossing points.

IX. Investments and ERTMS deployment

IX.1. OVERALL INVESTMENT PLAN

In accordance with Article 11 of the EU Regulation 913/2010 the Management Board of RFC7 considers investment planning along the corridor as a very important matter. Therefore the Management Board with the assistance of the Infrastructure Development Working Group has drawn up the Investment Plan, which includes details of indicative medium and long-term investments in infrastructure along the freight corridor.

This plan includes: description of the present state of the corridor, list of bottlenecks, volume of effect of each bottleneck, list of necessary developments, list of developments being under progress or preparation, deployment plan of ERTMS, financial sources available for development and suggestions on how to proceed.

The complete Investment Plan forms Annex 7 of the Implementation Plan. As the Management Board considers this initial version of the Investment plan as an opening, it is expected that the plan will be periodically reviewed.

IX.2. ERTMS DEPLOYMENT

The RFC7, defined in accordance with the EU Regulation 913/2010, is overlapping with ETCS Corridor E that was defined by the TSI CCS CR (2009/561/ES) and enlarged by the south branch via Bulgaria to Greece.
In the establishing process of the RFC 7 was agreed that the ETCS Corridor E project structures will be included in the organization structure of the RFC 7. In this process the ETCS Corridor E Management Committee was transformed to the ERTMS Deployment WG of the RFC 7 organization structure and the new companies that represent the south branch of the RFC 7 were joined into the WG.

X.2.1. The ERTMS Deployment WG

- is a supporting instrument for the Governance structure of the Rail Freight Corridor, it prepares data and documents for making decisions and realizes these decisions
- the basic task is to implement the ETCS project plan and to coordinate all other activities in this domain so as to improve the quality of the RFC
- is in charge of creating the organizational, technical and operational conditions so that ETCS on the RFC can be entirely operational on the whole stretch in time and for this reason it has to set up Expert teams and ad hoc groups if necessary

- ensures that the RUs are involved in the project and their requirements are considered in the implementation plans

X.2.2. Statute of the ERTMS Deployment WG

The ERTMS Deployment WG provides for the RFC Governance structure the organization of following activities in the area of the ERTMS deployment on the RFC 7 lines:

- monitoring of the preparation and the realization of the investment plans of involved companies through an Annual Status Report
- exchange of the information among the involved IM's and RU's in the ERTMS deployment domain for the ensuring of the ERTMS deployment coordination on the corridor level
- establishing the expert teams for technical tasks and operational rules tasks and setting up ad hoc groups during the life cycle of the project – if necessary
- the negotiation on technical and operational rules tasks in frame of the RFC by expert teams (ad hoc groups) on the corridor level and on the bilateral level for the specific cross border sections
- the contact to the ERTMS Users Group (EUG) for the negotiation of selected tasks for the cross corridor coordination based on MoU signed between the EUG and the ETCS Corridor E Management Committee in 2008

X.2.3. Activities and coordination issues of the WG

- Since the beginning of the ETCS Corridor E project more bilateral technical consultations have taken place between SZDC and ZSSK Cargo, MÁV, CFR, ZSR
- 2010 - creation of "Technical Requirements for Technical Requirements for Development of ERTMS/ETCS L2 on the Czech part of Corridor E" (TR)
- 2011 - discussion of the TR with all ETCS Corridor E members and EUG, the consolidated version is put at the disposal of all corridor members
- The representatives of the ERTMS Deployment WG participated in the meeting of the Traffic Management WG held in Prague on 28th August 2012. The main discussed task was the necessity for close cooperation and good communication between both WG
- On 16th and 17th October 2012 there was a common meeting of the Czech representatives of the ERTMS Deployment WG and the ERA ERTMS Operational Feedback WP in Prague. The main discussed task was the possible harmonisation of the ETCS Operational rules and information on technical solutions used in the Czech Republic
- On 23rd November 2012 a bilateral meeting was organized between the ÖBB and the SŽDC and their ETCS suppliers so as to start the cooperation for the technical solution of the interconnection of both ETCS L2 systems in the cross border section CZ – AT

X.2.4. Implementation of the ETCS on the RFC 7 line sections

CZ - SŽDC

The ETCS L2 trackside v. 2.3.0d on the Czech corridor south branch from the state border SK/AT – Břeclav – Česká Třebová – Kolín (277 km) is under construction. The completion of this section is set for the end of 2014.

The ETCS L2 trackside v. 2.3.0d on the Czech corridor north branch from the state border DE – Dolní Žleb – Děčín – Praha Libeň – Kolín (215 km): the preparatory documentation is being elaborated. The realization of this section depends on finishing modernization and optimisation works on this section (see chapter 5 of Investment plan). The realization is expected 2014 – 2017.

AT – ÖBB

The ETCS L2 trackside v. 2.3.0d on the Austrian corridor part from the state border CZ (Břeclav) – Vienna (78 km) is under construction. The completion of this section is set for the end of 2013.

The ETCS L1 trackside v. 2.2.2 on the Austrian corridor part from Vienna - Border HU (Hegyeshalom) (68 km) is in operation. An upgrade of system version or level is planned for the future (after 2015).

SK – ŽSR

The main path of the Slovak corridor part in the sections border CZ (Breclav) - Kuty - Devinska N. Ves (58 km) and Devinska N. Ves - Junction Bratislava Rusovce – (HU Rajka) (63 km) is prepared to be equipped by ETCS L2 v. 2.3.0d. The preparatory documentation for these projects is under elaboration. The realization is expected in 2015 – 2016.

HU – MÁV

The section state border AT - Hegyeshalom – Budapešť (198 km) is already equipped by ETCS L1 v. 2.2.2 and in operation. An upgrade to ETCS L2 is planned after 2015.

The section Budapest - Szajol - Lőkösháza – state border RO (Curtici) (225 km) is prepared to be equipped by ETCS L2 v. 2.3.0d by 2015, the tender process is in preparation.

Budapest (Bp.-Kelenföld - Bp. Ferencváros) – the intention is to equip this part of the junction Budapest by ETCS L2 v. 2.3.0d by 2014, the tender process is in preparation.

RO – CFR

In the section Campina – Bucharest (92 km) ETCS L1 v. 2.3.0d is in operation.

The sections Predeal – Câmpina (53 km) and Bucharest – Constanta (225 km) are under construction. The ETCS L1 v. 2.3.0d will come into operation by 2013.

The section Lököshaza – Predeal (510 km) will be equipped by ETCS L2 v. 2.3.0d step by step – the start in 2015. The whole section will come into operation by 2020.

BG – NIRC

On the section Plovdiv – Dimitrovgrad the ETCS L1 v. 2.3.0d is already installed and tested. ETCS L1 v. 2.3.0d is under construction also on the section Dimitrovgrad – Svilengrad –

Turkish/Greek borders (83 km). The commercial operation will start together on the whole line Plovdiv – Svilengrad – Turkish/Greek border in 2014.
The ETCS L1 v. 2.3.0d is under construction on the sections Septemvri – Plovdiv (53 km). The operation will start by 2015.

GR – OSE
ETCS L1 v. 2.3.0d is under construction on the section Thriasio – Ikonio (20 km), the commercial operation will start in 2014.
ETCS L1 v. 2.3.0d is under construction also on the section SKA - Promachonas (541 km), the commercial operation will start in 2015.

This overview shows that the migration process to the ETCS trackside on the main path of the RFC 7 lines has started. There is a very good chance to operate under ETCS supervision on more cross-border sections between neighbour member states after 2015.
The aim is to bring the ETCS deployment in a routine process for decreasing development works and on side testing by the exchange of experiences and the reuse of proved solutions. Then this can accelerate the deployment process and decrease the investment costs.

X.2.5. Implementation of the ETCS on-board

The situation in the equipping of vehicles by ETCS on-board units is shown in the table 6. 2 of Investment plan.
There is a very well managed Austrian project for equipping about 200 locos that will be completed in this year. This project gained the co-financing from the special budget of TEN-T fund for acceleration of ETCS deployment.
The equipping of the vehicles by ETCS is for RUs more difficult from the financial view. This process will be very slow in the future without the possibility of co-financing the vehicle equipping for RUs.

The Annual Status Report of the ETCS deployment brings the whole overview of the ETCS on the RFC 7 - see tables 6.1, 6.2 and 6.3 of the Investment plan.

X. Conclusion

The above chapters of the Implementation Plan present in detail the activities done and the decisions made in the different professional fields of rail freight corridor establishment. The information and conclusions therein are based on the present knowledge of the involved IMs and AB, and it is believed to contain the solutions that best serve the purposes of RFC7.

Management Board members hope that the document provides sufficient information for the Executive Board, the European Commission and to the business partners of railway Infrastructure Managers to have an overview about the process of establishing and the rules of operating Orient Corridor.

Putting into practice the newly defined procedures requires major efforts on behalf of each participating infrastructure manager and allocation body, but the Management Board of Rail Freight Corridor 7 is determined to continue work to the best of their knowledge and take all the necessary measures for provision of high quality international rail freight services.

XI. Annexes

XII.1. MoU establishing the Executive Board

XII.2. MoU establishing the Management Board

XII.3. Letters of Intent of Advisory Groups

XII.4. Rules of AG consultation

XII.5. Transport Market Study

XII.6. Investment Plan

XII.7. Infrastructure characteristics with maps

MEMORANDUM OF UNDERSTANDING

among the ministers in charge of transport of

the Republic of Austria,
the Republic of Bulgaria,
the Czech Republic,
the Hellenic Republic,
the Republic of Hungary,
Romania and
the Slovak Republic

on the implementation of rail freight corridor No 7
(Orient Corridor)

General Objectives

The implementation of a rail freight network was one of the objectives of the White Paper of the European transport policy for 2010. In this framework, the goal was that investments should, amongst others, encourage the gradual development of trans-European corridors for priority or even exclusive use by freight trains. The gradual establishment of corridors giving priority to freight has to be achieved through improvements in capacity, including the upgrading and the rehabilitation of infrastructure on alternative low-traffic routes or through the development of traffic management systems (control-command and signalling). An important step was taken by a common decision of Ministers to identify the necessary steps for establishing functioning freight corridors.

In December 2008, the European Commission made public a proposal of regulation aiming to improve the competitiveness of rail freight. Regulation No 913/2010 of the European Parliament and of the Council of 22 September 2010 concerning a European rail network for competitive freight (hereinafter referred to as 'Regulation') came into force on 9 November 2010.

The Regulation lays down rules for the establishment and organisation of international rail corridors for competitive rail freight with a view to the development of a European rail network for competitive freight. It sets out rules for the selection, the organisation, the management and the indicative investment planning of freight corridors. The Regulation applies to the management and the use of railway infrastructure included in freight corridors.

In order to implement the provisions of the Regulation, the management board of freight corridor No 7 to be established by the infrastructure managers of the Member States concerned shall in particular:

- draw up an implementation plan, at the latest 6 months before making the freight corridor operational;
- draw up an investment plan, which includes details of indicative medium and long-term investment for infrastructure in the freight corridor;
- set up a freight corridor one-stop shop for application for infrastructure capacity;
- define the need for capacity to be allocated to freight trains running on the freight corridor;
- define the reserve capacity for international freight trains running on the freight corridors, taking into account the need for capacity for passenger transport;
- define pre-arranged train paths along the freight corridor in an annual path catalogue;
- put in place procedures for coordinating traffic management along the freight corridor, and regarding the interconnection of the freight corridors Nos 5, 6, 8 and 9 procedures for coordinating traffic.

The Ministers

1. recognise the contribution of rail freight to Europe's socio-economic development and to the environment;
2. stress the high potential of rail freight corridors to interconnect in a more efficient and effective way the existing TEN-T priority projects in the future TEN-T Core network;
3. stress the high potential of a such a railway's Core network for the relations with Asia, but also for its high potential in terms of multimodality and for its benefits for the global transport;
4. share the ambition to continue to work together to develop the network by the management of the freight corridors and their interconnections, but also by the improvement of interoperability, the removal of bottlenecks, the harmonisation of operational rules and the capacity management;
5. want to increase the involvement of the business community in developing the freight corridors;
6. recall the Letters of Intent on the development of ERTMS Corridor E;
7. consider that this Memorandum of Understanding is without prejudice to the competence of the Member States regarding planning and funding of the rail infrastructure on their territory;
8. consider as a potential the extension of the freight corridor to Germany as well as the connection between ERTMS Corridors E and F;
9. welcome the objective to extend ERTMS Corridor E in line with the direction of freight corridor No 7 towards Bulgaria and Greece.

Taking into consideration the above and in order to comply with the provisions laid down in Article 8(1) of the Regulation, the Ministers hereby establish the executive board of freight corridor No 7 (Orient Corridor) described in the Annex to the Regulation. The members of the executive board appointed by the Ministers to represent them shall be as follows:

- Federal Minister of Transport, Innovation and Technology of the Republic of Austria
- Director of the National transport policy Directorate of the Ministry of Transport, Information Technology and Communications of the Republic of Bulgaria
- Director of Department for Rails, Railway and Combined Transport of the Ministry of Transport of the Czech Republic
- Head of the Freight Transport Division of the Ministry of Infrastructure, Transport and Networks of the Hellenic Republic
- Deputy State Secretary for Transport of the Ministry of National Development of the Republic of Hungary
- Minister of Transports and Infrastructure of Romania
- Minister of Transport, Construction and Regional Development of the Slovak Republic.

The executive body of freight corridor No 7 shall elaborate and approve its terms of reference on the basis of mutual consent in accordance with Article 8 (4) of the Regulation the latest on 30 September 2011. The terms of reference shall include in particular:

- objectives of the organization,
- members and their rights and obligations,
- rules of operation,
- decision making procedures,
- sanctions.

The Ministers have moreover decided to:

1. continue supporting the need to implement the financial decisions relating to the ERTMS deployment on Corridor E by 2015/2020;
2. insist that the freight corridor and its principal routes become part of the TEN-T Core network;
3. support that the management board of freight corridor No 7 considers RailNetEurope (RNE) as one of the potential suppliers of principles, methods and tools for the allocation and the management of the capacity on the freight corridor and for related matters;
4. encourage the National Safety Authorities in their countries to improve their cooperation along the freight corridor No 7.

Done at Luxembourg on 16 June 2011, in seven original copies in English.

For the Republic of Austria:

Ms Doris BURES,
Federal Minister of Transport, Innovation and Technology

For the Republic of Bulgaria:

PP. Mr Ivaylo MOSKOVSKI, Peter STEFANOV
Minister of Transport, Information Technology and Communications

For the Czech Republic:

Mr Jiří ŽÁK,
Deputy Minister of Transport

For the Hellenic Republic:

Mr Spyros VOUGIAS,
Deputy Minister of Infrastructure, Transport and Networks

For the Republic of Hungary:

Mr Pál VÖLNER,
Minister of State for Infrastructure

For Romania:

Ms Anca Daniela BOAGIU,
Minister of Transports and Infrastructure

For the Slovak Republic:

Mr Peter JAVORČIK
Ambassador, Deputy Permanent Representative of the Slovak Republic to the European Union

Memorandum of Understanding

between

Railway Infrastructure Managers and Allocation Bodies
of the Czech Republic, Slovakia, Austria, Hungary, Romania,
Bulgaria and Greece

establishing the Management Board
of Rail Freight Corridor 7
"Prague-Vienna/Bratislava-Budapest — Bucharest-
Constanta— Vidin-Sofia-Thessaloniki-Athens"

in accordance with Regulation (EU) 913/2010

MEMORANDUM OF UNDERSTANDING

hereby establishing the Management Board of Rail Freight Corridor 7 "Prague-Vienna/Bratislava-Budapest — Bucharest-Constanta— Vidin-Sofia-Thessaloniki-Athens" in accordance with Regulation (EU) 913/2010

agreed between

Name of organization: *ÖBB-Infrastruktur AG*
Seated at: *A-1020 Wien, Praterstern 3, Austria*
Court of registration and registration no. of the organization:
FN 71396w HG Wien / DVR 0063533 / UID ATU 16210507
Represented by: *Mr. Herwig Wiltberger, COO, Member of the Board of Management*
from Austria

Name of organization: Railway Infrastructure Administration, state organization (SŽDC, s.o.)
Seated at: *Dlážděná 1003/7, Praha 1, 110 00*

Court of registration and registration no. of the organization:

IČ 70 99 42 34, DIČ CZ70994234 Entry in the commercial register
Municipal Court in Prague, section A, enclosure 48384
Represented by: *Pavel Habarta, Executive Director*
from Czech Republic

Name of organization: *Železnice Slovenskej republiky, Bratislava*
Seated at: *Klemensova 8, 813 61 Bratislava, Slovakia*
Court of registration and registration no. of the organization: 31 364 501
Represented by: *Ing. Vladimír Ľupták, Director General*
from Slovakia

Name of organization: *MÁV Hungarian State Railways Private Company Limited by Shares*
Seated at: *H-1087 Budapest, 54-60 Könyves Kálmán krt., Hungary*
Court of registration and registration no. of the organization: 01-10-042272
Represented by: *Ferenc Szarvas, Chief Executive Officer*
and
Name of organization: *Győr-Sopron-Ébenfurti Vasút Zrt. (GYSEV Raaberbahn)*
Seated at: *H-9700 Sopron, 19 Mátyás Király St, Hungary*
Court of registration and registration no. of the organization: Cg.08-10-001787
Represented by: *Ilona Dávid, Chief Executive Officer*
and
Name of organization: *VPE – Hungarian Rail Capacity Allocation Office*
Seated at: *H-1054 Budapest, 48 Bajcsy Zsilinszky St, Hungary*
Court of registration and registration no. of the organization: 01-09-725271
Represented by: *István Pákozdi, Managing Director*
from Hungary

Name of organization: *Compania Națională de Căi Ferate CN "CFR"- SA*
Seated at: *38, Dinicu Golescu, 010873 Bucharest 1, Romania*
Court of registration and registration no. of the organization: Registrul Comerțului J/40/9774/1998
Represented by: *Ion Stoichescu, Director General*
from Romania

Name of organization: : *NRIC (National Railway Infrastructure Company), State Enterprise*
Seated at: *Sofia 1233, 110 Maria Louisa Blvd, Bulgaria*
Court of registration and registration no. of the organization: 1300823243
Represented by: *Milcho Lambrev, Director General*
from Bulgaria

Name of organization: *Hellenic Railways (OSE)*
Seated at: *10437 GR-ATHENS, Karolou 1-3, Greece*
Court of registration and registration no. of the organization: 0197/098/B/86/0002
Represented by: *Panagiotis THEOFANOPOULOS, Managing Director of OSE*
from Greece

hereinafter: "Parties"

I. Establishment of the Management Board

Parties hereby establish the Management Board of Rail Freight Corridor 7 "Prague-Vienna/Bratislava-Budapest — Bucharest-Constanta— Vidin-Sofia-Thessaloniki-Athens" as defined in Regulation (EU) 913/2010. Members of the Management Board shall be the Representatives of Parties named above.

The management board shall take its decisions, including its decisions regarding its legal status, the establishment of its organizational structure, resources and staffing, on the basis of mutual consent of its members.

Members of the Management Board

Name of organization: *ÖBB-Infrastruktur AG*
Name of Management Board member: *Mr. Harald Hotz, Head of the Network Access Department*
Address: *A-1020 Wien, Nordbahnstraße 50, Austria*
Telephone no.: *+43-1-93000-33133*
Fax no.: *+43-1-93000-25227*
E-mail address: *harald.hotz@oebb.at*
from Austria

Name of organization: Railway Infrastructure Administration, state organization (SŽDC, s.o.)
Name of Management Board member: Jiří Martínek, Deputy Director for Modernization
Address: *Dlážděná 1003/7, Praha 1, 110 00*

Telephone no.: +420 222 335 206
Fax no.: +420 222 335 325
E-mail address: martinekJ@szdc.cz
from Czech Republic

Name of organization: *Železnice Slovenskej republiky, Bratislava*
Name of Management Board member: *Ing Ján Simčo, PhD – Director of Department of Commerce*
Address: *Klemensova 8, 813 61 Bratislava, Slovakia*
Telephone no.: *+ 421 2 2029 2617*
Fax no.: *+ 421 2 2029 4715*
E-mail address: *simco.jan@zsr.sk*
from Slovakia

Name of organization: *MÁV Hungarian State Railways Private Company Limited by Shares*
Name of Management Board member: *László Mosóczi, PhD – Deputy General Manager COO*
Address: *H-1087 Budapest, 54-60 Könyves Kálmán Blvd, Hungary*
Telephone no.: *+ 36 1 511-3354*
Fax no.: *+36 1 511-3307*
E-mail address: *mosoczil@mav.hu*

and

Name of organization: *Győr-Sopron-Ébenfurti Vasút Zrt. (GYSEV Raaberbahn)*
Name of Management Board member: *Szilárd Kövesdi, Head of Infrastructure Department*
Address: *H-9700 Sopron, 19 Mátyás Király St, Hungary*
Telephone no.: *+36-99-517-405*
Fax no.: *+36-99-517-308*
E-mail address: *szkovesdi@gysev.hu*

and

Name of organization: *VPE – Hungarian Rail Capacity Allocation Office*
Name of Management Board member: *István Pákozdi, Managing Director*
Address: *H-1054 Budapest, 48 Bajcsy Zsilinszky St, Hungary*
Telephone no.: *+36-1-301-9901*
Fax no.: *+36-1-332-80-25*
E-mail address: *pakozdii@vpe.hu*
from Hungary

Name of organization: *National Railway Company CFR SA*
Name of Management Board member: *Dipl. Eng. Jean Nicolaos, Director for Strategy and International Affairs*
Address: *38, Dinicu Golescu, 010873 Bucharest 1, Romania*
Telephone no.: *+40 21 319 24 70*
Fax no.: *+40 21 319 24 71*
E-mail address: *jean.nicolaos@cfr.ro*
from Romania

Name of organization: *NRIC (National Railway Infrastructure Company)*
Name of Management Board member: Hristo Alexiev, Adviser of the NRIC's Management Board
Address: *Sofia 1233, 110 Maria Louisa Blvd, Bulgaria*
Telephone no.: *+ 359 2 932 6104*
Fax no.: *+ 359 2 932 6444*
E-mail address: *halexiev@rail-infra.bg*
from Bulgaria

Name of organization: *Hellenic Railways (OSE)*
Name of Management Board member: *Athanasios Triandafyllou; Direction of Strategic Planning and Development, Director*
Address: *10437 GR-ATHENS, Karolou 1-3, Greece*
Telephone no.: *+30 2105297602*
Fax no.: *+30 210 5297645*
E-mail address: *a.triadafilou@osenet.gr*
from Greece

II. Background

- Having regard to the adoption by the European Parliament and the Council on 22 September 2010 of Regulation (EU) 913/2010 concerning a European rail network for competitive freight, entering into force on 9 November 2010;

- Having regard to the intention to implement the European international rail freight corridors in a manner consistent with the European Railway Traffic Management System (ERTMS) corridors, the Trans-European Transport Network (TEN-T) and the RailNetEurope (RNE), and to the necessity of the coordinated development of the networks;

- Having regard to the prescription of Regulation (EU) 913/2010 to establish and develop Corridor 7 Prague-Vienna/Bratislava-Budapest — Bucharest-Constanta— Vidin-Sofia-Thessaloniki-Athens;

- Having regard to the Memorandum of Understanding establishing the Executive Board of the Corridor signed on 16 June 2011 by ministers in charge of transport of the countries concerned;

- Having regard to the implementation of the technical specifications for interoperability relating to the Trans-European railway transport system;

- Having regard the Common Declaration of the Infrastructure Managers of the Czech Republic, Slovakia, Austria, Hungary, Romania on the ETCS Corridor E "Dresden-Prague-Vienna/Bratislava-Budapest-Bucharest-Constanta" signed on 10 February 2010 and the intension to extend the Corridor E towards Bulgaria and Greece, as included in the MoU of the Executive Board;

- Acknowledging the importance of the Corridor 7 railway axis facilitating the rail freight traffic, and significantly contributing to link the Northern area of Central Europe and Black Sea, Aegean Sea, Asia, as well as giving Central European countries an access to them;

- Having regard the TEN-T Priority Project 22 (which is related to Freight Corridor 7), as a potential integration into Freight Corridor 7 (according to Article 4, paragraph c) of Regulation (EU) 913/2010)

members of the Management Board hereby certify their commitments as follows.

III. Definitions

For purposes of this Memorandum of Understanding, the following definitions apply. Terms not defined here shall have the meaning provided in the Regulation (EU) 913/2010.

Regulation: Regulation (EU) 913/2010 concerning a European rail network for competitive freight

MoU: Memorandum of Understanding

Corridor 7: Rail Freight Corridor 7 "Prague-Vienna/Bratislava-Budapest — Bucharest-Constanta— Vidin-Sofia-Thessaloniki-Athens"

MB: Management Board as described in the Regulation

EB: Executive Board as described in the Regulation

IV. Activities

Specific activities covered under this MoU include, but are not limited to:

- Cooperation at a high level in order to fulfil the requirements and the aim of the Regulation;
- Involvement of all stakeholders to maximize the benefits of cooperation, including railway infrastructure companies concerned in the countries neighbouring Corridor 7 holding observer status;
- Defining the Internal Terms and Regulations of the Management Board that determines the organizational structure and the working and decision-making procedures of the Management Board;
- Defining in the Internal Terms and Regulations the procedures to involve into the Management Board activities the experience gained and the obligations undertaken in the ERTMS, TEN-T and RNE networks connected to the lines covered by the Corridor;
- Operating the Management Board as laid down in the Regulation;
- Setting up of the Advisory Groups as prescribed in the Regulation;
- Keeping active relation with the Executive Board and the Advisory Groups of Corridor 7;
- Handling confidentially all information shared in the framework of the above described cooperation, and not to share them with third party without approval of the members of the Management Board.

V. Primary tasks to define the operating conditions of the MB

The following tasks need to be completed by the given deadlines in harmony with point IV:

- Determining the legal form of the MB
  Responsible organizations: members of the MB
  Deadline: 14th October 2011

- Approval of the Internal Terms and Regulations of the MB
  Responsible organizations: members of the MB
  Deadline: 15th November 2011

- Setting up of the Advisory Groups
  Responsible organizations: members of the MB
  Deadline: 16th December 2011

Work of the members of the MB during completion of these tasks shall be coordinated by the MÁV Hungarian State Railways Co. until the approval of the Internal Terms and Regulations of the Management Board.

VI. Contact details

The following people shall keep contact on behalf of the members of the Management Board.
In case of change in the contact details each member shall inform every other member in writing about the new contact details, without the need to modify present MoU.

Name of organization:	*ÖBB-Infrastruktur AG, Network Access Department*
Name of contact person:	*Mr. Thomas Wimroither*
Address:	*A-1020 Wien, Nordbahnstraße 50, Austria*
Telephone no.:	*+43-1-93000-37300*
Fax no.:	*+43-1-93000-25227*
E-mail address:	*thomas.wimroither@oebb.at*

from Austria

Name of organization:	*Railway Infrastructure Administration, state organization (SŽDC, s.o.)*
Name of contact person:	*Radek Čech*
Address:	*Dlážděná 1003/7, Praha 1, 110 00Telephone no.: +420 222 335 585*
Fax no.:	*+420 222 335 325*
E-mail address:	*cech@szdc.cz*

from Czech Republic

Name of organization:	*Železnice Slovenskej republiky, Bratislava*
Name of contact person:	*Ing. Ladislav Lauko*
Address:	*Klemensova 8, 813 61 Bratislava, Slovakia*
Telephone no.:	*+ 421 2 2029 5206*
Fax no.:	*+421 2 5296 2381*
E-mail address:	*lauko.ladislav@zsr.sk*

from Slovakia

Name of organization:	*MÁV Hungarian State Railways Private Company Limited by Shares*
Name of contact person:	*Erzsébet Csontos, Mrs Tar adviser*
Address:	*H-1087 Budapest, 54-60 Könyves Kálmán Blvd, Hungary*
Telephone no.:	*+36-1-511-4595*
Fax no.:	*+36-1-511-3307*
E-mail address:	*tarsne@mav.hu*

and

Name of organization:	*Győr-Sopron-Ébenfurti Vasút Zrt (GYSEV Raaberbahn)*
Name of contact person:	*Balázs Orosz international expert*
Address:	*H-1138 Budapest, 22 Népfürdő St, Hungary*
Telephone no.:	*+36-1-224-5851*
Fax no.:	*+36-1-224-5878*
E-mail address:	*orosz.balazs@gysev.hu*

and

Name of organization:	*VPE – Hungarian Rail Capacity Allocation Office*
Name of contact person:	*István Pákozdi Managing Director*
Address:	*H-1054 Budapest, 48 Bajcsy Zsilinszky St, Hungary*
Telephone no.:	*+36-1-301-9901*
Fax no.:	*+36-1-332-80-25*
E-mail address:	*pakozdii@vpe.hu*

from Hungary

Name of organization:	*National Railway Company CFR SA*
Name of contact person:	*Dipl. Eng. Florentina Trandafir, Head of Strategy Office*
Address:	*38, Dinicu Golescu, 010873 Bucharest 1, Romania*
Telephone no.:	*+40 21 319 24 70*
Fax no.:	*+40 21 319 24 71*
E-mail address:	*florentina.trandafir@cfr.ro*

from Romania

Name of organization:	*NRIC (National Railway Infrastructure Company)*
Name of contact person:	*Veneta Peeva, Head of Strategy Department*
Address:	*Sofia 1233, 110 Maria Louisa Blvd., Bulgaria*
Telephone no.:	*+ 359 2 932 3145*
Fax no.:	*+ 359 2 931 1131*
E-mail address:	*veneta.peeva@rail-infra.bg*

from Bulgaria

Name of organization:	Hellenic Railways (OSE)
Name of contact person:	*Maria Lefaki, Direction of Strategic Planning and Development*
Address:	*10437 GR-ATHENS, Karolou 1-3, Greece*
Telephone no.:	*+30 210 5297738*
Fax no.:	*+30 2105297645*
E-mail address:	*m.lefaki@osenet.gr*

from Greece

VII. Duration of the MoU

Present Memorandum of Understanding enters into force on the date when it is signed by every Signatory, and shall be effective for an undetermined period.

Present MoU may be modified any time by written agreement of the Parties.

On behalf of ÖBB:

Date: 09.09.2011

Signature:

On behalf of SZDC:

Date:

Signature:

On behalf of ZSR:

Date:

Signature:

On behalf of MÁV:

Date:

Signature:

Dr. Csehy Erzsébet
a MÁV ZRt. jogtanácsosa
jogtanácsosi ig.sz.: 11839

On behalf of GYSEV:

Date:

Signature:

On behalf of VPE:

VPE
Vasúti Pályakapacitás-elosztó Kft.
1054 Budapest, Bajcsy-Zs. út
Adószám: 13239990-2-41
Cg.01-09-725271

Date:

Signature:

On behalf of CFR:

Date:

Signature:

On behalf of NRIC:

Date:

Signature:

On behalf of OSE:

Date:

Signature:

Παναγιώτης Αλκ. Θεοφανόπουλος
ΠΡΟΕΔΡΟΣ Δ.Σ.
& ΔΙΕΥΘΥΝΩΝ ΣΥΜΒΟΥΛΟΣ

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR

Letter of Intent

of Railway Undertakings

interested in the use of Rail Freight Corridor 7 (Orient Corridor)

„Prague-Vienna/Bratislava-Budapest - Bucharest-Constanta - Vidin-Sofia-Thessaloniki-Athens"

about setting up of the Advisory Group of Rail Freight Corridor 7

in accordance with Regulation (EU) 913/2010

Budapest, 30 October 2012

Railway Infrastructure Managers and Allocation Bodies along Rail Freight Corridor 7 „Prague-Vienna/Bratislava-Budapest - Bucharest-Constanta - Vidin-Sofia-Thessaloniki-Athens" have set up the Management Board of the corridor based on Regulation (EU) 913/2010.

The purpose of this Letter of Intent is to identify a framework for cooperation and partnership between the Management Board and Railway Undertakings and their representative organizations in the context of establishing and operation of Rail Freight Corridor 7 in order that the services provided along the corridor meet the demands of Railway Undertakings as much as possible.

According to article 8 paragraph 8 of Regulation (EU) 913/2010, the Management Board shall set up an Advisory Group of Railway Undertakings, which

- may issue an opinion on any proposal by the Management Board which has consequences for these undertakings;
- may issue own-initiative opinions;

and the Management Board shall take any of these opinions into account.

Participation in the Advisory Group is on a voluntary basis.

Undersigned hereby confirm that the organizations they represent intend to cooperate with the Management Board of Rail Freight Corridor 7 in the framework of the Advisory Group of Railway Undertakings, in accordance with Regulation (EU) 913/2010 and the Rules of Consultation enclosed to this Letter of Intent.

The comprehensive position of the Group (including majority and minority opinion of companies, if applicable) shall be communicated to the Management Board by one representative company of the Advisory Group, that is Rail Cargo Hungaria Zrt.

Budapest, 30 October 2012

Name of participant	Name of company	Signature
FARKAS GYULA	RAIL CARGO HUNGARIA ZRT.	[signature]
ANDRÁS SCHMIDT	AWT RAIL HU ZRT	[signature]
JURAJ MUDRAK	METRANS /DANUBIA/ a.s.	[signature]
OLARU MIHAI	SC UNIFERTRANS SA	[signature]
BOXITA IOAN	CFR MARFA SA	[signature]
Spuller Ernst	Rail Cargo Austria	[signature]
FERENC TAKÁCS	DB SCHENKER RAIL HUNGÁRIA KFT.	[signature]
MÁRTA GÁBOR	GYSEV CARGO Zrt	[signature]

Letter of Intent

of Managers and Owners of the TERMINALS

of Rail Freight Corridor 7 (Orient Corridor)

„Prague-Vienna/Bratislava-Budapest - Bucharest-Constanta - Vidin-Sofia-Thessaloniki-Athens"

about setting up of the Advisory Group of Rail Freight Corridor 7

in accordance with Regulation (EU) 913/2010

Budapest, 30 October 2012

Railway Infrastructure Managers and Allocation Bodies along Rail Freight Corridor 7 „Prague-Vienna/Bratislava-Budapest - Bucharest-Constanta - Vidin-Sofia-Thessaloniki-Athens" have set up the Management Board of the corridor based on Regulation (EU) 913/2010.

The purpose of this Letter of Intent is to identify a framework for cooperation and partnership between the Management Board and the managers and owners of Terminals and their representative organizations in the context of establishing and operation of Rail Freight Corridor 7 in order that the services provided along the corridor meet market demands as much as possible.

According to article 8 paragraph 7 of Regulation (EU) 913/2010, the Management Board shall set up an Advisory Group of Terminals, which

- may issue an opinion on any proposal by the Management Board which has consequences for investment and the management of terminals;
- may issue own-initiative opinions;

and the Management Board shall take any of these opinions into account.

Participation in the Advisory Group is on a voluntary basis.

Undersigned hereby confirm that the organizations they represent intend to cooperate with the Management Board of Rail Freight Corridor 7 in the framework of the Advisory Group of Terminals, in accordance with Regulation (EU) 913/2010 and the Rules of Consultation enclosed to this Letter of Intent.

The comprehensive position of the Group (including majority and minority opinion of companies, if applicable) shall be communicated to the Management Board by one representative company of the Advisory Group, that is Rail Cargo Austria AG Deputy representative is WienCont Container Terminal Gesellschoaft m.b.H

Budapest, 30 October 2012

Name of participant	Name of company	Signature
GANIBEGOVIĆ Nusreta	WIEN CONT CONTAINER TERMINAL GesmbH	
ANDRÁS SCHMIDT	AWT RAIL HU ZRT	
Dr Fullér István HUSZTI ISTVÁN	BILK KOMBITERMINAL Zrt	
Ernst Spuller	Rail Cargo Austria	
Mihai ROSCA	CFR MARFA S.A.	
FERENC TAKÁCS	DB SCHENKER RAIL HUNGÁRIA KFT.	
VLADIMÍR FIŠER	BOHEMIAKOMBI	
Angela Klimze	WienCont Container Terminal Ges.m.b.H.	
ZOLTÁN NAGY Jozef Molnár	BUSINESS PARK ŠTÚROVO RAILWAY	

JURAJ MUDRÁK METRANS /DANUBIA/ a.s.

Name of participant	Name of company	Signature
MÁRTA GÁBOR	GYSEV CARGO Zrt.	
MÁRTA GÁBOR	MLSZKSZ	

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR

RULES OF CONSULTATION BETWEEN THE MANAGEMENT BOARD AND THE ADVISORY GROUPS OF ORIENT CORRIDOR

IN HARMONY WITH REGULATION (EU) 913/2010

I. Basic provisions

1. The Management Board (MB) sets up one Advisory Group (AG) made up of managers and owners of the terminals of Orient Corridor and of their representative organizations.
2. The MB sets up one further AG made up of railway undertakings (RUs) interested in the use of Orient Corridor and of their representative organizations.
3. Participation in the AGs is on a voluntary basis.
4. The AGs may issue an opinion on any proposal by the MB which has direct consequences for AG members. The AGs may also issue own-initiative opinions. The MB shall take any of the opinions of the AGs into account.
5. The MB is responsible for organization and financing of three regular AG meetings / year / AG and of consultation between MB and AGs.
6. Internal meetings of AGs are financed by AG members themselves. Members of the AG will not be reimbursed by the corridor organization for their expenses.
7. The MB defines only the rules applicable between MB and AGs, but MB does not define the process of communication and position-making inside the AGs.

II. Formulation and representation of the positions of the AGs

8. Every AG elects its own representative for a defined time period, and informs the Secretariat of Orient Corridor of the name and contact details of the AG representative. The representative of the AG collects the opinions of AG member companies, and communicates the comprehensive position of the AG to the MB.
9. A sole position of the AG shall be communicated to the MB, and not individual positions of AG members. Nevertheless, the position of the AG may include majority and minority opinions, if applicable.

10. Inside the AG every country has a coordinator, pulling together the AG members inside its country, and communicating to the representative of the AG.

11. The possibility for joining and leaving both AGs shall be always open. Secretariat of Orient Corridor has to be informed of names and contact details of newly joined and/or leaving AG members.

III. Procedure of consultation between MB and AGs

12. The MB communicates with the representatives of the AGs only, i.e. one entity from AG of RUs and one entity from AG of Terminals.

13. The sole channel of communication with AGs on behalf of MB is the Secretariat of Orient Corridor, whose contact details are to be found on the website of the corridor. Therefore, the AG should address the Secretariat in case of sending the position of the AG, asking for clarifications, etc.

14. MB Secretariat circulates documents for consultation by sending them to every AG member by e-mail correspondence, but MB Secretariat receives the comprehensive AG position only from the representative of the AG, and not individual opinions from AG members.

15. The language of communication between MB and AGs is English.

16. Country coordinators of the AG may contact the MB member Infrastructure Manager company of their country for consultation.

17. Regular meetings of AGs are held three times a year. Regular meetings are organized by the MB Secretariat. MB members of Orient Corridor and its experts may take part in the AG meetings.

IV. Utilization of AGs' opinions

18. As a basic rule, MB takes every possible opinion of AGs into account.

19. If MB cannot take some AG opinion into account, MB gives justification to AG, and continues consultation with AG until agreement is reached.

20. If agreement between MB and AG position cannot be reached, parties can refer the matter to the Executive Board to act as mediator.

TRANSPORT MARKET STUDY
RAIL FREIGHT CORRIDOR 7

Change history:

Version	Author	Date	Changes
V.1	ŽSR VVÚŽ	6.9.2012	creation
V.2	Blanka Ondovčíková	12.9.2012	Adjusted on meeting of the meeting of WG Marketing in Bratislava
V.3	ŽSR VVÚŽ	20.9.2012	Adjustments according to comments from the members of WG Marketing
V.4	ŽSR VVÚŽ	15.1.2013	Adjustments according to comments of Advisory groups and members of WG Marketing
V.5	Blanka Ondovčíková	23.1.2013	Adjusted on meeting of the meeting of WG Marketing in Bratislava
V.6	Blanka Ondovčíková	20.2.2013	Adjusted according to requirements of Managing board
V.7	Blanka Ondovčíková	09.5.2013	Linguistic corrections
V.8	Blanka Ondovčíková	10.5.2013	Modification of Appendix B5
V.9	ZSR VVUZ	15.8.2013	Modification according to general comments of EC DG- MOVE
V.10	Blanka Ondovčíková	22.10.2013	Modification according to the decision of MB meeting (25.9.2013, Vienna)

Content

Glossary/ abbreviations

Glossary/abbreviations

Glossary/abbreviation	Definition
AB	Allocation Body
Allocation	Means the allocation of railway infrastructure capacity by an Infrastructure manager or allocation body. When the Corridor-OSS makes the allocation decision as specified in Art 13(3) of 913/2010 the allocation itself is done by the Corridor OSS on behalf of the concerned IMs concluding individual national infrastructure usage contracts based on national network access conditions.
CE Delft	CE Delft is an independent research and consultancy organisation specialised in developing solutions to environmental problems.
C-OSS	The Corridor One Stop Shop A Joint body designated or set up by the RFC organisations for applicants to request and to receive answers, in a single place and in a single operation, regarding infrastructure capacity for freight trains crossing at least one border along the freight Corridor. (EU Regulation No 913/2010, Art 13).
DG TREN	Directorate-General of the European Commission responsible for transport and energy within the European Union.
ETCS	European Train Control System This component of ERTMS guarantees a common standard that enables trains to cross national borders and enhances safety. It is a signalling and control system designed to replace the several incompatible safety systems currently used by European railways. As a subset of ERTMS, it provides a level of protection against over speed and overrun depending upon the capability of the line side infrastructure.
ERTMS	European Railway Traffic Management System ERTMS is a major industrial project being implemented by the European Union, which will serve to make rail transport safer and more competitive. It is made up of all the train-borne, trackside and lineside equipment necessary for supervising and controlling, in real-time, train operation according to the traffic conditions based on the appropriate Level of Application.
FTE	Forum Train Europe FTE is a European association of railway undertakings and service companies based in Berne (Switzerland) that promotes cross-border rail freight and passenger traffic in Europe
GDP	Gross Domestic Product
GSM-R	Global System for Mobile Communications – Railway GSM-R is an international wireless communications standard for railway communication and applications. A sub-system of ERTMS, it is used for communication between train and railway regulation control centers
HEATCO	Harmonised European Approaches for Transport Costing and Project Assessment
IM	Infrastructure Manager

n/a	Not available
NPV	Net Present Value
PCS	Path Coordination System, formerly known as Pathfinder. IT tool for coordination of path requests.
Pre-arranged paths	On RFC a pre-constructed paths offered either on whole corridors or corridor sections. Previously RNE used the term Catalogue path or Pre-planned paths. A Corridor Pre-arranged path is a path set up by the IM's in the corridors and given to the Corridor OSS's to allocate on.
Regulation 913/2010	EU Regulation for a European Rail Network for Competitive Freight (913/2010)
Reserve Capacity	Capacity for international freight trains running on the freight corridor, kept in the final working timetables which allows for a quick and appropriate response to ad hoc requests for capacity.
RFC	Rail Freight Corridor. A corridor organised and set up in line with the EU Regulation 913/2010
RoLa	A rolling highway (originating from the German: Rollende Autobahn, also known as Rollende Landstraße and abbreviated as RoLa) is a combined transport system to transport trucks by rail. Special wagons are used in a rolling highway to provide a driveable track along the entire train. During a rolling highway journey, the truck drivers are accommodated in a passenger car with seats or beds. At both ends of the rail link there are purpose-built terminals that allow the train to be easily loaded and unloaded.
RNE	RailNetEurope RNE is an association set up by a majority of European Rail Infrastructure Managers and Allocation Bodies to enable fast and easy access to European rail, as well as to increase the quality and efficiency of international rail traffic
RU	Railway Undertaking
SWOT analysis	a structured planning method used to evaluate the **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats involved in this study
TEN-T	Trans-European Transport Network
TMS	Transport Market Study
TSI (TAF, TAP)	Technical Specification for Interoperability The European technical standards for interoperability. DIRECTIVE 2008/57/EC, Art. 2: a 'technical specification for interoperability' (TSI) means a specification adopted in accordance with this Directive by which each subsystem or part subsystem is covered in order to meet the essential requirements and ensure the interoperability of the rail system'. TAF/ TAP - Technical Specifications for Interoperability for Telematic Applications for Freight/ for Passenger Services
WEO	Word Economic Outlook

1 INTRODUCTION

The rail freight transport is an important part of transport market and it is an important support of sustainable development. The share of rail freight transport of total traffic volume in Central Europe gradually decreases, as regards new generated transport, there is a shift to road transport while rail freight transport increases in the West and East European countries (average annual growth 2,8%) and new generated transport is reallocated between rail and road transport more evenly. To turn the current situation in Central Europe with great potential of rail transport, it is necessary to ensure continued support for quality increase (not only in technical field, but also in time field) and rail transport competitiveness.

The main aim of the study is a support of increasing the qualitative terms and competitiveness of international rail freight transport.

The study deals with:

- establishment of rail freight corridor 7 (RFC 7) Prague-Bratislava/Vienna-Budapest-Bucharest-Constanta-Vidin-Sofia-Thessaloniki-Athens- Pireus,
- comple and precise data on current technical and technological condition of the corridor,
- capacity analysis, structure and level of the charges,
- impact of intended investments,
- quantification of the most important benefits of establishing the corridor.

Based on elaborated partial analysis, the measures and recommendations for the establishment of rail freight corridor 7 - including management of paths, improving coordination, communication and ultimately promotion of rail freight performance on corridor are specified.

1.1 TMS LEGAL BACKGROUND, SCOPE AND OBJECTIVE

1.1.1 Legal background (brief description)

The rail freight corridor 7 is being established based on Regulation (EU) No 913/2010 of the European Parliament and the Council of 22 September 2010, concerning a European rail network for competitive freight transport.

This Regulation follows the Council Directive 91/440/EEC of 29 July 1991 on the development of the Community's railways and Directive of the European Parliament and the Council 2001/14/EC of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure.

The objective of the Council Directive 91/440/EEC of 29 July 1991 is to achieve the equal and non-discriminatory access to railway infrastructure and to promote a rail market in the Europe through economic competition.
Directive 2001/14/EC, concerning access to network and charges, sets that infrastructure manager has to publish the network statement that contains information on (technical) type and restrictions of network, network access conditions and capacity allocation rules. New operators, if they have such information, can introduce the services generating the competitiveness on internal market and maximising customer's profit. Directive 2001/14/EC is a part of the first railway package.

The other legal regulation of the first package, part of which is the Directive 2001/14/EC, was the second railway package aimed at revitalizing the railways through rapid construction of an integrated European rail area. Five measures are based on the Directives specified in the transport White Paper and are aimed at improved safety, interoperability and opening up of the rail freight market. These five measures consist of:

- development of common approach to rail safety,
- promotion of interoperability primary principles,
- establishment of an effective management body: the European Railway Agency,
- widening and accelerating the opening up of rail freight market, especially, by enabling the market access for international freight transport on the whole European rail network from 1 January 2006 and for national freight traffic from 1 January 2007,
- Commission recommendation for the accession to the Convention concerning International Carriage by Rail (COTIF)

Moreover, the European Commission in its policy for encouraging a rail transport has adopted the approach based on the corridors in the context of trans-European transport network (TEN-T). This allowed allocating the subsidies for rail development projects through TEN-T funds. In fact, in this context, there is ERTMS implementation (ERTMS corridors)

In order to establish the European rail network aimed at the freight transport, some technical and operational incentives were established , e.g.:

- development of interoperability by means of Technical Specification for Interoperability relating to the Traffic Operation and Management (OPE CCS TSI) and Technical Specification for Interoperability on Telematic Applications for Freight (TAF TSI).

- establishment of RailNetEurope, organisation joining 37 railway infrastructure managers and allocation bodies from the whole Europe. Its main objective is to enable easy and rapid access to European railway infrastructure and to increase the quality and effectiveness of cross-border rail transport. It offers its customers service, software, and provides useful coordination framework between infrastructure managers.

- creation of corridor structures by Member States and infrastructure managers as part of ERTMS development on six main European routes that are important for freight transport.

The last incentives for the promotion of international freight transport are:
- Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area,
- the above mentioned Regulation (EU) No 913/2010 of the European Parliament and the Council of 22 September 2010 concerning a European railway network for competitive freight transport. Based on the Regulation 913/2010, freight corridors for competitive freight transport are going to be established.

1.1.2 Scope

Approach to assess the current situation is comprehensive, with selection of the most important socio-economic benefits and proposal of essential corrective measures, expectations and determination of implementation plan for draft rail freight corridor 7.

1.1.3 Goal

Although the services of national and international freight transport are opened up to economic competition from 1 January 2007, elimination of “barriers” between individual countries was not achieved sufficiently up to now. These barriers relate to border coordination, common investment plans concerning border stations and lines, compliance with terms of delivery, reliability, coordination between the terminals etc.

The aim of the study is:
- to describe and perhaps even specify (terminals, route diversions) a draft rail freight corridor 7,
- to evaluate the current situation of lines of draft rail freight corridor
- to propose corrective measures for improving the current situation
- to quantify the most significant socio-economic benefits after establishing of RFC 7

More precisely, this study is aimed at:
- providing the actual state of draft rail freight corridor 7 and future forecast after putting the freight corridor into practice,
- providing information on benefit of putting the corridor into practice,
- proposing the corrective measures and recommendations for railway infrastructure quality increase and increasing the international rail transport competitiveness.

1.2 Corridor geographic outline – listed in Regulation No 913/2010 (description + map, comparison with TEN-T /Priority Project 22/ ERTMS / RNE corridors)

Corridor draft according to the Annex " List of initial freight corridors" of Regulation (EU) No 913/2010 of the European Parliament and the Council of 22 September 2010, concerning European rail network for competitive freight transport, is shown on the following map no 1.

Map 1: Draft of the initial Rail Freight Corridor 7 according to Regulation 913/2010

In this Chapter, the simplified overview of comparison of the initial RFC 7 with TEN-T priority axis 22, ERTMS and RNE corridors is shown. The purpose of simply comparison is to provide visual comparison that shows the differences in corridor routes and can help to define the main, alternative and connecting lines of the future rail freight corridor 7.

Key: (for comparison of corridors)

Prague - junction (node) is a part of initial RFC 7 (Orient Corridor)

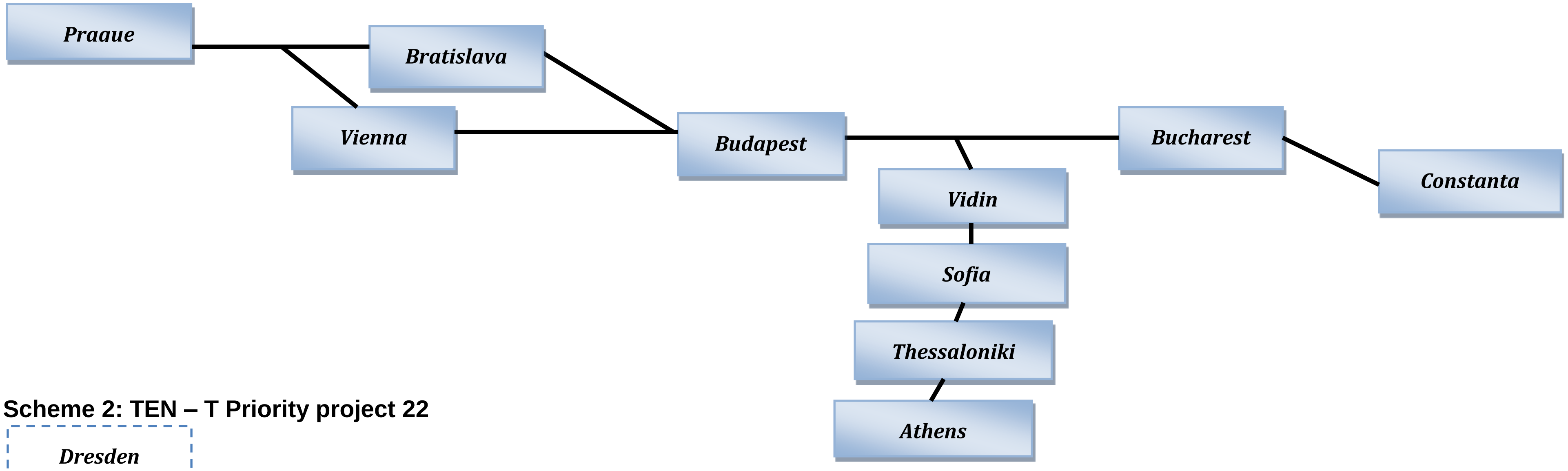
Hamburg - junction (node) is a part of compared corridor but not a part of initial RFC 7

- connection of iniatial RFC 7

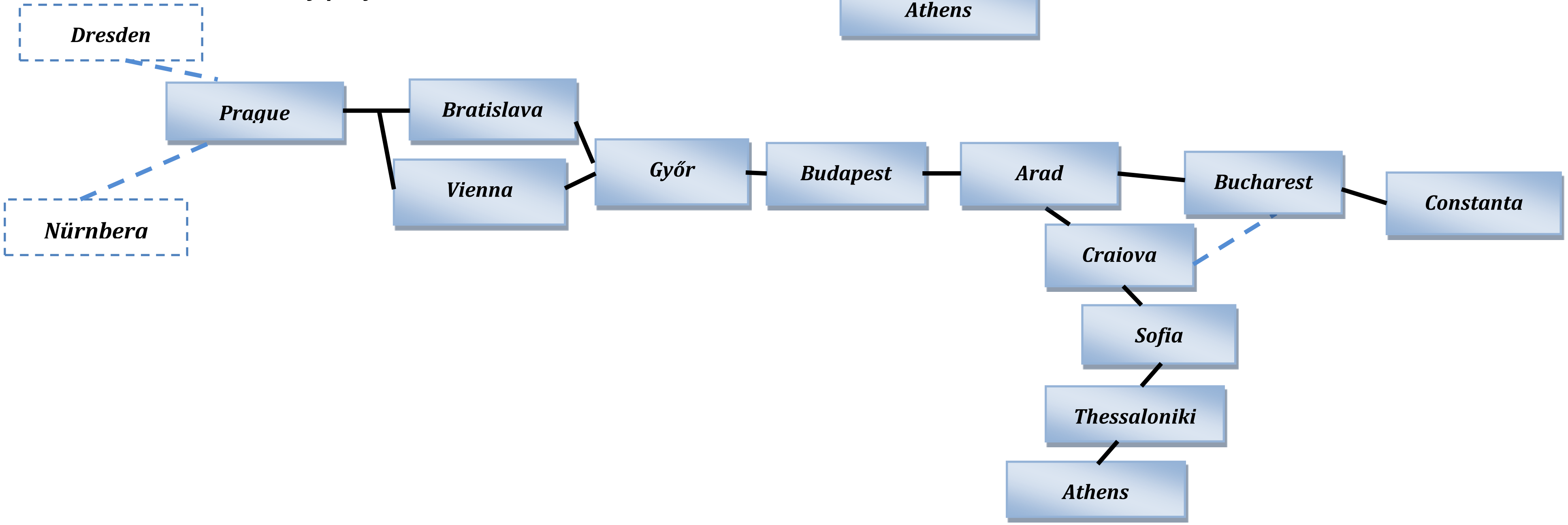
- connection of compared corridor but out of initial RFC 7

Notice: recommendation of this Transport Market Study which lines and terminals in addition to initial lines shall be the part of the RFC7 are defined in the Chapter 4

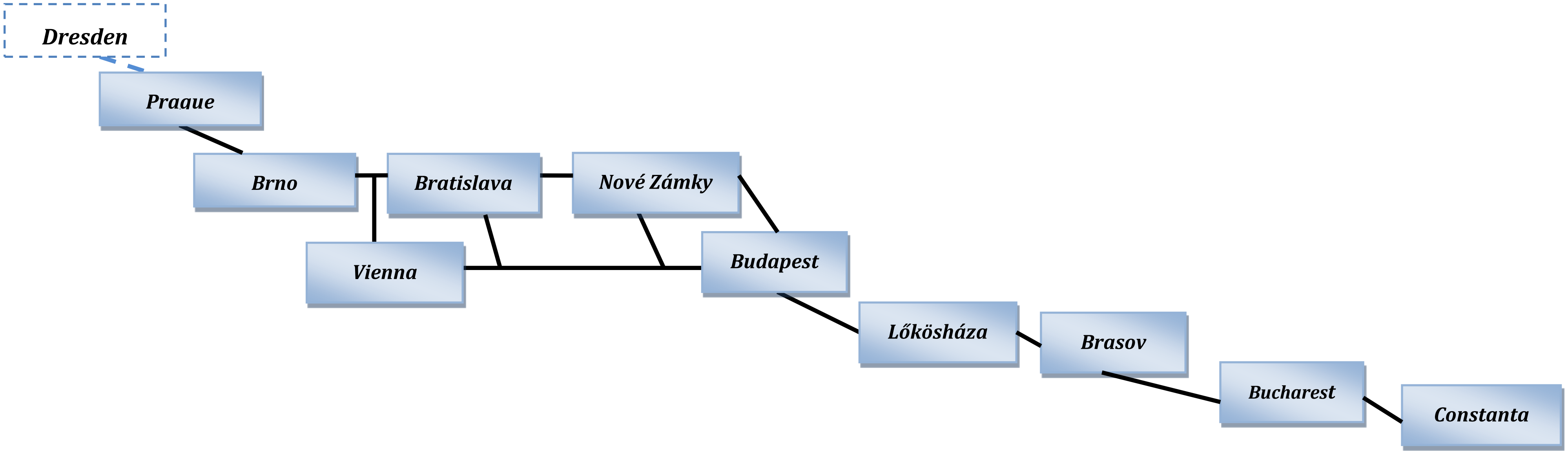
Scheme 1: Draft of initial Rail Freight Corridor 7 (proposed routes and terminals of the future RFC 7 are drafted in Chapter 4)



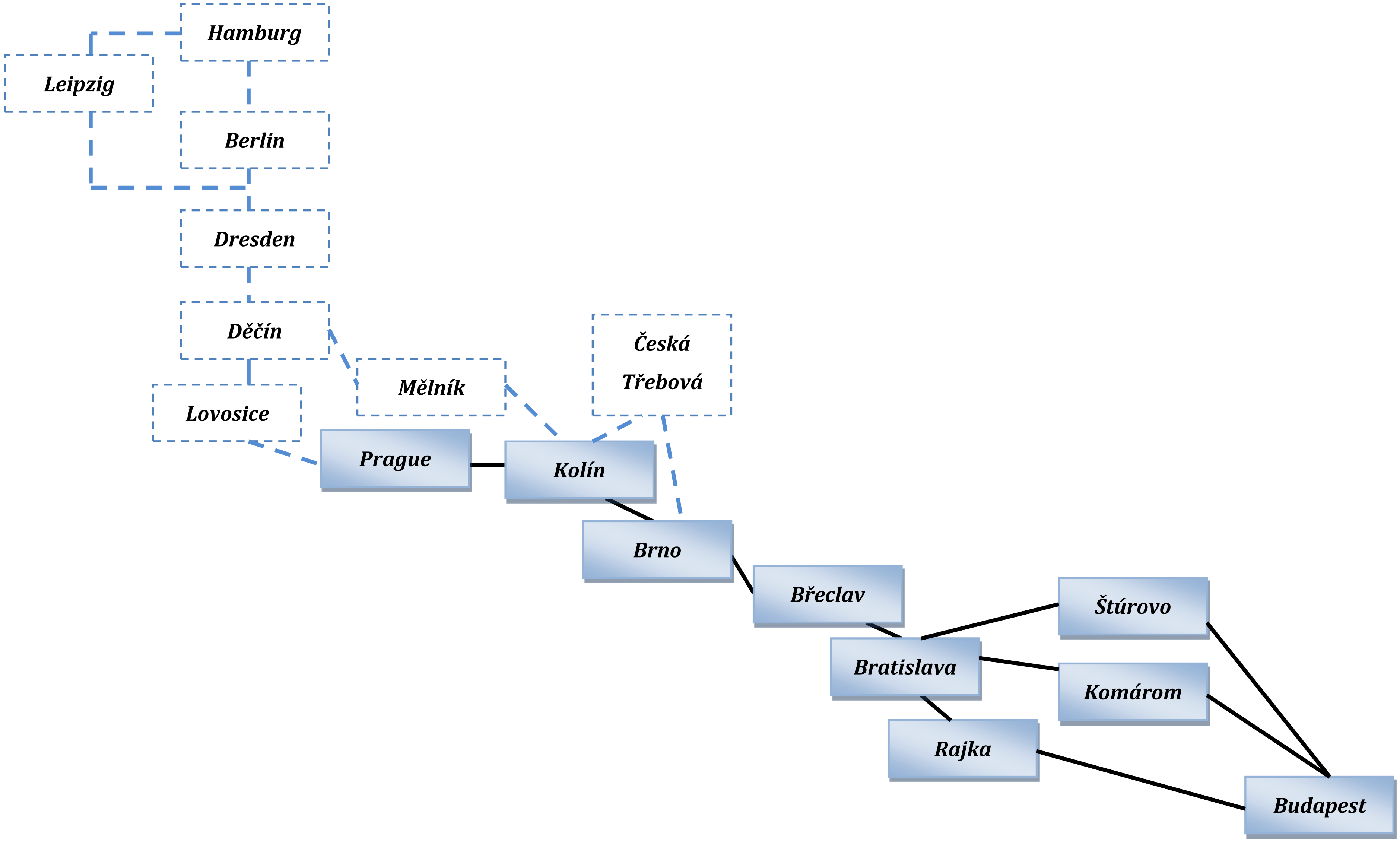
Scheme 2: TEN – T Priority project 22



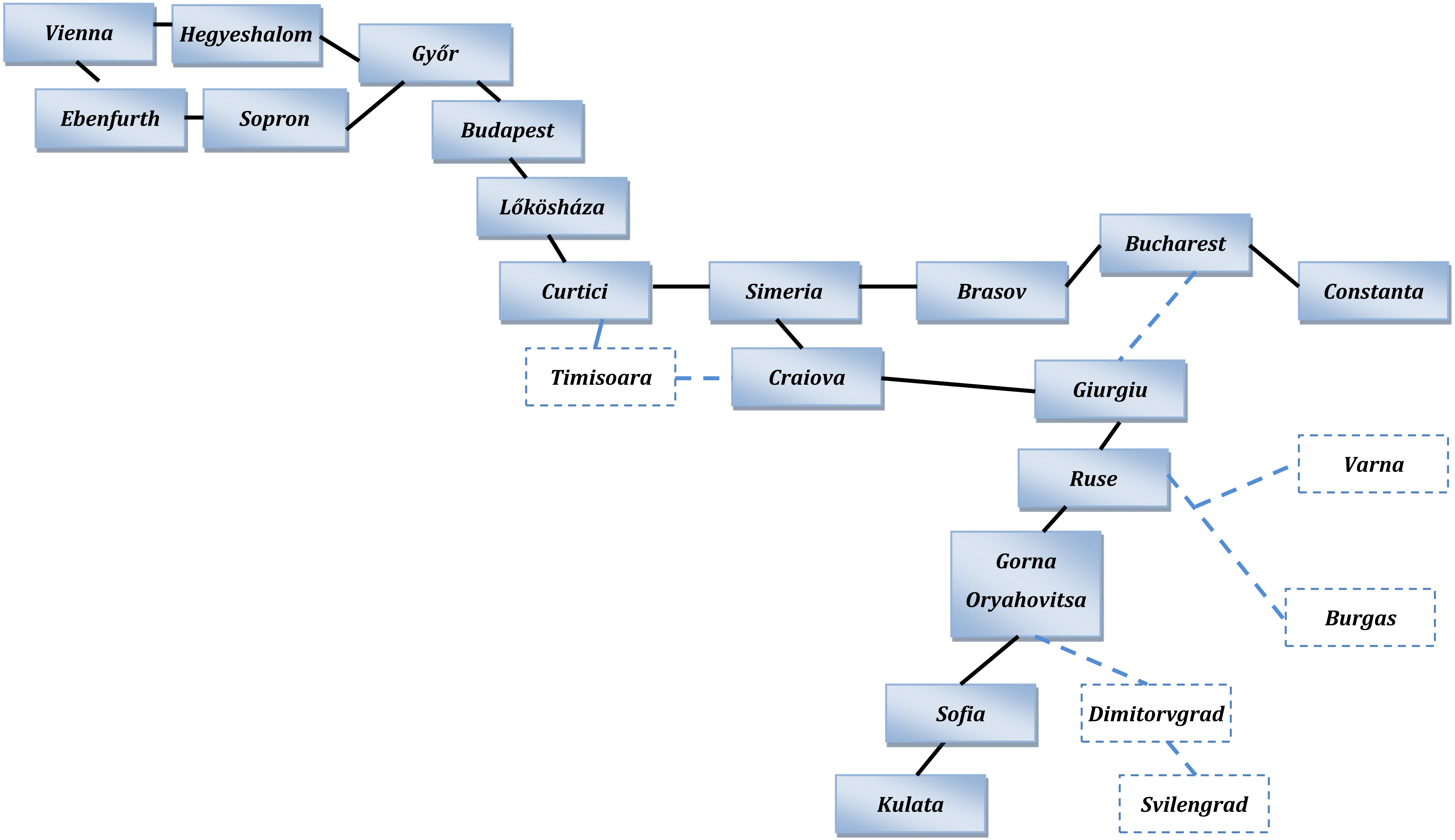
Scheme 3: ERTMS corridor E



Scheme 4: RNE Corridor (Corridor C10)



Scheme 5: RNE koridor, (Koridor C09)



1.3 METHODOLOGY OF TMS PREPARATION

To define the recommendations, quantifying the most significant social benefits resulting from implementation of the Regulaiton, the methodology is set up so as to serve for identifying the impacts of the establishment of the rail freight corridor 7 to promote the freight transport competitiveness.

The document seeks to elaborate several scenarios of impacts (technical, economic and social) depending on satisfying the Regulation strategy. Evaluation of impacts links to improving the technological processes, reducing the waiting times, expected economic growth and investment implementation of measures in corridor's member states.

The study deals with, especially, rail freight transport. It deals with passenger transport only in minimum, if it is necessary (capacity of infrastructure).

1.3.1 Input sources

The study evaluates various scenarios of impacts in order to improve rail freight competitiveness.

The document preparation results from obtained sources relating macroeconomic and microeconomic indicators concerning corridor routing data.

Input sources were provided by individual infrastructure managers. They relates to macroeconomic information of respective country, detailed information on new draft freight corridor, information on capacity and further supplementary information.

The study draws from conclusions and objectives of:

- White Paper – European transport policy for 2010: time to decide
- Green Paper
- Preparatory study for an impact assessment for a rail network giving priority to freight
- ETCS Study, Corridor E: Dresden – Prague – Bratislava/Vienna – Budapest – Bucharest – Constanta
- Sustainable development
- Expected economic development
- Performance development on draft corridor routes in 2006 - 2010

In accordance with Regulation (EU) No 913/2010 of the European Parliament and the Council of 22 September 2010, concerning a European rail network for competitive freight transport, it would be suitable to include also customer satisfaction in input data.

Carrying out the customer satisfaction surveys too often, e.g. by means of questionnaires, results in reduction of interest in this kind of feedback. As the managers carry out the customer satisfaction survey, i.e. also user survey of draft corridor, annually, in an unequal time periods, the survey was postponed to the next year. During the next year, input market survey with satisfaction of users of rail freight corridor 7 will be carried out in frequency to which the customers in individual countries are accustomed. Feedback to customers will be insured by consultation with the advisory groups.

1.3.2 Initial terms

Assessment of the most important socio-economic impacts is processed according to cost-benefit analysis paper „Guidance on the Methodology for carrying out Cost-Benefit Analysis“, HEATCO - Developing Harmonized European Approaches for Transport Costing and Project Assessment.

The most significant socio-economic benefit savings are assessed based on the Handbook on estimation of external cost in the transport sector (February 2008). The handbook deals with transport externalities in 27 European countries (EU countries 25, Switzerland and Norway). External costs are differentiated according to individual transport modes.

The recommendations for implementation plan and management of corridor routes subjected to rail freight corridor result from the recommendations of particular infrastructure manager and taking into account present technical condition and track technical parameters and free capacity.

Determination of corridor routes is based on infrastructure manager recommendations, taking into account track technical parameters and track capacity.

1.3.3 Methodological processes

Individual parts of the document are closely related to each other and complement each other.

With respect to the fact that initial draft was defined and elaborated in Annex of Regulation (EU) No 913/2010 of the European Parliament and the Council, concerning a European rail network for competitive freight transport, the primary task is to put RFC 7 more exactly in classification into main routes, alternative routes and connecting terminals. As it is still “live” material, individual routes can be complemented or modified also with respect to technical and capacity possibilities of individual sections.

In case of terminal specification it is similar, but construction of new terminals or widening the facilities and capacity of terminals depend on economic growth and building up new companies and industry parks in the vicinity of draft freight corridor (e.g. new investments Audi – Györ, Mercedes – Kecskemét), too.

In order to define the most significant socio-economic benefits of Transport Market Study of basic scenario and to come to recommendations, the following tasks, defined in Table 1, were carried out:

Table 1: Monitored indicators

Technical parameters	Maximum train length and length of associated critical sections
	Maximum train weight on critical sections
	Maximum axle load on critical sections
	Maximum speed on critical sections
	Existence of ERTMS
Transport performances	Development of transport performances on the corridor in 2006-2010
	Transport performances development on the whole country network
Macroeconomic indicators	Gross Domestic Product development
	Development of transport share in Gross Domestic Product
Microeconomic indicators	Transport time saving
	Structure and level of access charges
International transport	Transit share in total freight transport
Modal split	Development of rail and road freight ratio
Capacity analysis	Percentage utilization of the routes (≥50%, 50% - 90%, ≤90%)
Waiting times	Coordination at cross-border stations (unnecessary delays due to lack of coordination, reasons for delay)
	Coordination between terminals (unnecessary delays due to lack of coordination)
Investment plans	Their impact on the improvement of technical, capacity and coordination possibilities
Other plans	Their impact on the improvement of technological, capacity and coordination possibilities

Particular aspects of the effects listed in Table 1 are elaborated from the data provided by the individual infrastructure managers. View of monitored indicators is complex (interrelated) for the whole rail freight corridor 7.

In the next step, the important task is to divide these aspects into two main categories (macroeconomic and microeconomic) from which the socio-economic benefits resulting from time savings and externalities will be emerged from, referred to transport performance forecast and „converted transport“.

In addition to transport forecast, a microeconomic aspect is supported by „converted transport“ resulting from modal split analysis. „Converted transport“ will, in its part, support increase of time savings and externalities. „Converted transport“ results from increase of quality, time and satisfaction of customers following the application of Regulation (EU) No 913/2010 of the European Parliament and the Council of 22 September 2010, concerning a European rail network for competitive freight.

Within the support of transport forecasts, the capacity analysis, analysis for reducing the time intervals resulting from elimination of border waiting times, wrong coordination between terminals or increasing the technical speed and analysis of access charges are carried out.

After completion of current situation analysis, the second phase follows. In the second phase, based on complex assessment of current situation, development of transport performances will be modeled. Development of transport performances follows the expected macroeconomic results as well as capacity analysis, waiting times, access charge analysis and willingness to meet the specified objectives.

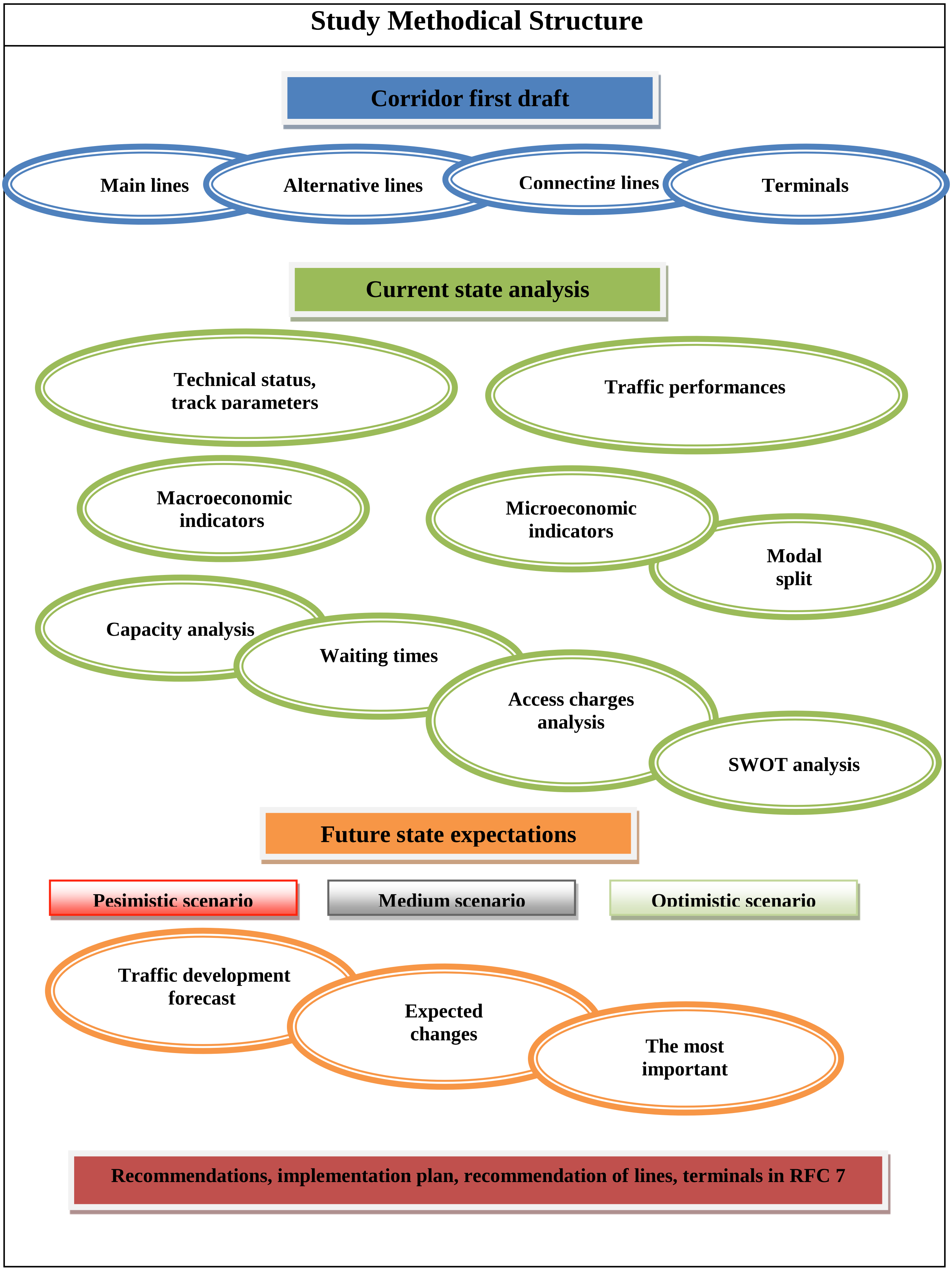
Based on the modeled transport performances resulting from increasing the quality of freight corridor and thus customer satisfaction as well as from converted transport, the selected socio-economic benefits will be quantified.

Within freight corridor development and its expected complete implementation in 2014, the benefits will be calculated from this year.

Use of individual rates, which are calculated by value index, the gross domestic product per capita in particular country in purchasing power parity, expressed to the European Union average (EU= 100%, Slovakia = 52,9% , Czech Republic = 72% etc.), plays the key role in the assessment of externalities and revenues from time savings.

In the last step, the recommendations or proposals and measures for eliminating the shortcomings (technical, technological, legal, political, capacity, charging) and associated objectives are proposed. Overall methodology of document preparation is shown in the following scheme:

Scheme 6: Document Preparation Methodology



2 ANALYSIS OF CURRENT „AS – IS“ SITUATION

Analysis of current situation assesses each corridor country apart. At first, the current situation of economy and of transport is evaluated in each country and then transport flows and technical level of the corridor are analysed for the purpose of drafting main and alternative lines.

Analysis of access charges and transport time is carried out comprehensively for all countries.

Finally, SWOT analysis of strengths and weaknesses, opportunities and threats was carried out in respect of the planned corridor.

2.1 SOCIO-ECONOMIC SITUATION AND CHARACTERISTICS OF TRANSPORT MARKET (2006 – 2010) AND RAIL FREIGHT CORRIDOR INFRASTRUCTURE ACCORDING TO INDIVIDUAL COUNTRIES

Due to improved clarity, the individual parts dealing with, in general, socio-economic situation, characteristics of transport market and railway infrastructure are elaborated summarily according to the respective countries of the corridor.

Additional partial analyses compare the respective countries of rail freight corridor RFC 7 among each other.

2.1.1 Czech Republic

General socio-economic situation (2006 -2010)

The Czech Republic is a landlocked industrial country in the Central Europe. Number of inhabitants: 10.5 millions (source: Czech Statistical Office).

Prague is the capital of the Czech Republic located on the corridor with 1 272 692 inhabitants. The second largest city is Brno with 384 277 inhabitants, located on the corridor as well. The other large city is Ostrava with 302 456 inhabitants that is outside a draft RFC 7.

The gross domestic product per capita in purchasing power parity reached 80% of EU average (EU 27) in 2010. Heavy industry and services are GDP basis. GDP development, industry structure in 2010 and GDP development prognosis are shown in the following Table 2.

Table 2: Czech Republic GDP structure, development and prognosis

GDP structure (2010)		Reality						Prognosis	
Czech Republic	**Share in %**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Agriculture	2,3	7,0	5,7	3,1	-4,7	2,7	1,8	0,0	1,5
Industry	30,6								
Transport	10,3								
Trade	13,7								
Services	32,2								

Source: member of RFC 7 Commission from Czech Republic, Eurostat prognosis – GDP real growth rate database - volume

Table 3: GDP per capita in Czech Republic in purchasing power parity

Years	Reality					
	2006	2007	2008	2009	2010	2011
EU (27)	100,0	100,0	100,0	100,0	100,0	100,0
Czech Republic	80,0	83,0	81,0	82,0	80,0	80,0

(data are expressed in relation to EU average EÚ 27 = 100), Source: Eurostat

Based on the above mentioned tables, we can conclude the economic growth slowdown in the Czech Republic following the years with high GDP growth. The slowdown is caused by economic crisis which is reflected by reducing external demand, especially from Germany. During economic crisis, economic growth rate decreased by 4.7%. Repeated recovery occurred between 2010 and 2011. According to Eurostat prognosis this trend of slow recovery will continue (see Table 3).

Table 4: Development of state expenditures in infrastructure in Czech Republic

Transport mode	State expenditures in infrastructure (millions of EUR)*				
	2006	2007	2008	2009	2010
Rail	527,1	680,1	918,2	783,7	569,8
Road	1 690,7	1 658,4	2 038,5	2 101,0	1 739,8
Waterways	21,1	15,6	21,5	62,3	58,5
Air	80,6	85,5	324,3	97,6	82,3
Pipeline	28,4	32,0	17,3	8,4	9,2
Total	**2 347,9**	**2 471,6**	**3 319,8**	**3 053,0**	**2 459,6**

Source: member of RFC 7 Commission from Czech Republic
** 1€ = 25,- Kč*

State expenditures in infrastructure decreased and in 2010 reached the level of 2007. The largest share of total state expenditures is in road infrastructure.

Table 5: Freight transport modal split Czech Republic

Transport mode	Freight transport modal split in thousands of tons				
	2006	2007	2008	2009	2010
Rail	97 491	99 777	95 073	76 715	82 900
Road	444 574	453 537	431 855	370 115	355 911
Waterways	2 032	2 242	1 905	1 647	1 642
Air	22	22	20	15	14
Total	**544 119**	**555 577**	**528 853**	**448 492**	**440 466**

Source: Member of RFC 7 Commission from Czech Republic

Gradual decrease of transport performances has occurred in monitored years in all transport modes. The most significant decrease is in road and rail transport. In spite of rail volume decrease, share of rail transport of total traffic volume has increased. It is due to greater decrease of road transport.

The share of rail transport from the total traffic volumes was in range 17% - 19% in years 2006-2010.

Significant decrease in transport performances was recorded in 2009 when there was decrease by 19.3% compared to 2007. However, this trend changed already in 2010 when there was a growth of 8.06% compared to 2009.

In 2010, intermodal transport share of total volume of transported km is11.96 %.

Increase in number of RUs´ on SŽDC network as well as on draft rail freight corridor is observed (see Annex B, Table B.4).

Table 6: Passenger transport modal split in Czech Republic

Transport mode	Passenger transport modal split in thousands of passengers				
	2006	2007	2008	2009	2010
Rail	183 000	184 200	177 400	165 000	164 800
Road – public	388 000	375 000	373 400	367 600	381 200
Road – individual	2 160 000	2 220 000	2 250 000	2 240 000	1 970 000
Waterways	1 100	1 100	900	1 200	900
Air	6 700	7 000	7 200	7 400	7 500
Total	**2 738 800**	**2 787 300**	**2 808 900**	**2 781 200**	**2 524 400**

Source: Member of RFC 7 Commission from Czech Republic

Since 2008, total number of passengers has been decreasing. The significant decrease occurs in road individual and rail transport.

Table 7: Rail freight transport according to groups of goods

Goods structure	Rail freight transport development according to groups of goods in millions of tonne-km				
	2006	2007	2008	2009	2010
Products of agriculture	228,0	114,5	632,0	772,0	843,0
Coal, gas, oil	6603,0	6361,6	5 221,0	5 066,0	4 876,0
Metals	2317,0	2330,9	1 193,0	919,0	966,0
Chemicals	826,0	730,2	740,0	630,0	753,0
Wood, paper	1068,0	1492,2	363,0	349,0	366,0
Others	4737,0	5274,5	7 288,0	5 056,0	5 966,0
Total	**15779,0**	**16304,0**	**15 437,0**	**12 792,0**	**13 770,0**

Source: Member of RFC 7 Commission from Czech Republic
Note: Since 2008, in accordance with new Commission Regulation (EC) No 1304/2007, the original classification of goods NST/R (24 groups) has been replaced by new one NST 2007 (20 groups)

A significant transport share according to groups of goods has coal, gas and oil. This share has not decreased in each year under 33% of total traffic volume.

More detailed information on the Czech Republic is shown in summary tables of Annex A.

Detailed information on corridor on the Czech Republic territory

The data relating exclusively the lines that are proposed for the establishment of the rail freight corridor (main and alternative lines) are shown in the following tables.

Table 8: Freight transport development on draft rail freight corridor RFC 7 in Czech Republic

Years	Freight transport in thousends of gross tons			
	2008	2009	2010	2011
Praha- Poříčany	10 051,9	9 386,4	13 403,2	14 588,1
Poříčany- Kolín	7 359,6	8 666,4	12 054,7	13 621,6
Kolín -Řečany nad Labem	23 906,1	20 371,1	24 668,6	31 037,1
Řečany nad Labem- Pardubice	19 361,2	14 752,9	20 471,5	25 195,9
Pardubice- Choceň	19 331,0	16 822,3	20 687, 0	24 806,6
Choceň - Česká Třebová-	20 701,5	18 443,0	22 325,7	26 723,3
Česká Třebová - Letovice	2 787,2	2 740,1	4 397,8	6 032,4
Letovice - Brno	2 875,4	2 734,6	4 288,0	6 081,1
Brno - Břeclav	12 550,3	8 873,7	10 783,9	12 355,5
Břeclav -Lanžhot st.hr.	11 827,3	9 165,0	11 282,7	12 500,2
Total	**130 752,0**	**111 956,1**	**144 363,6**	**172 942,2**

Source: Member of RFC 7 Commission from Czech Republic

Freight growth is higher on draft corridor than on the whole SŽDC network on the Czech Republic territory after 2008 and 2009 when decrease in performances has been occurred. The highest growth between individual sections is noted on the track section Česká Třebová – Brno

Table 9: Passenger transport development on draft rail freight corridor RFC 7 in Czech Republic

Years	Passenger transport in train-km			
	2008	2009	2010	2011
Praha - Poříčany	2 929 038	3 205 341	3 243 838	3 407 503
Poříčany- Kolín	1 555 173	1 742 934	1 744 800	1 748 629
Kolín- Řečany nad Labem	1 186 164	1 251 195	1 227 563	1 228 474
Řečany nad Labem-Pardubice	1 162 035	1 138 978	1 198 917	1 183 093
Pardubice- Choceň	1 938 245	1 993 880	1 971 636	1 988 421
Choceň -Česká Třebová	1 359 373	1 435 488	1 432 045	1 433 426
Česká Třebová- Letovice	1 214 843	1 263 764	1 282 343	1 300 853
Letovice- Brno	1 803 002	1 891 720	1 944 972	1 953 350
Brno- Břeclav	1 685 422	2 071 986	2 119 746	2 221 938
Břeclav -Lanžhot st.hr.	162 916	168 237	161 756	149 158
Total	**14 996 211**	**16 163 523**	**16 327 616**	**16 614 845**

Source: Member of RFC 7 Commission from Czech Republic

In contrast to decrease in rail passenger transport performances on SŽDC network, the growth of passenger transport performances on the corridor remains.

Since 2006, continued growth of RU´s on SŽDC network has been observed. SŽDC has the highest number of RU´s on its network among all members of rail freight corridor 7 (see Annex B, Table B.4).

In 2010, the share of intermodal transport on draft freight corridor is 11.96% of total volume of km transported on SŽDC network.

Capacity of proposed lines of rail freight corridor 7 is utilised maximum on the level higher than 90% of line capacity on the sections Příčany – Pardubice, Choceň – Česká Třebová. The other lines of draft RFC 7 are utilised maximum on the level lower than 90% of line capacity. Traffic diversion from the lines with fully capacity utilization is possible through alternative line Kolín – Havlíčkov Brod – Brno (it should be noted that there is reduced clearance gauge on this line).

Scheme 7 of stations, their facilities, lines and technical parameters of rail freight corridor on the Czech Republic territory shows the proposed lines and their technical parameters. More detailed and further aditional information (not listed in schemes) concerning terminals, marshalling yards is listed in Annex B.

Legend:

Stations description:

Prague	Corridor station
Vienna	Station on corridor in neighboring country
Havlíčkův Brod	Station on alternative line
Dunajská Streda	Station on connecting line

Type of line:

Corridor double track main line
Corridor single track main line
Corridor double track (connecting, route diversion) alternative line
Corridor single track (connecting, route diversion) alternative line
Corridor single track (connecting, route diversion) connecting line

G	GSM-R
E	ETCS

Intermodal freight codes

1	P /C 45/375
2	P/C 57/381
3	P/C 70/400
4	P/C 78/402
5	P/C 59/389
6	P/C 80/410

Terminals

M	Marshaling yard
I	Intermodal terminal/keeper
	Seaport

Electrification (catenary voltage)

Z	**3 KV DC**
Y	**25 KV AC (50 Hz)**
V	**15 KV AC (16 2/3 Hz)**
X	**Non-electrified**

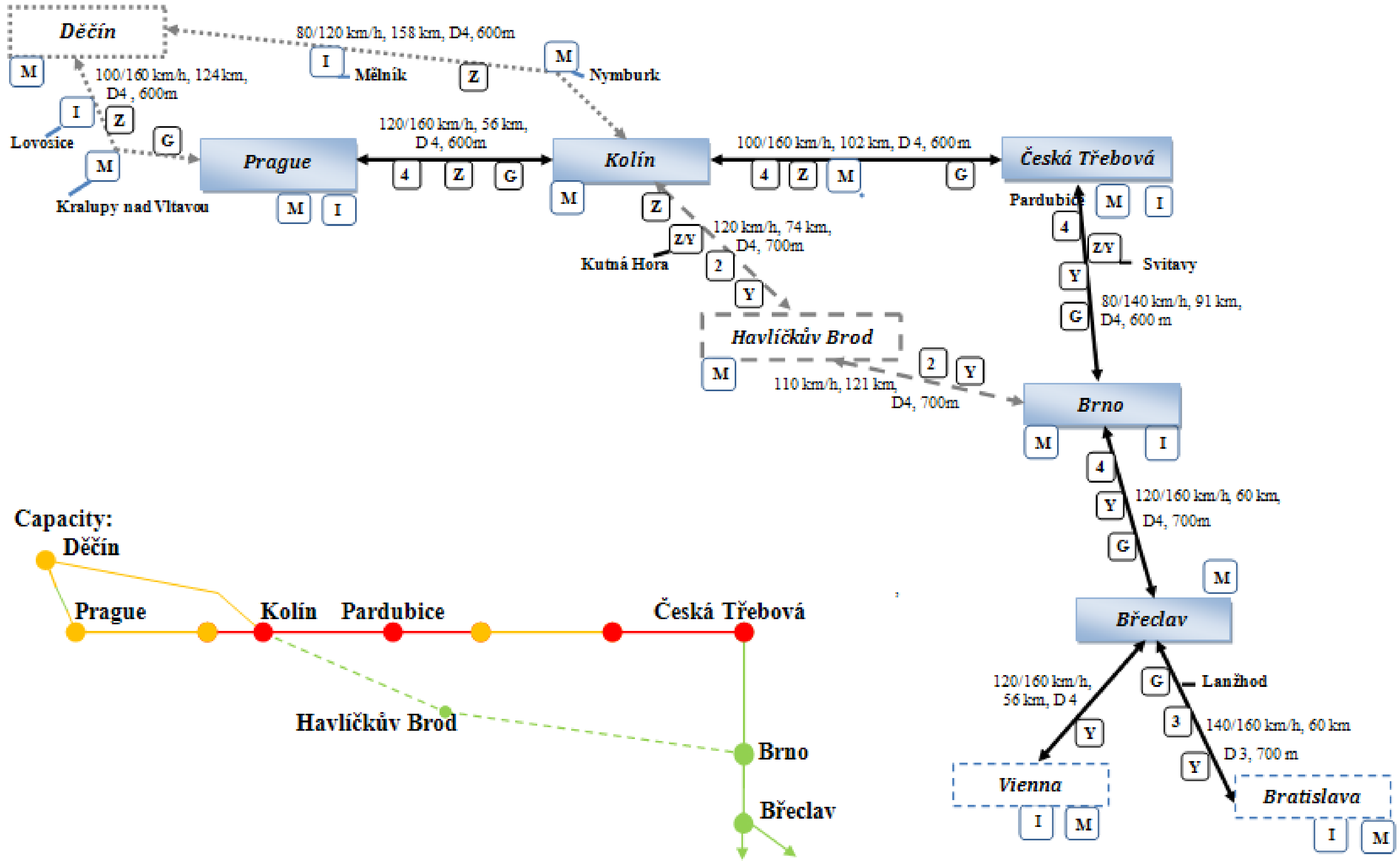
Capacity:

Capacity utilisation up to 50%
Capacity utilisation between 50% and 90%
Capacity utilisation over 90%
n/a

Corridor description:

100/160 km/h, 220 km, C4, 750 m
Minimum/maximum speed in km/h, distance, class of load, maximum train legth

Scheme 7: Scheme of lines and technical parameters of freight rail corridor on the Czech Republic territory (SŽDC)



Electrification: Z _ 3 KV DC
Y _ 25 KV AC (50 Hz)
X _ Non-electrified

Profil (P/C): 2 _ P/C 57/381
3 _.P/C 70/400
4 _.P/C 78/402

M _ Marshaling yard
I _ Intermodal terminal/keeper
G _ GSM-R

E _ ECTS

2.1.2 Slovak Republic

General socio-economic situation (2006-2010)

Slovakia is a landlocked country in the Central Europe with 5.43 million of inhabitants. Bratislava is the capital of the Slovak Republic with 428.9 thousands of inhabitants (is located on the corridor). The second largest city is Košice with 233.9 thousands of inhabitants lying outside the corridor in the east of the Slovak Republic (distance from corridor is about 400 km).

Gross domestic product per capita in purchasing power parity reached 73% of EU average (EU 27) in 2010. Heavy industry and services are GDP basis. GDP development and structure in 2010 and GDP development prognosis are shown in the following table. The purchasing power parity is over 75% in Bratislava region (region where corridor passes).

Table 10: Slovak Republic GDP structure, development and prognosis

GDP structure (2010)		Reality						Prognosis	
Slovak Republik	**Share in %**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Agriculture	2,85	8,3	10,5	5,8	-4,9	4,2	3,3	1,8	2,9
Industry	36,47								
Transport	17,23								
Trade									
Services	34,37								

Source: member of RFC 7 Commission from Slovak Republic, Eurostat prognosis – GDP real growth rate database - volume

Table 11: GDP per capita in Slovak Republic in purchasing power parity

Years	Reality					
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
EU (27)	100,0	100,0	100,0	100,0	100,0	100,0
Slovak Republik	63,0	68,0	73,0	73,0	73,0	73,0

(data are expressed in relation to EU average 27 = 100, Source: Eurostat

Based on the above tables, we can conclude the economic growth slowdown (the Slovak Republic had the highest GDP growth in the Central Europe). Growth slowdown is caused by economic crisis which is reflected by reducing external demand, especially from Germany. During the economic crisis, economic growth rate decreased by 4.9%. Repeated recovery occurred between 2010 and 2011. According to Eurostat prognosis this trend of slow recovery will continue (see Table 10).

Table 12: Development of state expenditures in infrastructure in Slovak Republic

Transport mode	State expenditures in infrastructure (millions of EUR)				
	2006	**2007**	**2008**	**2009**	**2010**
Rail	234,9	302,5	214,4	190,3	285,8
Road	541,0	675,7	755,1	854,0	516,8
Waterways	2,1	1,5	4,7	3,8	5,1
Air	13,5	17,8	33,4	59,1	74,7
Pipeline		51,5	46,3	63,6	51,1
Total	**791,50**	**1 049,00**	**1 053,90**	**1 170,80**	**933,50**

Source: member of RFC7 Commission from Slovak Republic, Statistic SR

Total state expenditures in infrastructure decreased in 2010 in spite of increasing expenditures in infrastructure for rail. Increasing expenditures in infrastructure for rail is due to decreasing prices and access charge structure implementing the Regulation of the European Commission resulting from the Directive of the European Parliament and the Council 2001/14/EC of 27 February 2001on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification. The Slovak Republic belonged to EU countries with the highest level of railway infrastructure access charges till 2010 (see charper 2.4).

Table 13: Freight transport modal split in Slovak Republic

Transport mode	Freight transport modal split in thousends of tons				
	2006	2007	2008	2009	2010
Rail	52 449	51 813	47 910	37 603	44 327
Road	181 424	179 296	199 218	163 148	143 071
Waterways	1 713	1 806	1 767	2 192	3 109
Air	0,52	0,19	0,31	0,01	0,01
Total	**235 587**	**232 915**	**248 895**	**202 943**	**190 507**

Source: Member of RFC 7 Commission from the Slovak Republik, MDVRR SR (Ministry of Transport)

Since 2008 there has been a significant decrease in the total traffic volume.

Significant decrease in traffic volume after 2008 was in road goods transport. In rail freight transport there was a slight growth in 2010 after significant decrease in traffic volume in 2008 and 2009. Long-term growth records the waterways.

By high growth of road transport by 2009 and decrease in rail performances, the rail share of total traffic volume has still decreased (up to rail freight rate of total traffic volume for 18.5% to 80.4% share of road goods transport). This trend changed in 2010 when a share of rail freight in total traffic volume of all transport modes was 23.3% which means increase in rail freight share in total traffic volume of all transport modes compared to 2009 by 4.4%. Share of volume of road goods transport in total traffic volume decreased in 2010 compared to 2009 by 5.3%.

After expectation of moderate transport recovery, we assume also recovery in stagnant transport modes (rail, road).

Table 14: Passenger transport modal split in Slovak Republik

Transport mode	Passenger transport modal split in thousands of passengers				
	2006	2007	2008	2009	2010
Rail	48 438	47 070	48 744	46 667	46 583
Road - public	403 270	384 637	365 519	323 142	312 717
Road - individual	1 792 000	1 811 986	1 833 082	1 846 439	1 859 479
Waterways	111	122	122	110	120
Air	2 291	3 068	4 176	2 288	554
Total	**2 246 110**	**2 246 883**	**2 251 643**	**2 218 646**	**2 219 453**

Source: Member of RFC 7 Commission from the Slovak Republik, MDVRR SR (Ministry of Transport)

The total number of passengers has been decreasing. A significant decrease is in public road, rail and air transport. Road individual transport observes the growth of passenger number during the whole monitored period.

Table 15: Rail freight transport according to groups of goods

Goods structure	Rail freight transport development according to groups of goods in millions of tonne-km				
	2006	2007	2008	2009	2010
Products of agriculture	217,5	157,0	112,8	84,5	62,6
Coal, gas, oil	2 329,0	2 356,1	2 237,2	1 927,5	1 800,3
Metals	4 587,8	4 340,5	4 132,5	2 941,3	3 786,3
Chemicals	726,9	706,1	680,2	480,0	573,1
Wood, paper	516,4	485,0	469,5	397,6	513,9
Others	1 610,3	1 602,3	1 666,8	1 133,2	1 368,9
Total	**9 988,0**	**9 647,0**	**9 299,0**	**6 964,0**	**8 105,0**

Source: Member of RFC 7 Commission from the Slovak Republik, MDVRR SR (Ministry of Transport)

Metals and metal products, coal, gas and oils have a significant share of transport on ŽSR network according to groups of goods. The share of these commodities did not decrease in 2006-2010 under 68.5% of total rail traffic volume.

More detailed information on the Slovak Republic is shown in Tables of Annex A.

Detailed information on corridor on the Slovak Republic territory

Data concerning exclusively lines proposed for the establishment of the rail freight corridor (main and alternative lines) in the Slovak Republic are shown in the following tables.

Table 16: Freight transport development on draft rail freight corridor RFC 7 in Slovak Republic

Years	Freight transport in thousands of gross tons			
	2008	2009	2010	2011
Kúty št. hr. - Devínska N.Ves			13 998, 9	18 987, 0
Devínska N. Ves - Bratislava hl. st.			14 427, 4	16 547, 1
Bratislava hl. st.- Dunajská Streda			7 873, 8	8 685, 3
Dunajská Streda - Komárno št. hr.			2 346, 3	3 986, 2
Bratislava hl. st.- Rusovce št. hr.			21 021, 8	24 009, 1
Bratislava hl. st.- Nové Zámky			17 894, 5	23 630, 8
Nové Zámky - Komárno št. hr.			3 133, 4	5 707, 0
Nové Zámky - Štúrovo št. hr.			7 059, 5	8 920, 7
Total			**87 755, 8**	**110 473, 5**

Source: Member of RFC 7 Commission from the Slovak Republik, PIS ŽSR

In 2011 compared to 2010 there is an increase in rail freight transport on the rail freight corridor 7 by 25.88%. This increase is much higher than increase on the whole ŽSR network on the Slovak Republic territory.

The highest percentage increase in rail freight transport is on the section Nové Zámky – Komárno border, i.e. increase by 82.13% in 2011 compared to 2010. The highest increase in rail freight volume is on the section Bratislava main station – Nové Zámky, i.e. by 5.7 millions of gross tons in 2011 compared to 2010. There is a slower increase on the other sections.

There is rapid increase on the section Dunajská Streda – Komárno border in 2011 compared to 2010, i.e. by 69.90% in 2011 compared to 2010. This increase is due to development of intermodal terminal in Dunajská Streda (Metrans).

Intermodal transport on draft freight corridor represents 11.36% share of total volume of transported km on the corridor in 2010. The share of intermodal transport is much higher than on the whole ŽSR network where this share is at the level of 3.5% of the total transported km on ŽSR network.

Table 17: Passenger transport development on draft rail freight corridor 7 in Slovak Republic

Years	Passenger transport in train- km			
	2008	2009	2010	2011
Kúty št.hr. - Devínska N.Ves			1 063 224	1 037 328
Devínska N.Ves - Bratislava hl.st.			398 811	390 982
Bratislava hl.st.- Dunajská Streda			463 132	368 408
Dunajská Streda - Komárno št.hr.			329 823	330 227
Bratislava hl.st.- Rusovce št.hr.			169 821	117 684
Bratislava hl.st.- Nové Zámky			1 984 673	2 011 248
Nové Zámky - Komárno št.hr.			241 106	240 070
Nové Zámky - Štúrovo št.hr.			620 146	633 715
Total			**5 270 736**	**5 129 662**

Source: Member of RFC 7 Commission from the Slovak Republik, PIS ŽSR

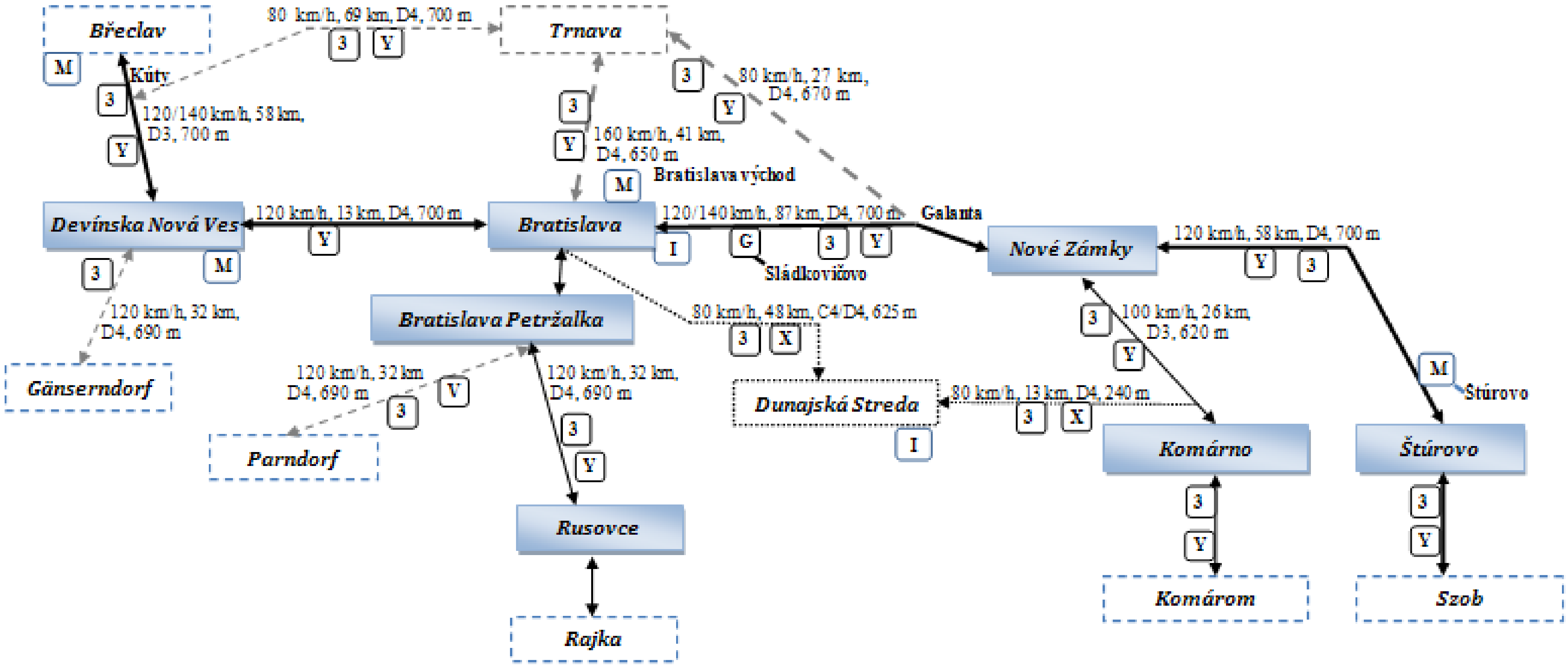
So as decrease in volume of passenger transport performances on ŽSR network, there is moderate decrease in volume of passenger transport performances on the corridor.

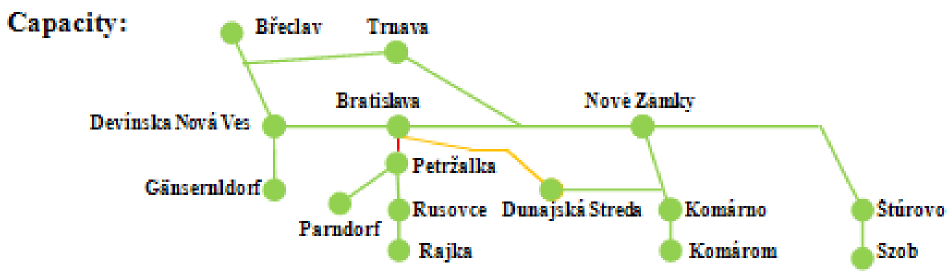
The highest decrease by 30.7% is on the track Bratislava main station – Rusovce border in 2011 compared to 2010.

Capacity of draft corridor, except the section Bratislava main station - Bratislava Nové Mesto (more than 90% utilisation), is utilised under 50%.

Scheme 8 of stations, their facilities, lines and technical parameters of rail freight corridor on the Slovak Republic territory shows proposed lines and their technical parameters. More detailed and other additional information (not listed in Schemes) concerning the terminals and marshalling yards is listed in Annex B.

Scheme 8: Technical parameters of corridor lines on the Slovak Republic territory (ŽSR)





Electrification: Z _ *15 KV AC (16 2/3 Hz)* *Profil (P/C):* 2 _ *P/C 57/381* M _ *Marshaling yard* E _ *ECTS*

Y _ *25 KV AC (50 Hz)* 3 _ *P/C 70/400* I _ *Intermodal terminal/keeper*

X _ *Non-electrified* 4 _ *P/C 78/402* G _ *GSM-R*

2.1.3 Austria

General socio-economic situation (2006-2010)

Austria is a federal, landlocked country with 8 184.7 thousands of inhabitants. Vienna is the capital of Austria with 1 661 thousands of inhabitants (lies on the corridor). The second largest city is Graz with 247 thousands of inhabitants (located 200 km from corridor). The other important city is Linz with 188 thousands of inhabitants (located 200 km from the corridor).

GDP per capita in purchasing power parity reached 129 % of EU average (EU 27) in 2011. Services are GDP basis (45.9%). Austria has the large mineral reserves. The coal has to be imported. Austria is the second largest producer of magnesite in the world.

GDP development, industry structure in 2010 and GDP development prognosis are shown in the following table.

Table 18: Austria GDP structure, development and prognosis

GDP structure (2010)		Reality						Prognosis	
Austria	**Share in %**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Agriculture	1,5								
Industry	29,2								
Transport*		3,7	3,7	1,4	-3,8	2,3	2,9	0,8	1,7
Trade	23,3								
Services	45,9								

**Transport is included in „trade“, construction in „industry“*
Source: Member of RFC 7 Commission from Austria, prognosis – GDP real growth rate database-volume

Table 19: GDP per capita in Austria in purchasing power parity

Years	Reality					
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
EU (27)	100,0	100,0	100,0	100,0	100,0	100,0
Austria	126,0	124,0	124,0	125,0	126,0	129,0

(data are expressed in relation to EU average EÚ 27 = 100),Source: Eurostat

Based on the above mentioned tables, we can conclude the economic growth slowdown following the years with average GDP growth. The slowdown is caused by economic crisis. During economic crisis, economic growth rate decreased by -3.8% Repeated recovery occurred between 2010 and 2011. According to Eurostat prognosis the growth will slow down, but trend of slow recovery will continue (see Table 18).

Table 20: Freight transport modal split in Austria

Transport mode	Freight transport modal split in thousands of tons				
	2006	**2007**	**2008**	**2009**	**2010**
Rail	110 779	115 526	121 579	98 887	107 670
Road	353 386	349 188	364 919	332 203	326 852
Waterways		12 107	11 209	9 322	11 052
Air	230	229	229	222	258
Total	**464 395**	**477 050**	**497 935**	**440 634**	**445 833**

Source: Member of RFC 7 Commission from Austria, Statistics Austria

In 2009, there was a significant decrease in total traffic volume.

In 2009, there was a significant decrease in traffic volume in all transport modes. After a significant decrease in traffic volume in 2009, there was a moderate increase in rail freight transport in 2010. Decrease in road transport volume was observed also in 2010.

Share of rail transport of total volume of all transport modes, except 2009, is at the level of about 24%. Share of road goods transport of total traffic volume of all transport modes decreased from 76.09% to 73.20% in 2007 and except the crisis year 2009 (75.40%) it is at the level of 73.3%, i.e. at the level of 2007.

Water transport has remarkable share in modal split. Its share, in 2006-2010, is in the range of 2.1% – 2,5%.

After expectation of moderate transport recovery, we assume recovery in stagnant transport modes (rail, road).

Table 21: Passenger transport modal split in Austria

Transport mode	Passenger transport modal split in millions of passenger km				
	2006	2007	2008	2009	2010
Rail	9 500	9 600	10 800	10 700	
–Road - public	13 100	13 700	13 600	13 600	
– Road -individual	70 600	72 000	73 300	72 300	
Waterways					
Air					
Total	**93 200**	**95 300**	**97 700**	**96 600**	

Source: Member of RFC 7 Commission from Austria, Statistical pocketbook transport in figures, DG TREN;

There was increase in total volume of transport performance (pkm) by 2008. In 2009, there was decrease in transport performance volume (pkm) due to significant decrease in transport performance volume in road individual transport.

Table 22: Rail freight transport according to groups of goods

Goods structure	Rail freight transport development according to groups of goods in millions of tonne-km				
	2006	2007	2008	2009	2010
Products of agriculture	3 958,8	3 458,0	3 244,5	2 847,5	2 973,9
Coal, gas, oil	2 241,2	2 298,8	2 430,9	2 225,8	2 200,7
Metals	3 572,2	3 809,2	3 908,7	2 476,3	3 317,5
Chemicals	1 581,3	1 642,9	1 606,8	1 432,0	1 558,3
Wood, paper					
Others	8 866,0	9 155,5	9 425,9	7 972,3	9 110,7
Total	**20 219,5**	**20 364,5**	**20 616,8**	**16 953,9**	**19 161,2**

Source: Member of RFC 7 Commission from Austria, Statistics Austria

Products of agriculture have significant share in rail freight transport according to groups of goods. Transport share of products of agriculture gradually decreases. Dynamic increase, interrupted by the year 2009, is observed in transportation of metals.

More detailed information on Austria is shown in tables of Annex A.

Detailed information on the corridor on the Austria territory

The data relating exclusively the lines that are proposed for the establishment of the rail freight corridor (main and alternative lines) in Austria are shown in the following tables.

Table 23: Freight transport development on draft rail freight corridor 7 in Austria

Years	Freight transport in thousands of gross tons					
	2006	2007	2008	2009	2010	2011
Břeclav - Gänserndorf	15 071,5	17 717 019	18 743,9	15 203,4	14 734,4	14 329,3
Gänserndorf - Wien Zvbf	19 655,9	21 583,2	22 258,4	16 234,6	17 394,1	17 501,5
Wien Zvbf - Hegyeshalom	21 062,7	21 825,8	22 276,1	22 466,2	24 088,2	24 589,6
Wien Zvbf - Ebenfurth	21 862,7	23 480,8	26 120,1	22 566,7	24 836,5	24 181,8
Ebenfurth - Sopron	5 811,0	5 684,0	5 388,0	3 834,0	4 275,0	4 214,0
Ebenfurth – Wiener Neustadt	14 637,3	16 417,2	17 387,6	15 567,2	18 461,6	18 048,7
Gänserndorf – Devínska Nová Ves	4 810,8	4 077,6	3 659,9	1 093,9	2 846,5	2 746,7
Parndorf – BA Petržalka	4 561,9	4 313,8	4 752,3	6 293,2	5 717,9	6 270,2
Gramatneusiedl – Wampersdorf	21 169,6	22 880,7	25 454,8	21 732,2	23 810,5	22 795,5
Wien Zvbf – Wiener Neustadt via Baden	36 300,3	35 910,4	38 007,8	30 737,6	32 280,6	32 064,5
Wiener Neustadt – Sopron via Loipersbach-Schattendorf	298,9	403,1	230,4	229,0	237,9	187,3
Wien Zvbf – Wien Freudenau Hafen – Wien Nordwestbahnhof	0,0	0,0	8,8	782,8	1 725,6	2 217,3
Total	**165 242,6**	**174 293,7**	**184 288,3**	**156 740,8**	**170 408,9**	**169 146,3**

Source: Member of RFC 7 Commission from Austria, ÖBB Infrastructur, GYSEV

There is decrease in total performances of all transport modes on draft rail freight corridor by 0.74% in 2011 compared to 2010.

On the track Břeclav – Wien Zvbf, there is decrease in freight transport performances in 2011 compared to 2006. On the tracks Wien Zvbf – Hegyeshalom and Wien Zvbf – Ebenfurth, there is increase in performances in 2011 compared to 2006. On the track Wien Zvbf – Hegyeshalom, there is moderate increase also in crisis year 2009.

The highest percentage increase in rail freight transport is on the section Ebenfurth – Wiener Neustadt (123,3%) in 2011 compared to 2006.

Intermodal transport on draft rail freight corridor represents 13.3% share of total volume of transported km on the corridor in 2010. Share of intermodal transport on the corridor is much lower than on the whole ÖBB network where this share is at the level of 21.3% of total transport performances on ÖBB network.

Table 24: Passenger transport development on draft rail freight corridor 7 in Austria

Years	Passenger transport in train-km					
	2006	2007	2008	2009	2010	2011
Břeclav - Gänserndorf	702 458	940 830	977 387	934 588	924 857	939 592
Gänserndorf – Wien Zvbf	2 320 169	2 440 849	2 477 308	2 155 272	2 148 790	1 955 493
Wien Zvbf - Hegyeshalom	2 841 877	3 149 185	3 290 234	3 302 621	2 846 620	2 646 197
Wien Zvbf - Ebenfurth	168 118	169 859	178 758	167 992	161 637	159 732
Ebenfurth - Sopron	364 039	375 894	393 579	394 790	355 473	360 638
Ebenfurth – Wiener Neustadt	250 068	254 839	278 940	258 882	242 602	236 332
Gänserndorf – Devínska Nová Ves	221 200	189 482	192 227	190 236	167 801	165 420
Parndorf – BA Petržalka	349 878	390 318	395 967	380 237	291 424	285 171
Gramatneusiedl – Wampersdorf	16 313	15 986	18 624	6 544	6 218	4 189
Wien Zvbf – Wiener Neustadt via Baden	3 967 097	4 028 382	4 082 746	4 397 025	5 013 659	4 300 382
Wiener Neustadt – Sopron via Loipersbach-Schattendorf	481 077	460 994	510 689	582 030	546 309	484 640
Wien Zvbf – Wien Freudenau Hafen – Wien Nordwestbahnhof	0	0	0	5	73	124
Total	**11 682 292**	**12 416 618**	**12 796 460**	**12 770 222**	**12 705 463**	**11 537 910**

Source: Member of RFC 7 Commission from Austria, ÖBB Infrastructur, GYSEV

So as in total volume of passenger transport on ÖBB network, there is moderate decrease in passenger transport performances also on respective lines of draft rail freight corridor 7 in 2010 compared to 2006.

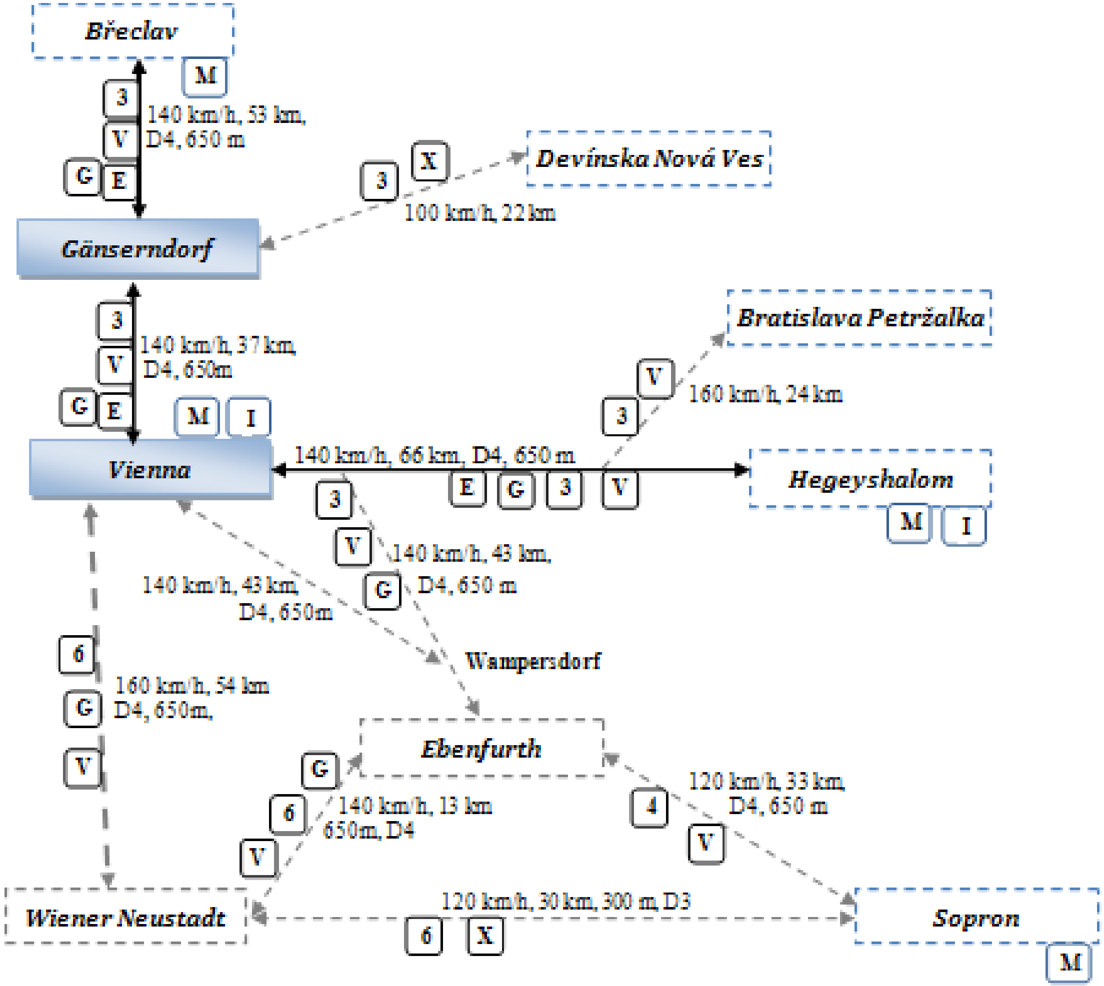
There is a significant decrease in passenger transport volumes in 2011 copmared to 2010 by -9,2%.

The highest increase in volume of passenger transport performances is on the track Břeclav – Gänserndorf. The volume of passenger transport performances on the track Břeclav - Gänserndorf increased by 33.8% in 2011 compared to 2006. The highest decrease in volume of passenger transport performances is on the track Gänserndorf – Devínska Nova Ves. The volume of passenger transport performances decreased by -25,2% in 2011 compared to 2006.

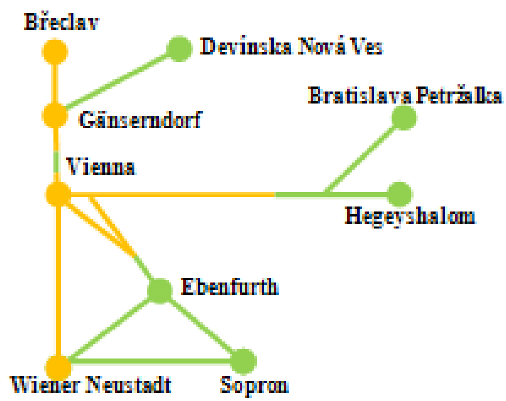
The capacity of proposed lines of rail freight corridor is utilised on a maximum level of 50-90% of line capacity.

Scheme 1 of stations, their facilities, lines and technical parameters of rail freight corridor on the territory of Austria shows the proposed lines and their technical parameters. More detailed and the other additional information (not shown in Schemes) concerning the terminals and marshalling yards is listed in Annex B.

Scheme 9: Technical parameters of corridor lines on the territory of Austria (ÖBB)



Capacity:



Electrification: V _ 16 KV AC (16 2/3 Hz); Y _ 25 KV AC (50 Hz); X _ Non-electrified

Profil (P/C): 3 _ P/C 70/400; 4 _.P/C 78/402; 6 _.P/C 80/410

M _ *Marshaling yard*; I _ *Intermodal terminal/keeper*; G _ *GSM-R*

E _ *ECTS*

2.1.4 Hungary

General socio-economic situation (2006-2010)

Hungary is a landlocked country in the Central Europe with 9.986 millions of inhabitants. Budapest is the capital of Hungary with 1 733.7 thousands of inhabitants (lies on the corridor). The second largest city is Debrecen with 208.0 thousands of inhabitants (located 50 km from the corridor). The other important city lying on the corridor is Győr with 131.3 thousands of inhabitants.

Gross domestic product per capita in purchasing power parity reached 66% of EU average (EU 27) in 2011. Services and heavy industry are GDP basis. Machine industry, chemical industry and food industry, which is closely related to agriculture, are the most important branches of industry. The agriculture loses its dominant role.

GDP development, industry structure in 2010 and GDP development prognosis are shown in the following table.

Table 25: Hungary GDP structure, development and prognosis

GDP structure (2010)		Reality						Prognosis	
Hungary	Share in %	2006	2007	2008	2009	2010	2011	2012	2013
Agriculture	3,8	3,9	0,3	0,8	-6,7	1,3	1,4	-0,3	1,0
Industry	31,3								
Transport	5,7								
Trade	9,7								
Services	49,5								

Source: Member of RFC 7 Commission from Hungary, Eurostat prognosis – GDP real growth rate database-volume,Hungarian Central Statistical Office

Table 26: GDP per capita in Hungary in purchasing power parity

Years	Reality					
	2006	2007	2008	2009	2010	2011
EU (27)	100,0	100,0	100,0	100,0	100,0	100,0
Hungary	63,0	62,0	64,0	65,0	65,0	66,0

(data are expressed in relation to EU average EÚ 27 = 100)
Source: Eurostat

Based on the GDP development, we can conclude that the economic crisis became evident in full extent in 2009. During the economic crisis, economic growth rate decreased by -6.7%. Repeated recovery occurred between 2010 and 2011. According to Eurostat prognosis this trend of slow recovery, after small forecasted decrease, will continue (see Table 25).

Table 27: Development of state expenditures in infrastructure in Hungary

Transport mode	State expenditures in infrastructure (millions of EUR)					
	2006	2007	2008	2009	2010	2011
Rail	2,4	98,0	35,5	3,5	87,2	73,9

Source: Member of RFC 7 Commission from Hungary

Hungary has the lowest state expenditures in railway infrastructure among all countries involved in the corridor.

Table 28: Freight transport modal split in Hungary

Transport mode	Freight transport modal split in thousands of tons				
	2006	2007	2008	2009	2010
Rail	42 628	43 149	40 345	29 916	34 396
Road	17 617	25 130	26 465	27 753	28 622
Waterways	7 247	8 344	8 755	7 701	9 921
Air	30	32	29	24	28
Total	**67 522**	**76 655**	**75 594**	**65 394**	**72 967**

Source: Member of RFC 7 Commission from Hungary ,EuroStat, KSH (Central Statistical Office)

In 2009, there was a significant decrease in total traffic volume.

In 2010, there was a moderate increase in rail freight transport following the significant decrease in traffic volume in 2009. The share of rail freight transport in total traffic volume is high compared to other countries, but it continuously decreases. In 2006, the share of rail freight traffic of total traffic volume was 63.13% and 47.13% in 2010, i.e. significant decrease in share of rail transport in 2010 compared to 2006 by -16.0 %.

The road transport observes continuous increase in traffic volume as well as in share of total volume of all transport modes. In 2010, the share of road goods transport of total traffic volume of all transport modes was 39.2% compared to 2006, i.e. increase by 13.1% of total traffic volume.

Table 29: Passenger transport modal split in Hungary

Transport mode	Passenger transport modal split in thousands of passangers				
	2006	2007	2008	2009	2010
Rail	156 628	149 551	144 900	142 683	140 398
Road – public	487 056	451 927	469 763	502 600	517 500
Road - individual	71 992	74 732	71 284		
Waterways	1 346	1 007	828	859	641
Air	4 551	4 896	4 340	4 573	4 512
Total	**721 573**	**682 113**	**691 115**	**650 715**	**663 051**

Source: Member of RFC 7 Commission from Hungary, EuroStat, KSH (Central Statistical Office)

Total number of passengers is decreasing. The significant decrease is in public road, rail and air transport.

Table 30: Rail freight transport according to groups of goods

Groups of goods	Rail freight transport development according to groups of goods in millions of tonne- km		
	2008	2009	2010
Products of agriculture	319	733	784
Coal, gas, oil	571	1 151	1 596
Metals	3 436	1 949	2 258
Chemicals	631	675	610
Wood, paper	486	419	464
Others	4 431	2 747	3 096
Total	**9 874**	**7 674**	**8 808**

Source: Member of RFC 7 Commission from Hungary, Hungarian Central Statistical Office

The metals and products of metals, coal, gas and oils have a significant share of transport according to groups of goods. In 2006 – 2010, share of these commodities did not decrease under 68.5% of total rail transport volume.

More detailed information on Hungary is shown in tables of Annex A.

Detailed information on corridor on the territory of Hungary

The data relating exclusively the lines proposed for the establishment of the rail freight corridor (main and alternative, terminal lines) in Hungary are shown in the following tables.

Table 31: Freight transport development on draft rail freight corridor RFC 7 in Hungary

Years	Freight transport in thousands of gross tons					
	2006	2007	2008	2009	2010	2011
Rajka-Hegyeshalom	4 154,3	4 287,7	5 394,6	3 932,1	4 120,3	4 306,8
Ebenfurth - Sopron	6 156,7	5 943,4	5 464,5	4 052,8	4 621,5	4 384,8
Sopron - Győr	9 497,6	9 356,9	8 686,7	5 317,7	5 887,9	5 228,1
Hegyeshalom oh.-Győr	12 520,8	12 741,2	13 114,0	3 932,1	4 120,3	4 306,8
Győr-Tatabánya	21 701,9	21 672,2	21 216,2	11 687,9	15 175,9	17 692,1
Tatabánya-Budapest Ferencváros	23 596,5	23 374,8	22 948,6	17 269,5	21 216,4	24 139,5
Budapest Ferencváros-Szolnok (100)	5 990,3	4 056,9	5 817,4	18 571,2	23 069,9	25 657,3
Budapest Ferencváros-Szolnok (120)	11 992,6	9 450,9	7 207,8	4 413,3	9 550,6	12 950,4
Szolnok-Szajol	15 970,7	12 629,0	12 142,3	6 330,6	5 345,1	4 130,4
Szajol-Békéscsaba	6 270,7	5 745,7	6 319,9	4 036,2	6 323,9	15 526,6
Békéscsaba-Lőkösháza oh.	5 982,7	5 510,1	5 535,4	4 317,0	6 223,0	8 090,1
Szajol-Püspökladány	9 879,0	6 868,6	5 990,6	3 343,5	5 361,4	7 143,3
Püspökladány-Biharkeresztes oh.	4 309,1	4 613,4	3 607,1	4 944,9	6 673,5	7 545,2
Szob-Rákospalota-Újpest	4 689,4	5 068,4	4 693,0	n/a	n/a	n/a
Rákosrendező-Kőbánya Kispest	530,9	277,3	184,0	3 243,5	3 943,7	3 436,2
Rákospalota-Újpest-Ferencváros	4 909,0	5 341,3	5 326,0	110,8	129,6	192,4

Source: Member of RFC 7 Commission from Hungary ,GYSEV, MÁV Co. Traffic Line Statistics

The highest increase in freight transport volume is observed on the track Budapest Ferencváros – Szolnok (100) 428%). The largest decrease in freight transport volume is on the track Rákosrendező-Ferencváros (-96.1%).

Intermodal transport on draft freight corridor represents 46.2% share of total volume of transported km on the corridor in 2010. The share of intermodal transport on the corridor is higher than on the whole MÁV and GYSEV network where this share is at the level of 35.5% of overall transport performances on MÁV and GYSEV network.

Intermodal transport in Hungary has the highest share in overall performances compared to others member states of the corridor.

Since 2006 there has been a continuous increase of RU´s on MÁV and GYSEV network (see Annex B Table B.4).

Table 32: Passenger transport development on draft rail freight corridor RFC 7 in Hungary

Years	Passenger transport (train km)					
	2006	2007	2008	2009	2010	2011
Rajka-Hegyeshalom	165 419	145 765	146 567	149 385	53 320	50 750
Ebenfurth - Sopron	364 039	375 894	393 579	394 790	355 473	360 638
Sopron - Győr	1 795 437	2 457 402	2 372 983	2 244 209	2 273 573	3 275 035
Hegyeshalom oh.-Győr	977 228	1 116 737	1 126 984	1 129 341	1 093 187	1 051 065
Győr-Tatabánya	1 835 313	2 358 232	2 081 271	2 136 770	2 060 712	2 160 049
Tatabánya-Budapest Ferencváros	1 795 833	2 287 592	2 232 066	2 244 621	2 248 448	2 222 415
Budapest Ferencváros-Szolnok (100)	3 191 023	4 345 090	4 720 080	4 626 025	4 628 124	4 776 129
Budapest Ferencváros-Szolnok (120)	4 505 372	5 294 061	4 907 406	5 094 264	5 109 465	5 125 279
Szolnok-Szajol	395 718	483 597	492 301	520 591	530 399	544 861
Szajol-Békéscsaba	1 179 915	1 381 108	1 408 715	1 438 039	1 413 111	1 409 928
Békéscsaba-Lőkösháza oh	434 162	521 997	531 806	447 160	444 552	441 103
Szajol-Püspökladány	1 481 661	1 904 981	1 913 877	1 935 838	1 884 476	1 976 675
Püspökladány-Biharkeresztes oh.	485 780	526 325	526 479	501 476	504 467	503 986
Szob oh.-Rákosrendező	2 183 767	2 184 075	2 308 275	2 310 964	2 309 219	2 288 944
Rákosrendező-Kőbánya Kispest	324 218	437 955	480 984	557 014	577 358	594 400
Rákosrendező-Ferencváros	16 693	52 804	39 779	38 877	40 397	39 485

Source: Member of RFC 7 Commission from Hungary, GYSEV, MÁV

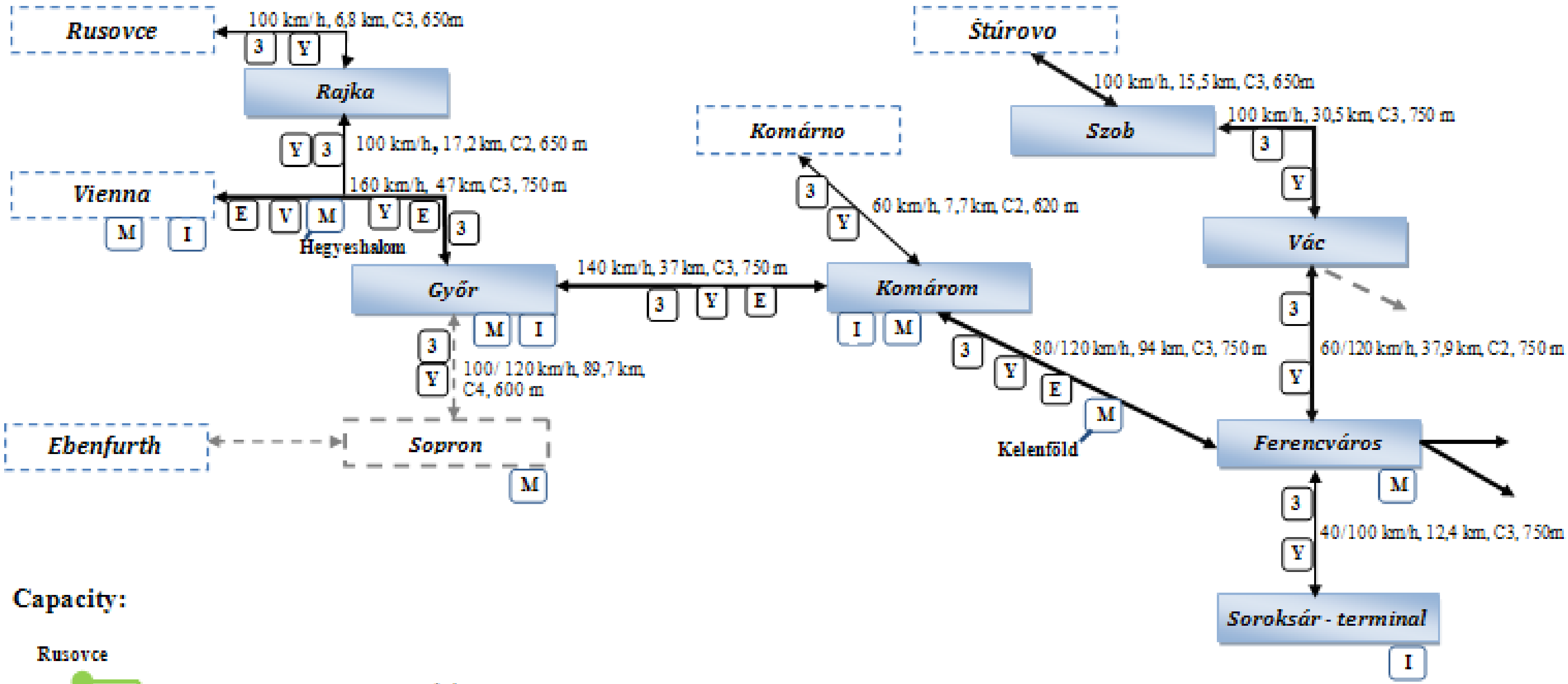
In contrast to decrease in passenger performance volumes on the whole MÁV and GYSEV network, there is a continuous/ progressive increase in passenger performance volumes on the draft corridors.

The largest decrease in passenger transport performances is on the track Rajka – Hegyeshalom where in 2010 there was a radical cut off in number of trains. The highest increase in passenger traffic performances is on the tracks Sopron – Györ and Budapest Ferencváros – Szolnok (100).

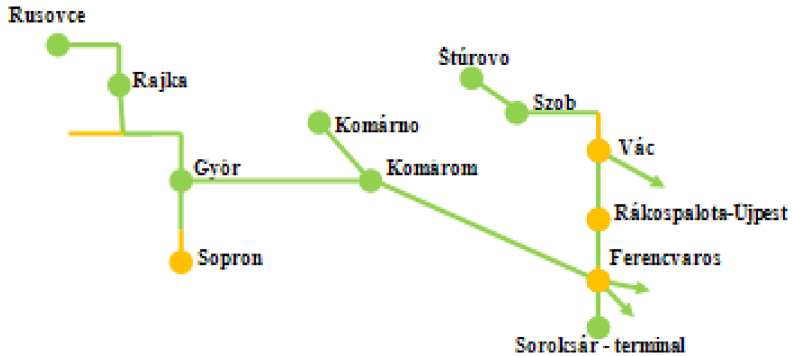
The capacity of proposed lines of rail freight corridor 7 is utilised on maximum level of 50-90% of line capacity on the sections Sopron – Fertőboz and Verőce – Vác. The other lines of draft rail freight corridor 7 are utilized at maximum level of 50% of line capacity.

Scheme 10 of stations, their facilities, lines and technical parameters of rail freight corridor on the territory of Hungary shows proposed lines and their technical parameters. More detailed and further additional information (not shown in Schemes) concerning terminals and marshalling yards is listed in Annex B.

Scheme 10: Technical parameters of corridor lines on the territory of Hungary (VPE, MÁV, GYSEV)



Capacity:



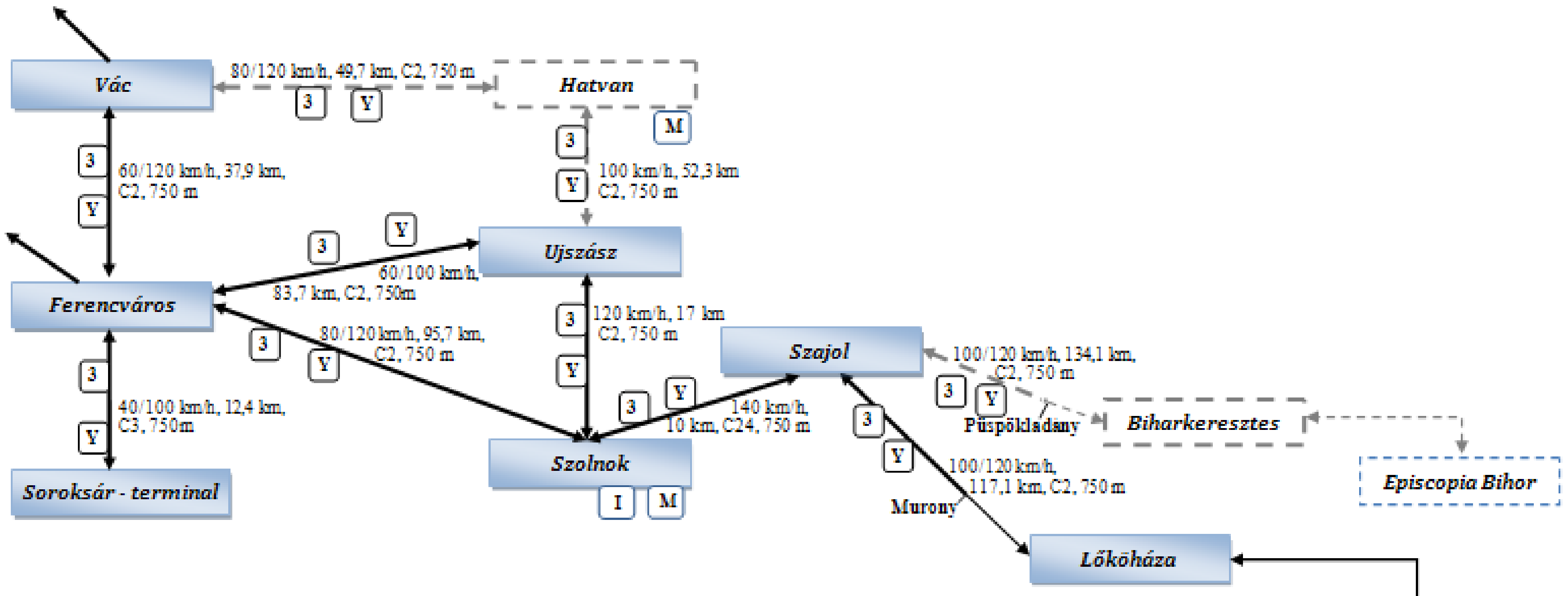
Electrification: V _ *16 KV AC (16 2/3 Hz)*
Y _ *25 KV AC (50 Hz)*
X _ *Non-electrified*

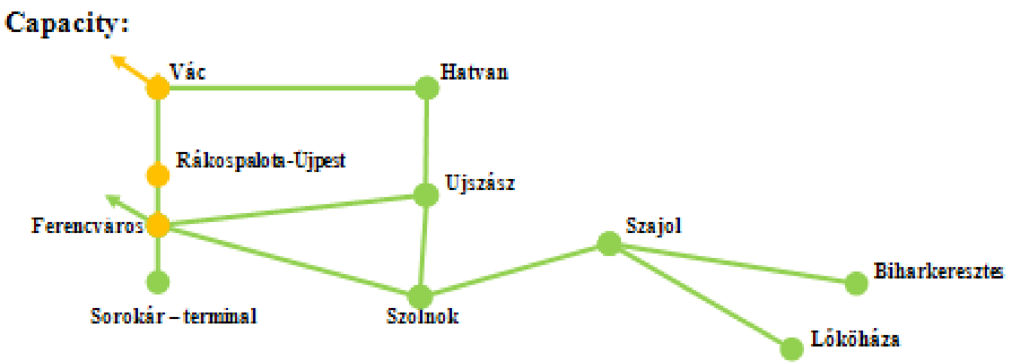
Profil (P/C): 2 _ *P/C 57/381*
3 _ *P/C 70/400*
4 _ *P/C 78/402*

M _ *Marshaling yard*
I _ *Intermodal terminal/keeper*
G _ *GSM-R*

E _ *ECTS*

Scheme 10: Technical parameters of corridor lines on the territory of Hungary (VPE, MÁV, GYSEV) - continuation





2.1.5 Romania

General socio-economic situation (2006-2010)

Romania is a country in the South-East Europe with 21.39 millions of inhabitants. Bucharest is the capital of Romania with 1 942.2 thousands of inhabitants. The other important cities are Timisoara, Jasy, Cluj, Constatna, Craiova. They are located on the corridor, except Jasy.

GDP per capita in purchasing power parity reached 49% of EU average (EU 27) in 2011. Industry and services are GDP basis. Romania has the highest share of agriculture in GDP (6.66%) among all evaluated countries.

The country is rich in minerals (mineral salt, potassium salt, iron ore, manganese, bauxite, silver, gold, oil, natural gas). The basic raw material of chemical industry is a domestic oil and natural gas. Machine, metallurgical, wood-processing and paper industries are the important branches of industry in Romania.

GDP development, industry structure in 2010 and GDP development prognosis are shown in the following table.

Table 33: Romania GDP structure, development and prognosis

<table>
<tr><th colspan="2">GDP structure (2010)</th><th colspan="6">Reality</th><th colspan="2">Prognosis</th></tr>
<tr><th>Romania</th><th>Share in %</th><th>2006</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th></tr>
<tr><td>Agriculture</td><td>6,66</td><td rowspan="5">7,9</td><td rowspan="5">6,3</td><td rowspan="5">7,3</td><td rowspan="5">-6,6</td><td rowspan="5">-1,6</td><td rowspan="5">1,7</td><td rowspan="5">1,4</td><td rowspan="5">2,9</td></tr>
<tr><td>Industry</td><td>39,58</td></tr>
<tr><td>Transport</td><td rowspan="2">21,64</td></tr>
<tr><td>Trade</td></tr>
<tr><td>Services</td><td>32,12</td></tr>
</table>

Source: member of RFC 7 Commission from Romania, Eurostat prognosis – GDP real growth rate database-volume

Table 34: GDP per capita in Romania in purchasing power parity

Years	Reality					
	2006	2007	2008	2009	2010	2011
EU (27)	100,0	100,0	100,0	100,0	100,0	100,0
Romania	38,0	42,0	47,0	47,0	47,0	49,0

(data are expressed in relation to EU average 27 = 100)
Source: Member of RFC 7 Commission from Romania

Based on GDP development, we can conclude that the economic crisis became evident in full extent in 2009.

During the economic crisis, the economic growth rate decreased by -6.7%. Growth rate decreased by -1.7% in 2010 and repeated recovery has been occurred in 2011. According to Eurostat prognosis this trend of slow recovery, after expected decrease in 2012, will continue (see table 33).

Table 35: Development of state expenditures in infrastructure in Romania

Transport mode	State expenditures in infrastructure (millions of EUR)				
	2006	2007	2008	2009	2010
Rail	98,3	305,1	333,9	199,5	169,4
Road	1 883,6	2 752,5	4 106,0	3 492,1	2 858,4
Waterways	205,6	351,9	517,1	603,0	424,4
Air	14,6	41,1	9,6	6,9	0,9
Pipeline		51,5	46,3	63,6	51,1
Total	**2 202,2**	**3 450,6**	**4 966,6**	**4 301,5**	**3 453,1**

Source: Member of RFC 7 Commission from Romania, Ministry of Transport, National Statistic Institute Yearbook

Overall state expenditures in infrastructure decreased in 2010 at the level of 2007.

The highest share of overall state expenditures is in the road infrastructure (in the range of 81.2% - 85.5%). Since 2009, volume of state expenditures as well as share of overall state expenditures for railway transport has been decreasing.

Table 36: Freight transport modal split in Romania

Transport mode	Freight transport modal split in thousands of tons				
	2006	2007	2008	2009	2010
Rail	68 313	68 772	66 711	50 596	52 932
Road	335 327	356 669	364 605	293 409	174 551
Waterways	76 013	78 354	80 744	60 764	70 206
Air	23	22	27	24	26
Total	479 676	503 817	512 087	404 793	297 715

Source: Member of RFC 7 Commission from Romania, National Statistic Institute Yearbook

Since 2009, total traffic volume has been significantly decreasing.

Significant decrease in traffic volume was in road goods transport in 2009 and 2010. There was a moderate increase in rail freight transport in 2010 following a significant decrease in traffic volume in 2009. An increase in water transport was interrupted in 2009. In 2010, there was observed recovery in water transport.

Due to a high growth of road transport by 2008 and stagnation of rail performances, a share of rail traffic of total volume was decreasing continuously (share of rail freight traffic of total traffic volume decreased at the level of 12.5% to 72.5% share of road goods transport of total volume). This trend changed in 2010 when a share of rail freight traffic increases at the level of 17.8%, i.e. increase in rail freight share by 5.28%. Road goods transport share decreased by 13.85%.

Water transport has a high share of total traffic volume. This share of total traffic volume increased from 15.01% in 2009 to 23.6% in 2010, i.e. by 7.74%.

After expectation of moderate economic growth, we assume also small transport growth in all transport modes (rail, road, water, air).

Table 37: Passenger transport modal split in Romania

Transport mode	Passenger transport modal split in thousands of passangers				
	2006	2007	2008	2009	2010
Rail	94 441	88 264	78 252	70 332	64 272
Road – public **Road – individual**	228 009	231 077	296 953	262 311	244 944
Waterways	190	223	232	174	107
Air	5 497	7 831	9 077	9 093	10 128
Total	**328 137**	**327 395**	**384 514**	**341 910**	**319 451**

Source: Member of RFC 7 Commission from Romania, Ministry of Transport and 2011 National Statistic Institute Yearbook

Since 2009, the total number of passengers has been decreasing. Significant decrease is in public road transport and rail transport. Air transport observes long-term increase. Road transport observes long-term slow increase of total number of passengers while rail traffic observes long-term slow decrease of total number of passengers.

Table 38: Rail freight transport according to groups of goods

Goods structure	Rail freight transport development according to groups of goods in millions of tonne-km				
	2006	2007	2008	2009	2010
Products of agriculture	0,52	0,26	0,786	0,638	0,911
Coal, gas, oil	37,567	39,85	28,411	22,748	23,024
Metals	3,998	3,577	5,068	2,826	2,449
Chemicals	3,197	2,798	4,842	3,307	3,951
Wood, paper	2,536	2,324	0,906	0,432	0,836
Others	20,495	19,963	26,698	20,645	21,761
Total	**68,313**	**68,772**	**66,711**	**50,596**	**52,932**

Source: Member of RFC 7 Commission from Romania, Ministry of Transport and 2011 National Statistic Institute Yearbook

Coal, gas and oils have significant transport share according to groups of goods in rail transport. Share of these commodities has been decreasing to 43.5% share of total rail traffic volume in 2010.

Further information on Romania is shown in tables of Annex A.

Detailed information on corridor on the territory of Romania

Data relating exclusively lines proposed for the establishment of the rail freight corridor 7 (main or alternative, terminal lines) in Romania are shown in the following tables.

Table 39: Freight transport development on draft rail freight corridor RFC 7 in Romania

Years	Freight transport in thousands of gross tons	
	2010	2011
Border (HU/RO) - /LCurtici	62 573,3	65 866,7
Curtici - Arad	112 127,1	118 028,5
Arad - Simeria	2 049 823,0	1 339 790,9
Simeria - Coslariu	560 469,7	607 374,4
Coslariu - Sighişoara	534 411,1	544 389,6
Sighişoara - Braşov	605 152,7	665 207,6
Braşov - Predeal	119 333,8	154 441,6
Predeal - Brazi	620 637,0	653 302,1
Brazi - Bucureşti	719 484,8	757 352,4
Bucureşti - Feteşti	986 975,6	1 038 921,7
Feteşti - Constanţa	1 880 209,3	1 979 167,7
Arad - Timişoara	223 300,6	221 658,5
Timişoara - Orşova	1 918 634,5	1 685 245,2
Orşova - Filiaşi	853 405,9	869 147,8
Filiaşi - Craiova	2 965 446,6	2 845 789,2
Craiova - Calafat	76 772,9	7 675,9
Calafat - Border RO/BG	0,0	0,0
Border - Episcopia Bihor	7 437,1	10 297,0
Episcopia Bihor - Coslariu	652 065,0	798 289,5
Simeria - Filiasi	2 255 149,8	2 053 502,0
Craiova - Videle	2 040 449,2	2 357 438,4
Videle - Bucuresti	763 019,0	798 368,4
Videle - Giurgiu Nord	126 740,3	128 050,7
Giurgiu Nord - Frontiera	2 638,0	7 567,3
Total	**20 136 256,0**	**19 706 872,9**

Source: Member of RFC 7 Commission from Romania, CFR SA

In 2011 compared to 2010, there is a decrease of total performance volume on draft rail freight corridor 7 by -2,1%.

The highest increase in freight transport performance volume in 2011 compared to 2010 is observed on the tracks Craiova <--> Videle (15.5%) and Episcopia Bihor <--> Coslariu (22.4%). The largest decrease in freight transport performance volume in 2011 compared to 2010 is on the tracks Arad <--> Simeria (-34,6%) and Simeria <--> Filiaşi (-8,9.%).

Since 2006 to 2010 there is a continued increase of carriers on CFR network. In 2011 compared to 2010 there is a decrease of carriers on CFR network (see Annex B Table B.4).

Table 40: Passenger transport development on draft rail freight corridor RFC 7 in Romania

Years	Passenger transport in train-km		
	2009	2010	2011
Border (HU/RO) – Lőkösháza/Curtici	82 661,0	78 724,8	71 568,0
Curtici - Arad	277 560,4	264 343,2	240 312,0
Arad - Simeria	2 721 053,4	2 591 479,4	2 355 890,4
Simeria - Coslariu	1 526 837,0	1 454 130,5	1 321 936,8
Coslariu - Sighişoara	1 778 066,1	1 693 396,3	1 539 451,2
Sighişoara - Braşov	1 726 900,6	1 644 667,2	1 495 152,0
Braşov - Predeal	340 269,7	347 214,0	354 300,0
Predeal - Brazi	1 327 108,4	1 354 192,2	1 381 828,8
Brazi - Bucureşti	1 269 998,7	1 209 522,6	1 099 566,0
Bucureşti - Feteşti	1 530 509,3	1 561 744,1	1 643 941,2
Feteşti - Constanţa	1 272 598,1	1 298 569,4	1 366 915,2
Arad - Timişoara	542 925,5	517 071,9	492 449,4
Timişoara - Orşova	2 193 424,2	2 088 975,4	1 989 500,4
Orşova - Filiaşi	1 039 207,2	989 721,2	942 591,6
Filiaşi - Craiova	838 435,4	798 509,9	760 485,6
Craiova - Calafat	286 606,8	292 455,9	298 424,4
Calafat - Border RO/BG	0,0	0,0	0,0
Border - Episcopia Bihor	30 295,0	27 540,9	32 120,4
Episcopia Bihor - Coslariu	4 283 544,6	3 859 049,2	4 350 499,3
Simeria - Filiasi	1 726 463,5	1 583 911,5	1 424 686,3
Craiova - Videle	2 505 327,5	2 319 747,7	2 523 734,1
Videle - Bucuresti	1 149 960,2	1 045 418,4	967 980,0
Videle - Giurgiu Nord	331 899,9	301 727,2	281 988,0
Giurgiu Nord - Frontiera	12 556,1	11 363,0	10 318,0
Total	**28 794 208,6**	**27 333 476,0**	**26 945 639,1**

Source: Member of RFC 7 Commission from Romania, CFR SA

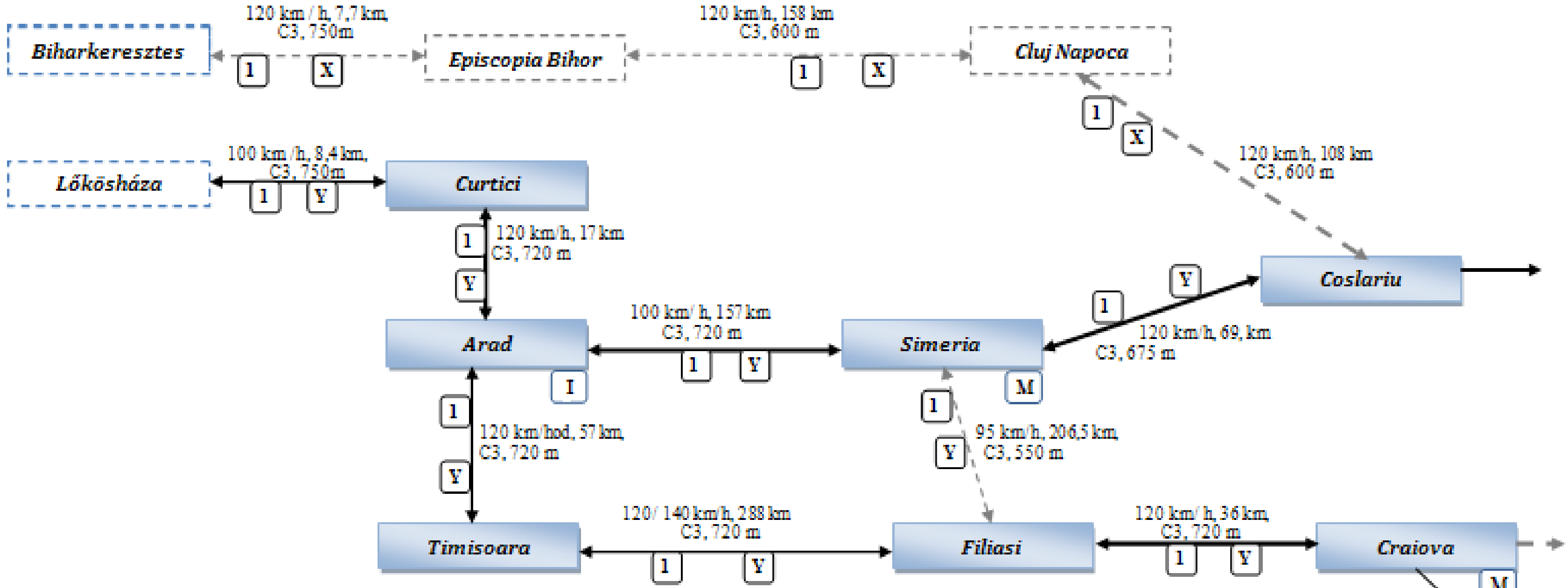
In 2008, 2009 and 2010, decrease in passenger transport performances, that is slower than on the whole RFC network, is observed.

The largest decrease in passenger transport performances is on the track Arad - Simeria. The highest increase in passenger transport performances is on the track Episcopia Bihor - Coslariu.

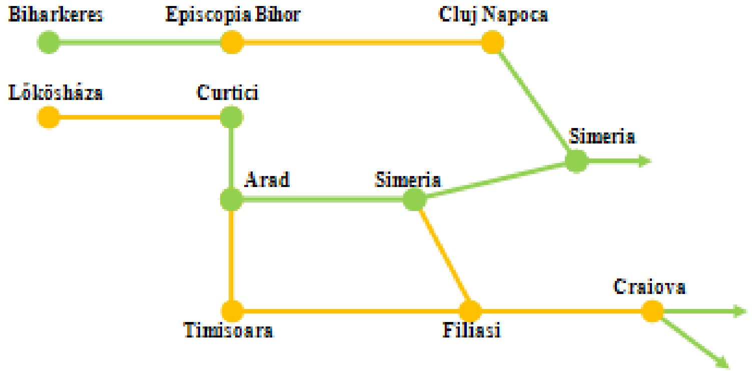
The capacity of proposed lines of rail freight corridor 7 is utilised on maximum level higher than 90% of line capacity on the sections Episcopia Bihor – Cluj Napoca, Arad – Timisoara, Timisoara – Filiasi, Simeria – Filiasi. Others lines of draft rail freight corridor 7 are utilised at the maximum level lower than 70% of line capacity.

Scheme 11 of stations, their facilities, lines and technical parameters of rail freight corridor on the territory of Romania shows the proposed lines and their technical parameters. More detailed and further additional information (not listed in Schemes) concerning terminals and marshalling yards is listed in Annex B.

Scheme 11: Technical parameters of corridor lines on the territory of Romania (CFR)



Capacity:



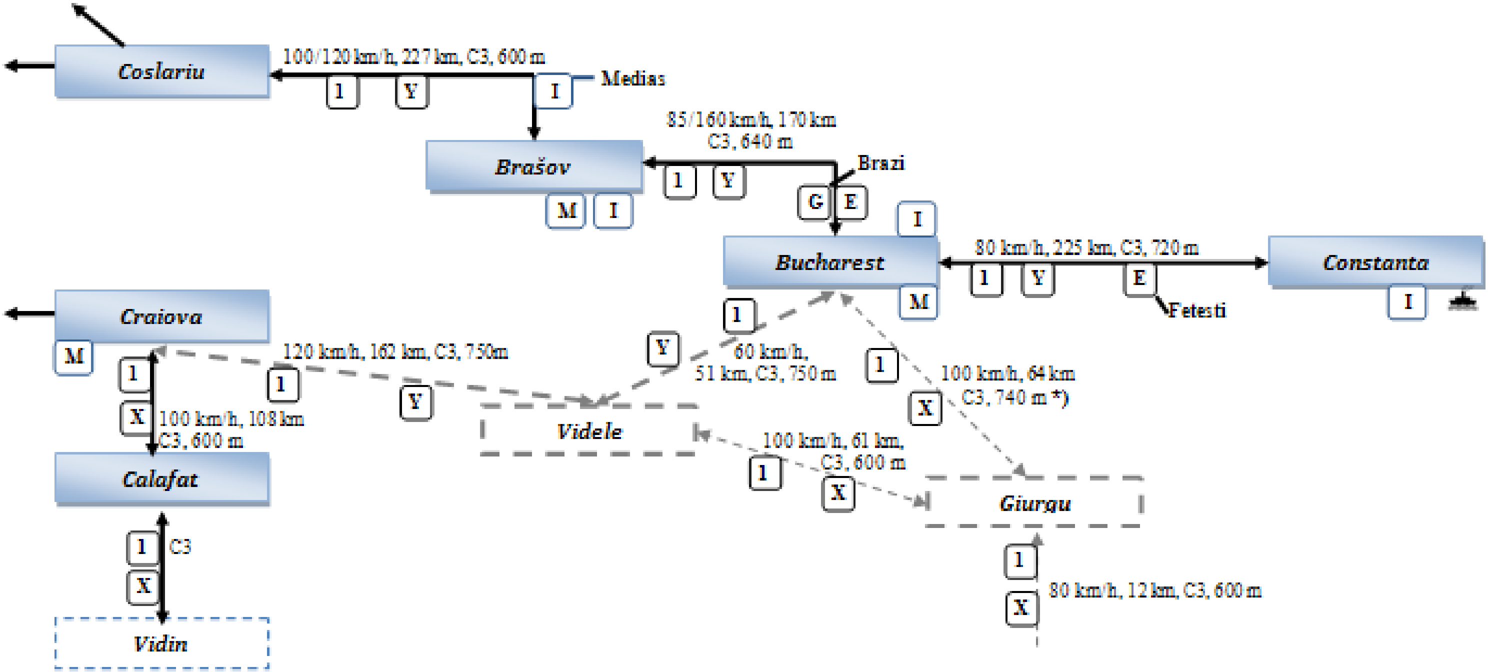
Electrification: Z _ 3 KV DC; Y _ 25 KV AC (50 Hz); X _ Non-electrified

Profil (P/C): 1 _ P/C 45/375; 3 .P/C 70/400; 4 .P/C 78/402

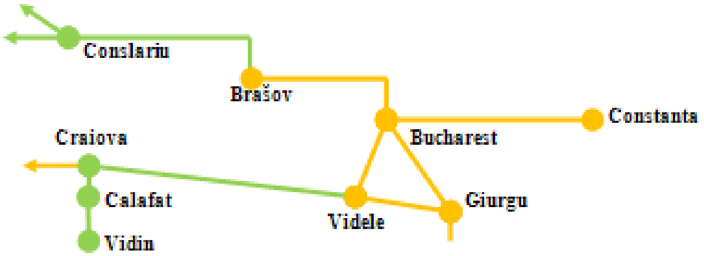
M _ Marshaling yard; I _ Intermodal terminal/keeper; _ Seaport

E _ ECTS; G _ GSM-R

Scheme 11: Technical parameters of corridor lines on the territory of Romania (CFR) - continuation



Capacity:



*) The railway traffic between Giurgiu and Bucharest is temporary interrupted due to Gradistea bridge collapse and it will be resumed after the rehabilitation works (assumed in 2015). The traffic is ensured on the route Bucharest – Videle – Giurgiu.

Electrification: Z _ 3 KV DC; Y _ 25 KV AC (50 Hz); X _ Non-electrified

Profil (P/C): 1 _ P/C 45/375; 3 .P/C 70/400; 4 .P/C 78/402

M _ Marshaling yard; I _ Intermodal terminal/keeper; _ Seaport

E _ ECTS; G _ GSM-R

2.1.6 Bulgaria

General socio-economic situation (2006-2010)

Bulgaria is a country in the South-East Europe with 6.63 millions of inhabitants. Sofia is the capital of Bulgaria with 1 246.8 thousands of inhabitants. Further important cities are Plovdiv and Varna.

GDP per capita in purchasing power parity reached 45% of EU average (EU 27) in 2011. Food industry, which is closely related to agriculture, has a high share in GDP formation. Agriculture has favourable soil and climatic conditions.

The country is not rich in minerals (especially fuel-energy). Most of minerals is imported from Russia. Machine, metallurgical, wood-processing and paper industries are the important branches of Bulgarian industry.

GDP development, industry structure in 2010 and GDP development prognosis are shown in the following table.

Table 41: Bulgaria GDP structure, development and prognosis

GDP structure (2010)		Reality						Prognosis	
Bulgaria	**Share in %**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Agriculture	n/a	6,5	6,4	6,2	-5,5	0,4	1,7	0,5	1,9
Industry	n/a								
Transport	n/a								
Trade	n/a								
Services	n/a								

Source: EUROSTAT, prognosis – GDP real growth rate database-volume

Table 42: GDP per capita in Bulgaria in purchasing power parity

Years	Reality					
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
EU (27)	100,0	100,0	100,0	100,0	100,0	100,0
Bulgaria	38,0	40,0	44,0	44,0	44,0	45,0

Source: EUROSTAT (data are expressed in relation to EU average 27 = 100)

Based on GDP development, we can conclude that the economic crisis became evident in full extent in 2009.

During economic crisis the economic growth rate decreased by 5.5%. Minimum growth was observed in 2010. According to Eurostat prognosis this trend of slow recovery, following expected decrease in 2012, will continue (see Table 40).

Detailed information on corridor on the territory of Bulgaria

Data relating exclusively lines proposed for the establishment of the rail freight corridor 7 (main or alternative, terminal lines) in Bulgaria are shown in the following tables.

Table 43: Freight transport development on draft rail freight corridor RFC 7 in Bulgaria

Years	Freight transport in thousands of gross tons		
	2008	2009	2010
Vidin - Brusartsi	34 760 018	12 132 066	10 064 851
Brusartsi - Mezdra	145 094 730	40 506 411	34 867 214
Mezdra - Sofia	362 546 083	174 724 532	176 220 344
Sofia - Radomir	479 443 727	409 804 524	375 752 570
Radomir - Kulata	288 384 729	223 351 910	299 992 127
Sofia - Septemvri	587 133 661	498 369 886	461 210 591
Septemvri - Plovdiv	332 494 507	273 262 824	247 832 392
Plovdiv - Dimitrovgrad	220 468 774	89 225 236	57 620 834
Dimitrovgrad - Svilengrad	369 860 446	291 924 585	327 877 610
Vidin - Brusartsi	34 760 018	12 132 066	10 064 851
Brusartsi - Mezdra	145 094 730	40 506 411	34 867 214
Total	**3 000 041 423**	**2 065 940 451**	**2 036 370 598**

Source: Member of RFC 7 Commission from Bulgaria, NRIC

There is a significant decrease in traffic volumes in 2009 continuing in 2010 as well.

In 2010 compared to 2008 there is a decrease of total volumes on draft rail freight corridor RFC 7 by - 32,14%.
In 2010 copared to 2009 is a decrease of total volumes on draft rail corridor RFC 7 by -1,43%.

The highest percentage increase in rail freight transport is on the section Radomir – Kulata by 4,0% in 2010 compared to 2008. However the volumes of freight transport on this section in 2010 are lower than in the years 2006 and 2007.

There is decrease in traffic volumes in 2010 compared to 2008 on all section of draft rail corridor RFC 7 except of section Radomir – Kulata. The decrease of traffic volumes continued in 2010 compared to 2009 except of sections Radomir – Kulata, Dimitrovgrad – Svilengrad a Mezdra – Sofia.

Since 2008 to 2010, there is increase of RU´s on draft rail corridor RFC in Bulgaria.

Table 44: Passenger transport development on draft rail freight corridor RFC 7 in Bulgaria

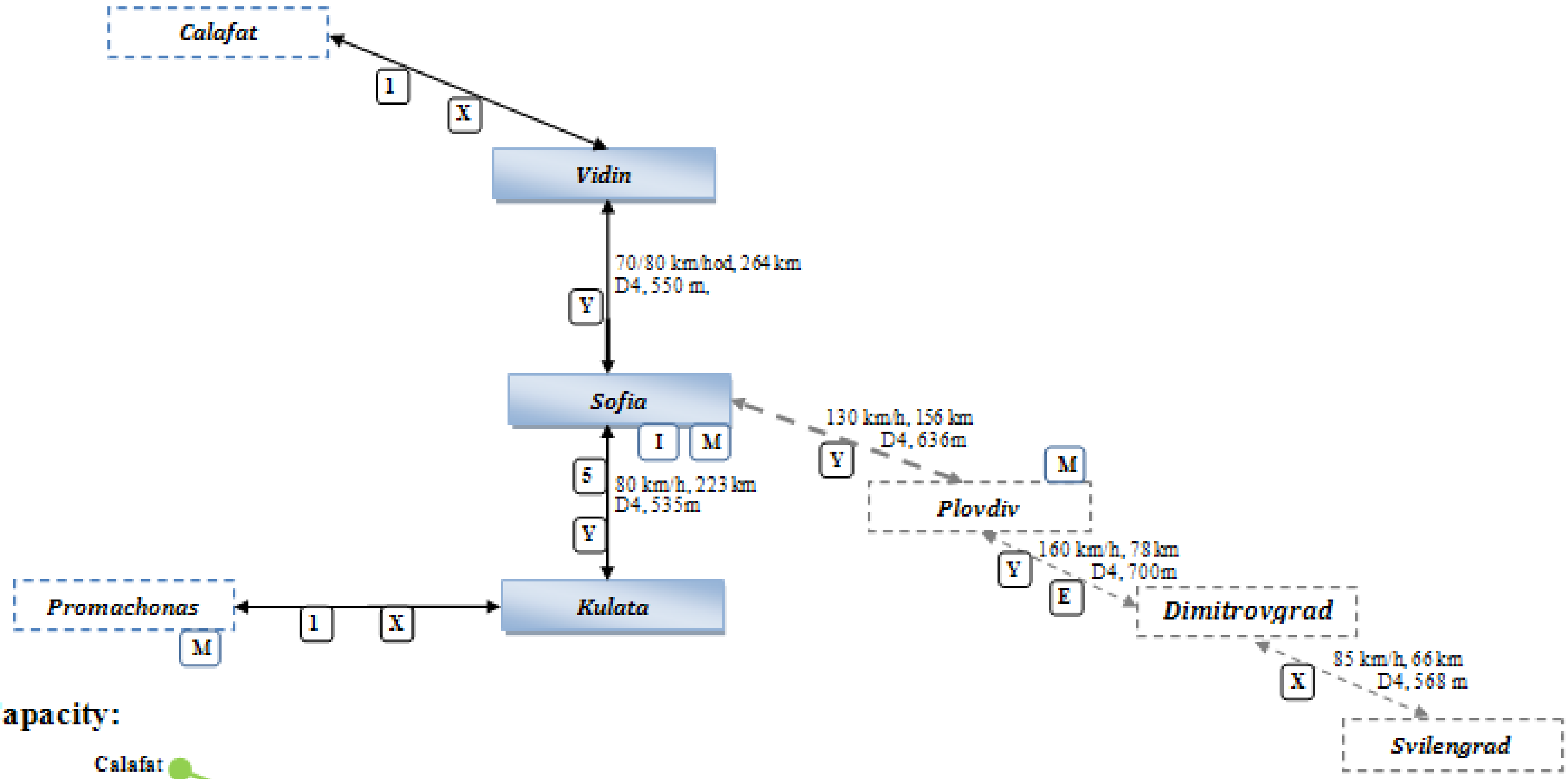
Years	Passenger transport in train km		
	2009	2010	2011
Vidin - Brusartsi	318 823	318 131	293 756
Brusartsi - Mezdra	539 887	589 447	615 706
Mezdra - Sofia	1 427 694	1 424 138	1 394 822
Sofia - Radomir	793 157	1 094 610	1 010 850
Radomir - Kulata	1 057 871	1 088 689	1 072 500
Sofia - Septemvri	1 408 667	1 535 378	1 476 942
Septemvri - Plovdiv	480 672	535 580	735 639
Plovdiv - Dimitrovgrad	720 219	503 576	290 311
Dimitrovgrad - Svilengrad	76 655	144 119	146 489
Total	**6 823 645**	**7 233 669**	**7 037 015**

Source: Member of RFC 7 Commission from Bulgaria, NRIC

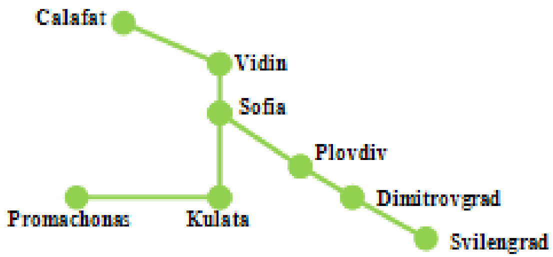
In 2009 compared to 2008, there is an increase of total passenger transport by 6,0%.
In 2010 compared to 2009, there is a decrease of total passenger transport by – 2,72%.

The highest increase of passenger transport in 2010 compared to 2008 is on the section Septemvri – Plovdiv.
The highest decrease of passenger transport from the long-term point of view is on the section Dimitrovgrad – Svilengrad.

Scheme 12: Technical parameters of corridor lines on the territory of Bulgaria (NRIC)



Capacity:



Electrification: Z _ *3 KV DC*
Y _ *25 KV AC (50 Hz)*
X _ *Non-electrified*

Profil (P/C): 2 _ *P/C 57/381*
3 _ *.P/C 70/400*
5 _ *.P/C 59/389*

M _ *Marshaling yard*
I _ *Intermodal terminal/keper*
_ *Seaport*

E _ *ECTS*
G _ *GSM-R*

2.1.7 Greece

General socio-economic situation (2006-2010)

Greece is located in the south of Europe and has 10 787.7 thousands of inhabitants. Athens is the capital of Greece with 3 874.6 thousands of inhabitants. The second largest city is Thessaloniki located on the corridor (about 1000 thousand of inhabitants). Other important cities lying on the corridor are shown in Annex.

Gross domestic product per capita in purchasing power parity decreased to 82% of EU average (EU 27) in 2010. The services are GDP basis. GDP development, industry structure in 2010 and GDP development prognosis are shown in the following table.

Table 43: Greek GDP structure, development and prognosis

GDP structure (2010)		Reality						Prognosis	
Grecce	**Share in %**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Agriculture	4%	5,5	3,0	-0,2	-3,3	-3,5	-5,5	-4,7	0,0
Industry	17,6								
Transport									
Trade									
Services	78,5								

Source: Member of RFC 7 Commission from Greece, EUROSTAT prognosis –GDP real growth rate database-volume

Table 44: GDP per capita in Greece in purchasing power parity

Years	Reality					
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
EU (27)	100,0	100,0	100,0	100,0	100,0	100,0
Greece	92,0	90,0	92,0	94,0	90,0	82,0

(data are expressed in relation to EU average EÚ 27 = 100), Source: Eurostat

During the economic crisis, since 2008, the Greek economy has fallen into recession.

According the prognosis from Eurostat database, the economic decline shall last also in 2012. In 2013, economic turnaround will occur (from recession to growth).

Table 45: Development of state expenditures in infrastructure in Greece

Transport mode	State expenditures in infrastructure (millions of EUR)				
	2006	**2007**	**2008**	**2009**	**2010**
Rail		750,5	664,3	689,8	452,0
Road	64 553 519	83 691 224	69 551 497	76 918 621	56 624 090
Waterways	12 936 258	5 299 882	15 636 390	26 705 402	26 093 211
Air	34 589 126	34 589 126	34 589 126	34 589 126	34 589 126
Pipeline			1,0		
Total	**112 078 903**	**123 580 983**	**119 777 678**	**138 213 839**	**117 306 879**

Source: Member of RFC 7 Commission from Greece, OMC

In 2010, overall state expenditures in infrastructure decreased. The state expenditures in railway infrastructure represent a low share of overall state expenditures in infrastructure. It is also due to sparse rail network.

Table 46: Freight transport modal split in Greece

Transport mode	Freight transport modal split in thousands of tons				
	2006	2007	2008	2009	2010
Rail	3 884,00	4 943,00	4 253,00	3 377,00	3 982,00
Road	510 741,00	484 775,00	628 560,00	644 528,00	577 442,00
Waterways	159 425,00	164 300,00	152 498,00	135 430,00	124 387,00
Air	107,07	102,96	112,22	97,80	88,72
Total	**674 157,07**	**654 120,96**	**785 423,22**	**783 432,80**	**705 899,72**

Source: Member of RFC 7 Commission from Greece, EUROSTAT

In 2010, there was more significant decrease in total freight volume.

This significant decrease in total traffic volume in 2010 is due to large decrease of dominant transport mode in Greece, i.e. road goods transport. Road goods transport volume decreased by -10.4% in 2010 compared to 2009.

Road, water and air freight transport observed, in 2009 and 2010, large decrease. Rail freight traffic observed an increase in 2010.

Share of rail freight traffic of total traffic volume was 0.56% in 2010. The highest rail freight share of total traffic volume was in 2007, 0.76%. Share of road goods transport of total traffic volume was 81.80% in 2010. Share of water freight transport of total traffic volume was 17.62%.

Table 47: Passenger transport modal split in Greece

Transport mode	Passenger transport modal split in thousands of passengers				
	2006	2007	2008	2009	2010
Rail	9 520	10 003	8 389	14 280	13 817
Road - public	n/a	n/a	n/a	n/a	n/a
– Road - individual	n/a	n/a	n/a	n/a	n/a
Waterways	45 177	45 858	45 222	43 867	
Air	32 753	34 780	35 056	33 436	32 624
Total	**87 450**	**90 641**	**88 667**	**91 583**	**46 441**

Source: Member of RFC 7 Commission from Greece, EUROSTAT, TRAINOSE

Rail passenger traffic observed a significant increase in performances in 2009 and 2010 compared to previous years 2006, 2007 and 2008.

Table 48: Rail freight transport according to groups of goods

Goods structure	Rail freight transport development according to groups of goods in millions of tonne-km				
	2006	2007	2008	2009	2010
Products of agriculture	32,0	28,0	25,0	42,0	43,0
Coal, gas, oil	0,0	0,0	13,0	6,0	1,0
Metals	5,0	2,0	0,0	0,0	0,0
Chemicals	36,0	35,0	19,0	12,0	14,0
Wood, paper	114,0	124,0	118,0	76,0	101,0
Others	123,0	132,0	1,0	0,6	1,0
Total	**310,0**	**321,0**	**176,0**	**136,6**	**160,0**

Source: Member of RFC 7 Commission from Greece, EUROSTAT, TRAINOSE

Wood, paper and products of agriculture have a considerable share of rail transport according to groups of goods. Products of agriculture have growing trend. Wood and paper maintain the traffic volume.

More detailed information on Greece is shown in the tables of Annex A.

Detailed information on corridor on the territory of Greece

Data relating exclusively the lines proposed for the establishment of the rail freight corridor (main or alternative, terminal lines) in Greece are shown in the following tables.

Table 49: Freight transport development on draft rail freight corridor RFC 7 in Greece

Years	Freight transport in thousands of gross tons			
	2006	2007	2008	2009
Pireaus -3 Gefyres	6 600	9 900	9 900	6 600
3 Gefyres - SKA	6 600	9 900	9 900	6 600
SKA - Inoi	63 600	95 400	95 400	63 600
Inoi - Tithorea	110 400	165 600	165 600	110 400
Tithorea - Lianokladi	67 200	100 800	100 800	67 200
Lianokladi - Domokos	72 000	100 800	100 800	72 000
Domokos - Palaiofarsalos	18 000	27 000	27 000	18 000
Palaiofarsalos–Mesourlo- Larissa	52 500	79 800	79 800	52 500
Larissa -Evangelismos	46 000	46 000	46 000	41 400
Evangelismos - Leptokaria	70 000	70 000	70 000	63 000
Leptokaria - Plati	136 000	136 000	136 000	122 400
Plati – Sindos - Thessaloniki	96 200	96 200	96 200	88 800
Thessaloniki - Strimonas	272 250	272 250	272 250	193 600
Strimonas -Kulata- Promachonas	25 200	25 200	25 200	21 000
Total	**1 042 550**	**1 234 850**	**1 234 850**	**927 100**

Source: Member of RFC 7 Commission from Grecce, Based on the created data base for TEN-T revision

In 2008 compared to 2009, there was decrease in the total performance volume on the draft rail freight corridor 7 by -24.92% (decrease by -11.07% in 2009 compared to 2006).

The highest decrease in transport performances (volume) in freight transport is, in 2009 compared to 2006, on the track Thessaloniky – Strimonas (-28.9%).

There is only one passenger and freight carrier in Greece (see Table B.4 in Annex B).

Table 50: Passenger transport development on draft rail freight corridor RFC 7 in Greece

Years	Passenger transport in train km				
	2006	2007	2008	2009	2010
Pireas-3 Gefyres	139 700	136 400	100 100	103 400	164 893
3 Gefyres - SKA	139 700	136 400	100 100	103 400	164 893
SKA - Oinoi	609 500	577 700	577 700	609 500	664 283
Oinoi - Tithorea	487 600	506 000	506 000	524 400	1 037 922
Tithorea - Lianokladi	296 800	308 000	308 000	319 200	567 602
Lianokladi - Domokos	318 000	330 000	330 000	276 000	639 010
Domokos - Palaiofarsalos	52 500	43 500	66 000	69 000	138 473
Palaiofarsalos - Larisa	189 000	163 800	256 200	268 800	372 337
Larisa - Evaggelismos	62 100	121 900	121 900	184 000	214 543
Evaggelismos - Leptokaria	94 500	185 500	185 500	280 000	298 937
Leptokaria - Plati	183 600	360 400	360 400	544 000	647 161
Plati - Thessaloniki	572 520	506 460	506 460	513 800	305 796
Thessaloniki - Strimonas	254 100	423 500	387 200	423 500	405188
Strimonas - Promachonas	0	9 800	9 800	14 000	2 762
Volos - Larissa	207 400	207 400	207 400	183 000	-
Total	**3 607 020**	**4 016 760**	**4 022 760**	**4 416 000**	**5 218 612**

Source: Member of RFC 7 Commission from Grecce, Based on the created data base for TEN-T revision

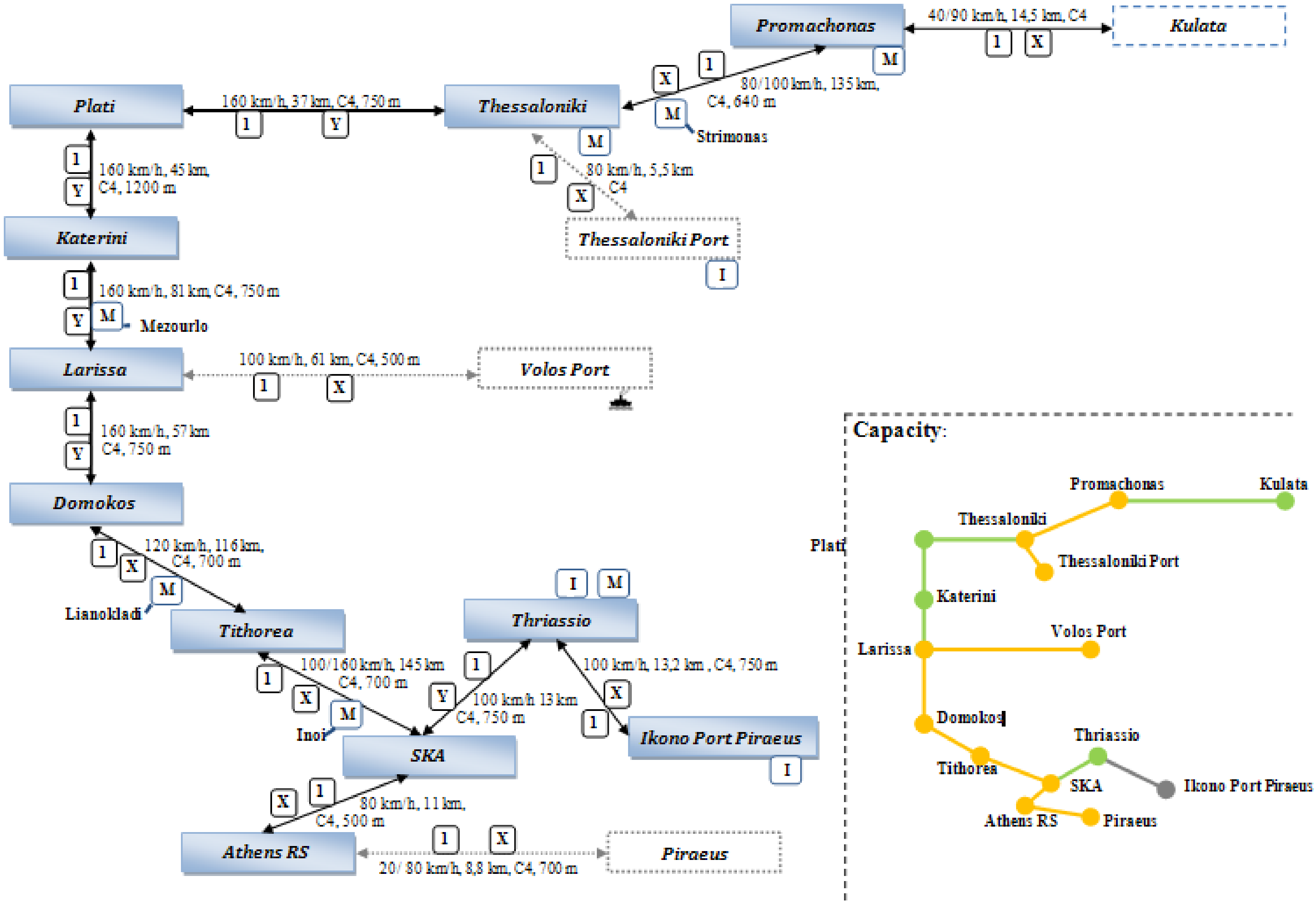
In 2006 – 2010, there was permanent increase in number of passengers, in contrast to the development on the whole OSE network. After rapid increase in 2009, there was decrease in 2010.

The largest decrease in number of passengers, in 2010 compared to 2006, is on the track Platy - Thessaloniki. The highest increase in number of passengers, in 2010 compared to 2006, is on the track Oinoi – Tithorea.

The capacity of proposed lines of rail freight corridor 7 is utilised on the maximum level between 50% and 90% of line capacity on the sections Thessaloniki – Promachonas and Larissa - Athens. The other lines of draft RFC 7 are utilised maximum on the level lower than 50% of line capacity.

Scheme 13 of stations, their facilities, lines and technical parameters of rail freight corridor on the territory of Greece shows the proposed lines and their technical parameters. More detailed and further additional information (not listed in Schemes) concerning terminals and marshalling yards is listed in Annex B.

Scheme 13: Technical parameters of corridor lines on the territory of Greece (OSE)



Electrification: Z _ *3 KV DC*
Y _ *25 KV AC (50 Hz)*
X _ *Non-electrified*

Profil (P/C): 1 _ *P/C 45/375*
3 _ *P/C 70/400*
4 _ *P/C 78/402*

M _ *Marshaling yard*
I _ *Intermodal terminal/keper*
_ *Seaport*

E _ *ECTS*
G _ *GSM-R*

2.2 General socio – economic situation of THE country with importanT inFLUANCE on RFC 7 - GERMANY

Germany is a country in the North-Central Europe with 82.4 millions of inhabitants. Berlin is the capital of Germany with 3.5 millions of inhabitants. The second largest city is Hamburg with 1.7 millions of inhabitants.

Germany is the third largest economy of the world and the largest economy in EU with the GDP of 2,6 billions € (in 2011). From the foreign trade point of view, Germany is the largest export country of EU and it is an important trade partner for Central and South-East Europe. The most competitive branches from the word-wide view are: automotive, electrical engeneering, machinery construction and chemical industry.

GDP per capita in purchasing power parity reached 119% of EU average (EU 27) in 2010. The most important parts of GDP are services and industry.
GDP development, GDP per capita and prognosis of GDP development are shown in the following tables.

Table 1: Germany GDP development and prognosis

Years	Reality						Prognosis	
	2006	2007	2008	2009	2010	2011	2012	2013
EÚ (27)	3,4	3,2	0,4	-4,5	2,1	2,6	-0,4	-0,1
Germany	3,7	3,3	1,1	-5,1	4,2	3,0	0,7	0,4

Source: EUROSTAT – database of real GDP development[1]

Table 2: GDP per capita in Germany in purchasing power parity

Years	Reality					
	2006	2007	2008	2009	2010	2011
EÚ (27)	100	100	100	100	100	100
Germany	115	115	116	115	119	121

(Data are expressed in relation to EU average EU27 = 100), Source: Eurostat

During the economic crisis since 2008, the economy of Germany decreased to growth recession. Already in the year 2010, there is the increase of GDP.

Based on prognosis of Eurostat, the economy growth shall continue for the next years. This is a positive trend for the growth of economy in the countries of the Central and South-East Europe.

[1] http://epp.eurostat.ec.europa.eu/portal/page/portal/national_accounts/data/database

2.3 Comparison of transport performances, travel time between road and rail and infrastructure access charges

2.3.1 Comparison of road and rail transport performances

Based on partial analyses carried out in respective countries, we can conclude that there is a dynamic increase of road transport and stagnation of rail transport in most countries, except for Romania and Greece. Therefore, share of rail transport in total traffic volume decreases, especially in the Central European region.

Rail share decreases more on the less important lines (regional lines, connecting lines without presence of terminals, etc.), while a moderate increase can be observed on the main lines and on the corridor lines.

The share of intermodal transport increases inside total rail traffic volume.

Therefore, one of the possible solutions how increasing rail flexibility is not only to improve the technical parameters of lines (thus shortening transport time) but also to support the intermodal transport in combinations road-rail-road and water-rail-road.

2.3.2 Comparison of transportation times on road infrastructure and on rail infrastructure

In general, it is known that road transport is in terms of transport time and location more flexible. It confirms also average speed on the line Bratislava-Bucharest calculated in the following table.

Crews, driving times, breaks and rest periods required for determination of total time of transport by road on the route Bratislava – Bucharest are specified in accordance with Regulation (EC) No 561/2006 of the European Parliament and the Council on the harmonisation of certain social legislation (hereinafter Regulation 561/2006) relating to road transport (in particular international road transport over 3,5 t).

Transport time by rail is determined on the basis of average transport times where necessary actions to ensure the transport are included (forwarding times, used in particular in rail transport are not included in total time).

Table 51: Average speed calculated on the section Bratislava East - Bucharest

Transport	Section	km	hours	km/hour
Rail freight transport – unit train	Bratislava - Bucharest	1106,2	28,6	38,68
Truck transport – two-man crew, shortened rest period	Bratislava – Bucharest	1017,0	16,05 – 19,34	57,0 – 70,0*
Truck transport – one driver, shortened rest period	Bratislava – Bucharest	1017	25,5 – 38,35	54,0 – 70,0

* Source: e.g. Mercedens Benz VDA

Data for road transport are drawn from the technical parameters of manufacturers. Average speed of truck transport is affected by the structure of road transport infrastructure (highways, motor roads, lower category roads), technical condition of infrastructure and actual situation on the roads (congestion, unfavourable weather, other extraordinaries).

In goods transport by trucks with two drivers, average speed of 54 km/h and following the rules on driving time, break and rest of drivers according to Regulation 561/2006, total transport time from Bratislava to Bucharest is approximately 29,35 hours. When the average speed is increased by 3 km/h (i.e. average speed is 57 km/h), the drivers have not to utilize shortened rest period (9 hours) and total transport time is shortened to 19,34 hours.

In goods transport by trucks with two drivers, average speed of 70 km/h and following the rules on driving time, break and rest of drivers according to Regulation 561/2006, the total transport time from Bratislava to Bucharest is approximately 16,05 hours.

In goods transport by trucks with one driver, average speed between 54 km/h and 70 km/h, shortened rest period and following the other rules according to Regulation 561/2006, the total transport time from Bratislava to Bucharest is in the range of 25,05 h and 38,35 h.

Based on these facts, we can conclude that transport time by truck can be shorter on Bratislava – Bucharest section compared with through freight train by 12,5 h (i.e. comparison between rail and truck transport with two-man crew and reached average speed of 70 km/h).

This conclusion is confirmed by the data on transport time provided by members of Commission from Slovakia and Greece (see Annex: Rail corridor info, Time and Charge).

2.3.3 Comparison of infrastructure Access charges

In order to compare the levels of charges, as the structure and form of charges is different in the countries of rail freight corridor 7, the evaluation is carried out in relation to train-km (comparison based on average rates in relation to train-km is used in international studies, e.g. Charges for the Use of Rail Infrastructure 2008).

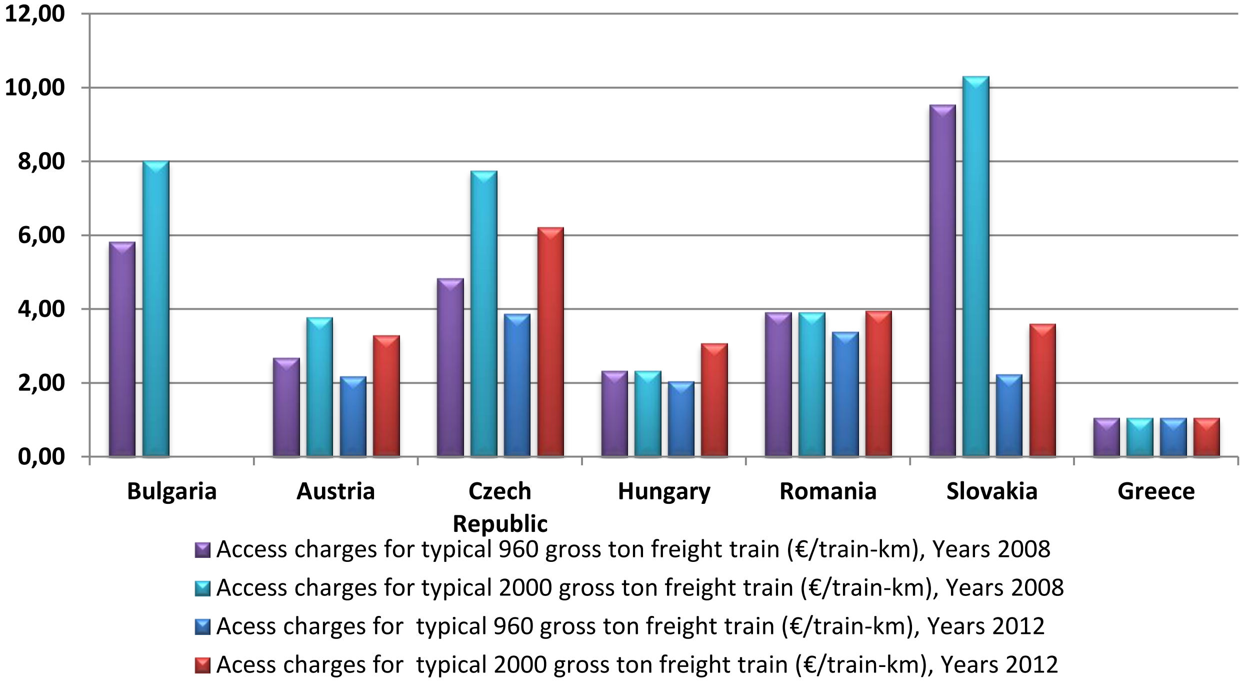
In general, each country of rail freight corridor 7 has implemented, in larger or smaller extent, Regulation of the European Commission under the Directive of the European Parliament and the Council No 2001/14/ES of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification. Comparison of rail infrastructure access charges in 2008 and 2011 on the basis of train-km is shown in the following table and diagram.

Table 52: Comparison of rail infrastructure access charges in €/train-km

Country	Charges for the Use or Rail Infrastructure 2008*		Access charges in 2012**	
	Access charges for typical 960 gross ton freight train (€/train-km), Years 2008	Access charges for typical 2000 gross ton freight train (€/train-km), Years 2008	Access charges for typical 960 gross ton freight train (€/train-km), Years 2012	Access charges for typical 2000 gross ton freight train (€/train-km), Years 2012
Bulgaria	5,82	8,03	n/a	n/a
Austria	2,68	3,78	2,18	3,30
Czech Republic	4,83	7,76	3,87	6,22
Hungary	2,34	2,34	2,05	3,07
Romania	3,93	3,93	3,40	3,95
Slovakia	9,54	10,31	2,24	3,60
Greece	1,05	1,05	1,05	1,05

*source: Charges for the Use of Rail Infrastructure 2008
** source: Data provided by members of Rail Freight Corridor 7 Commission, 1€ = 293,14 HUF, 1€ = 4,2379 RON, 1€ = 24,815 Kč,

Diagram 1: Comparison of rail infrastructure access charges in €/train km



As presented in the table and the diagram, in the past, the Slovak Republic belonged to the EU countries with the highest rail infrastructure access charges. It has changed from 1 January 2011 by modification of the structure and the level of rail infrastructure access charges.

Based on the analysis of the structure and the level of rail infrastructure access charges, we can conclude that charging policy of respective countries does not have negative effect on the establishment of the rail freight corridor.

2.4 CAPACITY ANALYSIS

Based on the capacity analysis, we can conclude that the planned corridor has sufficient free capacity, so the present infrastructure would be capable of serving an increased rail transport flow without major changes. However, for smooth absorbing of a potential extra transport volume, it is necessary, to eliminate the capacity-restrictive sections on the corridor. The most capacity-restrictive line sections are on the territory of the Czech Republic and Slovakia.
The reasons for the high rate of capacity utilization are:
- Czech Republic: strong traffic volumes
- Slovakia: short section of a single track line inside the node of Bratislava

Table 53: Summary of lines with high rate of capacity utilisation

Country	Lines with capacity utilisation higher than 90%
Bulgaria	n/a
Czech Republic	Poříčany - Pardubice (65 km)
	Choceň - Česká Třebová (25 km)
Greece	has no line with capacity utilisation higher than 90%
Hungary	has no line with capacity utilisation higher than 90%
Austria	has no line with capacity utilisation higher than 90%
Romania	has no line with capacity utilisation higher than 90%
Slovakia	Bratislava hl. st. - Bratislava Nové Mesto (6 km)

Majority of corridor lines with capacity utilisation under 50% are on the territory of Slovakia and Hungary.

2.5 SWOT ANALYSIS

Within SWOT analysis, the particular strengths and weaknesses, opportunities and threats associated with establishment of RFC 7 are identified, on the basis of evaluating the respective factors that derive from creation of the corridor. By interdependency of strengths and weaknesses on the one hand and opportunities and threats on the other hand, we can obtain new information about the current status and about the benefits stemming from the establishment of the rail freight corridor.

In processing and evaluating the individual factors, the opinions of all countries, involved in the establishment of RFC 7, have been taken into account.

SWOT analysis generates a conceptual aspect for system analysis. It aims at the key factors for further strategic decision making.

Evaluation primary factors are:
- partnerships
- technical aspect
- capacity
- charges
- flexibility (time aspect)

Table 54: SWOT analysis at the corridor level

Strengths	Weaknesses
Partnership strengthening. Good technical conditions (in comparison with the other parts of national networks). Sufficient free capacity (especially in Slovakia, Hungary, Greece). Ecological transport mode. Effective bulk transportation. Safety.	Low state contribution to infrastructure costs → high infrastructure access charges. Low technical level, out-of-date infrastructure, high rate of failures. Lack of foreign language knowledge. Lack of free capacity on some lines (Czech Republic, Romania) for freight transport increase. Small flexibility. Low line speed (outside modernized sections). - Restrictions on border lines (in many cases these are single track lines with increased capacity).
Opportunities	**Threats**
Government transport policy (transport reforms). Organizational reform. Improvement of cooperation between corridors. Establishment of new partnerships. Cross-border cooperation (in improvement of technical parameters of border lines). Mutual cooperation in remedying the deficiencies in corridor establishment. Support of RoLa. Performance increase in cross-border stations. Support to intermodal transport. Confidence trains (without technical/commercial inspections). Elimination of waiting times at cross-border stations. Harmonization of annual time tabling between respective countries. Increase of road freight transport costs. Incorporation into logistic processes, into existing large logistic centres. Acquisition of new transportations, construction of branch tracks to newly-built industrial parks, companies (car companies). Connecting to logistic centres. Construction of intermodal transport terminals. Support of branch tracks. Shift of dangerous transport to safer transport mode (shift from road to rail). State policy support (legislation arrangement). Track modernization. Doubling of the tracks, ERTMS deployment. Development of terminals, infrastructure and industry around the terminals. Construction of terminals.	Differences in performance regimes. Economic crises. Intermodal alternatives. Re-evaluation of EU mega trucks. Increased performance can lead to increasing of fault rate. Prioritizing road transport. Non-competitive running times of long distance trains. No interface with logistic chains and centres. Mass transportation attenuation. High costs of .sidings Unfavourable state transport policy. Increased difficulty of short distance passenger traffic in the surrounding of centres. Giving priority to passenger traffic rather than freight traffic. -

Implementation of the measures only in some countries will not lead to significant increase in the competitiveness of international rail freight transport. Therefore, it is necessary to implement the measures jointly, based on mutual agreement of all member states of the corridor.

EXPECTATIONS OF FUTURE DEVELOPMENT „TO BE“ SITUATION

3.1 CALCULATION MODEL FOR THE TRAFFIC FORECAST

Based on analysis of current status, data assembly, identification of problems and risks, it is possible to create the forecast model that will serve to determine the expected development on the transport market after observing the defined conditions of recommendations for the establishment of the rail freight corridor. Traffic forecast modeling results from these aspects (= traffic support areas):

- GDP prognosis,
- technical condition improvement = ensure full harmonization of technical condition of rail freight corridor (based on an intended modernization on the draft RFC 7),
- reducing border waiting times,
- observing the timeframe of corridor introduction,

These aspects are interrelated and are reflected in deduction of the transport demand and creating a calculation model for the traffic forecast.

As transport performance forecasting depends, mostly, on economic development (and the resulting investments for infrastructure technical condition improvement) and it is, with respect to ongoing global economic crisis, rather ambiguous, the transport performance development forecast is elaborated in three scenarios (pessimistic, medium and optimistic). The fundamental characteristics of the scenarios will be described in the expected changes in traffic flow according to the aspects of impact on traffic flow development.

Transport demand will depend on the aspects (transport support areas) influencing the transport demand development. Thus, based on GDP growth in the respective countries, technical condition improvement and reducing the running times by means of border waiting time elimination, we can expect increase in rail traffic competitiveness and thereby also increase in transport performances on RFC 7.

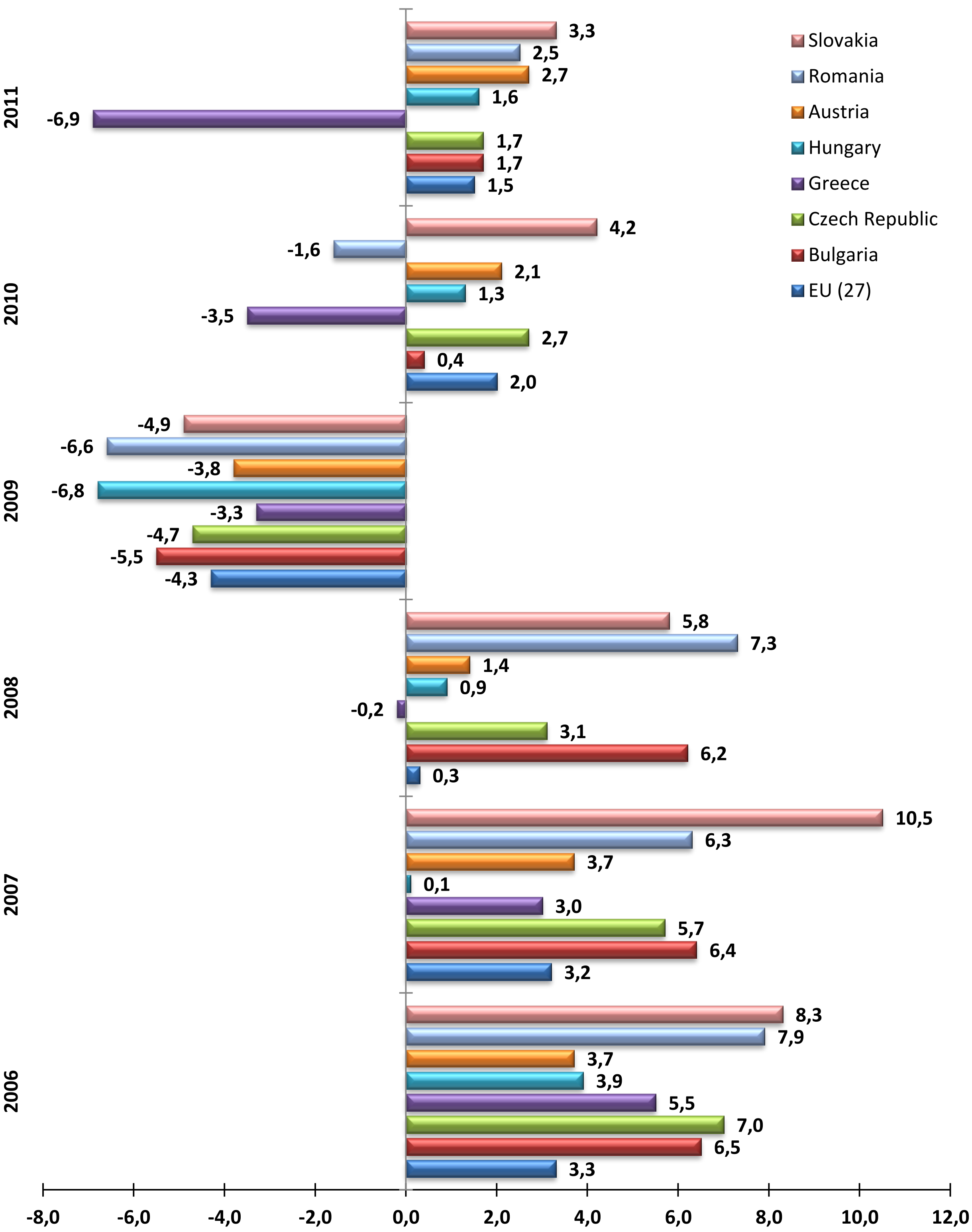
The following calculations are based on the fact that:
Elasticity factors used in forecasts, associated with GDP growth, are:

e_{GDP}= 0,5 - 0,9 (demand in freight traffic)

Level of transport elasticity depends on an economic advancement. In transforming economies, the level of elasticity is lower due to assumption of development of industries not relating with rail freight transport increase.

Rail freight corridor 7 will profit not only from GDP growth, but also from improving the infrastructure technical condition, eliminating the unreasonable border waiting time. Technical condition improvement and border waiting time reduction will be shown in increase in transport performances due to increasing in quality of provided services and speed and flexibility of transport.

Diagram 2: GDP historical development in the respective member states of the rail freight corridor



GDP is a starting point of the forecast. It plays a key role in the assessment of transport demand development within the Study.

GDP prognosis is from EU sources [2]

Table 55: Prognosis of GDP growth in respective countries of Rail Freight Corridor 7

Prognosis of GDP growth rate in freight transport			
Years	**2012- 2014**	**2015- 2017**	**2018-2021**
Bulgaria	1,63%	4,17%	4,50%
Czech Republic	1,60%	3,60%	3,54%
Greece	-0,72%	3,02%	2,87%
Hungary	0,90%	2,22%	2,19%
Austria	1,57%	2,01%	1,80%
Romania	2,68%	3,97%	3,97%
Slovakia	2,77%	3,70%	3,60%

Source: Eurostat, Economy and finance, national accounts (including GDP) - Europe 2020 indicators, WEO data

Traffic growth assessment was carried out in three steps.

In the first step, a deduction of transport market growth is determined by weighted arithmetic mean calculated from GDP of own country and from GDP of neighbouring countries lying on RFC 7.

In the second step, the forecast is influenced by assumptions for improving the infrastructure technical condition, construction the terminals and expected high private investments along the corridor. Improving the infrastructure technical condition, construction of terminals are in accordance with available information of national plans of modernization and reconstruction relating the infrastructure of rail freight corridor 7. From technical point of view it is important to eliminate bottlenecks and capacity problems. These problems can be eliminated by modernization and reconstruction. Assumption of modernization and reconstruction implementation in respective countries is always on the national level. The problem may be in border lines and cross-border stations where it is necessary to harmonize the neighbouring countries. Expected improvement of technical condition is calculated using the comparative coefficient according to HEATCO Study – Developing Harmonized European Approaches for Transport Costing and Project Assessment.

Finally, there was a phase of transformation of gradual reduction of border waiting times due to exchange of wagons between national carriers. Reducing the border waiting times will lead to speeding up the transport times and increasing the competitiveness against the road transport where this exchange does not exist. Exchange of rail transport means at borders will be still important and an integral part of rail transport market despite of intensified market liberalization (there is no exchange of rail transport means for transnational carriers). Expected reducing the border waiting times will reflect in increasing the competitiveness of international freight transport, thereby increasing the transport growth. Waiting time reduction is calculated using the comparative

[2] EUROSTAT: Economy and finances, national accounts (including GDP) - Europe 2020 indikators – REGIONS 2020
An Assessment of Future Challenges for EU Regions
http://ec.europa.eu/regional_policy/sources/docoffic/working/regions2020/pdf/regions2020_en.pdf
Word Economic Outlook (WEO) data, IMF http://www.econstats.com/weo/CAUT.htm

coefficient in accordance with HEATCO Study – Developing Harmonized European Approaches for Transport Costing and Project Assessment.

Scheme 14: Scheme of calculation model for the traffic forecast

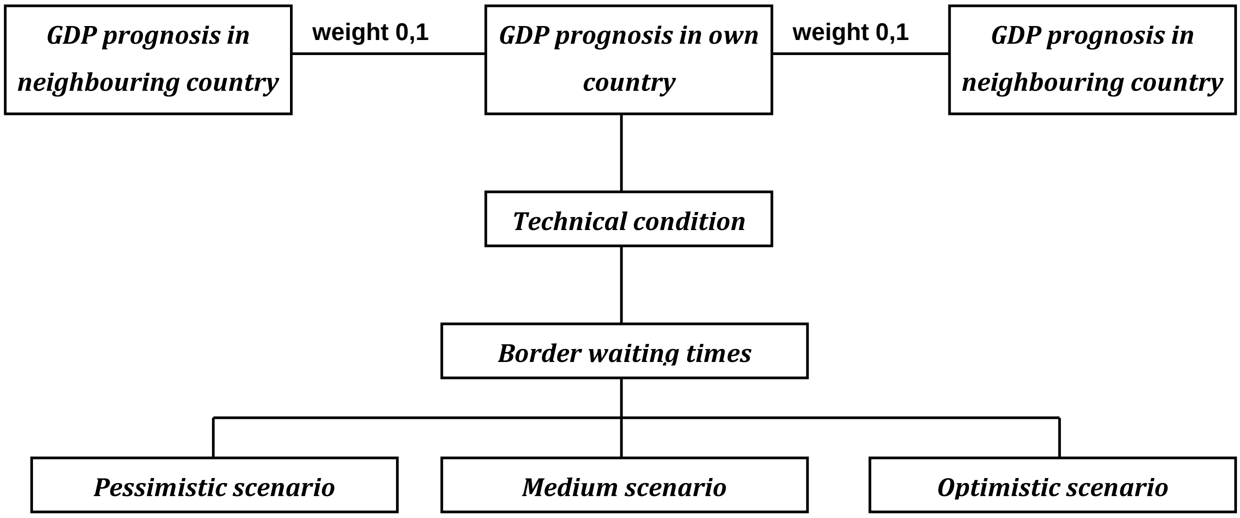


Table 56: Traffic demand deduction according to prognostic model "pessimistic scenario"

Pesimistic growth			
Demand growth rate forecasts in freight transport			
Years	**2012- 2014**	**2015- 2017**	**2018-2021**
Bulgaria	0,90%	2,42%	2,57%
Czech Republic	1,11%	2,59%	2,53%
Greece	-0,31%	1,57%	1,51%
Hungary	0,67%	1,51%	1,24%
Austria	1,22%	1,30%	1,20%
Romania	1,20%	2,10%	1,92%
Slovakia	1,17%	1,86%	1,64%

Table 57: Traffic demand deduction according to prognostic model „medium scenario"

Medium growth			
Demand growth rate forecasts in freight transport			
Years	**2012- 2014**	**2015- 2017**	**2018-2021**
Bulgaria	0,90%	2,42%	2,57%
Czech Republic	1,63%	3,28%	2,86%
Greece	-0,24%	2,35%	2,27%
Hungary	1,20%	1,77%	1,98%
Austria	1,55%	2,48%	2,52%
Romania	2,28%	3,62%	3,27%
Slovakia	2,23%	3,20%	2,78%

3.2 Table 58: Traffic demand deduction according to prognostic model „optimistic scenario“

Optimistic growth			
Demand growth rate forecasts in freight transport			
Years	**2012- 2014**	**2015- 2017**	**2018-2021**
Bulgaria	1,20%	3,23%	4,28%
Czech Republic	1,80%	3,80%	3,87%
Greece	0,06%	3,29%	3,48%
Hungary	1,20%	2,65%	2,72%
Austria	1,87%	2,83%	2,74%
Romania	2,52%	4,20%	4,61%
Slovakia	2,46%	3,71%	3,80%

3.2 Estimated changes of transport flows

Estimated changes of transport flows on corridor RFC 7 are simulated in 3 scenarios.

The basic characteristics of the scenarios are as follows:

Optimistic scenario – characters of economic revival from 2013, sustainment of positive economic indicators up to 2021, modernization and reconstruction of lines according to planned schedule, yearly decreasing of waiting times on borders, flexibile elimination of technical and capacity problems, increasing of RU´s flexibility during handover of trains on borders, increase of transport volumes is supported by high ratio of new intermodal transport , low growth of demand after bulk substrata traffic.

Medium scenario - slow economic revival from 2013, gradual improvement of economic indicators, modernization and reconstruction with 1 - 2 years delay, yearly decreasing of waiting times on borders, increasing of RU´s flexibility during handover of trains on borders, increase of transport volumes is supported by high ratio of new intermodal transport , stagnation of demand for bulk substrata traffic.

Pessimistic scenario - characters of economic revival from 2015, sustainment of positive economic indicators from 2015, modernization and reconstruction with 2 - 3 years delay, slow yearly decreasing of waiting times on borders, slow increasing of RU´s flexibility during handover of trains on borders, slight increase of transport volumes is supported by the slight ratio of new intermodal transport, stagnation of demand for bulk substrata traffic.

The following diagram and table illustrate the general prognosis of the transport demand growth, needed for the puposes of this Study.

Diagram 3: Development of transport volumes in million tkm according to particular scenarios

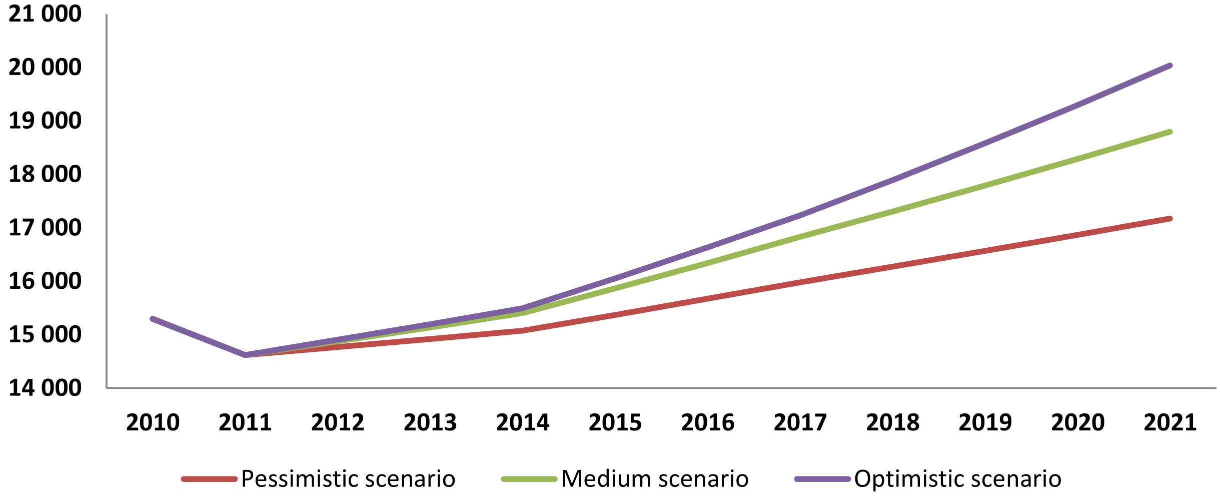


Table 59: Development of transport volumes in Million tkm according to particular scenarios (yearly)

Years	2012	2015	2018	2021
Pessimistic scenario	14 768,9	15 370,3	16 270,0	17 173,9
Medium scenario	14 875,2	15 864,5	17 301,8	18 799,0
Optimistic scenario	14 904,0	16 051,4	17 891,4	20 039,1

Notice: development on main lines

Risks of prognosis

The most important influence which coud considerably change the prognosis is the estimated time period of economic crisis. The longest time period of economic crisis is in the pessimistic scenario = upto the end of 2014 . The lenght of economic crisis will result in decreasing of investments into enhancement of technical status of infrastructure, elimination of capacity barriers and willingness to increase waiting times on borders by incresing of RU´s flexibility on borders and by elimination of these limitations. The important part by enhancement of technical status of infrastructure is the subsiding from the funds of EU in particular countries. Using of money from the subsidy funds of EU for modernisation and reconstruction of railway lines and stations contributes not only to the enhancement of technical status of infrastructure but as well to the growth impulse of economy. Delay in using money from subsidy funds of EU for modernisation and reconstruction of railway lines and stations can lead to decrease of positive potential effects for economy of the particular country.

The next risk is the growth of freight transport by another modes of transport, whereas railway transport can stagnate. That´s why it is very important for competitiveness of railway freight transport to provide high-class infrastructure, cooperation and coordination of neighbouring IM´s as well as flexibile cooperation between small and incumbent RU´s by handover of trains on borders.

The low technical equipment of border lines and stations causes higher problems than low technical equipment in inland. Examples for low technical equipment on border: low speed, single track and non-electrified lines.

3.3 SOCIO-ECONOMIC BENEFITS STEMMING FROM THE ESTABLISHMENT OF THE RAIL FREIGHT CORRIDOR RFC 7

The most important socio-economic benefits stemming from the establishment of the rail freight corridor are :

- reduction of waiting times at the borders (micro effect),
- reduction of transport times in freight transport (impact of investments),
- reduction of external costs (macro effect).

The estimated changes of the structure of transport flows can also become an important socio-economic advantage deriving from operating the corridor.
The parameters of different socio-economic effects (micro and macro) of creating RFC7 are calculated based on performances realized on the main lines of the corridor (see Table 10), due to the fact that the key-performances on the corridor are focused, i.e. the alternative and connecting lines support the increase of performances on the main lines.

Reduction of waiting times on the borders

Today the waiting times at the borders of RFC7 are often quite long. The actors causing the lengthy waiting times at the border crossings are:

partly the RU´s: **internal processes of RUs** (mostly waiting for locomotive and/or staff of the cooperating RU, technical control, etc.),

partly the IM´s: **lack of interoperabiliy of infrastructure** (the differences on the corridor are mostly in the electric systems, signalling devices, technical equipment of border stations and lines)
low capacity (e.g: single track line, restricted capacity of stations / line section)
restricted speed (e.g. max. speed of 60 km/hod)

Infrastructue Managers can decrease waiting times by enhancement of interoperability and communication, by modernisation and reconstruction of lines.

Railway Undertakings can decrease waiting times (from technical point of view) by enhancement of flexibility and cooperation during exchange of trains at the borders, by using multi-system locomotives, by certification of locomotive drivers, or by operating one RU on more infrastructures, thus performing the train transport by one RU on the whole route. Practice proves that small RUs have the longest waiting times at borders due to the lack of locomotives or staff.

Ad-hoc trains usually have higher waiting times at borders than regular trains.
In case technical or commercial inspections are needed at the border station, it may increase the duration of the procedure by 30–90 minutes.
The length of waiting times at borders ranges from 10 minutes to 48 hours.

The average waiting times are:

- for incumbent RUs: 10–40 minutes,
- for smaller RUs operating on more infrastructures: 0-5 minutes,
- for smaller cooperating RUs: 2–10 hours.

One of the possible solutions to improve waiting times from the RUs point of view is the increasing of „confidence trains“, which mean trains running without technical / commercial inspections. Such kind of trust could be applied not only for regular trains but also for ad-hoc trains, as the number of ad-hoc trains is rapidly increasing: today the proportion of ad-hoc trains is 40%, and that of regular trains is 60%.

The folowing sheet summarizes actual data, and also contains prognosis up to year 2021.

Table 60: Waiting times at the borders (actual status/ prognosis)

Country	Station*	Reality		Prognosis 2021
		Waiting time at the borders	Average waiting time	Average waiting time
Bugaria	Vidin (RO/BG)	n/a	n/a	n/a
	Kulata (BG/GR)	n/a	n/a	n/a
Czech Republic	Břeclav (CZ/AT)	3-60min	30	5
Greece	Promachonas (BG/GR)	220	220	30
Hungary	Rajka (SK/HU)	n/a	n/a	n/a
	Komárom SK/HU)		25	5
	Lőkösháza (HU/RO)	30 min	30	5
Austria	0 min (handover of trains is realized on the network of Czech Republic and Hungary)			
Romania	Curtici (HU/RO)	100 - 240 min	140	30
	Calafat (RO/BG)	100 - 240 min	140	20
Slovakia	Kúty (CZ/SK)		120	20
	Štúrovo (SK/HU)		140	20

** the waiting times at stations situated on the main lines are used for the purposes of calculation*

The calculation method is:

Reduction of waiting times at the borders = (average waiting times in 2011 – average waiting times in year X [year 2012 - 2021]) x (number of trains in particular border lines)

Socio-economic benefits were calculated for every year by taking into account the following factors:

- reduction of waiting times at the borders (calculated by using the above scheme)
- estimated volume of freight transport at the borders according to the transport prognosis
- time of implementation 2012 – 2021
- expected improvement of technical status
- value of the time bound to cargo (2010): 1,28 €/t.hour.

The value of the time is indexed from the end of the year 2010 to the next years of analysis + 1% (estimated annual rate of the growth of GDP/ habitant).

The reduction of waiting times concerns only stations and estimated freight transport volumes on the main lines.

Table 61: Final Net Present Value (NPV)

Reduction of waiting times at the borders in €	
NPV 2021 (pessimistic scenario)	128 713 568
NPV 2021 (medium scenario)	141 207 475
NPV (optimistic scenario)	146 019 575

Notice: external contribution on main lines

Financial evaluation of external costs (makro level)

The creation of a European rail network for competitive freight can lead to the increase of rail freight transport share at the expense of the existing as well as the newly generated road transport. By diverting goods from road to railway the negative impacts of transportation (e.g. congestions, accidents, pollution, climate change) can be decreased.

The level of the external impacts is evaluated based on unit costs to ton-kilometre, following the instructions listed in the Handbook on estimation of external cost in transport sector (2007) prepared by the consortium led by CE Delft on behalf of DG TREN.

The following factors were used for the derivation of the value of unit costs:

- development of GDP and purchasing power parity per capita,
- for air pollution, we have also integrated another factor in the calculation: 1% annual decrease due to technological improvements which lead to the reduction of emission.

Table 62: External costs in eurocent per ton-kilometre

Freight transport	Congestion	Accidents	Air pollution	Noise	Climate changes	Total
Truck	2,17	0,03	0,22	0,09	0,22	**2,73**
Freight train	0,01	0,01	0,07	0,04	0,1	**0,23**

Source: Handbook on estimation of external cost in transport sector (2007), prepared by the consortium led by CE Delft on behalf of DG TREN

External benefits were calculated on the basis of unit costs for freight transport according to the above-described scenarios of transport demand development. The results are presented in the following table.

Table 63: Final NPV (2021) in € according to particular scenarios

External costs in €	
NPV (2021) pessimistic scenario	104 015 168
NPV (2021) medium scenario	170 585 805
NPV (2021) optimistic scenario	208 441 878

Notice: external contribution on main lines

3.4 EXPECTED IMPACT OF PLANNED INVESTMENTS

The enhancement of the technical satus, modernisation and reconstruction of infrastructure can increase the capacity of the lines and shorten transport times. The decrease of transport times is determinated based on the estimated change in technical speed. The main focus is on line sections with maximal technical speed lower than 100 km/h (data based on „as-is situation“).
The below table summarizes the planned major investments on the corridor and their expected impact.

Table 64: Expected investments into RFC 7 (main and alternative lines)

Country	Expected investments	Impact of investments
Bulgaria	Modernization of corridor section Vidin - Sofia	Increase of speed, enhancement of technical parameters, reduction of transport times
Czech Republic	New terminal in Česká Třebová;	Increase of demand for railway transport
	Construction of new logistic centres in Brno, Pardubice;	
	Modernization of TEN – T net from the subsidy funds of EU	
Greece	Construction of freight terminal in Thriassio Pedio (nearby Athens) incl. intermodal transfer devices (track portal cranes), maintenance center, parking area and other complex services for freight transport	Increase of demand for railway transport, enhancement of quality of railway services
	Modernization works on line section Strymonas – Promachontas: speed from 30 to 100 km/h, introduction of GSM/ R, ETCS level 1	Increase of speed for freight transport , increase of capacity, reduction of transport time, enhancement of technical parameters
Hungary	Szolnok - Szajol - track rehabilitation	Decrease of possessions
	Gyoma - Békéscsaba - track rehabilitation	Decrease of possessions
	Murony - Békéscsaba - second track	Increase of capacity, elimination of restrictive sections, enhancement of technical parameters, decrease of transport time
	Békéscsaba - Lőkösháza border - second track	Increase of capacity, elimination of restrictive sections, enhancement of technical parameters, decrease of transport time
	Budapest-Ferencváros - Lőkösháza border – installation of ETCS 2	Enhancement of technical parameters and the quality of provided services
	Győr – Sopron – second track	Increase of capacity
	Budapest-south connecting railway bridge - renewal	Enhancement of technical parameters
	Vác station – renewal , Vác – Verőce section renovation	Increase of capacity, enhancement of technical parameters

Country	Expected investments	Impact of investments
Austria	Upgrade of the section Wien – Břeclav to 160 km/h instead of 140 km/h	Increase of speed especially for passenger transport
	Completion of ETCS- level 2 instead of national control system or ETCS- level 1	Increase of capacity
	Full coverage with GSM-R	Enhancement of the quality of provided services
	Loading gauge upgrade to LPR 1 (Gabarit C) instead of national ZOV 7	Enhancement of technical parameters
Romania	Modernization of corridor started and is expected to be completed by 2020	Increase of capacity, elimination of restricting sections , enhancement of technical parameters (160 km/h for passenger trains and 120 km/h for freight trains, introduction of ERTMS/ETCS- level 2)
Slovakia	Modernization of railway station Bratislava hl. st.	Elimination of restrictions
	Completion of GSM – R	Increase of capacity, enhancement of the quality of provided services
	Modernization of the line Kúty - Bratislava Lamač for the speed 160 km/h and ETCS	Enhancement of the quality of provided services

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 MEASURES TO IMPROVE FREIGHT PERFORMANCE

Definition of measures

Measures for improvement of freight performance on lines and terminals of RFC 7 can be devided into following groups :

Makroeconomic measures (= low impact from the IM´s point of view):
- support of the growth of GDP
- transport policy focused on development of environmental friendly transports, coordination and support on the level of states
- internalization of external costs

Microeconomic measures (= high impact from the IM´s point of view):
- motivation of RU´s operating freight transport to flexibility by means of access charges (parking fee, cancellation fee, indexes for regular/ ad-hoc paths...),
- modernization and reconstruction of lines (increase of capacity , support of interoperability, coordination of investments especially in border stations and lines),
- support of „confidence trains“ = without technical / commercial inspections,
- establishing of common procedures for coordinating traffic management along the corridor and setting up a joint body for appllicants called Corridor one-stop shop (C-OSS) ,
- drawing up a common corridor statement as a marketing tool helping to promote the corridor,
- flexibility of path allocation.

Macroeconomic measures (implemetation by state)

Macroeconomic measures are focused mainly on economic and transport policy. These measures are related to sustainable mobility. The conception of sustainable mobility is focused on two priorities = provision of high flexibility, low costs and effective mobility of the freigh on the one hand and minimalizing of claims arising from accidents, change of climate, noice, environmental damages, respiratory diseases, transport congestions due to increase of transport density on the other hand. That´s why it is necessary to support the ervironmental friendly kind of transports even by internalization of external costs and by another means of support (e.g. different types of restrictions).

Microeconomic measures (implementation by IM´s)

Motivation of RU´s operating freight transport to flexibility by means of access charges (parking fee, cancellation fee, indexes for regular/ ad-hoc paths)

Motivation of RU´s operating freight transport to decrease waiting times on borders can be achieved by implementation of parking fee on siding tracks (according to Directive 2001/14/EC of the European Parliament and of the Council of 26 February 2001 on allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification) The level and structure of a parking fee is an indirect tool how to affect the RU´s and to motivate them to decrease the waiting time on the border (on the other side the implementation of parking fee can´t solve the problems of RU´s with lack of locos / staff). One of the most effective tool from IM´s side could be the increasing of flexibility in path allocation process (=fast reaction time for ad-hoc path allocation) and appropriate common charging policy on the whole corridor (parking fee, cancellation fee, indexes for regular/ ad-hoc paths, preferences for intermodal transport, dangerous goods, extraordinary shipments...) .

Modernization and reconstruction of lines (increase of capacity , support of interoperability, coordination of investments especially in border stations and lines)

Modernization and reconstruction of tracks is an important task of all IM´s . On the one hand : the modernization and reconstruction of railway tracks supports the growth of the national economics and in case of subsidies from EU funds it can decrease the charges of national accounts, on the other hand: increasing of speed, technical level, safety and reliability leads not only to the increase of capacity and interoperability but as well to the increase of competitiveness of passanger and freight railway transport. During modernization and reconstruction of lines, it is important to provide for coordination of investment plans of involved IM´s in the way that the modernization of border sations and lines shall be in close time sequence among involved IM´s. On RFC 7, the most important modernization is between Romania/ Bulgaria / Greece as the technical level is actually low (40/80 km/h)

Support of „confidence trains“ = without technical / commercial inspections

The next possibility how to decrease the waiting time on border is the elimination of technical/ commercial inspections required by RU´s. This elimination assumes the confidence of cooperating RU´s. In principle, there are two possibilities: acceptation of technical and commercial inspection by initial RU in origin station on whole path or by IM´s in all transshipment marshalling yards .

One of possible solutions for accepting of technical / commercial inspection would be the issuing of international certificate for wagon examiners and commercial staff of RU which would guarantee the quality of inspection work.

Establishment of common procedures for coordinating traffic management along the corridor and setting up corridor one-stop shop (OSS)

It is necessary to determinate procedures and cooperation during path allocation process realized by Corridor OSS and national OSS. Processes should include information flows about scheduled and ad-hoc possessions, restrictions, extraordinariness which can influence path allocation process.

Drawing up a common corridor statement as a marketing tool helping to promote the corridor

Promotion of corridor is one of the most important issues for the establishment of the corridor.. The possible forms of promotion: website, brochures, dedicated meetings, advertising in newspapers focused on economy and transport. Potential customers (RU´s forwarding agencies, shippers, intermodal operators, terminals..) should have a fast and reliable access to all information they need for successful international railway freight transport (= access conditions, capacity availability, customer centers, infrastructure parameters, charges, possessions, etc.)
It is important to provide all necessary information in the languages of all countries involved in corridor RFC 7.

Flexibility of path allocation

Path allocation process should follow the same rules but actually differs from country to country. Directive 2001/14/EC determinates the duty of IM´s to respond to the path requests as quickly as possible and in any event within five working days. Sheet 65 shows an overview of actually practised response times. It would be useful to unify the rules for allocation of regular as well as for ad-hoc path on the future corridor RFC 7 with the focus on the highest possible level of flexibility (= Austria with 30 minutes response time) .

Table 65: Deadline for submitting of ad-hoc path requests by RU´s

Country	AB / IM	Minimum time for ad-hoc path allocation
Bulgaria	NRIC	n/a
Czech Republic	SŽDC	2 hours
Greece	OSE	n/a (allocation process differs from other countries)
Hungary	VPE	1 hour
Austria	ÖBB	30 min. (trains) / 10 min. (loco trains)
Romania	CFR	6 hours
Slovakia	ŽSR	6 hours

Source: Members of RFC 7

Experiences with allocation of catalogue paths RNE:

SŽDC, ŽSR:
Catalogue paths are allocated only in ad-hoc path allocation process = no demand of RU´s for annual timetabling process. In ad-hoc path process, parameters and timetabling of the path are not respected = trains are allowed to be longer/ shorter, heavier/ lighter, faster/ slower, late/ ahead.

VPE:
Catalogue paths (for all the Hungarian network) are allocated automatically by the path requesting IT system as an offer for all ad-hoc requests (paths). If it is not suitable, the requester could prefer tailor-made ad-hoc paths within 5 days, or paths without timetabling. At about 1 percent of the ad-hoc requests need taylor-made path, for 10 percent catalogue paths are suitable and all the rest (89 percent) prefer running without compiled timetable.

OSE:
Until now there is only one Railway Undertaking in Greece: TRAINOSE

The through capacity along the three main axis (Athens-Thessaloniki, Thessaloniki-FYROM Border, Thessaloniki-Bulgarian border) is fully exploited.

All available paths have been allocated to regular passenger trains, national and international (the latter agreed through the FTE process) freight trains. In case of requests for additional paths, these are treated on an ad-hoc basis, judging on the availability of resources (mainly availability of station personnel) at the time of the request and they are either accepted or rejected. Since the situation in Greece is very volatile, no standard rule has been adopted.

OBB:

On the ÖBB network, catalogue paths will not be directly allocated. They are just used as an aid for RUs for the elaboration of their paths requests.

In any case, no RNE catalogue path is allocated before X-8. Some finally allocated paths might fit exactly onto formerly defined RNE catalogue paths, others differ significantly and there are no statistics, which share of the path requests is based on RNE catalogue paths.

CFR:

CFR SA declared 'congested capacity' on several sections of the RFC7, following the start of the modernization works on those sections. As a consequence CFR will provide only 2 pre-arranged paths until the end of the current works, scheduled in 2015. For the moment CFR assumes that at the end of the works it wil be possibleto assure around 15 pre-arranged paths.

Implementation plan and management of path allocation (pre-arranged paths)

Implementation plan

Table 66: Timeframe for Implementation plan of RFC 7

Term	Description
till September 12, 2012	Elaboration of first draft of Transport Market Study (data provided and processed by members of RFC 7)
till February 19, 2013	Approval of final version of TMS by Managing Board of RFC 7
till April 30, 2013	Submisson of Implementation plan to Executive Board
till November 13, 2013	Establishment of corridor RFC 7

Source: Regulation 913/2010, approved milestones by MB of RFC 7

Pre- arranged paths

Based on capacity analysis and market demand analysis (usage of existing RNE catalogue paths) the following pre-arranged path are suggested:

1. CZ – SK – HU: Petrovice - Kúty - Rajka , 2200 t, 690m
2. CZ – SK – HU: Petrovice - Kúty - Rajka , 2200 t, 690m
3. CZ – SK – HU: Děčín - Kúty - Rajka , 2000 t, 690 m
4. CZ – SK – HU – RO: Petrovice - Kúty – Rajka - Curtici -Malina , 2000 t, 540 m
5. CZ –SK – HU- RO: Děčín- Kúty - Štúrovo - Curtici, 2000 t, 690 m
6. CZ- SK – HU – RO-BG: Petrovice - Kúty - Komárom- Curtici- Sofia , 2000 t, 620 m
7. CZ– SK – HU – RO: Děčín - Kúty - Rajka -Ciumesti , P/C 45/375, 1500 t, 550 m
8. CZ– SK – HU – RO: Děčín - Kúty - Rajka - Ferencváros, P/C 45/375, 1500 t, 550 m
9. CZ– SK – HU – RO: Děčín - Kúty - Rajka - Ferencváros , P/C 45/375, 1500 t, 550 m
10. CZ– SK – HU – RO: Děčín - Kúty - Rajka - Ferencváros , P/C 45/375, 1500 t, 550 m
11. HU- RO- BG- GR: Ferencváros – Curtici – Kulata– Promachonas - Thessaloniki- Larissa/Volos- Larissa-SKA- Thriassio – Port Ikonio Pireaus, SKA- Athens RS- Pireaus, 1250 t, 580 m
12. CZ- SK – HU : Petrovice – Kúty – Bratislava UNS - Rajka – Hegyeshalom- Ferencváros, P/C 70/400,1500 t, 580m
13. CZ - SK – HU : Petrovice – Kúty – Bratislava UNS - Rajka – Hegyeshalom, P/C 70/400, 1500 t, 580 m
14. CZ - SK – HU: Brno Maloměřice – Kúty - Bratislava UNS - Komárom – Ferencváros, P/C 70/400, 1500 t, 580 m,
15. CZ - SK- HU: Brno Maloměřice – Kúty - Bratislava UNS - Štúrovo – Vác – Ferencváros – Soroksár Terminal; P/C 70/400, 1500 t , 580 m
16. SK – HU – RO: Bratislava UNS - Štúrovo – Vác – Ferencváros – Szolnok- Lőkösháza – București; - Constanta P/C 45/375, 1500 t, 550 m
17. SK- HU – RO: Bratislava UNS - Štúrovo – Vác – Ferencváros – Szolnok – Biharkeresztes - Cluj Napoca; P/C 45/375, 2000 t, 600 m
18. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m
19. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m
20. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m
21. CZ – AT-HU: Břeclav – Wien – Hegyeshalom- Ferencváros , P/C 78/402, 1600 t, 650 m

Notice : paths 1-2, 7-10 and 12-13 shall have time connection with paths 18-21

Reserve capacity

“Reserve capacity shall allow for a quick and appropriate response to ad-hoc requests” (Article 14, point 5 of Regulation 913/2010).
Based on capacity analysis, market demand analysis (usage of existing RNE catalogue paths) and the relatively high number of suggested pre-arranged paths (21 pairs), it is possible to suppose that not all pre-arranged paths will be sold during the annual timetabling process. Unbooked pre-arranged paths are then recommended (in accordance with RNE Guidelines Pre-arranged path and Corridor OSS) to be used as Reserve capacity.

“Time limite for capacity reserve shall not exceed 60 days.“ (Article 14, point 5 of Regulation 913/2010).
Market demand analysis showed that more than 90% of ad-hoc path reqests are submitted less than 5 days before the requested train departure. IMs have a flexible approach to such short-term

path requests, and they are able to allocate the paths within a few minutes or hours. As pre-arranged paths and reserve capacity shall be allocated by Corridor-OSS (Article 13, point 3 of Regulation 913/2010), and the national information systems for operation are not fully connected with Corridor-OSS IT-tool (PCS), it would be more convenient to keep the allocation of very short-term path requests on the national level, which is flexible enough to handle them.
Consequently, the recommended time limit for capacity reserve is no less than 30 days That´s why recommended time limit for capacity reserve should be no less than 30 days.

4.2 CONCLUSION

Recommendation of terminals and lines is placed in Map 2 and Table 67.

Corridor is drafted as: - main lines, - alternative lines (for re-routing), connecting lines (connect terminals with main lines) and terminals.

Map 2: Suggested Rail freight corridor 7 (orient corridor)

Table 67: Complex definition of RFC 7

Country	Charakter	Line section/Terminal/Marshalling yard
Czech Republic	Main lines	Praha – Poříčany
		Poříčany – Kolín
		Kolín – Pardubice
		Pardubice - Česká Třebová
		Česká Třebová – Svitavy
		Svitavy – Brno
		Brno – Břeclav
		Břeclav/Hohenau (CZ/AT)
		Břeclav/Kúty (CZ/SK)
	Alternative lines	Kolín - Kutná Hora
		Kutná Hora - Havlíčkův Brod
		Havlíčkův Brod - Křižanov
		Křižanov - Brno
	Connecting lines	Děčín – Kralupy n.V. -Praha
		Děčín – Nymburk - Kolín
	Terminals	Praha Uhříněves
		Praha Žižkov
		Česká Třebová
		Brno Horní Heršpice
		Lovosice (50km from corridor)
	Marshalling yards	Kolín seř. nádraží
		Praha - Libeň
		Pardubice
		Česká Třebová
		Brno Maloměřice
		Břeclav přednádraží
		Havlíčkův Brod
Austria	Main line	Břeclav/Hohenau (CZ/AT)
		Hohenau - Gänserndorf
		Gänserndorf - Wien Zvbf
		Wien Zvbf - Nickelsdorf
		Nickelsdorf/Hegyeshalom (AT/HU)
	Alternative lines	Wien Zvbf – Achau - Ebenfurth
		Ebenfurth -Wolkaprodersdorf
		Wolkaprodersdorf/Sopron (AT/HU)
		Ebenfurth – Wiener Neustadt
		Gänserdorf – Marchegg
		Marchegg/Devínska Nová Ves (AT/HU)
		Parndorf – Kittsee
		Kittsee/Bratislava Petržalka (AT/SK)
		Gramatneusiedl - Wampersdorf
		Wien Zvbf – Wiener Neustadt via Baden
		Wiener Neustadt – Sopron via Loipersbach-Schattendorf
		Schattendorf/Sopron (AT/HU)
	Connecting line	Wien Zvbf – Wien Freudenau – Wien Nordwestbahnhof
	Terminals	Wien Freudenau
		Wien Nordwestbahnhof
		Wien Inzersdorf (planned)

Country	Charakter	Line section/Terminal/Marshalling yard
	Marshalling yard	Wien Zentralverschiebebahnhof
Slovakia	Main lines	Břeclav/Kúty (CZ/SK)
		Kúty - Devinska N.Ves
		Devínska N.Ves - Bratislava hl.st.
		Bratislava hl.st. - Rusovce
		Rusovce/Rajka (SK/HU)
		Bratislava hl.st.- Nove Zamky
		Nove Zamky - Komano
		Komarno/Komarom (SK/HU)
		Nove Zamky - Sturovo
		Sturovo/Szob (SK/HU)
	Alternative lines	Marchegg/Devínska Nová Ves (AT/SK)
		Kittsee/Bratislava Petržalka (AT/SK)
		Kúty - Trnava
		Trnava – Bratislava východ
		Trnava - Galanta
	Connecting lines	Bratislava hl.st. -Dunajská Streda
		Dunajská Streda - Komarno št.hr.
	Terminals	Bratislava UNS – Intrans, Slovnaft
		Bratislava Pálenisko – SpaP
		Sládkovičovo - Lörinz
		Štúrovo – Business park Štúrovo
		Dunajská Streda - Metrans
	Marshalling yards	Bratislava východ
		Nové Zámky
		Štúrovo
Hungary	Main lines	Rusovce/Rajka (SK/HU)
		Nickelsdorf/Hegyeshalom (AT/HU)
		Hegyeshalom - Tata
		Tata - Biatorbágy
		Biatorbágy - Kelenföld
		Kelenföld - Ferencváros
		Komarno/Komarom (SK/HU)
		Ferencváros - Kőbánya felső
		Kőbánya felső - Rákos
		Rákos - Újszász
		Újszász - Szolnok
		Szolnok - Szajol
		Szajol - Gyoma
		Gyoma - Murony
		Murony - Lőkösháza
		Lőkösháza/Curtici (HU/RO)
		Ferencváros - Kőbánya-Kispest
		Kőbánya - Kispest - Vecsés
		Vecsés - Albertirsa
		Albertirsa - Szolnok
		Sturovo/Szob (SK/HU)
		Szob - Vác
		Vác – Kőbánya felső

Country	Charakter	Line section/Terminal/Marshalling yard
	Alternative lines	Wolkaprodersdorf/Sopron (AT/HU)
		Sopron - Pinnye
		Pinnye - Fertőszentmiklós
		Fertőszentmiklós - Petőháza
		Petőháza - Győr
		Vác - Rákospalota-Újpest
		Szajol - Püspökladány
		Püspökladány - Biharkeresztes
		Biharkeresztes/Episcopia Bihor (HU/RO)
		Rákospalota-Újpest - Angyalföld elág.
		Angyalföld elág.-Kőbánya felső/Rákos
		Vác - Vácrátót
		Vácrátót - Galgamácsa
		Galgamácsa - Aszód
		Aszód - Hatvan
		Hatvan - Újszász
	Connecting lines	Ferencváros - Soroksári út
		Soroksári út - Soroksár
		Soroksár - Soroksár-Terminál
	Terminal	Sopron LSZK
		Győr LCH
		Székesfehérvár
		BILK
		Budapest Szabadkikötő (port)
		Szolnok
		Debrecen
		Szeged-Kiskundorozsma
		Békéscsaba
Romania	Main lines	Lőkösháza/Curtici (HU/RO)
		Curtici - Arad
		Arad - Simeria
		Simeria - Coslariu
		Coslariu - Sighişoara
		Sighişoara - Braşov
		Braşov - Predeal
		Predeal - Brazi
		Brazi - Bucureşti
		Bucureşti - Feteşti
		Feteşti - Constanţa
		Arad - Timişoara
		Timişoara - Orșova
		Orsova - Filiaşi
		Filiaşi - Craiova
		Craiova - Calafat
		Calafat/Vidin (RO/BG)
	Alternative lines	Biharkeresztes/Episcopia Bihor (HU/RO)
		Episcopia Bihor - Coslariu
		Simeria - Gura Motru
		Craiova - Bucuresti
		Videle - Giurgiu
		Bucuresti - Giurgiu

Country	Charakter	Line section/Terminal/Marshalling yard
		Giurgiu/Giurgiu Border (RO/BG)
	Terminal	Bucurestii Noi
		Semenic (Timisoara Sud)
		Brasov Triaj
		Medias
Bulgaria	Main lines	Calafat/Vidin (RO/BG)
		Vidin - Sofia
		Sofia - Kulata
		Kulata/Promachonas (BG/GR)
	Alternative lines	Sofia - Svilengrad
Greece	Main lines	Athens RS - SKA
		Pireus (ikonio port) – Thriassio (operation in 2013) Thriassio – SKA (SKA= operation center)
		SKA – Inoi
		Inoi – Thiva
		Thiva – Tithorea
		Tithorea – Lianokladi
		Lianokladi - Domokos
		Domokos – Palaiofarsalos
		Palaiofarsalos –Mesourlo- Larissa
		Larissa - Evangelismos
		Evangelismos – Leptokaria
		Leptokaria – Katerini
		Katerini- Plati
		Plati-Sindos- Thessaloniki (rail way yard)
		Thessaloniki (rail way yard) – Mouries
		Mouries – Strimonas
		Strimonas – Promachonas
		Kulata/Promachonas (BG/GR)
	Connecting lines	Larissa - Volos Port
		Thessaloniki (rail way yard)-Thessaloniki Port
		Athens RS - Piraeus
	Terminal	TRIASSIO PEDIO (intermodal freight center) Ikonio port Pireus (operation in 2013)
		Volos Port
		Thessaloniki Port
	Marshalling yards	Inoi
		Lianokladi
		Thessaloniki (rail way yard)
		Sindos
		Strimonas
		Promachonas Kulata (Border Station)

Deatiled technical parameters of lines and stations are in Annex B, sheet B 5 and B 8.

To fulfill the expected benefits stemming from the establishment of the freight corridor, it is necessary to provide for the motivation of RUs so that they increase their flexibility and consequently the total time of transport (from consignor to consignee) will decrease. In order to reach this goal, financial support is highly needed for modernization and reconstruction of infrastructure as well as for establishment of rail freight corridors in accordance with Regulation 913/2010 (set up of Corridor-OSS, meetings with customers, promotion of corridor, new information systems and technologies, conducting of satisfaction surveys, transport market studies...) is highly needed.

A lot of European studies and also practical experience of infrastructure managers confirm that a great deal of the goods transported today on the lines of future rail freight corridor 7 originates in German ports, nevertheless, the members of RFC 7 do not consider it necessary to extend the initial freight corridor towards Germany in the very first stage (durig the process of corridor establishment). One of the main reasons is that capacity situation in Germany differs from the capacity situation in member countries of initial corridor RFC7 (i.e. German lines have strong traffic flows, while present RFC7 line sections have weak traffic flows), so Germany needs to deal with other type of issues than RFC7 countries.
This position ~~may~~ will high probably change in the future, ~~but~~ and for the time being members of corridor RFC 7 prefer to have Germany in an observer status ~~in this respect~~ in the first stage and in member status in the later stages.

Another point of perspective traffic flows in the future is the possibility of corridor extension to Turkey, after accomplishment of Marmaris Project in Turkey (Bosporus Tunnel). The future corridor RFC 7 would then connect Asia, Black Sea and Mediterranean Ports with Central and Western Europe.

Appendix A:

Appendix B:

Appendix A: Country info

Table A 1 :Population

	City	Location towards corridor	Number of inhabitants*
Czech Republic	Praha	on corridor	1 272 690
	Brno	on corridor	384 277
	Ostrava	170 km from corridor	302 456
Austria	Vienna	on corridor	1 661 000
	Graz	200 km from corridor	247 000
	Linz	200 km from corridor	188 000
Slovakia	Bratislava	on corridor	428 791
	Košice	400 km from corridor	233 900
	Prešov	400 km from corridor	89 087
	Žilina	200 km from corridor	84 334
Hungary	Hegyeshalom	on the corridor	3 489
	Sopron	on the corridor	60 755
	Győr	on the corridor	131 267
	Tatabánya	on the corridor	70 164
	Szombathely	62 km from the principal line (Sopron)	79 590
	Székesfehérvár	62 km from the principal line (Kelenföld)	101 943
	Esztergom	50 km from the principal line (Budapest)	30 858
	Budapest	on the corridor	1 733 685
	Szolnok	on the corridor	74 544
	Kecskemét	32 km from the alternative line (Cegléd), 59 km from the principal line (Szajol)	113 275
	Debrecen	42 km from the alternative line (Püspökladány) and 111 km from the principal line (Szajol	208 016
	Békéscsaba	on the corridor	64 074
Romania	Bucharest	on corridor	1 942 194
	Timisoara	on corridor	311 428
	Iasi	463 km from the corridor (Bucharest Station)	309 631
	Cluj	102 km from the corridor (Teius station)	305 636
	Constanta	on corridor	301 221
	Craiova	on corridor	298 740
Bulgaria	Sofia	on corridor	1 246 791
	Plovdiv	on corridor	342 000
	Varna	300 km from corridor	350 000
Greece	Alexandroupoli	327 km from corridor	63.920
	Kalava	170 km from corridor	125.403
	Drama	155 km from corridor	54.398
	Serres	on the corridor	214.376
	Thessaloniki	on the corridor	878.194
	Kilkis	on the corridor	64.230
	Kozani	100 km from corridor	160.321
	Veria	73 km from corridor	144.494
	Edessa	90 km from corridor	151.747
	Larissa	on the corridor	275.921
	Volos	on the corridor	177.654

	City	Location towards corridor	Number of inhabitants*
	Trikala	61 km from corridor	150.938
	Lamia	on the corridor	165.062
	Livadia	on the corridor	115.765
	Chalkis	44 km from corridor	210.957
	Athens	on the corridor	161 027
	Patra	215 km from corridor	2.193.015

Table A 2 :Country economy

	GDP stucture (2010)		GDP Growth in %					
		Share in %	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Czech Republic	Agriculture	2,3	7,0	5,7	3,1	-4,7	2,7	1,8
	Industry	30,6						
	Transport	10,3						
	Trade	13,7						
	Services	32,2						
Austria	Agriculture	1,5	3,7	3,7	1,4	-3,8	2,3	2,9
	Industry	29,2						
	Transport							
	Trade	23,3						
	Services	45,9						
Slovakia	Agriculture	2,85	8,3	10,5	5,9	-4,9	4,2	2,9
	Industry	36,47						
	Transport	17,23						
	Trade							
	Services	34,37						
	Others	9,08						
Hungary	Agriculture	3,8	3,9	0,3	0,8	-6,7	1,3	1,4
	Industry	31,3						
	Transport	5,7						
	Trade	9,7						
	Services	49,5						
Romania	Agriculture	6,66	7,9	6,3	7,3	-6,6	-1,6	1,7
	Industry	39,58						
	Transport	21,64						
	Trade							
	Services	32,12						
Bulgaria	Agriculture		6,5	6,4	6,2	-5,5	0,2	2,2
	Industry							
	Transport							
	Trade							
	Services							
Greece	Agriculture	4%**	5,5	3,0	-0,2	-3,3	-3,5	-5,5
	Industry	17,6						
	Transport							
	Trade							
	Services	78,5						

Table A 3 :Infrastructure

	Transport mode	State expanditures in infrastructure (mil.EUR)					
		2006	2007	2008	2009	2010	2011
Czech Republic	Railway	527,1	680,1	918,2	783,7	569,8	
	Road	1690,7	1658,4	2038,5	2101,0	1739,8	
	Waterways	21,1	15,6	21,5	62,3	58,5	
	Airports	80,6	85,5	324,3	97,6	82,3	
	Pipelines	28,4	32,0	17,3	8,4	9,2	
	Total	**2347,9**	**2471,6**	**3319,8**	**3053,0**	**2459,6**	**0,0**
Austria	Railway						
	Road						
	Waterways						
	Airports						
	Pipelines						
Slovakia	Railway	234,90	302,50	214,40	190,30	285,80	297,60
	Road	541,00	675,70	755,10	854,00	516,80	
	Waterways	2,10	1,50	4,70	3,80	5,10	
	Airports	13,50	17,80	33,40	59,10	74,70	
	Pipelines		51,50	46,30	63,60	51,10	
	Total	**791,50**	**1 049,00**	**1 053,90**	**1 170,80**	**933,50**	**297,60**
Hungary	Railway	2,4	98,0	35,5	3,5	87,2	73,9
	Road						
	Waterways						
	Airports						
	Pipelines						
Romania	Railway	98,3	305,1	333,9	199,5	169,4	
	Road	1 883,6	2 752,5	4 106,0	3 492,1	2 858,4	
	Waterways	205,6	351,9	517,1	603,0	424,4	
	Airports	14,6	41,1	9,6	6,9	0,9	
	Pipelines						
	Total	**2 202,2**	**3 450,6**	**4 966,6**	**4 301,5**	**3 453,1**	
Bulgaria	Railway						
	Road						
	Waterways						
	Airports						
	Pipelines						
Greece*	Railway		750,5	664,3	689,8	452,0	
	Road	64 553 519	83 691 224	69 551 497	76 918 621	56 624 090	83 990 683
	Waterways	12 936 258	5 299 882	15 636 390	26 705 402	26 093 211	7 389 756
	Airports	34 589 126	34 589 126	34 589 126	34 589 126	34 589 126	34 589 126
	Pipelines			1,0			
	Total	**112 078 903**	**123 580 983**	**119 777 678**	**138 213 839**	**117 306 879**	**125 969 565**

Table A 4: Freight transport

Transport mode		Traffic volumes																													
		2006						2007						2008						2009						2010					
				International (in %)			National (in %)			International (in %)			National (in %)			International (in %)			National (in %)			International (in %)			National (in %)			International (in %)			National (in %)
		tonnes (thousand)	tonnes-km (million)	Export	Import	Transit	Inland	tonnes (thousand)	tonnes km (million)	Export	Import	Transit	Inland	tonnes (thousand)	tonnes-km (million)	Export	Import	Transit	Inland	tonnes (thousand)	tonnes-km (million)	Export	Import	Transit	Inland	tonnes (thousand)	tonnes-km (million)	Export	Import	Transit	Inland
Czech Republic	Railway	97 491	15 779	23%	22%	8%	47%	99 777	16 304	22%	23%	8%	47%	95 073	15 437	22%	23%	8%	46%	76 715	12 791	23%	21%	8%	48%	82 900	13 770	23%	23%	9%	45%
	Road	444 574	50 369	5%	4%	2%	89%	453 537	48 141	4%	4%	2%	90%	431 855	50 877	5%	4%	3%	88%	370 115	44 955	5%	4%	3%	88%	355 911	51 832	6%	5%	4%	85%
	Waterways	2 032	818	19%	16%	44%	21%	2 242	898	11%	11%	49%	29%	1 905	863	10%	9%	61%	20%	1 647	641	20%	8%	52%	20%	1 642	679	17%	10%	50%	23%
	Airports	22	47	47%	49%		4%	22	41	47%	49%		4%	20	37	48%	50%		2%	15	29	50%	48%		2%	14	22	48%	51%		1%
Austria	Railway	110 779	20980,2	18%	32%	22%	28%	115 526	21370,68	18%	30%	24%	29%	121 579	21914,5	16%	29%	23%	32%	98 887	17766,96	17%	28%	20%	35%	107 670	19832,92	17%	29%	19%	35%
	Road*	353 386	18845,6	5%	5%	1%	89%	349 188	18648,32	5%	5%	1%	90%	364 919	18160,3	4%	4%	1%	91%	332 203	16276,04	4%	4%	1%	91%	326 852	16538,59	4%	4%	1%	92%
	Waterways							12 107	2596,62	13%	52%	27%	8%	11 209	2358,53	19%	51%	25%	4%	9 322	2002,63	17%	53%	26%	4%	11 052	2374,54	15%	56%	25%	4%
	Airports	230						229						229						222						258					
	Total	464 395						477 050						497 935						440 634						445 833					
Slovakia	Railway	52 449	9 988,00	23%	39%	24%	14%	51813,00	9647,00	24%	38%	25%	13%	47910,00	9299,00	23%	37%	26%	15%	37 603	6964,00	24%	39%	21%	15%	44 327	8105,00	25%	39%	22%	14%
	Road	181 424	22 114	4,4%	3,3%	3,4%	88,9%	179296,00	27050,00	5,7%	4,7%	4,8%	84,8%	199218,0	29094,0	5,0%	4,3%	6,2%	84,5%	163 148	27484,00	6,0%	4,6%	7,8%	81,7%	143 071	27411,00	7,2%	5,7%	8,6%	78,4%
	Waterways	1 713	623,00	67,8%	9,3%	16,9%	6,1%	1806,00	843,00	64,5%	4,9%	15,9%	14,7%	1767,00	979,00	61,5%	11,0%	22,4%	5,1%	2 192	1230,00	84,3%	3,5%	10,2%	2,0%	3 109	2166,00	87,8%	2,5%	7,2%	2,5%
	Airports	1	0,80		90,2%		9,8%	0,19	0,30		98,5%		1,5%	0,31	0,40		99,7%		0,3%	0,01	0,03		100,0%		0,0%	0,01	0,00		91,7%		8,3%
Hungary	Railway	42 628	8 676	31%	25%	20%	23%	43 149	8 848	26%	31%	22%	20%	40 345	8 499	24%	27%	22%	28%	29 916	6 404					34 396	7 468				
	Road	17 617	18 076					25 130	22 631					26 465	22 733					27 753	23 244					28 622	22 435				
	Waterways	7 247	1 905	38%	16%	45%	1%	8 344	2 206	41%	13%	46%	0%	8 755	2 244	35%	20%	45%	0%	7 701	1 826					9 921	2 389				
	Airports	30	74				0%	32	37				0%	29	18				0%	24					0%	28					0%
	Total	67 522						76 655						75 594						65 394						72 967					
Romania	Railway	68 313	15791,0					68 772	15757,00					66 711	15236,0			1%	78%	50 596	11088,0			2%	86%	52 932	12375,0			2%	84%
	Road	335 327	57278,0					356 669	59517,0					364 605	56377,0			2%	41%	293 409	34265,0			4%	61%	174 551	25883,00			6%	47%
	Waterways	76 013	8158,00					78 354	8195,00					80 744	8687,00					60 764	11765,00					70 206	14317,00				
	Airports	23						22						27						24						26					
	Total	479 676						503 817						512 087						404 793						297 715					
Bulgaria	Railway																														
	Road																														
	Waterways																														
	Airports																														
Greece	Railway	3 884,0	662,0	26%	52%	3%	19%	4 943,0	835,0	26%	50%	1%	23%	4 253,0	786,0	23%	51%	0%	26%	3 377,0	552,0	22%	54%	0%	24%	3 982,0	614,0	26%	66%	0%	8
	Road	510 741,0	34002,0				98%	484 775,0	27791,0				97%	628 560,0	28850,0				97%	644 528,0	28585,0				98%	577 442,0	29815,0				
	Waterways	159 425,0						164 300,0						152 498,0						135 430,0						124 387,0					
	Airports	107,0			85%		15%	102,9			87%		13%	112,2			87%		13%	97,8			87%		13%	88,7			86%		14
	Total	674 157,0						654 120,9						785 423,2						783 432,8						705 899,7					

Table A 5: Passenger transport

		2006					2007					2008					2009					2010				
		persons (thous.)	persons -km (million)	Average transport distance (km)	International (in %)	National (in %)	persons (thous.)	persons -km (million)	Average transport distance (km)	International (in %)	National (in %)	persons (thou.)	persons -km (million)	Average transport distance (km)	International (in %)	National (in %)	persons (thous.)	persons -km (million)	Average transport distance (km)	International (in %)	National (in %)	persons (thous.)	persons -km (million)	Average transport distance (km)	International (in %)	National (in %)
Czech Republic	Railway	183 000	6922	38	1%	99%	184 200	6898	37	1%	99%	177 400	6803	38	1%	99%	165 000	6503	39	1%	99%	164 800	6591	40	1%	99%
	Road- public	388 000	9501	25	1%	99%	375 000	9519	25	1%	99%	373 400	9215	25	1%	99%	367 600	9494	26	1%	99%	381 200	10816	28	1%	99%
	Road - individual	2 160 000	69630				2 220 000	71540				2 250 000	72380				2 240 000	72290				1 970 000	63570			
	Waterways	1 100	13				1 100	13				900	17				1 200	11				900	13			
	Airports	6 700	10233	1525	98%	2%	7 000	10477	1 502	98%	2%	7 200	10749	1 502	98%	2%	7 400	11331	1 541	99%	1%	7 500	10902	1 460	99%	1%
Austria	Railway	222 000	9 500	43				9 600					10 800					10 700								
	Road- public	1 288 000	13 100	10				13 700					13 600					13 600								
	Road - individual	5 330 000	70 600	13				72 000					73 300					72 300								
	Waterways																									
	Airports	20 423																								
	Railway	48 438	22213	43	5%	95%	47 070	2165	46	7%	93%	48 744	2296	47	7%	93%	46 667	2264	49	6%	94%	46 583	2309	50	6%	94%
Slovakia	Road- public	403 270	7525	17	1%	99%	384 637	7596	20	1%	99%	365 519	6446	18	1%	99%	323 142	4538	14	1%	99%	312 717	4436	14	1%	99%
	Road - individual	1 792 000	25824	15			1 811 986	25994	14			1 833 082	26395	14			1 846 439	26420	14			1 859 479	26897	14		
	Waterways	111	4	30	15%	85%	122	4	33	21%	79%	122	3	25	25%	75%	110	3	27	26%	74%	120	3	25	28%	72%
	Airports	2 291	2465	1436	99%	1%	3 068	3699	1 206	99%	1%	4 176	4650	1 114	99%	1%	2 288	3501	1 530	99%	1%	554	835	1 507	99%	1%
	Total	2 246 110					2 246 883					2 251 643					2 218 646					2 219 453				
	Railway	156 628	9 524	60			149 551	8 752	58			144 900	8 291	57			142 683	8 003				140 398	7 653			
Hungary	Road-public*	487 056	8 938	54	1%		451 927	8 549	53	1%		469 763	8 754	54	1%		502 600	11 321				517 500	11 860			
	Road - individual	71 992	2 845	25			74 732	2 704	28			71 284	3 108	23												
	Waterways	1 346	35	26			1 007	31	33			828	20	24			859	18				641	14			
	Airports	4 551	6 329	1 391	100%	0%	4 896	6 850	1 399	100%	0%	4 340	5 815	1 340	100%	0%	4 573	5 469		100%	0%	4 512	5 586		100%	0%
	Total	721 573					682 113					691 115					650 715					663 051				
	Railway	94 441	8093				88 264	7476				78 252	6958		2%	98%	70 332	6128		2%	98%	64 272	5438		2%	98%
Romania	Road	228 009	11735				231 077	12156				296 953	20194			69%	262 311	17108			75%	244 944	15812			76%
	Waterways	190	13				223	23				232	21			43%	174	20			37%	107	15			25%
	Airports	5 497					7 831					9 077					9 093					10 128				
	Total	328 137					327 395					384 514					341 910					319 451				
	Railway																									
Bulgaria	Road- public																									
	Road - individual																									
	Waterways																									
	Airports																									
	Railway	9 520	1811	190	3%	97%	10 003	1930	193	4%	96%	8 389	1657	197	4%	96%	14 280	1467	103	4%	96%	13817	1383	100	3%	97%
Greece	Road- public																									
	Road - individu																									
	Maritime	45 177					45 858					45 222					43 867									
	Airports	32 753			81,32%	18,68%	34 780			80,80%	19,20%	35 056			80,73%	19,27%	33 436			78,98%	21,02%	32 624			80,42%	19,58%

Table A 6 :Goods on railway

Goods stucture		Volumes in tonnes-km (million)					
		2006	2007	2008*	2009	2010	2011
Czech Republic	products of agriculture	228,0	114,5	632,0	772,0	843,0	
	coal, gas, oil	6603,0	6361,6	5 221,0	5 066,0	4 876,0	
	metals	2317,0	2330,9	1 193,0	919,0	966,0	
	chemicals	826,0	730,2	740,0	630,0	753,0	
	wood, paper	1068,0	1492,2	363,0	349,0	366,0	
	others	4737,0	5274,5	7 288,0	5 056,0	5 966,0	
	Total	**15779,0**	**16304,0**	**15 437,0**	**12 792,0**	**13 770,0**	
Austria	products of agriculture	3 958,8	3 458,0	3 244,5	2 847,5	2 973,9	
	coal, gas, oil	2 241,2	2 298,8	2 430,9	2 225,8	2 200,7	
	metals	3 572,2	3 809,2	3 908,7	2 476,3	3 317,5	
	chemicals	1 581,3	1 642,9	1 606,8	1 432,0	1 558,3	
	wood, paper						
	others	8 866,0	9 155,5	9 425,9	7 972,3	9 110,7	
	Total	**20 219,5**	**20 364,5**	**20 616,8**	**16 953,9**	**19 161,2**	
Slovakia	products of agriculture	217,5	157,0	112,8	84,5	62,6	-
	coal, gas, oil	2 329,0	2 356,1	2 237,2	1 927,5	1 800,3	-
	metals, iron ore	4 587,8	4 340,5	4 132,5	2 941,3	3 786,3	-
	chemicals	726,9	706,1	680,2	480,0	573,1	-
	wood, paper	516,4	485,0	469,5	397,6	513,9	-
	others	1 610,3	1 602,3	1 666,8	1 133,2	1 368,9	-
	Total	**9 988,0**	**9 647,0**	**9 299,0**	**6 964,0**	**8 105,0**	
Hungary	products of agriculture			319	733	784	
	coal, gas, oil			571	1 151	1 596	
	metals			3 436	1 949	2 258	
	chemicals			631	675	610	
	wood, paper			486	419	464	
	others			4 431	2 747	3 096	
	Total			**9 874**	**7 674**	**8 808**	
Romania	products of agriculture	0,52	0,26	0,786	0,638	0,911	
	coal, gas, oil	37,567	39,85	28,411	22,748	23,024	
	metals	3,998	3,577	5,068	2,826	2,449	
	chemicals	3,197	2,798	4,842	3,307	3,951	
	wood, paper	2,536	2,324	0,906	0,432	0,836	
	others	20,495	19,963	26,698	20,645	21,761	
	Total	**68,313**	**68,772**	**66,711**	**50,596**	**52,932**	
Bulgaria	products of agriculture						
	coal, gas, oil						
	metals						
	chemicals						
	wood, paper						
	others						
Greece	products of agriculture	32,0	28,0	25,0	42,0	43,0	
	coal, gas, oil	0,0	0,0	13,0	6,0	1,0	
	metals	5,0	2,0	0,0	0,0	0,0	
	chemicals	36,0	35,0	19,0	12,0	14,0	
	wood, paper	114,0	124,0	118,0	76,0	101,0	
	others	123,0	132,0	1,0	0,6	1,0	
	Total	310,0	321,0	176,0	136,6	160,0	

Appendix B: Rail corridor info – collected

Table B 1: Passenger traffic

		Passenger traffic (in train-km)					
		2006	2007	2008	2009	2010	2011
Czech Republic	Poříčany - Praha			2 929 038	3 205 341	3 243 838	3 407 503
	Kolín - Poříčany			1 555 173	1 742 934	1 744 800	1 748 629
	Řečany nad Labem - Kolín			1 186 164	1 251 195	1 227 563	1 228 474
	Pardubice - Řečany nad Labem			1 162 035	1 138 978	1 198 917	1 183 093
	Choceň - Pardubice			1 938 245	1 993 880	1 971 636	1 988 421
	Česká Třebová - Choceň			1 359 373	1 435 488	1 432 045	1 433 426
	Letovice - Česká Třebová			1 214 843	1 263 764	1 282 343	1 300 853
	Brno - Letovice			1 803 002	1 891 720	1 944 972	1 953 350
	Břeclav - Brno			1 685 422	2 071 986	2 119 746	2 221 938
	Lanžhot st.hr. - Břeclav			162 916	168 237	161 756	149 158
	Total			**14 996 21**	**16 163 52**	**16 327 61**	**16 614 84**
Austria	Břeclav - Gänserndorf	702 458	940 830	977 387	934 588	924 857	939 592
	Gänserndorf - Wien Zvbf	2 320 169	2 440 849	2 477 308	2 155 272	2 148 790	1 955 493
	Wien Zvbf - Hegyeshalom	2 841 877	3 149 185	3 290 234	3 302 621	2 846 620	2 646 197
	Wien Zvbf - Ebenfurth	168 118	169 859	178 758	167 992	161 637	159 732
	Ebenfurth - Sopron						
	Total	**6 032 622**	**6 700 723**	**6 923 687**	**6 560 473**	**6 081 903**	**5 701 014**
Slovakia	Kúty border - Devinska N.Ves					1 063 224	1 037 328
	Devínska N.Ves - Bratislava hl.st.					398 811	390 982
	Bratislava hl.st. - Dunajská Streda					463 132	368 408
	Dunajská Streda - Komarno border					329 823	330 227
	Bratislava hl.st.- Rusovce border					169 821	117 684
	Bratislava hl.st.- Nove Zamky					1 984 673	2 011 248
	Nove Zamky - Komarno border					241 106	240 070
	Nove Zamky - Sturovo border					620 146	633 715
	Total					**5 270 736**	**5 129 662**
	International total*					**1 410 318**	**1 452 497**
	National total**					**3 860 418**	**3 677 165**
Hungary	Rajka-Hegyeshalom	165 419	145 765	146 567	149 385	53 320	50 750
	Ebenfurth - Sopron	364 039	375 894	393 579	394 790	355 473	360 638
	Sopron - Győr	1 795 437	2 457 402	2 372 983	2 244 209	2 273 573	3 275 035
	Hegyeshalom oh.-Győr	977 228	1 116 737	1 126 984	1 129 341	1 093 187	1 051 065
	Győr-Tatabánya	1 835 313	2 358 232	2 081 271	2 136 770	2 060 712	2 160 049
	Tatabánya-Budapest Ferencváros	1 795 833	2 287 592	2 232 066	2 244 621	2 248 448	2 222 415
	Budapest Ferencváros-Szolnok (100)	3 191 023	4 345 090	4 720 080	4 626 025	4 628 124	4 776 129
	Budapest Ferencváros-Szolnok (120)	4 505 372	5 294 061	4 907 406	5 094 264	5 109 465	5 125 279
	Szolnok-Szajol	395 718	483 597	492 301	520 591	530 399	544 861
	Szajol-Békéscsaba	1 179 915	1 381 108	1 408 715	1 438 039	1 413 111	1 409 928
	Békéscsaba-Lőkösháza oh.	434 162	521 997	531 806	447 160	444 552	441 103
	Szajol-Püspökladány	1 481 661	1 904 981	1 913 877	1 935 838	1 884 476	1 976 675
	Püspökladány-Biharkeresztes oh.	485 780	526 325	526 479	501 476	504 467	503 986
	Szob oh.-Rákosrendező	2 183 767	2 184 075	2 308 275	2 310 964	2 309 219	2 288 944
	Rákosrendező-Kőbánya Kispest	324 218	437 955	480 984	557 014	577 358	594 400
	Rákosrendező-Ferencváros	16 693	52 804	39 779	38 877	40 397	39 485
	Total MÁV international		**1 419 401**	**1 667 118**	**1 980 175**	**2 076 296**	**714 078**
	Total MÁV national		**84 966 068**	**83 633 964**	**83 615 904**	**80 637 076**	**84 249 971**
	Total GYSEV national	**1 859 650**	**2 313 091**	**2 043 804**	**2 607 362**	**2 936 042**	**3 227 860**
Romania	Border – Curtici (HU / RO)				82 661,0	78 724,8	71 568,0
	Curtici - Arad				277 560,4	264 343,2	240 312,0
	Arad - Simeria				2 721 053,4	2 591 479,4	2 355 890,4
	Simeria - Coslariu				1 526 837,0	1 454 130,5	1 321 936,8
	Coslariu - Sighişoara				1 778 066,1	1 693 396,3	1 539 451,2
	Sighişoara - Braşov				1 726 900,6	1 644 667,2	1 495 152,0
	Braşov - Predeal				340 269,7	347 214,0	354 300,0
	Predeal - Brazi				1 327 108,4	1 354 192,2	1 381 828,8
	Brazi - Bucureşti				1 269 998,7	1 209 522,6	1 099 566,0
	Bucureşti - Feteşti				1 530 509,3	1 561 744,1	1 643 941,2
	Feteşti - Constanţa				1 272 598,1	1 298 569,4	1 366 915,2
	Arad - Timişoara				542 925,5	517 071,9	492 449,4
	Timişoara - Orşova				2 193 424,2	2 088 975,4	1 989 500,4
	Orşova - Filiaşi				1 039 207,2	989 721,2	942 591,6
	Filiaşi - Craiova				838 435,4	798 509,9	760 485,6

		Passenger traffic (in train-km)					
		2006	2007	2008	2009	2010	2011
	Craiova - Calafat				286 606,8	292 455,9	298 424,4
	Calafat - Border RO/BG				0,0	0,0	0,0
	Border - Episcopia Bihor				30 295,0	27 540,9	32 120,4
	Episcopia Bihor - Coslariu				4 283 544,6	3 859 049,2	4 350 499,3
	Simeria - Filiasi				1 726 463,5	1 583 911,5	1 424 686,3
	Craiova - Videle				2 505 327,5	2 319 747,7	2 523 734,1
	Videle - Bucuresti				1 149 960,2	1 045 418,4	967 980,0
	Videle - Giurgiu Nord				331 899,9	301 727,2	281 988,0
	Giurgiu Nord - Frontiera				12 556,1	11 363,0	10 318,0
	Total				**28 794 208,6**	**27 333 476,0**	**26 945 639,1**
Bulgaria	Vidin - Brusartsi	318 116	317 661	318 823	318 131	293 756	N/A
	Brusartsi - Mezdra	556 581	539 625	539 887	589 447	615 706	N/A
	Mezdra - Sofia	1 405 979	1 432 881	1 427 694	1 424 138	1 394 822	N/A
	Sofia - Radomir			793 157	1 094 610	1 010 850	N/A
	Radomir - Kulata			1 057 871	1 088 689	1 072 500	N/A
	Sofia - Septemvri	1 408 833	1 419 999	1 408 667	1 535 378,0	1 476 942	N/A
	Septemvri - Plovdiv	463 019	470 631	480 672	535 580,5	735 639	N/A
	Plovdiv - Dimitrovgrad	825 205	814 657	720 219	503 576,0	290 311	N/A
	Dimitrovgrad - Svilengrad	78 259	71 805	76 655	144 119,7	146 489	N/A
Greece	Pireas-3 Gefyres	139 700	136 400	100 100	103 400	164 893	
	3 Gefyres - SKA	139 700	136 400	100 100	103 400	164 893	
	SKA - Oinoi	609 500	577 700	577 700	609 500	664 283	
	Oinoi - Tithorea	487 600	506 000	506 000	524 400	1 037 922	
	Tithorea - Lianokladi	296 800	308 000	308 000	319 200	567 602	
	Lianokladi - Domokos	318 000	330 000	330 000	276 000	639 010	
	Domokos - Palaiofarsalos	52 500	43 500	66 000	69 000	138 473	
	Palaiofarsalos - Larisa	189 000	163 800	256 200	268 800	372 337	
	Larisa - Evaggelismos	62 100	121 900	121 900	184 000	214 543	
	Evaggelismos - Leptokaria	94 500	185 500	185 500	280 000	298 937	
	Leptokaria - Plati	183 600	360 400	360 400	544 000	647 161	
	Plati - Thessaloniki	572 520	506 460	506 460	513 800	305 796	
	Thessaloniki - Strimonas	254 100	423 500	387 200	423 500	405188	
	Strimonas - Promachonas	0	9 800	9 800	14 000	2 762	
	Volos:Larissa	207 400	207 400	207 400	183 000		
	total	3 607 020	4 016 760	4 022 760	4 416 000	5 218 612	
	*Based on the created data base for TEN-T revision						

Table B 2: Freigt traffic

	Line section	Freight traffic 2006 number of trains	2006 train km	2006 gross ton	2007 number of trains	2007 train km	2007 gross ton	2008 number of trains	2008 train km	2008 gross ton	2009 number of trains	2009 train km	2009 gross ton	2010 number of trains	2010 train km	2010 gross ton	2011 number of trains	2011 train km	2011 gross ton
Czech Republic	Poříčany - Praha							10 645	383 344	10 051 939	10 682	388 757	9 386 426	13 659	505 230	13 403 239	14 788	548 204	14 588 182
	Kolín - Poříčany							8 361	193 396	7 359 622	10 036	230 766	8 666 466	12 636	291 305	12 054 753	14 110	324 170	13 621 634
	Řečany nad Labem - Kolín							21 280	456 523	23 906 164	19 021	408 560	20 371 153	22 223	477 648	24 668 630	27 108	582 456	31 037 112
	Pardubice - Řečany nad Labem							18 648	373 825	19 361 257	15 424	309 981	14 752 998	20 187	408 288	20 471 592	24 097	488 993	25 195 972
	Choceň - Pardubice							18 287	634 130	19 331 006	16 839	584 071	16 822 371	20 441	709 148	20 687 032	23 694	821 544	24 806 652
	Česká Třebová - Choceň							20 462	529 226	20 701 563	19 069	475 414	18 443 063	22 791	559 128	22 325 771	26 285	646 427	26 723 324
	Letovice - Česká Třebová							3 674	140 538	2 787 262	2 994	113 409	2 740 193	4 705	177 794	4 397 828	6 134	237 858	6 032 401
	Brno - Letovice							4 086	175 649	2 875 476	3 338	138 821	2 734 622	4 658	197 737	4 288 088	6 070	259 582	6 081 185
	Břeclav - Brno							13 048	818 660	12 550 367	9 070	565 963	8 873 782	10 938	686 948	10 783 947	12 293	775 906	12 355 526
	Lanžhot st.hr. - Břeclav							11 907	143 452	11 827 381	8 496	102 584	9 165 053	10 151	120 654	11 282 750	11 129	127 834	12 500 247
	Total							**130 398**	**3 848 743**	**130 752 037**	**114 969**	**3 318 326**	**111 956 127**	**142 389**	**4 133 880**	**144 363 630**	**165 708**	**4 812 974**	**172 942 235**
Austria	Břeclav - Gänserndorf	13 470	628 766	15 071 526	15 604	728 383	17 717 019	16 394	765 263	18 743 941	13 183	615 397	15 203 442	12 735	594 455	14 734 405	12 700	592 858	14 329 307
	Gänserndorf - Wien Zvbf	19 077	825 371	19 655 890	21 103	913 053	21 583 204	21 304	921 727	22 258 436	15 826	684 727	16 234 637	17 139	741 526	17 394 148	17 245	746 143	17 501 479
	Wien Zvbf - Hegyeshalom	21 660	1 546 575	21 062 720	22 100	1 577 985	21 825 824	22 144	1 581 112	22 276 118	21 861	1 560 907	22 466 218	22 739	1 623 615	24 088 215	22 656	1 617 625	24 589 616
	Wien Zvbf - Ebenfurth	19 205	410 359	21 862 723	21 627	462 100	23 480 791	23 973	512 241	26 120 146	21 153	451 980	22 566 656	23 186	495 410	24 836 468	22 545	481 710	24 181 834
	Ebenfurth - Sopron																		
	Total	**73 412**	**3 411 071**	**77 652 858**	**80 434**	**3 681 521**	**84 606 837**	**83 815**	**3 780 343**	**89 398 641**	**72 024**	**3 313 011**	**76 470 953**	**75 799**	**3 455 006**	**81 053 236**	**75 146**	**3 438 337**	**80 602 237**
Slovaki	Kúty border - Devinska N.Ves													13 884	650 176	2 691 210 614 821	10 398	142 906	81 935 286 551
	Devínska N.Ves - Bratislava hl.st.													14 980	189 018	189 062 843 410	17 677	193 003	126 275 035 894
	Bratislava hl.st.- Dunajská Streda													9 631	179 355	134 571 107 196	10 398	142 906	81 935 286 551
	Dunajská Streda - Komarno border													3 496	39 866	2 150 188 784	5 266	81 849	33 932 402 861
	Bratislava hl.st.- Rusovce border													24 611	308 080	216 670 705 708	27 542	318 418	173 472 298 154
	Bratislava hl.st.- Nove Zamky													20 133	753 249	2 245 509 951 257	22 525	797 682	1 930 902 871 079
	Nove Zamky - Komarno border													4 092	108 006	36 041 079 622	6 617	117 893	46 628 225 096
	Nove Zamky - Sturovo border													7 567	231 162	187 802 382 382	8 881	201 624	116 276 297 406
	Total													**98 394**	**2 458 912**	**5 703 018 873 180**	**109 304**	**1 996 281**	**2 591 357 703 592**
Hungary	Rajka-Hegyeshalom	4 794	84 370	4 154 282	5 068	89 197	4 287 700	5 687	100 087	5 394 600	4 106	72 261	3 932 103	3 987	70 179	4 120 315	3 655	64 333	4 306 752
	Ebenfurth - Sopron	10 198	311 014	6 156 726	9 663	298 312	5 943 393	8 964	289 273	5 464 531	7 146	212 573	4 052 837	7 996	230 624	4 621 484	7 656	222 115	4 384 771
	Sopron - Győr	13 814	823 396	9 497 564	16 767	753 094	9 356 915	12 559	713 577	8 686 713	8 593	544 110	5 317 735	9 170	588 416	5 887 926	8 388	551 568	5 228 073
	Hegyeshalom oh.-Győr	14 424	739 965	12 520 766	14 454	741 497	12 741 162	14 652	751 623	13 113 987	4 106	72 261	3 932 103	3 987	70 179	4 120 315	3 655	64 333	4 306 752
	Győr-Tatabánya	23 173	1 571 156	21 701 915	22 562	1 529 721	21 672 225	21 977	1 490 057	21 216 224	12 518	642 152	11 687 943	15 171	778 298	15 175 879	15 771	809 072	17 692 134
	Tatabánya-Budapest Ferencváros	23 758	1 539 544	23 596 498	23 043	1 493 177	23 374 783	22 699	1 470 876	22 948 551	17 701	1 200 117	17 269 465	20 304	1 376 578	21 216 440	20 775	1 408 572	24 139 523
	Budapest Ferencváros-Szolnok (100)	5 970	573 103	5 990 258	4 139	397 376	4 056 929	5 558	533 615	5 817 446	18 438	1 194 806	18 571 206	21 617	1 400 783	23 069 858	21 641	1 402 311	25 657 333
	Budapest Ferencváros-Szolnok (120)	10 095	1 009 471	11 992 586	8 676	867 569	9 450 943	6 639	663 892	7 207 799	4 293	412 135	4 413 264	8 286	795 450	9 550 602	9 739	934 911	12 950 428
	Szolnok-Szajol	15 108	148 058	15 970 663	13 083	128 213	12 628 959	11 987	117 473	12 142 273	6 033	603 305	6 330 576	4 822	482 229	5 345 055	3 765	376 542	4 130 383
	Szajol-Békéscsaba	6 483	554 315	6 270 695	5 641	482 299	5 745 747	5 914	505 659	6 319 920	4 192	41 082	4 036 184	5 617	55 047	6 323 930	12 470	122 206	15 526 566
	Békéscsaba-Lőkösháza oh.	5 691	180 394	5 982 746	5 102	161 723	5 510 122	5 109	161 958	5 535 422	4 373	373 881	4 316 955	5 841	499 442	6 223 024	6 638	567 579	8 090 068
	Szajol-Püspökladány	7 806	523 803	9 879 036	6 430	431 422	6 868 556	5 535	371 384	5 990 582	3 423	108 506	3 343 487	5 062	160 460	5 361 424	5 976	189 432	7 143 328
	Püspökladány-Biharkeresztes oh.	3 457	191 508	4 309 091	3 698	204 858	4 613 387	3 086	170 954	3 607 147	4 747	318 520	4 944 913	5 296	355 394	6 673 511	5 516	370 133	7 545 237
	Szob oh.-Rákosrendező	4 056	246 985	4 689 380	4 591	279 567	5 068 440	4 088	248 949	4 692 992									
	Rákosrendező-Kőbánya Kispest	1 059	8 790	530 935	850	7 051	277 311	586	4 860	183 952	3 072	187 112	3 243 530	3 585	218 346	3 943 708	2 981	181 556	3 436 223
	Rákosrendező-Ferencváros	4 296	71 310	4 908 989	4 733	78 568	5 341 268	4 528	75 171	5 325 986	265	2 202	110 787	156	1 293	129 629	194	1 610	192 405
	Total																		
Romania	Border (RO/HU) - Curtici										9 650			9 257	77 757	62 573 319	9 744	81 850	65 866 651
	Curtici - Arad										11 520			8 846	150 389	112 127 060	9 312	158 304	118 028 484
	Arad - Simeria										10 416			12 054	1 429 650	2 049 822 992	11 472	1 257 944	1 339 790 857
	Simeria - Coslariu										9 754			6 648	387 160	560 469 682	7 776	444 254	607 374 382
	Coslariu - Sighişoara										6 780			5 844	448 717	534 411 088	5 100	471 220	544 389 606
	Sighişoara - Braşov										7 476			5 256	583 593	605 152 730	6 312	662 388	665 207 562
	Braşov - Predeal										14 946			7 188	144 308	119 333 772	7 332	147 672	154 441 564
	Predeal - Brazi										14 992			16 712	595 153	620 637 007	17 592	626 477	653 302 112
	Brazi - Bucureşti										22 496			12 415	431 416	719 484 767	13 068	454 122	757 352 387
	Bucureşti - Feteşti										15 914			6 589	727 220	986 975 601	6 936	765 494	1 038 921 685
	Feteşti - Constanţa										37 824			21 774	1 413 657	1 880 209 282	22 920	1 488 060	1 979 167 666
	Arad - Timişoara										4 752			3 957	198 157	223 300 555	4 644	206 213	221 658 548
	Timişoara - Orşova										5 196			4 514	1 566 581	1 918 634 479	6 120	**1 705 482**	**1 685 245 224**
	Orşova - Filiaşi										11 796			11 206	783 635	853 405 857	11 724	**805 934**	**869 147 832**
	Filiaşi - Craiova										23 688			22 504	2 044 848	2 965 446 580	19 416	**1 894 365**	**2 845 789 231**
	Craiova - Calafat										496			15 778	115 765	76 772 926	420	15 253	7 675 940
	Calafat - Border RO/BG										-			0	0	0	0	0	
	Border (HU/RO) - Episcopia Bihor										1 750			1 651	11 722	7 437 073	2 410	17 111	10 296 974
	Episcopia Bihor <--> Coslariu										9 828			9 333	711 038	652 065 001	9 127	785 214	798 289 508
	Simeria - Filiasi										18 307			17 238	2 083 362	2 255 149 838	16 615	1 889 644	2 053 501 957
	Craiova - Videle										12 183			11 515	1 582 528	2 040 449 169	12 057	1 726 820	2 357 438 353
	Videle - Bucuresti										13 072			12 228	635 849	763 018 998	12 794	665 307	798 368 444
	Videle - Giurgiu Nord										3 321			3 095	194 985	126 740 250	3 127	197 001	128 050 650
	Giurgiu Nord - Frontiera										2 274			2 123	6 776	2 637 960	2 961	16 286	7 567 274
	Total										**268 430**			**227 725**	**16 324 268**	**20 136 255 985**	**218 979**	**16 482 415**	**19 706 872 891**

	Line section	Freight traffic 2006 number of trains	2006 train km	2006 gross ton	2007 number of trains	2007 train km	2007 gross ton	2008 number of trains	2008 train km	2008 gross ton	2009 number of trains	2009 train km	2009 gross ton	2010 number of trains	2010 train km	2010 gross ton	2011 number of trains	2011 train km	2011 gross ton
Bulgaria	Vidin - Brusartsi		73 882	37 057 506		79 554	46 776 787	2 912	60 390	34 760 018	2 548	19 061	12 132 066	1 820	19 022	10 064 851	728	N/A	N/A
	Brusartsi - Mezdra		205 065	228 575 030		222 254	249 100 722	8 008	156 119	145 094 730	6 552	59 634	40 506 411	3 640	51 528	34 867 214	1 820	N/A	N/A
	Mezdra - Sofia		410 237	477 913 031		411 962	484 884 253	8 372	341 111	362 546 083	9 464	173 600	174 724 532	5 460	166 580	176 220 344	4 004	N/A	N/A
	Sofia - Radomir		445 839	474 961 439		408 320	453 035 298	14 924	457 530	479 443 727	14 196	368 439	409 804 524	10 556	352 256	375 752 570	14 924	N/A	N/A
	Radomir - Kulata		471 306	449 191 971		470 492	458 765 959	10 920	330 246	288 384 729	10 192	263 071	223 351 910	8 736	331 481	299 992 127	9 100	N/A	N/A
	Sofia - Septemvri							12 740	546 130	587 133 661	15 288	471 819	498 369 886	12 376	425 021	461 210 591	12 376	N/A	N/A
	Septemvri - Plovdiv							14 560	328 805	332 494 507	13 468	272 487	273 262 824	10 556	239 746	247 832 392	8 372	N/A	N/A
	Plovdiv - Dimitrovgrad							8 372	211 021	220 468 774	12 376	90 150	89 225 236	9 828	55 877	57 620 834	6 916	N/A	N/A
	Dimitrovgrad - Svilengrad							13 104	355 530	369 860 446	17 472	294 320	291 924 585	14 560	313 925	327 877 610	9 828	N/A	N/A
	Vidin - Brusartsi		73 882	37 057 506		79 554	46 776 787	2 912	60 390	34 760 018	2 548	19 061	12 132 066	1 820	19 022	10 064 851	728	N/A	N/A
	Brusartsi - Mezdra		205 065	228 575 030		222 254	249 100 722	8 008	156 119	145 094 730	6 552	59 634	40 506 411	3 640	51 528	34 867 214	1 820	N/A	N/A
Greece	Pireaus:3 Gefyres	1 200	6 600		1 800	9 900		1 800	9 900		1 200	6 600							
	3 Gefyres:SKA	1 200	6 600		1 800	9 900		1 800	9 900		1 200	6 600							
	SKA:Inoi	1 200	63 600		1 800	95 400		1 800	95 400		1 200	63 600							
	Inoi:Tithorea	1 200	110 400		1 800	165 600		1 800	165 600		1 200	110 400							
	Tithorea:Lianokladi	1 200	67 200		1 800	100 800		1 800	100 800		1 200	67 200							
	Lianokladi:Domokos	1 200	72 000		1 800	100 800		1 800	100 800		1 200	72 000							
	Domokos:Palaiofarsalos	1 200	18 000		1 800	27 000		1 800	27 000		1 200	18 000							
	Palaiofarsalos –Mesourlo- Larissa	1 250	52 500		1 900	79 800		1 900	79 800		1 250	52 500							
	Larissa:Evangelismos	2 000	46 000		2 000	46 000		200	46 000		1 800	41 400							
	Evangelismos:Leptokaria	2 000	70 000		2 000	70 000		200	70 000		1 800	63 000							
	Leptokaria:Plati	2 000	136 000		2 000	136 000		200	136 000		1 800	122 400							
	Plati:Sindos:Thessaloniki	2 600	96 200		2 600	96 200		2 600	96 200		2 400	88 800							
	Thessaloniki:Strimonas	2 250	272 250		2 250	272 250		2 250	272 250		1 600	193 600							
	Strimonas:Kulata Promachonas	1 800	25 200		1 800	25 200		1 800	25 200		1 500	21 000							
	Total	**22 300**	**1 042 550**		**27 150**	**1 234 850**		**21 750**			**20 550**	**927 100**							

Table B 3: Type of freight

		Freight trains * - corridor			Freight trains *- whole network		
		Number of trains	Train - km	Market share	Number of trains	Train - km	Market share
Czech Republic	intermodal					3 284 751	
	block					-	
	single wagons					6 836 884	
	others					27 447 077	
Austria	intermodal	2 504	457 577	13,31%	1815,4	9 341 817	21,26%
	block	7 872	1 438 391	41,83%	2593,6	13 346 430	30,38%
	single wagons	8 441	1 542 369	44,86%	4129,1	21 248 395	48,36%
	others	0	0	0,00%	0	0	0,00%
Slovakia	intermodal	1 487	89 142	11,36%	1 865	152 511	3,50%
	block	4 912	240 546	30,65%	13 645	1 848 211	42,40%
	single wagons	8 728	365 357	46,56%	30 476	1 796 931	41,22%
	others	5 058	89 647	11,42%	27 386	561 622	12,88%
Hungary	intermodal	26 674	4 064 260	46%	31 176	7 116 720	36%
	block	29 542	3 396 883	39%	60 152	7 301 146	36%
	single wagons	37 223	1 342 531	15%	98 124	5 628 508	28%
	others	0	0	0%	0	0	0%
Romania	intermodal						
	block						
	single wagons						
	others						
Bulgaria	intermodal						
	block						
	single wagons						
	others						
Greece	intermodal						
	block						
	single wagons						
	others						

Table B 4: RU´s

Structure of RU´s																		
	2006			2007			2008			2009			2010			2011		
	F*	P*	F+P*	F*	P*	F+P*	F*	P*	F+P*	F*	P*	F+P*	F*	P*	F+P*	F*	P*	F+P*
Czech Republic	38/5	11/3	4/4	44/7	11/3	3/2	43/13	6/3	4/4	53/17	8/4	1/1	56/19	12/4	1/1	62/25	13/5	0/0
Austria							9/	6/	7/	8/	6/	7/	9/8	5/2	8/2	11/8	6/4	8/5
Slovakia	22/18	1/1	0/0	23/18	1/1	0/0	25/18	1/1	0/0	29/19	1/1	0/0	29/19	1/1	1/0	37/20	2/1	2/1
Hungary	6/	1/1	1/1	8/	1/1	1/1	12/	2/2	1/1	20/8	2/2	1/1	27/10	3/3		27/11	3/3	
Romania	24/12	3/2	0/0	24/12	4/2	0/0	23/11	4/2	1/1	22/11	4/2	1/1	26/11	4/2	1/1	19/11	4/2	2/1
Bulgaria	2/0	0/0	1/1	2/0	0/0	1/1	5/1	1/0	1/1	7/1	1/0	1/1	8/2	1/0	1/1	9/3	1/1	0/0
Greece	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Table B 5:Infra characteristic

	Line characteristic													Services		
	Line section	Section overlapping with other RFC corridors?	Length of section (km)	Number of tracks	Electric traction (kV/Hz)	Max.length of train (m)	Line category regarding axle load	Max. weight/ axle for extraordinary shipments	Max. slope (‰)	Profile (P/C)	Loading gauge	Max. speed (km/h)	ERTMS equipment (ETCS, GSM-R)	Intermodal terminals /keeper	Marshalling yards/ keeper	Other service facilities (refuelling, RoLa, scales, etc.)
Czech Republic	Praha - Poříčany	RCF 9	33	3	3 KV DC	600	D4		↑7 / ↓7	78/402	GČD	120/140	GSM-R	Praha Uhříněves www.metrans.cz	Praha Libeň - SŽDC	
	Poříčany - Kolín	RCF 9	23	2	3 KV DC	600	D4		↑4 / ↓4	78/402	GČD	160	GSM-R		Kolín seř.n.- SŽDC	
	Kolín - Pardubice	RCF 9	42	2	3 KV DC	600	D4		↑4 / ↓4	78/402	GC	160	GSM-R		Pardubice - SŽDC	
	Pardubice - Česká Třebová	RCF 9	60	2	3 KV DC	600	D4		↑8 / ↓2	78/402	GČD	100/160	GSM-R	Česká Třebová (from summer 2012) www.metrans.cz	Česká Třebová - SŽDC	
	Česká Třebová - Svitavy	No	17	2	3 KV DC	600	D4		↑ 7 / ↓7	78/402	GC	120/140	GSM-R			Brno-Horní Heršpice / wagon wash - www.tssas.cz
	Svitavy - Brno	No	74	2	25 KV AC (50 Hz)	600	D4		↑5 / ↓0	78/402	GČD	80/120	GSM-R	Brno www.intrans.cz	Brno Maloměřice - SŽDC	
	Brno - Břeclav	No	60	2	25 KV AC (50 Hz)	700	D4		↑3 / ↓2	78/402	GČD	120/160	GSM-R		Břeclav přednádraží - SŽDC	
	Břeclav - Lanžhot border	RCF 5	12	2	25 KV AC (50 Hz)	700	D3		↑5 / ↓5	78/402	GC	160	GSM-R			
Alternative routing	Kolín - Kutná Hora	No	11	2	3 KV DC	700	D4		↑8 / ↓1	57/381	GC	120	GSM-R in plan			
Alternative routing	Kutná Hora - Havlíčkův Brod	No	63	2	25 KV AC (50 Hz)	700	D4		↑11 / ↓10	57/381	GC	120	GSM-R in plan		Havlíčkův Brod - SŽDC	
Alternative routing	Havlíčkův Brod - Křižanov	No	58	2	25 KV AC (50 Hz)	700	D4		↑9 / ↓8	57/381	GC	110	GSM-R in plan			
Alternative routing	Křižanov - Brno	No	63	2	25 KV AC (50 Hz)	700	D4		↑17 / ↓13	57/381	GČD	110	GSM-R in plan			
Connecting line	Děčín - Lovosice	No	45	2	3 KV DC	600	D4		↑ 1/ ↓2	78/402	GC	120/140	GSM-R	ČD-DUSS Terminal a.s. (www.cdd-terminal.com); Trans-Sped-Consult s.r.o., (http://www.trans-sped-consult.eu);	Děčín - SŽDC,	
Connecting line	Lovosice - Kralupy nad Vltavou	No	57	2	3 KV DC	600	D4		↑ 2 / ↓2	47/360	GČD	100/160	GSM-R		Kralupy nad Vltavou - SŽDC	
Connecting line	Kralupy nad Vltavou - Praha	No	28	2	3 KV DC	600	D4		↑ 5 / ↓5	78/402	GČD	100	GSM-R			
Connecting line	Děčín - Mělník	No	87	2	3 KV DC	600	D4		↑ 5 / ↓5	67/391	GB	80/120	GSM-R in plan	Mělník (www.starcontainer.eu)		
Connecting line	Mělník - Nymburk	No	48	2	3 KV DC	600	D4		↑ 5 / ↓5	78/402	GČD	120	GSM-R in plan		Nymburk - SŽDC	
Connecting line	Nymburk - Kolín	Not	25	2	3 KV DC	600	D4		↑ 4 / ↓3	78/402	GC	120	GSM-R in plan			
Austria	Břeclav -	RFC 5 (from	53	2	~25 kV/50	650	D4	22,5 t	28,0	80/410		140	yes			

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	Line section	Section overlapping with other RFC corridors?	Length of section (km)	Number of tracks	Electric traction (kV/Hz)	Max.length of train (m)	Line category regarding axle load	Max. weight/ axle for extraordinary shipments	Max. slope (‰)	Profile (P/C)	Loading gauge	Max. speed (km/h)	ERTMS equipment (ETCS, GSM-R)	Intermodal terminals /keeper	Marshalling yards/ keeper	Other service facilities (refuelling, RoLa, scales, etc.)
	Gänserndorf	2015)			Hz ~15 kV/16,7 Hz											
	Gänserndorf - Wien Zvbf	RFC 5 (from 2015)	37	2	~15 kV/16,7 Hz	650	D4	22,5 t	11,0	80/410		140	yes	Wien Freudenau (Wiencont), Wien Nordwest (ÖBB Infra), Wien Inzersdorf (planned)	Wien Zvbf (ÖBB Infra)	Scale at Wien Zvbf, Refueling station in Stadlau
Alternative routing	Gänserndorf – Marchegg Gr.	RFC 5 (from 2015)	21	1	diesel	650	D4	22,5 t	16,0	80/410		100	GSM-R			
	Wien Zvbf - Hegyeshalom	RFC 5 (from 2015) on the section Wien Zvbf - Parndorf	66	2	~15 kV/16,7 Hz	650	D4	22,5 t	8,0	80/410		140	yes	Wien Freudenau (Wiencont), Wien Nordwest (ÖBB Infra), Wien Inzersdorf (planned)	Wien Zvbf (ÖBB Infra)	
Alternative routing	Wien Zvbf – Wiener Neustadt (über Baden)	RFC 5 (from 2015)	54	2	~15 kV/16,7 Hz	650	D4	22,5 t	10,0	80/410		160	GSM-R	Wien Freudenau (Wiencont), Wien Nordwest (ÖBB Infra), Wien Inzersdorf (planned)	Wien Zvbf (ÖBB Infra)	
Alternative routing	Wiener Neustadt – Sopron via Loipersbach-Schattendorf		30	1	diesel	300	D4	22,5 t	11,0	80/410		120	no			
Alternative routing	Gramatneusiedl - Wampersdorf	RFC 5 (from 2015)	14	1	~15 kV/16,7 Hz	650	D4	22,5 t	6,0	80/410		120	GSM-R			
Alternative routing	Parndorf – Bratislava-Petrzalka	RFC 5 (from 2015)	24	1	~15 kV/16,7 Hz	650	D4	22,5 t	13,0	80/410		160	GSM-R			
Alternative routing	Wien Zvbf – Achau - Ebenfurth	RFC 5 (from 2015)	41	1-2	~15 kV/16,7 Hz	650	D4	22,5 t	15,0	80/410		140	yes	Wien Freudenau (Wiencont), Wien Nordwest (ÖBB Infra), Wien Inzersdorf (planned)	Wien Zvbf (ÖBB Infra)	
Alternative routing	Ebenfurth – Wiener Neustadt	RFC 5 (from 2015)	13	2	~15 kV/16,7 Hz	650	D4	22,5 t	15,0	80/410		140	yes			
Slovakia	Kúty border - Devinska N.Ves	No	58	2	~25 kV/50 Hz	700	D3	22,7 t	↑7 / ↓5	70/400	GB	120/140	-		Devínska N.Ves/ ŽSR	Devínska N.Ves/ scale
	Devínska N.Ves - Bratislava hl.st.	RFC 5	13	2	~25 kV/50 Hz	700	D4	22,7 t	↑7 / ↓8	70/400	GB	120	-	1. Bratislava UNS / Intrans (www.intrans.sk); 2. Bratislava Pálenisko/SPaP (www.spap.sk)		
Connecting line	Bratislava hl.st. - Dunajská Streda	RFC 5	48	1	-	625	C4/ D4	22,7 t	↑5 / ↓5	70/400	GB	80	-	Dunajská Streda/ Metrans (www.metrans.cz)		
Connecting line	Dunajská Streda - Komarno border	RFC 5	52	1	-	240	D4	22,7 t	↑3 / ↓4	70/400	GB	80	-			
	Bratislava hl.st. - Rusovce border	RFC 5	32	1	~25 kV/50 Hz	690	D4	22,7 t	↑7 / ↓11	70/400	GB	120	-			
	Bratislava hl.st.- Nove Zamky	RFC 5 (Partly: Bratislava hl.st. - Sladkovicovo)	87	2	~25 kV/50 Hz	700	D4	22,7 t	↑4 / ↓7	70/400	GB	120/140	Bratislava hl.st. -Sládkovičovo = GSM-R	Sládkovičovo/ Lörinz (www.loerinz.sk)	1. Bratislava východné/ ŽSR; 2. Nové Zámky/ ŽSR	1. Bratislava východné/ scale; 2. Nové Zámky/ scale

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	Line section	Section overlapping with other RFC corridors?	Length of section (km)	Number of tracks	Electric traction (kV/Hz)	Max.length of train (m)	Line category regarding axle load	Max. weight/ axle for extraordinary shipments	Max. slope (‰)	Profile (P/C)	Loading gauge	Max. speed (km/h)	ERTMS equipment (ETCS, GSM-R)	Intermodal terminals /keeper	Marshalling yards/ keeper	Other service facilities (refuelling, RoLa, scales, etc.)
	Nove Zamky - Komrano border	No	26	1	~25 kV/50 Hz	620	D3	22,7 t	↑7 / ↓ 5	70/400	GB	100	-		Komárno zr.st./ ŽSR	
	Nove Zamky - Sturovo border	No	58	2	~25 kV/50 Hz	700	D4	22,7 t	↑3 / ↓35	70/400	GB	120	-		Štúrovo/ŽSR	Štúrovo/ scale
Alternative routing	Devínska Nová Ves - Devínska Nová Ves št.hr.	RFC 5	3,6	1	-	700	D4	22,7	0 / ↓8	70/400	GC	80				
Alternative routing	Bratislava Petržaka - Bratislava Petržalka št.hr.	RFC 5	2,4	1	~15 kV/16 2/3 Hz	540 if electric loco/690 if diesel loco	D4	22,7	0/0	70/400	GC	140				
Alternative routing	Kúty - Trnava	No	69	1	~25 kV/50 Hz	720	D4	22,7	↑12 / ↓12	70/400	GB	80				
Alternative routing	Trnava - Bratislava východ	RFC 5	40,7	2	~25 kV/50 Hz	650	D4	22,7	↑6 / ↓7	70/400	GC	160	ETCS			
Alternative routing	Trnava - Galanta	No	26,7	1.II	~25 kV/50 Hz	670	D4	22,7	↑5 / ↓5	70/400	GC	80				
Hungary	Rajka border - Hegyeshalom	No	17,2	1	25 kV/50 Hz	650	C2	C2	↑4 / ↓4	70/400	GA	100	-	-	-	-
	Hegyeshalom border - Hegyeshalom	No	4,9	2	25 kV/50 Hz (MÁV) / 15 kV/16 2/3 Hz (ÖBB)	750	C3	D3	↑4 / ↓4	80/410	GA	140	ETCS	-	Hegyeshalom (MÁV)	RoLa, Hegyeshalom/refuelling
	Hegyeshalom - Tata	No	104	2	25 kV/50 Hz	750	C3	D3	↑5,3 / ↓5,3	80/410	GA	160	ETCS	-	Komárom - Rendező (MÁV) Győr - Rendező (MÁV)	RoLa, Győr-Rendező, Komárom-Rendező, Mosonmagyaróvár/scale
	Tata - Biatorbágy	No	51	2	25 kV/50 Hz	750	C3	D3	↑8 / ↓8	80/410	GA	140	ETCS	-	-	RoLa
	Biatorbágy - Kelenföld	No	17,3	2	25 kV/50 Hz	750	C3	D3	↑8 / ↓8	80/410	GA	120	ETCS	-	-	RoLa
	Kelenföld - Ferencváros	No	5,7	2	25 kV/50 Hz	750	C3	C3	↑8 / ↓8	80/410	GA	80	ETCS	-	Kelenföld (MÁV) Ferencváros (MÁV)	RoLa
Alternative routing	Sopron border - Pinnye	No	22,4	1	25 kV/50 Hz	600	C4	22,5 t	↑7 / ↓7	70/400	GA	100	-	-	Sopron (GYSEV)	Sopron/refuelling
Alternative routing	Pinnye - Fertőszentmiklós	No	6,9	1	25 kV/50 Hz	600	D4	22,5 t	↑7 / ↓7	70/400	GA	120	-	-	-	-
Alternative routing	Fertőszentmiklós - Petőháza	No	2,3	1	25 kV/50 Hz	600	C4	22,5 t	↑7 / ↓7	70/400	GA	100	-	-	-	-
Alternative routing	Petőháza - Győr	No	58,1	1	25 kV/50 Hz	600	C4	22,5 t	↑0,1 / ↓0,1	70/400	GA	120	-	-	-	-
	Komárom border - Komárom	No	3	1	25 kV/50 Hz	750	C2	C2	↑5,6 / ↓5,6	80/410	GA	60	-	-	-	Komárom/refuelling
Connecting line	Ferencváros - Soroksári út	No	1,8	2	25 kV/50 Hz	750	D3	D3	↑11,2 / ↓11,2	80/410	GA	80	-	-	-	Ferencváros/refuelling, Ferencváros-Keleti rendező/scale
Connecting line	Soroksári út - Soroksár	No	7,1	1	25 kV/50 Hz	750	D3	D3	↑11,2 / ↓11,2	80/410	GA	100	-	-	-	Soroksári út-Rendező/scale

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Connecting line	Soroksár - Soroksár-Terminál	No	3,5	1	25 kV/50 Hz	750	C3	C3	↑5 / ↓5	80/410	GA	40	-	Soroksár - Terminál (MÁV)	-	-
	Ferencváros - Kőbánya felső	RFC 6	4,6	2	25 kV/50 Hz	750	C3	C3	↑7 / ↓7	80/410	GA	60	-	-	-	-
	Kőbánya felső - Rákos	RFC 6	3,1	2	25 kV/50 Hz	750	C2	C2	↑7 / ↓7	80/410	GA	80	-	-	-	-
	Rákos - Újszász	RFC 6	76	2	25 kV/50 Hz	750	C2	C2	↑6 / ↓6	80/410	GA	100	-	-	-	Rákos/scale
	Újszász - Szolnok	RFC 6	17,3	2	25 kV/50 Hz	750	C2	C2	↑4 / ↓4	80/410	GA	120	-	-	Szolnok (MÁV)	-
	Szolnok - Szajol	RFC 6	10,3	2	25 kV/50 Hz	750	C2	C2	↑4 / ↓4	80/410	GA	120	-			
	Szajol - Gyoma	No	48,8	2	25 kV/50 Hz	750	D2	D2	↑4,2 / ↓4,2	70/400	GA	120	-	-	-	-
	Gyoma - Murony	No	26,2	2	25 kV/50 Hz	750	C2	C2	↑4,2 / ↓4,2	70/400	GA	120	-	-	-	-
	Murony - Lőkösháza border	No	42,1	1	25 kV/50 Hz	750	C2	C2	↑4,2 / ↓4,2	70/400	GA	100	-	-	-	-
	Ferencváros - Kőbánya-Kispest	RFC 6	5,1	2	25 kV/50 Hz	750	D3	D3	↑8 / ↓8	70/400	GA	80	-	-	-	RoLa
	Kőbánya - Kispest - Vecsés	RFC 6	10,6	2	25 kV/50 Hz	750	D3	D3	↑7,3 / ↓7,3	70/400	GA	120	-	-	-	RoLa
	Vecsés - Albertirsa	RFC 6	34	2	25 kV/50 Hz	750	C3	C3	↑7,3 / ↓7,3	70/400	GA	120	-	-	-	RoLa
	Albertirsa - Szolnok	RFC 6	46	2	25 kV/50 Hz	750	C3	C3	↑2,3 / ↓2,3	70/400	GA	120	-	-	-	RoLa, Cegléd/scale
Alternative routing	Szajol - Püspökladány	RFC 6	66,7	2	25 kV/50 Hz	750	C3	C3	↑5 / ↓5	70/400	GA	120	-	-	-	RoLa, Törökszentmiklós/scale
Alternative routing	Püspökladány - Biharkeresztes border	No	56,8	1	No	750	C2	C2	↑3 / ↓3	70/400	GA	100	-	-	-	RoLa, Püspökladány/scale
	Szob border - Vác	No	30,5	2	25 kV/50 Hz	750	C3	C3	↑4,6 / ↓4,6	70/400	GA	100	-	-	-	-
	Vác - Rákospalota-Újpest	No	25,6	2	25 kV/50 Hz	750	C3	C3	↑4,6 / ↓4,6	70/400	GA	120	-	-	-	-
	Rákospalota-Újpest - Angyalföld elág.	No	3,3	1	25 kV/50 Hz	750	C2	C2	↑7 / ↓ 7	70/400	GA	60	-	-	-	-
	Angyalföld elág. - Kőbánya felső	No	9	2	25 kV/50 Hz	750	C2	C2	↑7 / ↓ 7	70/400	GA	80	-	-	-	-
Alternative routing	Vác - Vácrátót	No	9,1	1	25 kV/50 Hz	750	C2	C2	↑8 / ↓ 8	70/400	GA	80	-	-	-	-
Alternative routing	Vácrátót - Galgamácsa	No	14,9	1	25 kV/50 Hz	750	C2	C2	↑12,1 / ↓ 12,1	70/400	GA	80	-	-	-	-
Alternative routing	Galgamácsa - Aszód	No	9,8	1	25 kV/50 Hz	700	C2	C2	↑5,3 / ↓ 5,3	70/400	GA	80	-	-	-	-
Alternative routing	Aszód - Hatvan	RFC 6	15,9	2	25 kV/50 Hz	750	C3	D3	↑8 / ↓ 8	70/400	GA	120	-	-	-	-
Alternative routing	Hatvan - Újszász	No	52,3	1	25 kV/50 Hz	750	C2	C2	↑3 / ↓ 3	70/400	GA	100	-	-	Hatvan (MÁV)	Hatvan/refuelling, Hatvan-Rendező/scale
Romania	Border (HU/RO) - Curtici	No	8,38	1	25 kV, 50Hz	750	C3	+0,5t/axle	1,8	45/375	C	100				

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	Curtici – Arad	No	17,01	2	25 kV, 50Hz	720	C3	+0,5t/axle	3,0	45/375	C	120				
	Arad - Simeria	No	157,36	2	25 kV, 50Hz	720	C3	+0,5t/axle	4,0	45/375	C	100		1.Railport Arad „SC Railport Arad SRL" 2.Trade Trans TerminalSRL-Arad		
	Simeria - Coslariu	No	69,27	2	25 kV, 50Hz	675	C3	+0,5t/axle	5,8	45/375	C	120				
	Coslariu - Sighişoara	No	98,39	2	25 kV, 50Hz	600	C3	+0,5t/axle	6,6	45/375	C	120		Medias, CFR Marfa		
	Sighişoara - Braşov	No	128,61	2	25 kV, 50Hz	600	C3	+0,5t/axle	12,0	45/375	C	100				
	Braşov - Predeal	No	26,24	2	25 kV, 50Hz	650	C3	+0,5t/axle	28,5	45/375	B	120		Brasov Triaj, CFR Marfa		
	Predeal - Brazi	No	92,17	2	25 kV, 50Hz	640	C3	+0,5t/axle	17,3	45/375	C	85	ongoing works for ETCS level 1	1.EURO GATE 2. Terminal operated by Alinso and RCA		
	Brazi - Bucureşti	No	51,37	2	25 kV, 50Hz	720	D4		5,5	45/375	C	160	ETCS level 1; pilot project for ETCS level 2 and GSM-R			
	Bucureşti - Feteşti	No	146,56	2	25 kV, 50Hz	720	D4		6,3	45/375	C	160	ongoing works for ETCS level 1	Titan, CFR Marfa		
	Feteşti - Constanţa	No	78,38	2	25 kV, 50Hz	720	D4		15,3	45/375	C	160	ETCS level 1	1.Constanta Marfuri, CFR Marfa 2.Port Constanţa Dana 44 SC UMEX SA 3. Port Constanţa Danele 51-52 SC SOCEP SA. 4. Port Constanţa Danele 121-124 CSCT – Agigea 5Port Constanţa Dana 119 SC APMTerminalRomânia SRL		
	Arad - Timişoara	No	57,28	1	25 kV, 50Hz	720	C3	+0,5t/axle	5,5	45/375	C	120				
	Timişoara - Orşova	No	186,53	1	25 kV, 50Hz	720	C3	+0,5t/axle	21,1	45/375	B	140		1.Semenic Timisoara Sud, CFR Marfa 2.CN APDF SA GiurgiuPunct de lucru OrsovaSCEP Orsova		
	Orsova - Filiaşi	No	101,9	1	25 kV, 50Hz	720	C3	+0,5t/axle	30,2	45/375	B	120		CN APDF SA Giurgiu Sucursala Drobeta Tr.		
	Filiaşi - Craiova	No	35,88	2	25 kV, 50Hz	750	C3	+0,5t/axle	9,6	45/375	C	120				
	Craiova - Calafat	No	107,68	1	Non-electrified	600	C3	+0,5t/axle	13,0	45/375	C	100		Craiova, CFR Marfa		
	Calafat - Border RO/BG	No	0,67	1	Non-electrified	-	C3	+0,5t/axle	-	45/375	-	-		1.Glogovat, CFR Marfa 2.CN APDF SA Giurgiu Agenţia Calafat SCEP Orsova		
Alternative routing	Border (HU/RO) - Episcopia Bihor	No	7,71	1	Non-electrified	750	C3	+0,5t/axle	5,7	45/375	C	120				
Alternative routing	Episcopia Bihor - Coslariu	No	266,57	1+2	Non-electrified + 25 kV, 50 Hz	600	C3	+0,5t/axle	20,0	45/375	C	120		1 .Turda,CFR Marfa 2.Oradea Est, CFR Marfa 3. Cluj Napoca Est CFR Marfa		
Alternative routing	Simeria - Gura Motru	No	206,46	1+2	25 kV, 50Hz	550	C3	+0,5t/axle	18,0	45/375	B	95				
Alternative routing	Craiova - Bucuresti	No	213	2	25 kV, 50Hz	750	C3	+0,5t/axle	9,8	45/375	C	120		1.Bucurestii Noi, CFR Marfa 2.Terminal operated by Tibbett Logistics		

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	Line section	Section overlapping with other RFC corridors?	Length of section (km)	Number of tracks	Electric traction (kV/Hz)	Max.length of train (m)	Line category regarding axle load	Max. weight/ axle for extraordinary shipments	Max. slope (‰)	Profile (P/C)	Loading gauge	Max. speed (km/h)	ERTMS equipment (ETCS, GSM-R)	Intermodal terminals /keeper	Marshalling yards/ keeper	Other service facilities (refuelling, RoLa, scales, etc.)
Alternative routing	Videle - Giurgiu	No	61,4	1	Non-electrified	600	C3	+0,5t/axle	16,8	45/375	C	100				
Alternative routing	Bucuresti - Giurgiu	No	63,95	1+2	Non-electrified	740	C3	+0,5t/axle	10,4	45/375	C	100		Bucuresti Progresu, CFR Marfa		
Alternative routing	Giurgiu - Border	No	4,8	1	Non-electrified	600	C3	+0,5t/axle	10,0	45/375	C	80		CN APDF SA Giurgiu SCAEP Giurgiu		
Bulgaria	Vidin - Brusartsi	No	86,887	1	25 kV, 50Hz	584	D4	23 t/axle	↑1 / ↓26	45/364	GB	70				
	Brusartsi - Mezdra	No	94 333	1+2	25 kV, 50Hz	550	D4	23 t/axle	↑9 / ↓17	59/389	GB	80				
	Mezdra - Sofia	No	83 058	2	25 kV, 50Hz	690	D4	23 t/axle	↑7 / ↓11	59/389	GB/GA	70				
	Sofia - Radomir	No	62 524	1+2	25 kV, 50Hz	571	D4	23 t/axle	↑3 / ↓12	59/389	GB	80				
	Radomir - Kulata	No	161,388	1	25 kV, 50Hz	535	D4	23 t/axle	↑5 / ↓19	59/389	GB	80				
Alternative routing	Sofia - Septemvri	No	102,8	2	25kv, 50Hz	636	D4	23t/axle	25‰		GC /GB	130/130				
Alternative routing	Septemvri-Plovdiv razpredelitelna	No	53,1	2	25kv, 50Hz	690	D4	23t/axle	8‰		GC	130/130				
Alternative routing	Plovdiv razpredelit.-Dimitrovgrad	No	77,8	1+2	25kv, 50Hz	700	D4	23t/axle	9‰		GC/GB	160/160	ETCS Level 1 ver.2.3.0.d and GSM-R installed and tested			
Alternative routing	Dimitrovgrad - Svilengrad	No	65,7	1	Non-electrified	568	D4	23t/axle	12,5‰		GC	85/85	ongoing works for ETCS level 1 and GSM-R			
Greece	Ikonio Port (Piraeus) - Thriassio (17.3km)	No	17.3	1	Diesel	>750	C4	22,5		45/375	DE3	100				
	Thriassio - SKA(13km)	No	13	2	~25 kV/50 Hz	>750	C4	22,5		45/375	DE3	100				
Connecting line	Piraeus – Athens RS(8.8km)	No	8.8	2	Diesel	>700	C4	22,5	↑16 ↓16,0	45/375	DE3	80	ETCS Level1/version 2.3.0/Wired telecommunication network with optic fiber connection , Radio communication through TETRA system, GSM-R system has been installed and is under testing.			
	Athens – SKA (11km)	No	11	2	Diesel	500	C4	22,5	↑16	45/375	DE3	100				
	SKA – Inoi (53km)	No	53	2	Diesel	>700	C4	22,5	↑16 /↓16,	45/375	DE3	100	The section is controlled by the Athens conventional Traffic Control Center. It is divided into 9 control areas with the possibility of local control.The basic system characteristics are: Bidirectional signaling, Relay type of Interlocking System,Safety Integrity Level: N/A,Train detection system: Axle counters, No system of automatic train protection (ATP).Wired telecommunication network with copper cable, of 24 quadruple, connections, that is installed along the entire Athens – Thessaloniki – Eidomeni axis/Radio communication through the OSE's analog STORNO system/ The 10 channels of the system operate on a frequency range between 146 – 174 Hz/GSM-R system has been installed and is being tested			
	Inoi – Thiva (28km)	No	28	2	Diesel	>750	C4	22,5	↑15,2 /↓16,0	45/375	DE3	160	The section is controlled by the Athens conventional Traffic Control Center. It is divided into 11 control areas with the possibility of local control.The basic system characteristics are: Bidirectional signaling, Relay type of Interlocking System,Safety Integrity Level: N/A,Train detection system: Audio frequency track circuits, No system of automatic train protection (ATP).Wired telecommunication network with copper cable, of 24 quadruple, connections, that is installed		Inoi	
	Thiva – Tithorea (64km)	No	64	2	Diesel	>750	C4	22,5	↑13 /↓11,70	45/375	DE3	160				

		Line characteristic												Services		
	Line section	**Section overlapping with other RFC corridors?**	**Length of section (km)**	**Number of tracks**	**Electric traction (kV/Hz)**	**Max.length of train (m)**	**Line category regarding axle load**	**Max. weight/ axle for extraordinary shipments**	**Max. slope (‰)**	**Profile (P/C)**	**Loading gauge**	**Max. speed (km/h)**	**ERTMS equipment (ETCS, GSM-R)**	**Intermodal terminals /keeper**	**Marshalling yards/ keeper**	**Other service facilities (refuelling, RoLa, scales, etc.)**
													along the entire Athens – Thessaloniki – Eidomeni axis/Radio communication through the OSE's analog STORNO system/ The 10 channels of the system operate on a frequency range between 146 – 174 Hz/GSM-R system has been installed and is being tested .			
	Tithorea – Lianokladi (56km)	No	56	1	Diesel	>700	C4	22,5	↑20,06 / ↓ 20,9	45/375	DE3	120	The section is controlled by the Lianokaldi conventional Traffic Control Center. The section is divided into 8 control areas with the possibility of local control.The basic system characteristics are: Bidirectional signaling, Relay type of Interlocking System,Safety Integrity Level: N/A,Train detection system: Track circuits (83Hz) inside the stations and axle counters on the open line., No system of automatic train protection (ATP).Wired telecommunication network with copper cable of 24 quadruple connections/ Radio communication through the OSE's analog STORNO system		Lianokladi	
	Lianokladi - Domokos (60km)	No	60	1	Diesel	>700	C4	22,5	↑21,75/ ↓ 21,68	45/375	DE3	120	The section is controlled by the Lianokaldi conventional Traffic Control Center. The section is divided into 10 control areas with the possibility of local control.The basic system characteristics are: Bidirectional signaling, Relay type of Interlocking System,Safety Integrity Level: N/A,Train detection system: Track circuits (83Hz) inside the stations and axle counters on the open line., No system of automatic train protection (ATP).Wired telecommunication network with copper cable of 24 quadruple connections/ Radio communication through the OSE's analog STORNO system.			
	Domokos – Palaiofarsalos (15km)	No	15	2	~25 kV/50 Hz	>750	C4	22,5	↓ 6,2	45/375	DE3	160	The section is controlled by the Larisa conventional Traffic Control Center. The section is divided into 6 control areas with the possibility of local control. The basic system characteristics are: Bidirectional signaling, Relay type of Interlocking System, Safety Integrity Level: N/A, Train detection system: Audio frequency track circuits ,No System of Automatic Train Protection (ATP),Especially for the Palaiofarsalos control area, an electronic interlocking system has been installed. Wired telecommunication network with copper cable, of 24 quadruple, connections, that is installed along the entire Athens – Thessaloniki – Eidomeni axis/Radio communication through the OSE's analog STORNO system/ The 10 channels of the system operate on a frequency range between 146 – 174 Hz/GSM-R system has been installed and is being tested			
	Palaiofarsalos –Mesourlo-Larissa (42km)	No	42	2	~25 kV/50 Hz	>750	C4	22,5	↑14/ ↓ 14	45/375	DE3	160	The section is controlled by the Larisa conventional Traffic Control Center. The section is divided into 9 control areas with the possibility of local control. The basic system characteristics are: Bidirectional signaling, Relay type of Interlocking System, Safety Integrity Level: N/A, Train detection system: Audio frequency track circuits ,No System of Automatic Train Protection (ATP).Wired telecommunication network with copper cable, of 24 quadruple, connections, that is installed along the entire Athens – Thessaloniki – Eidomeni axis/Radio communication through the OSE's analog STORNO system/ The 10 channels of the system operate on a frequency range between 146 – 174 Hz/GSM-R system has been installed and is being tested		Mesourlo	
Connecting line	Larissa- Volos Port (61km)	No	61	1	Diesel	500	C4	20,0		45/375	DE3	100				
	Larissa - Evangelismos (23km)	No	23	2	~25 kV/50 Hz	>750	C4	22,5	↑11,2/ ↓ 14	45/375	DE3	160	The section is controlled by the Thessaloniki (TX1) electronic Traffic Control Center. The section is divided into 4 control areas with the possibility of local control The basic system characteristics are: Bidirectional signaling, Electronic type of			
	Evangelismos	No	35	2	~25 kV/50	>750	C4	22,5	↑10,54/ ↓	45/375	DE3	160				

		Line characteristic												Services		
	Line section	**Section overlapping with other RFC corridors?**	**Length of section (km)**	**Number of tracks**	**Electric traction (kV/Hz)**	**Max.length of train (m)**	**Line category regarding axle load**	**Max. weight/ axle for extraordinary shipments**	**Max. slope (‰)**	**Profile (P/C)**	**Loading gauge**	**Max. speed (km/h)**	**ERTMS equipment (ETCS, GSM-R)**	**Intermodal terminals /keeper**	**Marshalling yards/ keeper**	**Other service facilities (refuelling, RoLa, scales, etc.)**
	– Leptokaria (35km)				Hz				13,5				Interlocking System., Safety Integrity Level: SIL4, Train detection system: Audio frequency track circuits ,No System of Automatic Train Protection (ATP).Wired telecommunication network with copper cable, of 24 quadruple, connections, that is installed along the entire Athens – Thessaloniki – Eidomeni axis/Radio communication through the OSE's analog STORNO system/ The 10 channels of the system operate on a frequency range between 146 – 174 Hz/GSM-R system has been installed and is being tested			
	Leptokaria – Katerini (23km)	No	23	2	~25 kV/50 Hz	>750	C4	22,5	↑11,30/ ↓ 13,6	45/375	DE3	160				
	Katerini- Plati (45km)	No	45	2	~25 kV/50 Hz	1200	C4	22,5	↑13,25/ ↓ 13,82	45/375	DE3	160				
	Plati-Sindos-Thessaloniki (rail way yard) (37km)	No	37	2	~25 kV/50 Hz	>750	C4	22,5	↑7,39/ ↓ 9,62	45/375	DE3	160	The section is controlled by the Thessaloniki (TX1) electronic Traffic Control Center. The section is divided into 14 control areas The basic system characteristics are: Bidirectional signaling, Electronic type of Interlocking System., Safety Integrity Level: SIL4, Train detection system: Audio frequency track circuits ,No System of Automatic Train Protection (ATP). Wired telecommunication network with copper cable, of 24 quadruple, connections, that is installed along the entire Athens – Thessaloniki – Eidomeni axis/Radio communication through the OSE's analog STORNO system/ The 10 channels of the system operate on a frequency range between 146 – 174 Hz/GSM-R system has been installed and is being tested			
	Mouries – Strimonas (45km)	No	45	1	Diesel		C4		21,93	45/375					Sindos-Thessaloniki (rail way yard)	
Connecting line	Thessaloniki (rail way yard)- Thessaloniki Port	No	5,5	2	Diesel		C4		↑22 / ↓ 20	45/375	DE3	80		Thessaloniki Port		2scales, 8 cranes
	Thessaloniki (rail way yard) – Mouries (76km)	No	76	1	Diesel	640	C4	20,0	16,1	45/375	DE3	100	The section is controlled by the Thessaloniki (TX1) electronic Traffic Control Center. The section is divided into 14 control areas The basic system characteristics are: Bidirectional signaling, Electronic type of Interlocking System., Safety Integrity Level: SIL4, Train detection system: Audio frequency track circuits ,No System of Automatic Train Protection (ATP). Wired telecommunication network with copper cable, of 24 quadruple, connections, that is installed along the entire Athens – Thessaloniki – Eidomeni axis/Radio communication through the OSE's analog STORNO system/ The 10 channels of the system operate on a frequency range between 146 – 174 Hz/GSM-R system has been installed and is being tested			
	Mouries – Strimonas (45km)	No	45	1	Diesel	640	C4	20,0	21,93	45/375	DE3	80			Strimonas	
	Strimonas – Promachonas (14km)	No	14	1	Diesel	>750	C4	20,0	12,59	45/375	DE3	80				

Table B 6: Time & Charges

		Transport time			Charges											
					Containers				Chemicals				Standard good			
	Line section	Average transport time by rail∆ (min)	Average transport time by truck (min)	Average transport time by boat * (min)	**Acess charges** for intermodal train (ca. 40 x40´containers-600 m, 1200 t,)	Average **transport charges** for 1x40´ctr./20 t by train	Average **transport charges** for 1x40´ctr./20 t by truck	Average **transport charges** for 1x40´ctr./20 t by boat *	**Acess charges** for block train (ca.500 m, 1800 t, chemicals)	Average **transport charges** for 40 t of chemicals-RID by train	Average **transport charges** for 40 t chemicals -ADR by tank truck	Average **transport charges** for 40t chemicals - ADN-D by boat *	**Acess charges** for single loading wagons (ca.500 m, 1500 t,)	Average **transport charges** for 30 t single loading by train	Average **transport charges** for 30 t by truck	Average **transport charges** for 30t by boat *
Czech Republic	Praha - Břeclav				€ 653				€ 1 896				€ 753			
Austria	Břeclav border - Hegyeshalom border	320			€ 388				€ 495				€ 444			
	Břeclav border - Sopron	370			€ 388				€ 491				€ 439			
Slovakia	Kúty border - Rusovce border	263,0	103,5	-	€ 295	€ 205	€ 300	-	€ 392	€ 421	€ 451	-	€ 344	€ 233	€ 203	-
	Kúty border - Komárno border	306,5	224,0	336 /1007	€ 560	€ 284	€ 650	€ 161	€ 743	€ 668	€ 810	€ 241	€ 651	€ 319	€ 387	€ 193
	Kúty border - Štúrovo border	355,0	300,0	494 /1481	€ 630	€ 305	€ 870	€ 169	€ 838	€ 727	€ 1 085	€ 253	€ 734	€ 339	€ 519	€ 202
Hungary**	Rajka border - Lőkösháza border	600			€ 1 053				€ 1 250				€ 1 151			
	Komárom border - Lőkösháza border	510			€ 813				€ 964				€ 889			
	Szob border - Lőkösháza border	540			€ 730				€ 866				€ 798			
	Sopron border - Biharkeresztes border	580			€ 1 089				€ 1 301				€ 1 195			
Romania	Lokoshaza - Curtici	15			€ 27				€ 29				€ 28			
	Curtici - Arad	30			€ 55				€ 58				€ 56			
	Arad - Simeria	210			€ 546				€ 574				€ 560			
	Simeria - Coslariu	150			€ 237				€ 249				€ 243			
	Coslariu - Braşov	390			€ 788				€ 829				€ 808			
	Braşov - Bucuresti	280			€ 581				€ 612				€ 597			
	Bucureşti - Constanta	570			€ 797				€ 839				€ 818			
	Arad - Timişoara	170			€ 200				€ 211				€ 206			
	Timişoara - Orşova	480			€ 646				€ 680				€ 663			
	Orşova - Filiaşi	300			€ 355				€ 374				€ 364			
	Filiaşi - Craiova	80			€ 125				€ 132				€ 129			
	Craiova - Calafat	330			€ 325				€ 340				€ 333			
	Calafat - Border RO/BG	_														
Bulgaria	Vidin – Brusartsi				€ 253				€ 450				€ 406			
	Brusartsi – Mezdra				€ 269				€ 478				€ 432			
	Mezdra – Sofia				€ 255				€ 454				€ 410			
	Sofia – Radomir				€ 204				€ 364				€ 328			
	Radomir – Kulata				€ 469				€ 835				€ 753			
	Sofia – Septemvri				€ 299				€ 531				€ 479			
	Septemvri – Plovdiv				€ 154				€ 274				€ 247			
	Plovdiv – Dimitrovgrad				€ 226				€ 407				€ 363			
	Dimitrovgrad - Svilengrad				€ 184				€ 330				€ 296			
Greece	Athens – Inoi-Tithorea	148		650	Ag. Ioannis Renti (Athens)-Inoi~€ 65	Triassio-Kulata (border GR-BG) € 594			Ag. Ioannis Renti (Athens)-Inoi~€ 65	Triassio-Kulata € 2707,2 (class RID 1 &7)			Ag. Ioannis Renti (Athens)-Inoi~€ 65	Triassio-Kulata € 1015,2 (class 1) € 875,3 (class 2)		
	Tithorea –Domokos	159			Inoi-Domokos~€ 220				Inoi-Domokos~€ 220				Inoi-Domokos~€ 220			
	Domokos - Thessaloniki	207	620		Domokos-Mezourlo Larissa~€ 60 (without electric traction)				Domokos-Mezourlo Larissa~€ 60 (without electric traction)				Domokos-Mezourlo Larissa~€ 60 (without electric traction)			
	Thessaloniki-Promahon	131			Mezourlo Larissa-TX2 Thessaloniki~€ 180 (without electric traction)	Thessaloniki - Kulata (border GR-BG) € 201			Mezourlo Larissa-TX2 Thessaloniki~€ 180 (without electric traction)	Thessaloniki-Kulata € 1024,8 (class RID 1 &7)			Mezourlo Larissa-TX2 Thessaloniki~€ 180 (without electric traction)	Thessaloniki-Kulata € 384,3 (class 1) € 331,8 (class 2)		
	Promahon-Kulata (bord.)	220			TX2 Thessaloniki-Strymonas~€ 180				TX2 Thessaloniki-Strymonas~€ 180				TX2 Thessaloniki-Strymonas~€ 125			
	Total	**865**														

Table B 7: Capacity bottlenecks

	Line section	Bottlenecks	Reasons	Suggestions how to remove bottlenecks
Czech Republic				
Austria	Břeclav - Gänserndorf	No bottlenecks		
	Gänserndorf - Wien Zvbf	No bottlenecks		
	Gänserndorf – Marchegg Gr.	**Not electrified**		
	Wien Zvbf - Hegyeshalom	No bottlenecks		
	Wien Zvbf – Wiener Neustadt (über Baden)	No bottlenecks		
	Wiener Neustadt – Sopron via Loipersbach-Schattendorf	**Not electrified, short passing tracks in stations hampering the handling of longer trains**		
	Gramatneusiedl – Wampersdorf	No bottlenecks		
	Parndorf – Bratislava-Petrzalka	No bottlenecks		
	Wien Zvbf - Ebenfurth	No bottlenecks		
	Ebenfurth – Wiener Neustadt	No bottlenecks		
	Ebenfurth - Sopron	No bottlenecks		
Slovakia	Kúty border - Devinska N.Ves	1. two bridges in section Vľké Leváre - Malacky-Zohor, 2. Devínska N.Ves	1. reduced speed on bridges (80 km/h, 120 km/h) 2. lack of tracks due to: A. change of loco type (electric/ diesel) towards Austria, B. shunting of Volkswagen (private siding connected to railway station Devínska Nová Ves)	1. recontstruction of bridges for speed 140 km/h, 2. building of new station tracks in Devínsk Nová Ves
	Devínska N.Ves - Bratislava hl.st.	1. tunnel Bratislava Lamač - Bratislava hl.st., 2. Bratislava (all stations)	1. often maintenance → mostly only 1 line track avialable → lack of capacity, 2. unsatisfying: -safety of transports, -possibility to transport shipments out of gauge, - interoperability	1. complex tunnel reconstruction, 2. removal of 25 Hz track circuits
	Bratislava hl.st. - Dunajská Streda - Komárno border	1. Bratislava hl.st.- Bratislava Nové Mesto, 2. Bratislava Nové Mesto - Komárno	1. one track line → lack of capacity (strong passsenger + freight transport today, expectation of next increasing in the future), 2. one track line → lack of capacity (strong passsenger transport, connection to intermodal terminal)	1. builiding of 2. line track (Bratislava hl.st. - Bratislava Nové Mesto), 2. electrification, building of 2. line track (Bratislava Nové Mesto - Komárno)
	Bratislava hl.st. - Rusovce border	Bratislava Petržalka	limited lenghth of trains towards Austria (540 m for trains with electric locos, 690 m for trains with diesel locos), change of traction (SK/AT)	building of trolley line over the connecting line
	Bratislava hl.st.- Nove Zamky	-	-	-
	Nove Zamky - Komrano border	-	-	-
	Nove Zamky - Sturovo border	Kamenica n.Hronom	reduced speed in Kamenica n.hronom (40 km/h)	reconstruction of line tracks in kamenica n.Hronom for speed 120 km/h
Hungary	Rusovce border - Hegyeshalom			
	Hegyeshalom border - Hegyeshalom			
	Hegyeshalom – Győr			
	Sopron border - Sopron	all section	single track+long distance between stations+at least hourly regular interval suburban trains	paralellisation project between 2015 and 2020
	Ágfalva border - Sopron			
	Sopron – Győr	Sopron station and Sopron - Ágfalva section	single track+long distance between stations+at least hourly regular interval suburban trains	paralellisation project between 2015 and 2020
	Győr – Komárom			
	Komárno border - Komárom			
	Komárom - Ferencváros	Ferencváros station	level crossing of transit and shunting yard traffic just at the Budapest southern Danube bridge (almost only rail link between the Eastern and Western part of Hungary)	there is no accepted plan to solve the problem
	Stúrovo border – Vác	Vác station and Vác - Verőce section	single track+long distance between stations+high frequency of suburban trains	planned reconstruction of station between 2014 and 2020 and planned rehabilitation of the 2nd track at 2013 summer
	Vác – Újszász			
	Vác – Ferencváros	Rákospalota-Újpest station	outworn station with manual switching+node of high frequency suburban trains	planned reconstruction of station between 2014 and 2020
	Ferencváros - Soroksár-Terminál			

	Line section	Bottlenecks	Reasons	Suggestions how to remove bottlenecks
	Ferencváros – Újszász			
	Újszász – Szolnok			
	Ferencváros – Szolnok			
	Szolnok – Szajol			
	Szajol - Biharkeresztes border			
	Szajol - Lőkösháza border			
Romania	Border (RO/HU) - Curtici	Congested capacity	Modernization works	Current state up to the works completion
	Curtici - Arad	Congested capacity	Modernization works	Current state up to the works completion
	Arad - Simeria	Congested capacity	Modernization works	Current state up to the works completion
	Simeria - Coslariu	Congested capacity	Modernization works	Current state up to the works completion
	Coslariu - Sighişoara	Congested capacity	Modernization works	Current state up to the works completion
	Sighişoara - Braşov			
	Braşov - Predeal			
	Predeal - Brazi			
	Brazi - Bucureşti			
	Bucureşti - Feteşti			
	Feteşti - Constanţa			
	Arad - Timişoara			
	Timişoara - Orşova			
	Orşova - Filiaşi			
	Filiaşi - Craiova			
	Craiova - Calafat			
	Calafat - Border RO/BG			
	Border (RO/HU) - Episcopia Bihor			
	Episcopia Bihor -Coslariu			
	Simeria - Gura Motru			
	Craiova - Bucuresti			
	Videle - Giurgiu			
	Bucuresti – Giurgiu			
	Giurgiu – Border			
Bulgaria	Vidin – Brusartsi	Dimovo-Oreshec and Dimovo-Sracimir	Max gradients:29%0 / 28%0	2020 after reconstruction and modernization of the Corridor
	Brusartsi – Mezdra	Brusartsi-Medkovec and Mezdra-Vraca	Max gradients:24%0 / 18%0	
	Mezdra – Sofia	Zverino-Lakatnik and Iliyanci-Kurilo	Max gradients:12%0 / 3%0	
	Sofia – Radomir	Hrabursko-Razmenna and Batanovci-Razmenna	Max gradients:13‰ / 16‰	
	Radomir – Kulata	Gulubnik-Delyan and Dyakovo-Delyan	Max gradients:15‰/ 22‰	
	Sofia – Septemvri	Pobit Kamak - Vakarel and Kostenec - Nemirovo	Max gradients:29‰ / 29‰	Some of the projects for reconstruction and modernization are under way and some other projects will be commenced during the second period of the Operational Program of Transportation
	Septemvri – Plovdiv	Pazardjik - Ognjnovo and Stamboliiski - Ognjnovo	Max gradients:5‰/ 7‰	
	Plovdiv – Dimitrovgrad	Popovica - Parvomai and Dimitrovgrad - Sadovo	Max gradients:5‰/ 5‰	
	Dimitrovgrad - Svilengrad	Simeonovgrad - Svilengrad and Ljubimec - Harmanli	Max gradients:8‰/ 10‰	
Greece	SKA – Inoi*	This is an alignment with a multitude of stations functioning as commuter rail stations where		

	Line section	Bottlenecks	Reasons	Suggestions how to remove bottlenecks
		substantial improvements are required to satisfy the interoperability norms. It transverses a hilly terrain which makes impossible the provision of a speed of 160 km/h. Alternatives have been proposed to build a new Axis 22 alignment connecting the freight terminal of Thriasio to Thiva (Sfigga). If these proposals are adopted, the existing line would serve commuter traffic to Athens all the way north to the cities of Chalkis and Thiva.		
	Mouries – Strymonas*	This is a single track non-electrified line. Current OSE plans call for local improvements on the alignment that will not satisfy the 160 km/h standard. A further issue is related to the fact that the recently constructed bridge on the Strymonas River does not allow for a direct movement of trains in the direction to Promahonas/Kulata. Current operations require the reversal of trains moving towards Bulgaria in the Strymonas station. A detailed study in Phase B of this project will review this situation and what improvements may be possible. Again the issue of doubling the track will be investigated in the context of the 30 year analysis period as described before. Therefore, the interventions required on this section are the following: Alignment improvements to achieve design speed of 160 km/h, Line substructure, superstructure and civil works upgrade. Electrification, Signaling upgrade to ETCS Level II. Rearrangement of Strymonas Station line configuration or construction of an additional Strymonas bridge to allow for direct movement of Axis 22 trains in the direction to Promahonas/Kulata.		
	Strymonas – Promahonas*	This is a single track line in poor condition. As mentioned operations of passenger trains have recently ceased and the current speed limit is 30 km/h. GSM-R installation is currently in progress in this section as well. The alignment lies parallel to a recently constructed highway along the Strymonas east bank. Therefore any improvements and especially improvements to the alignment must respect the space restrictions and constraints imposed by the coexistence of the two axes (rail and highway) along a narrow field of possible intervention. A detailed study in Phase B of the Studies for the development of the Railway Priority Project No. 22 will review this situation and what improvements may be possible including the doubling of the track if this is deemed necessary through the Phase A analysis. Therefore, the interventions required on this section are the following: Alignment improvements to achieve design speed of 160 km/h. Line substructure, superstructure and civil works upgrade. Electrification Signaling upgrade to ETCS Level II. Review of facilities at Promahonas station in relation to the anticipated border crossing operation especially in view of Bulgaria joining the Schengen treaty		

Table B 8: Stations+Terminal

	Border station	No. of tracks	Max. length of the track (m)	Cross border operation	Average time of operation duration	Remarks	Terminal	Location on corridor	Character	No. Of tracks	Max. length of the track (m)	Storing capacity	Opening hours	Remarks
Czech Republic	Břeclav	56	1026	3 min - 60	5 min		Praha Uhříněves		Intermodal/ private (METRANS)	13	600	270 000 m2	non stop	
							Praha Libeň - SŽDC		Marshalling yards/ SŽDC	23	839			
							Praha Žižkov		Intermodal/ private (Intrans)	4	260	N/A	N/A	
							Kolín seř. nádraží		Marshalling yards/ SŽDC	11	600		non stop	
							Pardubice		Marshalling yards/ SŽDC	16	838			
							Česká Třebová		Intermodal/ private (METRANS)	6*	700*	N/A	N/A	to be opened in summer 2012
							Česká Třebová		Marshalling yards/ SŽDC	32	739		non stop	
							Brno Horní Heršpice		Intermodal/ private (Intrans)	3	260		N/A	
							Brno Maloměřice		Marshalling yards/ SŽDC	23	869		non stop	
							Břeclav přednádraží		Marshalling yards/ SŽDC	13	783		non stop	
							Havlíčkův Brod		Marshalling yards/ SŽDC	13	716		non stop	*alternative routing*
							Děčín hl.n.		Marshalling yards/ SŽDC	10	687		non stop	connecting line
							Lovosice		Intermodal/ private (TSC Lovosice)	2	250	10 000 ,m2	Mon-Fri 6:00-22:00, Sat 6:00-12:00, San 14:00-22:00	connecting line
									Intermodal/ private (ČD-DUSS Lovosice)	6	600	30 000 m2	Mon-Fri 6:00-22:00, Sat 6:00-12:00, San 14:00-22:00	connecting line
							Kralupy nad Vltavou		Marshalling yards/ SŽDC	11	694		non stop	connecting line
							Mělník		Intermodal/ private (Star Container)	3	614	67 000 m2	mon-Fri 6:00-20:00, Sat, San on request	connecting line
							Nymburk seř. n.		Marshalling yards/ SŽDC	17	800		non stop	connecting line
Austria	Břeclav	see Czech Republic					Wien Freudenau	3 km from main line	Intermodal / private (Wiencont)	10	700	9000 TEU	Mo-Thu 6:00-19:00; Fri 6:00 - 18:00	2 portal cranes, 17 reach stackers
	Hegyeshalom	see Hungary					Wien Nordwestbahnhof	11 km from main line	Intermodal / ÖBB	4	550		Mo-Fri 6:00-11:45 & 12:15-18:20; Sa 6:00-10:45	2 portal cranes, 2 reach stackers
	Sopron						Wien Inzersdorf (planned)	7 km from main line	Intermodal / ÖBB	8	650		7 x 24	2 portal cranes
							Wien Zentralverschiebebahnhof	directly on corridor	Marshalling yard / ÖBB	70	7650	-		
Slovakia	Kúty (CZ/SK)	37	833	15 min.- 48 hrs	120 min.	side ramp (175 m2)	Dunajska Streda	50 km from main line	Intermodal/ private (METRANS)	5	727	90 000 m2	Mo-Fri 00:00 - 24:00, Sa,Su 8:00-18:00	2 portal cranes (37 t), 4 container unloader
	Rusovce (SK/HU)	10	970			crane (5 t); side ramp (315 m2)	Bratislava vychodne	5 km from the main line	Marshalling yards/ ZSR	94	878	-	non stop	scale
	Komárno (SK/HU)	17	679			side ramp (1800 m2)	Bratislava UNS	On the main line	Intermodal/ private (Intrans)	3	290	10 000 m2	Mo-Fri: 6:00 – 18:00	1 portal crane, 1 reach stacker, 2 container unloader
	Štúrovo (SK/HU)	68	1265			scale, side ramps (2790 m2)	Bratislava Pálenisko	2 km from the main line	Intermodal/ private (SPaP)	3	300	11 000 m2	Mo-Fri: 6:00-22:00, Sa-Su: on request	2 cranes, 4 container unlader
							Sládkovičovo	On the main line	Intermodal/ private (Lörinz)	2	400	17 000 m2	Mo-Fri: 6:00 – 22:00, Sa 7:00 – 15:30, Su: on request	1 portal crane, 2 container unloader
							Štúrovo	On the main line	Private (Business Park)	4	800	n/a	n/a	1 portal crane,
Hungary	Sopron (HU/AT)	58	787				Sopron LSZK	on the main line	Intermodal GYSEV CARGO	9	650	205000 m2		side ramp, two cranes (40t)
	Rajka (HU/SK)	10					Győr LCH	on the main line	container terminal, LCH	1	284	10000 m2	M-F 06-22 Sa-So 06-18	
	Hegyeshalom (HU/AT) (GYSEV/MAV)	33	897		25 minutes		Székesfehérvár	50 km from main line	Intermodal LOGISZTÁR	2	370	500 TEU	0-24h	crane 45t
	Komárom (HU/SK)	40	761		25 minutes		BILK	on the main line	Intermodal BILK	5		3acre (30000 m2) 800 TEU	M-F 06-20 Sa-So 06-14	ROLA terminal
	Szob (HU/SK)	10	927				Budapest Szabadkikötő (port)	on the main line	Intermodal BSZL			310000 m2	0-24h	
	Biharkeresztes (HU/RO)	12	809				Szolnok	on the main line	container terminal, RSH	3	850		M-F 07:30-15	
	Lőkösháza (HU/RO)	11	1001	30 minutes			Debrecen	50 km from secondary line	container terminal TransSped			750 TEU	M-F 07-15	crane 36t
	Győr (GYSEV/MAV)	51	862		25 minutes		Szeged-Kiskundorozsma	90 km from main line	ROLA terminal RSH	1			0-24h	
	Csorna (GYSEV/MAV)	26	730				Békéscsaba	on the main line	intermodal (Pintér VÁM)	2				
	Zalaszentiván (GYSEV/MAV)	11	770											
	Porpác (GYSEV/MAV)	4	878											
	Zalalövő (GYSEV/MAV)	10	842											

	Border station	No. of tracks	Max. length of the track (m)	Cross border operation	Average time of operation duration	Remarks	Terminal	Location on corridor	Character	No. Of tracks	Max. length of the track (m)	Storing capacity	Opening hours	Remarks
Romania	Curtici (RO/HU)	18	750	100 min - 240 min	140 min	2 lines with ramps rented to a private company	Bucurestii Noi	9,7 km from the maim line	Intermodal Railway Freight Operator CFR Marfa	4 operator terminal particular-tracks	400	2800 m2	Monday -Friday 8.00 -17.00	four transtainer cranes (32 tf)
	Giurgiu Nord (RO/BG)	17	600	100 min - 240 min	140 min	2 lines with ramps	Titan	38,8 km from the main line	Intermodal Railway Freight Operator CFR Marfa	2	308	2448 m2	temporary closed	three transtainer cranes(32 tf)
							Semenic (Timișoara Sud)	10 km from the main line	Intermodal Railway Freight Operator CFR Marfa	4	250	2067 m2	temporary closed	three transtainer cranes (32 tf)
							Brasov Triaj	On the main line	Intermodal Railway Freight Operator CFR Marfa	2 operator terminal particular-tracks	300	3650 m2	Monday -Friday 8.00 -17.00	two transtainer cranes (32 tf)
							Medias	On the main line	Intermodal Railway Freight Operator CFR Marfa	2 operator terminal particular-tracks	160	12000 m2	Monday -Friday 8.00 -17.00	one transtainer cranes(32 tf)
							Glogovat	On the main line	Intermodal Railway Freight Operator CFR Marfa	2	230	2250 m2	temporary closed	two transtainer cranes(32 tf)
							Ploiesti Crang	6 km from the main line	Intermodal Railway Freight Operator CFR Marfa	3	600	2100 m2	temporary closed	three transtainer cranes (32 tf)
							Container Terminal Railport Arad "SC Railport Arad SRL"	On the main line	Intermodal/ private Curtici	2	650	50000 m2		one Kalmar crane 1 Kalmar forklift
							Trade Trans Terminal SRL-Arad	On the main line	Intermodal/ private Curtici				Rail-road transshipping	
							EURO GATE TERMINAL	On the main line	Intermodal/ private Ploieşti	n/a	n/a	n/a	n/a	n/a
							Port Constanţa Dana 44 SC UMEX SA	On the main line	Intermodal/ private Port B Station Constanta	n/a	n/a	100000 m2	n/a	9 mobile cranes, 2 container forklifts, 2 automatic spreaders, 19 trailers
							Port Constanţa Danele 51-52 SC SOCEP SA.	On the main line	Intermodal/ private Port B Station Constanta			141600 m2		3 container cranes, 2 transtainers,17 container forklifts,
							Port Constanţa Danele 121-124 CSCT - Agigea (Terminal containere Constan?a Sud)	On the main line	Intermodal/ private FerryBoat Station Constanta			220000 m2		3 cranes, 2 Panamax cranes, 3 mobile cranes, 3 container forklifts
							Port Constanţa Dana 119 SC APMTerminal România SRL	On the main line	Intermodal/ private FerryBoat Station Constanta			41740 m2		one mobile crane, spreaders
							CN APDF SA Giurgiu Agenţia Calafat SCEP Orsova	On the main line	Intermodal/ private Calafat					2 cranes
							CN APDF SA Giurgiu Sucursala Drobeta Tr. Severin SC Transeuropa	On the main line	Intermodal/ private Drobeta Turnu Severin					3 cranes
							CN APDF SA Giurgiu Working point Orsova	On the main line	Intermodal/ private Orsova					5 cranes
							Alinso and RCA Terminal	6 km from the main line	Intermodal/ private Crangul lui Bot (through Ploiesti Vest station)					
							Tibbett Logistics Terminal	9,7 km from the maim line	Intermodal/ private Ciorogarla (through Bucuresti Vest)					
Bulgaria	Vidin	5	1079	120 min.										
	Kulata	6	680	60 min										
	Svilengrad	9	742		transmission of trains: 90 min. acceptance of trains: 180 min.									

	Border station	No. of tracks	Max. length of the track (m)	Cross border operation	Average time of operation duration	Remarks	Terminal	Location on corridor	Character	No. Of tracks	Max. length of the track (m)	Storing capacity	Opening hours	Remarks
Greece	Promachonas/Kulata (GR/BG)	3	641	220			TRIASSIO PEDIO Inoi		Merchandise transshipment (freight management) from the railway to road transportation means and vice-versa					On going works, attached a summerising report
									Marshalling yard	5	900		24h	
							Lianokladi		Marshalling yard	10	880		24h	
							Mezourlo		Marshalling yards	15	1200		5:30-14:00	
							Volos Port		The excisting railway line in the port of Volos can contribute only to the transport of railfreight wagon by rail ferries				4:30-23:45	
							Thessaloniki (rail way yard)		Marshalling yard					
							Thessaloniki Port		International Port	7			Two shift work depending on the needs	2scales, 8 cranes
							Sindos		Marshalling yard	5	737		7:00-17:00	
							Strimonas		Marshalling yard	3	1720		6:30-23:00	
							Promachonas Kulata (Border Station)		Marshalling yard	3	641		7:15-23:00	

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INVESTMENT PLAN

MODIFICATIONS AND UPDATINGS

Evolution Index	Date	Modification / comments	Written by
1	11. 3. 2013	Draft v.1	Jan Křemen, SŽDC
2	15. 4. 2013	Draft v.2	Jan Křemen, SŽDC
3	26. 4. 2013	Version v.3 (added text into chapters 1, 6, 7)	Jan Křemen, SŽDC
4	9. 5. 2013	Version v.4	Jan Křemen, SŽDC
5	31.10.2013.	Version v.5	Zsuzsanna Ring,MÁV

READING AND APPROVAL

Company	Infra Dev WG member	Date of approval	Management Board member	Date of approval
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OSE	George Pantelas		Grigorios Sampatakakis	

CONTENT

ANNEX

ABBREVIATIONS

CZ	Czech Republic
SŽDC	Správa železniční dopravní cesty, státní organizace
A	Austria
ÖBB-I	ÖBB-Infrastruktur AG
SK	Slovakia
ŽSR	Železnice Slovenskej republiky
H	Hungary
MÁV	MÁV Hungarian State Railways Private Company Limited by Shares
GYSEV	Győr-Sopron-Ebenfurti Vasút Zrt.
VPE	Hungarian Rail Capacity Allocation Office
RO	Romania
CFR	Compania Naţională de Căi Ferate CN "CFR" - SA
BG	Bulgaria
NRIC	National Railway Infrastructure Company, State Enterprise
GR	Greece
OSE	Hellenic Railways

1. Description of the present state of the corridor

Total lenght

• main line:	3 856,770 km
• alternative lines:	1 997,890 km
• conecting lines:	477,700 km

Number of tracks

• main lines:		
	• 3 tracks:	33,000 km (0,9 %)
	• 2 tracks:	2 563,298 km (66,5 %)
	• 1 track:	1 260,472 km (32,7 %)
	•	
• alternative lines:		
	• 2 tracks:	1 110,360 km (55,6 %)
	• 1 track:	887,530 km (44,4 %)
• connecting lines:		
	• 2 tracks:	306,100 km (64,0 %)
	• 1 track:	171,600 km (36,0 %)

Traction:

• main line:		
	• 3 kV DC	175,000 km (0,5 %)
	• 15 kV AC	156,000 km (4,1 %)
	• 25 kV AC	2 992,120 km (77,6 %)
	• diesel	533,650 km (13,8 %)
• alternative lines:		
	• 3 kV DC	11,000 km (0,5 %)
	• 15 kV AC	149,400 km (7,5 %)
	• 25 kV AC	1 378,960 km (69,0 %)
	• Diesel	458,530 km (23,0 %)
• connecting lines:		
	• 3 kV DC	290,000 km (60,7 %)
	• 25 kV AC	12,400 km (2,6 %)
	• Diesel	175,300 km (36,7 %)

Axle load:

• main line:		
	• 22,5 t (or more)	2 279,500 km (59,1 %)
	• 20 t	1 577,270 km (40,9 %)
• alternative lines:		
	• 22,5 t (or more)	964,400 km (48,3 %)
	• 20 t	1 033,490 km (51,7 %)
• connecting lines:		
	• 22,5 t (or more)	407,700 km (85,3 %)
	• 20 t	70,000 km (14,7 %)

Bottlenecks - most limiting points

- low capacity
- speed limit
- limited lengt of trains
- limited axle load
- not electrificed sections
- safety equipment (signalling track circuits with frequency of 25 Hz , ETCS, GSM-R, etc.)

Necessary developments

- increasing capacity
- increasing axle load
- electrification
- increasing speed
- ensuring interoperability

CZ – SŽDC

Praha – Kolín – Česká Třebová – Brno – Břeclav – Lanžhot border CZ/SK

• total length:	321 km	
• number of tracks:	2 (section Praha – Poříčany 3 tracks, 33 km)	
• traction: Praha – Svitavy Svitavy – border CZ/SK	3 kV DC (175 km) 25 kV AC (146 km)	
• max. length of train:	600 m (section Brno – border CZ/SK 700 m)	
• axle load:	Praha – Břeclav	D4/22,5 t (309 km)
•	Břeclav – border CZ/SK	D3/22,5 t (12 km)
• max. speed:	160 km/h	
• radio communication system:	GSM-R	

Kolín – Havlíčkův Brod – Brno (alternative line)

• total length:	195 km	
• number of tracks:	2	
• traction:	Kolín – Kutná Hora	3 kV DC (11 km)
•	Kutná Hora – Brno	25 kV AC (184 km)
• max. length of train:	700 m	
• axle load:	D4/22,5 t	
• max. speed:	120 km/h	
• radio communication system:	TRS (GSM-R in plan)	

Děčín – Lovosice – Praha (connecting line)

• total length:	130 km
• number of tracks:	2
• traction:	3 kV DC
• max. length of train:	600 m
• axle load:	D4/22,5 t
• max. speed:	160 km/h
• radio communication system:	GSM-R

Děčín – Nymburk – Kolín (connecting line)

- total length: 160 km
- number of tracks: 2
- traction: 3 kV DC
- max. length of train: 600 m
- axle load: D4, D3/22,5 t
- max. speed: 120 km/h
- radio communication system: GSM-R under construction

A – ÖBB-I-GySEV

border CZ/A – Gänsendorf – Wien Zvbf – border A/H

- total length: 156 km
- number of tracks: 2
- traction: 15 kV AC
- max. length of train: 650 m
- axle load: D4/22,5 t
- max. speed: 140 km/h
- ERTMS equipment: border CZ/A – Wien Zvbf until 12/2013; Wien Zvbf – border A/H yes

Gänserndorf – Marchegg – border A/SK (alternative line)

- total length: 21 km
- number of tracks: 1
- traction: diesel
- max. length of train: 650 m
- axle load: D4/22,5 t
- max. speed: 100 km/h
- radio communication system: GSM-R

Wien Zvbf – Achau – Ebenfurt (alternative line)

- total length: 41 km
- number of tracks: 1/2
- traction: 15 kV AC
- max. length of train: 650 m
- axle load: D4/22,5 t
- max. speed: 140 km/h
- ERTMS equipment: no

Wien Zvbf – Baden – Wiener Neustadt – border A/H (alternative line)

- total length: 84 km
- number of tracks: Wien Zvbf – Wiener Neustadt 2; Wiener Neustadt – border A/H 1
- traction: Wien Zvbf – Wiener Neustadt 15 kV AC; Wiener Neustadt – border A/H diesel
- max. length of train: Wien Zvbf – Wiener Neustadt 650 m; Wiener Neustadt – border A/H 300 m
- axle load: D4/22,5 t
- max. speed: Wien Zvbf – Wiener Neustadt 160 km/h; Wiener Neustadt – border A/H 120 km/h
- ERTMS equipment: Wien Zvbf – Wiener Neustadt GSM-R; Wiener Neustadt – border A/H no

Gramatneusiedl – Wampersdorf (alternative line)

- total length: 14 km
- number of tracks: 1
- traction: 15 kV AC
- max. length of train: 650 m
- axle load: D4/22,5 t
- max. speed: 120 km/h
- ERTMS equipment: GSM-R

Parndorf – Kittsee – border A/SK (alternative line)

- total length: 22 km
- number of tracks: 1
- traction: 15 kV AC
- max. length of train: 650 m
- axle load: D4/22,5 t
- max. speed: 160 km/h
- ERTMS equipment: GSM-R

Wiener Neustadt – Ebenfurt (alternative line)

- total length: 13 km
- number of tracks: 2
- traction: 15 kV AC
- max. length of train: 650 m
- axle load: D4/22,5 t
- max. speed: 140 km/h
- ERTMS equipment: yes

Ebenfurt – border A/H (alternative line), GySEV

- total length: 27 km
- number of tracks: 1
- traction: 25 kV AC

- max. length of train: 650 m
- axle load: D4/22,5 t
- max. speed: 120 km/h
- ERTMS equipment: no

SK – ŽSR

border CZ/SK – Kúty – Devínská Nová Ves – Bratislava – Rusovce – border SK/H

- total length: 103 km
- number of tracks: 2 (section Bratislava – border SK/H only 1)
- traction: 25 kV AC
- max. length of train: 690 m
- axle load: border CZ/SK – Kúty D3/22,7 t; Kúty – border SK/H D4/22,7 t
- max. speed: 140 km/h
- ERTMS equipment: GSM-R Devínska Nová Ves –Bratislava - Rusovce

Bratislava – Nové Zámky – Štúrovo – border SK/H

- total length: 145 km
- number of tracks: 2
- traction: 25 kV AC
- max. length of train: 700 m
- axle load: D4/22,7 t
- max. speed: 140 km/h
- ERTMS equipment: GSM-R Bratislava – Sládkovičovo – Nové Zámky

Nové Zámky – Komárno – border SK/H

- total length: 26 km
- number of tracks: 1
- traction: 25 kV AC
- max. length of train: 620 m
- axle load: D3/22,7 t
- max. speed: 100 km/h
- ERTMS equipment: no

Bratislava – Dunajská Streda – Komárno (connecting line)

- total length: 100 km
- number of tracks: 1
- traction: diesel
- max. length of train: Bratislava – Dunajská Streda 625 m; Dunajská Streda – Komárno 240 m
- axle load: Bratislava – Dunajská Streda C4/D4/22,7 t; Dunajská Streda – Komárno D4/22,7 t
- max. speed: 80 km/h
- ERTMS equipment: no

Devínská Nová Ves – border SK/A (alternative line)

- total length: 3,6 km
- number of tracks: 1
- traction: diesel
- max. length of train: 700 m
- axle load: D4/22,7 t
- max. speed: 80 km/h
- ERTMS equipment: no

Bratislava-Petrželka – border SK/A (alternative line)

- total length: 2,4 km
- number of tracks: 1
- traction: 15 kV AC
- max. length of train: 540 m electric loco/ 690 m diesel loco
- axle load: D4/22,7 t
- max. speed: 140 km/h
- ERTMS equipment: no

Kúty – Trnava (alternative line)

- total length: 69 km
- number of tracks: 1
- traction: 25 kV AC
- max. length of train: 720 m
- axle load: D4/22,7 t
- max. speed: 80 km/h
- ERTMS equipment: no

Trnava – Bratislava východ (alternative line)

- total length: 40,7 km
- number of tracks: 2
- traction: 25 kV AC
- max. length of train: 650 m
- axle load: D4/22,7 t
- max. speed: 160 km/h
- ERTMS equipment: ETCS

Trnava – Galanta (alternative line)

- total length: 26,7 km
- number of tracks: Trnava – Sereď 1
Sereď – Galanta 2
- traction: 25 kV AC
- max. length of train: 670 m
- axle load: D4/22,7 t

- max. speed: 80 km/h
- ERTMS equipment: no

H – MÁV, GySEV

Border SK/H – Hegyeshalom

- total length: 17,2 km
- number of tracks: 1
- traction: 25 kV AC
- max. length of train: 650 m
- axle load: C2
- max. speed: 100 km/h
- ERTMS equipment: no

border A/H – Győr – Komárom – Budapest – Szolnok – Gyoma – Békéscsaba – Lökösháza – border H/RO

• total length:	411,3 km	
• number of tracks:	2 (Murony – border H/RO 42 km only 1 track)	
• traction:	25 kV AC	
• max. length of train:	750 m	
• axle load:	border A/H – Budapest	C3
	Budapest – border H/RO	C2
• max. speed:	border A/H – Budapest	160 km/h
	Budapest – Békéscsaba	120 km/h
	Békéscsaba – border H/RO	100 km/h
• ERTMS equipment:	border A/H – Budapest	ETCS L1
	Budapest – border H/RO	no

Budapest – Cegléd – Szolnok (main line)

- total length: 95,7 km
- number of tracks: 2
- traction: 25 kV AC
- max. length of train: 750 m
- axle load: C3
- max. speed: 120 km/h
- ERTMS equipment: no

border A/H – Sopron (alternative line)

- total length: 6 km
- number of tracks: 1
- traction: 25 kV AC
- max. length of train: 650 m
- axle load: D4/22,5 t
- max. speed: 120 km/h
- ERTMS equipment: no

Sopron – Győr (alternative line)

• total length:	83,7 km
• number of tracks:	1
• traction:	25 kV AC
• max. length of train:	600 m
• axle load:	C4/D4/22,5 t
• max. speed:	120 km/h
• ERTMS equipment:	no

border SK/H – Komárom

• total length:	3 km
• number of tracks:	1
• traction:	25 kV AC
• max. length of train:	750 m
• axle load:	C2
• max. speed:	60 km/h
• ERTMS equipment:	no

border SK/H – Vác – Budapest

• total length:	68,4 km
• number of tracks:	2 (only 1 track Vác – Veröce, cause landslide)
• traction:	25 kV AC
• max. length of train:	750 m
• axle load:	C2/C3
• max. speed:	120 km/h (border SK/H – Vác 100 km/h)
• ERTMS equipment:	no

Szajol – Püspökladány – Biharkeresztes – border H/RO (alternative line)

• total length:	123,5 km
• number of tracks:	2 (section Püspökladány – Biharkeresztes – border H/RO 57 km only 1)
• traction:	25 kV AC (section Püspökladány – Biharkeresztes – border H/RO diesel)
• max. length of train:	750 m
• axle load:	Szajol – Püspökladány C3 Püspökladány – border H/RO C2
• max. speed:	Szajol – Püspökladány 120 km/h Püspökladány – border H/RO 100 km/h
• ERTMS equipment:	no

Vác – Aszód – Hatvan – Újszász (alternative line)

• total length:	102 km
• number of tracks:	1 (section Aszód – Hatvan; 15,9 km, 2 tracks)
• traction:	25 kV AC
• max. length of train:	700 m

- axle load: C2
- max. speed: 80 km/h (Hatvan – Újszász 100 km/h)
- ERTMS equipment: no

Ferencváros – Soroksári út – Soroksár Terminál (connecting line)

- total length: 12,4 km
- number of tracks: Ferencváros – Soroksári út 2; Soroksári út – Soroksár Terminál 1
- traction: 25 kV AC
- max. length of train: 750 m
- axle load: Ferencváros – Soroksár D3; Soroksár – Soroksár Terminál C3
- max. speed: Ferencváros – Soroksári út 80 km/h; Soroksári út – Soroksár 100 km/h; Soroksár – Soroksár Terminál 40 km/h
- ERTMS equipment: no

RO – CFR

Curtici – Arad – Deva – Simeria – Blaj – Brasov – Ploiesti – Bucuresti – Constanta

- total length: 873,74 km
- number of tracks: 2 (section border H/RO – Curtici only 1)
- traction: 25 kV AC
- max. length of train: border H/RO – Curtici 750 m; Curtici – Simeria 720 m; Simeria – Coslariu 675 m; Coslaria – Brasov 600 m; Brasov – Predeal 650 m; Predeal – Brazi 640 m; Brazi – Constanta 720 m
- axle load: border H/RO – Brazi C3; Brazi – Constanta D4
- max. speed: border H/RO – Predeal 120 km/h; Predeal – Brazi 85 km/h; Brazi – Constanta 160 km/h
- ERTMS equipment: Predeal – Constanta ETCS L1

Arad – Timisoara – Lugoj – Craiova

- total length: 381,59 km
- number of tracks: Arad – Filiasi 1; Filiasi – Craiova 2
- traction: 25 kV AC
- max. length of train: Arad – Filiasi 720 m; Filiasi – Craiova 750 m
- axle load: C3
- max. speed: Arad – Timisoara 120 km/h; Timisoara – Orsova 140 km/h; Orsova – Craiova 120 km/h
- ERTMS equipment: no

Craiova – Bucuresti (alternative line)

- total length: 213 km
- number of tracks: 2
- traction: 25 kV AC
- max. length of train: 750 m
- axle load: C3
- max. speed: 120 km/h
- ERTMS equipment: no

Craiova – Calafat – border RO/BG

- total length: 108,35 km
- number of tracks: 1
- traction: diesel
- max. length of train: 600 m
- axle load: C3
- max. speed: 100 km/h
- ERTMS equipment: no

Simeria – Gura Motrului (alternative line)

- total length: 206,46 km
- number of tracks: 1 (section Simeria – Petrosani and Rogojei – Gura Motru 2 tracks)
- traction: 25 kV AC
- max. length of train: 550 m
- axle load: C3
- max. speed: 95 km/h
- ERTMS equipment: no

Videle – Giurgiu (alternative line)

- total length: 61,4 km
- number of tracks: 1
- traction: diesel
- max. length of train: 600 m
- axle load: C3
- max. speed: 100 km/h
- ERTMS equipment: no

Bucuresti – Giurgiu – border RO/BG (alternative line)

- total length: 68,75 km
- number of tracks: 1/2
- traction: diesel
- max. length of train: Bucuresti – Giurgiu 740 m; Giurgiu – border RO/BG 600 m
- axle load: C3

- max. speed: Bucuresti – Giurgiu 100 km/h; Giurgiu – border RO/BG 80 km/h
- ERTMS equipment: no

border H/RO – Episcopia Bihor – Coslariu (alternative line)

- total length: 274,28 km
- number of tracks: 1/2
- traction: diesel (Baciu Triaj – Coslariu 25 kV AC)
- max. length of train: border H/RO – Episcopia Bihor 750 m; Episcopia Bihor – Coslariu 600 m
- axle load: C3
- max. speed: 120 km/h
- ERTMS equipment: no

BG – NRIC

border RO/BG – Vidin – Brusarci – Mezdra – Sofia – Radomir – Kulata

- total length: 488,19 km
- number of tracks: 1/2
- traction: Vidin – Sofia – Kulata 25 kV AC; Kulata – Border BG/GR diesel
- max. length of train: 530 m
- axle load: D4/23 t
- max. speed: 70 – 80 km/h
- ERTMS equipment: no

Sofia – Septemvri – Plovdiv – Dimitrovgrad – Svilengrad (alternative line)

- total length: 299,4 km
- number of tracks: Sofia – Plovdiv – Skutare 2; Skutare – Svilengrad 1
- traction: Sofia – Plovdiv – Dimitrovgrad 25 kV AC; Dimitrovgrad – Svilengrad diesel
- max. length of train: 568 – 700 m
- axle load: D4/23 t
- max. speed: Sofia – Plovdiv 130 km/h; Plovdiv – Dimitrovgrad 160 km/h; Dimitrovgrad – Svilengrad 85 km/h
- ERTMS equipment: Plovdiv – Dimitrovgrad ETCS L1 tested

GR – OSE

border BG/GR – Promahonas – Thessaloniki – Domokos – Tithorea – Inoi – SKA – Athina – Pireaus

- total length: 658,3 km
- number of tracks: 2 (section border BG/GR – Thessaloniki, Domokos – Lianokladi – Tithorea only 1)
- traction: diesel (section Thessaloniki – Domokos and SKA – Thriassio 25 kV AC)
- max. length of train:

border BG/GR – Thessaloniki	641 – 738 m
Thessaloniki – Larissa	653 – 737 m
Larissa – Tithorea	710 – 750 km/h
Tithorea – Inoi	488 – 710 m
Inoi – SKA	700 m
SKA – Athens	500 m

- axle load: C4/20 – 22,5 t
- max. speed (for freight) :

border BG/GR – Thessaloniki	80 km/h
Thessaloniki – Domokos	100 km/h
Domokos – Tithorea	80 – 100 km/h
Tithorea – Inoi	80 – 100 km/h
Inoi – SKA – Athens	80 – 100 km/h

- ERTMS equipment: no

Thessaloniki (rail way yard) – Thessaloniki Port (connecting line)

- total length: 5,5
- number of tracks: 2
- traction: diesel
- axle load: C4
- max. speed: 80 km/h
- ERTMS equipment: no

Larisa – Volos (connecting line)

- total length: 61
- number of tracks: 1
- traction: diesel
- max. length of train: 500 m
- axle load: C4/20 t
- max. speed: 80 – 100 km/h
- ERTMS equipment: no

Athina RS – Piraeus (connecting line)

- total length: 8,8
- number of tracks: 2
- traction: diesel
- max. length of train: 700 m
- axle load: C4/22,5 t
- max. speed: 80 km/h
- ERTMS equipment: ETCS L1, GSM-R under testing

2. List of bottlenecks

CZ – SŽDC

- **section Praha – Česká Třebová:** low capacity
- **section Lanžhot – Kúty:** lowered axle load
- **Kutná Hora:** signalling track circuits with frequency of 25 Hz
- **junction Brno:** low capacity, slow speed

A – ÖBB-I

- **section Wiener Neustadt – Sopron:** not electrified, a loco change is necessary, short passing tracks in stations

SK – ŽSR

- **section border CZ/SK – Bratislava:** bridges in section Veľké Leváre – Zohor (reduced speed – only 80 km/h)
- **station Devínská Nová Ves:** lack of station tracks
- **junction Bratislava:** slow speed, signalling track circuits with frequency of 25 Hz, tunnels in section Bratislava-Lamač – Bratislava hl.st. (often maintenance, mostly only 1 line track available, lack of capacity);
- **section Bratislava – Komárno** not electrified one track line, lack of capacity
- **section Štúrovo – border SK/H** reduced speed in Kamenica n. Hronom (40 km/h)

H – MÁV, GySEV

- **section Sopron – Wiener Neustadt:** not electrified, a loco change is necessary
- **section Murony – border H/RO:** only 1 track
- **section border SK/H – Hegyeshalom:** lowered axle load
- **section Budapest – Lököshaza:** lowered axle load
- **section Budapest - Cegléd - Szolnok:** lowered axle load
- **section border SK/H – Vác** only 1 track in section Szob – Vác, second track is out of order due to a landslide
- **section Vác – Ferencváros:** manual switching in station Rákospalota-Újpest
- **sections border SK/H - Hegyeshalom, border SK/H – Komarom, and Budapest – Lököshaza:** without ERTMS
- **section Vác – Hatvan – Újszász:** moderate ramp, only 1 700 tons possible with standard locos (1116). Very old safety installation on line between Vác – Hatvan, there must be 2 persons on the loco all the time! Using alternative route Vác – Budapest – Cegléd – Szolnok instead of the main line.

RO – CFR

- **section border H/RO – Curtici:** only 1 track
- **sections Videle – border RO/BG:** not electrified, a loco change is necessary
- **Craiova – Calafat:** only 1 track, not electrified, a loco change is necessary
- **section Calafat (CFR) – Vidin (NRIC):** only 1 track, connection of stations on Romanian and Bulgarian side is provided to be put in operation in 2013

BG – NRIC

- **section border RO/BG – Vraca:** only 1 track
- **section Calafat (CFR) – Vidin (NRIC):** connection of stations on Romanian and Bulgarian side through the bridge over Danube - only 1 track
- **section Dimovo-Oreshec and Dimovo-Sracimir (line section Vidin–Brusartsi):** slow speed parameters (max gradients 29‰ / 28‰)
- **section Brusartsi-Medkovec and Mezdra-Vraca (line section Brusartsi – Mezdra):** slow speed parameters (max gradients 24‰ / 18‰)
- **section Zverino-Lakatnik and Iliyanci-Kurilo (line section Mezdra - Sofia):** slow speed parameters (max gradients 12 ‰/ 3‰)
- **Sofia – border BG/GR:** only 1 track (except section Sofia-Zaharna fabrika)
- **section Hrabursko-Razmenna and Batanovci-Razmenna (railway section Sofia - Radomir):** slow speed parameters (max gradients 13‰ / 16‰)
- **section Gulubnik-Delyan and Dyakovo-Delyan (line section Radomir - Kulata):** slow speed parameters (max gradients 15‰ / 22%)

GR – OSE

- **sect. border BG/GR – Thessaloniki:** not electrified, partially upgraded from Thessaloniki to Strimonas, poor geometric technical characteristics at the section Strimonas – Promahonas
- **section Domokos – Tithorea:** only 1 track, not electrified, low capacity, slow speed
- **section SKA – Inoi:** low capacity

3. Volume of effect of each bottleneck

There are critical effects at the majority bottlenecks from the corridor competitiveness viewpoint:

CZ – SŽDC

- **section Praha – Česká Třebová:** low capacity makes impossible to allocate good-quality paths
- **section Lanžhot – Kúty:** lowered axle load has critical effect from the competitiveness viewpoint, it is a key parameter for the combined transport
- **Kutná Hora:** signalling track circuits with frequency of 25 Hz – it has a critical effect for modern rolling-stock operation
- **junction Brno:** slow speed, low capacity has critical effect for suburban transport

A – ÖBB-I

- **section Wiener Neustadt – Sopron:** not electrified, a loco change is necessary

SK – ŽSR

- **junction Bratislava:** slow speed, signalling track circuits with frequency of 25 Hz - it has a critical effect for modern rolling-stock operation, it reduces competitiveness for container trains

H – MÁV, GYSEV

- **section Sopron – Wiener Neustadt:** not electrified, a loco change is necessary, it has not critical effect, it is an alternative route only
- **section Murony – border H/RO:** only 1 track – according to the TEN-T Core studies in preparation the corridor should have 2 tracks, it could have critical effect on capacity in the case of further growth of the freight transport (speed 30 km per hour)
- **section border SK/H - Hegyeshalom:** lowered axle load
- **section Budapest – Lököshaza:** lowered axle load
- **sections border SK/H - Hegyeshalom, border SK/H – Komarom, and Budapest – Lököshaza:** without ERTMS

RO – CFR

- **section border H/RO – Curtici:** only 1 track – according to the TEN-T Core studies in preparation the corridor should have 2 tracks, it could have critical effect on capacity in the case of further growth of the freight transport (speed 30 km per hour)
- **sections Videle – border RO/BG:** only 1 track, not electrified, a loco change is necessary
- **Craiova – Calafat:** only 1 track, not electrified, a loco change is necessary

- **section Calafat (CFR) – Vidin (NRIC):** connection of stations on Romanian and Bulgarian side is provided to be put in operation in 2013 , only one track
- **general issue in Romania:** slow speed parameters that reduce the competitiveness of the corridor

BG – NRIC

- **section border RO/BG – Vraca:** only 1 track,– according to the TEN-T Core studies in preparation the corridor should have 2 tracks, it could have critical effect on capacity in the case of further growth of the freight transport
- **section Calafat (CFR) – Vidin (NRIC):** connection of stations on Romanian and Bulgarian side through bridge over Danube - only 1 track - it reduces the competitiveness of the corridor
- **section Dimovo-Oreshec and Dimovo-Sracimir (line section Vidin–Brusartsi):** slow speed parameters (max gradients 29‰ / 28‰) - it reduces the competitiveness of the corridor
- **section Brusartsi-Medkovec and Mezdra-Vraca (line section Brusartsi – Mezdra):** slow speed parameters (max gradients 24‰ / 18‰) - it reduces the competitiveness of the corridor
- **section Zverino-Lakatnik and Iliyanci-Kurilo (line section Mezdra - Sofia):** slow speed parameters (max gradients 12‰ / 3‰) - it reduces the competitiveness of the corridor
- **Sofia – border BG/GR:** only 1 track (excepting section Sofia-Zaharna fabrika), - should have 2 tracks – also critical effect
- **section Hrabursko-Razmenna and Batanovci-Razmenna (line section Sofia - Radomir):** slow speed parameters (max gradients 13‰ / 16‰) - it reduces the competitiveness of the corridor
- **section Gulubnik-Delyan and Dyakovo-Delyan (line section Radomir - Kulata):** slow speed parameters (max gradients 15‰ / 22‰) - it reduces the competitiveness of the corridor
- **section Kulata – border BG/GR:** not electrified, a loco change is necessary

GR – OSE

- **sect. border BG/GR – Thessaloniki:** not electrified, partially upgraded from Thessaloniki to Strimonas, poor geometric technical characteristics at the section Strimonas – Promahonas - it reduces the competitiveness of the corridor
- **section Domokos – Tithorea:** only 1 track, not electrified, low capacity, slow speed - it reduces the competitiveness of the corridor
- **section SKA – Inoi:** low capacity - it reduces the competitiveness of the corridor

4. List of necessary developments

CZ – SŽDC

- **section Praha – Česká Třebová:** increasing capacity
- **section Lanžhot – Kúty:** increasing allowed axle load
- **Kutná Hora:** ensuring interoperability

A – ÖBB-I

- **section Wiener Neustadt – Sopron:** electrification

SK – ŽSR

- **junction Bratislava:** increasing speed, ensuring interoperability

H – MÁV, GYSEV

- **section Sopron – Wiener Neustadt:** electrification
- **section Murony – border H/RO:** increasing capacity
- **section border SK/H – Hegyeshalom:** increasing allowed axle load
- **ERTMS L2 installation in all sections**

RO – CFR

- **section border H/RO – Curtici:** modernization double track, increasing capacity
- **sections Videle – border RO/BG:** electrification
- **Craiova – Calafat:** electrification
- **section Calafat (CFR) – Vidin (NRIC):** commissioning of the new rail line on the bridge over Danube

BG – NRIC

- **section border RO/BG – Vraca:** modernization, increasing capacity
- **section Dimovo-Oreshec and Dimovo-Sracimir (line section Vidin–Brusartsi):** modernization, increasing speed
- **section Brusartsi-Medkovec and Mezdra-Vraca (line section Brusartsi – Mezdra):** modernization, increasing speed
- **section Zverino-Lakatnik and Iliyanci-Kurilo (line section Mezdra - Sofia):** modernization, increasing speed
  Sofia – border BG/GR: increasing capacity& speed
- **section Calafat (CFR) – Vidin (NRIC):** commissioning of the new rail/road bridge over Danube -
- **section Hrabursko-Razmenna and Batanovci-Razmenna (line section Sofia - Radomir):** modernization, increasing speed
- **section Gulubnik-Delyan and Dyakovo-Delyan (line section Radomir - Kulata):** modernization, increasing speed
- **section Kulata – border BG/GR:** modernization and electrification

GR – OSE

- **sect. border BG/GR – Thessaloniki:** electrification and modernization
- **section Domokos – Tithorea:** double track, increasing capacity, electrification, increasing speed
- **section SKA – Inoi:** modernization, increasing capacity

5. List of developments being under progress or preparation

CZ – SŽDC

Track optimisation of the line Praha-Bubeneč – Praha-Holešovice

- construction under way, time of finishing 2015
- the construction’s objective is ensuring obstruction track clearance UIC GC, track load class UIC D4, track layout adaptations, eliminating local speed drops especially within the district of Praha-Bubeneč Railway Station, contact line and safety installations reconstruction

Modernisation of section Praha-Běchovice – Úvaly

- the construction project is currently finished, preparations for a contractor selection are under way, estimated construction start in the 2nd half of 2013
- works deal with reconstruction of the section Praha-Běchovice, district Blatov – Úvaly including reconstruction of the Úvaly Railway Station, contact line and safety installations modernisation included
- the construction’s objective is ensuring obstruction track clearance UIC GC, track load class UIC D4, track layout adaptations, eliminating local speed drops and increasing speed up to 160 km/h

Modernisation of the line Choceň – Ústí nad Orlicí

- in stage of preparation
- the construction should deal with relaying of the current line led in totally inappropriate conditions (speed only 80 – 85 km/h)

Passage through the junction Ústí nad Orlicí

- construction under way, time of finishing 2015
- the construction’s objective is eliminating local speed drops to 70 km/h, ensuring obstruction track clearance UIC GC and track load class UIC D4, modernisation of safety and communications equipment and the conduct line

Reconstruction of junction point Česká Třebová

- the construction will deal with local speed drops in the Česká Třebová junction district down to 60 km/h

Junction point Brno

- in stage of preparation
- the junction reconstruction must provide sufficient capacity for suburban transport with the South Moravia Region, rigorous separation of passenger and freight transport passing through the junction and eliminating current speed drops down to 30 km/h

Reconstruction of junction point Břeclav, Construction No 2

- construction under way, time of finishing 2015
- part of the works is reconstruction of the Railway Station Břeclav middle headpiece, finishing the construction of the station safety and communications equipment Category 3

- construction's end will i.a. eliminate current speed limitations to 40 km/h

ETCS Praha – Břeclav

- the construction deals building new ETCS L2, works under way

Railway Station Kutná Hora, replacement of 25 Hz track circuits

- currently in stage of project preparation, expected realisation in 2013
- the construction's objective is replacing current impulse track circuits using a 25 Hz frequency with new track circuits with a 275 Hz frequency and axle counting installation
- after realisation, the construction will enable operation of locomotives Siemens ES64U4, ES64F4-50 Hz and ŠKODA 109E without limitation through the Kutná Hora Railway Station

Reconstruction of tracks in section Havlíčkův Brod – Brno

- in stage of preparation, partly under construction
- the construction includes reconstruction of tracks incl. increasing speed limit in part sections of section Havlíčkův Brod – Brno and putting into standardised state according to relevant international agreements

Investments undertakings currently in stage of planning and preparation deal mostly with modernisation and reconstruction of current unreconstructed line sections within the "corridor" constructions and their putting into standardised state according to relevant international agreements. Above-mentioned bottlenecks in the railway infrastructure operated by SŽDC are therefore eliminated in part only. This concerns especially eliminating speed limitations while passing through the Ústí nad Orlicí junction point and operating limitations for above-mentioned types of locomotives while passing through the Kutná Hora Railway Station. Insufficient capacity of the line section Praha – Česká Třebová is de facto not solved within investment undertakings mentioned above. From all constructions mentioned above, only the planned ETCS L2 construction could contribute to a partial capacity increase of this section but we can assume by no means that insufficient capacity problems could be solved with this system's construction.

A – ÖBB-I

border CZ/A – Süssenbrunn

- construction deals with increasing capacity of this section including speed increase

Electrification Wiener Neustadt – Loipersbach-Schattendorf – border A/H

- construction deals with electrification of the borderland section Wiener Neustadt – Loipersbach-Schattendorf – Hungary state border (2025+)

Electrification of the line Gänserndorf – Marchegg – border A/SK

- electrification of this border crossing between ŽSR and ÖBB-I (postponed)

Modernisation of safety installations

- with use of investments package, ETCS L2 and GSM-R (ETCS L1 reconstruction onto ETCS L2 on the section Wien – Nickelsdorf – Hungary state border) will be built / finished

Within investments planned by ÖBB-I a bottleneck will be eliminated by a still non-electrified section Wiener Neustadt – Loipersbach-Schattendorf – border A/H. The term of this construction's realisation is still not known however.

SK – ŽSR

Reconstruction of junction point Bratislava

- the construction will deal with eliminating speed drops in the Bratislava Main Railway Station district.
- replacing track circuits with a 25 Hz frequency by axle counting installations, this adaptation will enable operation of ÖBB TAURUS locomotives in the junction point

Electrification of the line Devínská Nová Ves – Marchegg

- electrification of this border crossing between ŽSR and ÖBB-I is being prepared in cooperation with ÖBB-I

Reconstruction of safety installations

- GSM-R and ETCS L2 will be built within reconstruction of safety installations on ŽSR lines incorporated into RFC 7

Within planned investments on RFC 7 lines, ŽSR deals mostly with building new safety equipment Partial construction works in the Bratislava junction should eliminate limiting infrastructure elements causing speed drops while passing through Bratislava Main Railway Station as well as operation limitations for TAURUS locomotives.

H – MÁV, GYSEV

Biatorbágy – Tata; Szolnok – Szajol; Gyoma - Mezöberény

- track reconstruction in sections mentioned above with speed increase up to 60 km/h

Murony – Békéscsaba – Lököshaza – border H/RO

- construction of second track, increasing line section capacity and speed up to 160 km/h

Györ – Csorna; Fertöszentmiklós – Sopron (GySEV)

- construction of second track, increasing line section capacity and speed up to 160 km/h

Increasing allowed axle load on the section Gyoma - Lököshaza

- the construction's objective is increasing allowed axle load from 21.0 tonnes to 22,5 tonnes

Reconstruction of safety installations

- ETCS L2 will be built on RFC 7 lines equipped with a national control-command EVM 120 system within the construction; on lines already equipped with ETCS L1 these systems will be adopted to ETCS L2
- **GSM-R system is under preparation covered all of the sections**

Current MÁV and GySEV investment plans deal mostly with eliminating above-mentioned limiting infrastructure elements by building a second track on the section Murony – Romania state border and electrification of the borderland section Austria state border - Sopron. Limitation of maximum axle load allowed on the section Slovakia state border - Hegyeshalom still remains.

RO – CFR

H/RO – Curtici, Arad – Timisoara, Orsova - Filiasi

- construction of second track on above-mentioned sections where the Feasibility studies justify this solution, increasing the section's capacity and speed up to 160 km/h for passenger trains

Electrification of the line Craiova – Calafat

- the construction deals with electrification of the line section in direction to Bulgaria state border including its reconstruction and speed increase up to160 km/h for passenger trains

Calafat – border RO/BG

- a totally new electrified line 3.6 km long for a speed of 160 km/h will put in operation in 2013

Electrification Videle – Giurgiu – border RO/BG within the modernisation of the Corridor IX

Electrification Baciu Triaj – Ciucea – Oradea – Episcopia Bihor – border RO/H

Poieni – Oradea

- a second track will be completed to current single-track sections within construction adaptations

RFC 7 Infrastructure Modernization

- reconstruction of water channels, bridges, tunnels and conduct line will be carried out within investment undertakings, adaptations for speed increase up to 160 km/h for the passengers trains and 120 km/h for the freight trains will be made, local limitations of allowed axle load will be eliminated (22,5 t/axle will be implemented uniformly) and GSM-R and ETCS L2 will be built

CFR investment undertakings deal mostly with modernisation and reconstruction of current unsatisfactory infrastructure and its putting into standardised state according to relevant international agreements. It also deals with eliminating limiting elements consisting in single-track sections border H/RO – Curtici, Arad – Timisoara and Orsova – Filiasi where justified and electrification of the borderland section Videle – Giurgiu – border RO/BG and Craiova – Calafat including construction of a new cross-border section Calafat/CFR – Vidin/NRIC (not included in NRIC investments plan however!). Moreover CFR assumes finishing electrification of the line Cluj-Napoca – Episcopia Bihor – border RO/H, however MÁV does not take account of electrification on this border crossing, any more than electrification of the borderland section Ruse – border RO/BG on the NRIC side which should be connected however to above-mentioned electrification Videle – Giurgiu – border RO/BG on the Romanian side.

BG – NRIC

Modernization of the railway line Vidin-Sofia

- The investment project envisages: modernization of the infrastructure, superstructure, culverts, bridges, contact line, power supply, civil engineering, etc. introducing ERTMS / ETCS level 1, CTC (centralised traffic control), GSM-R, environment measures (noise barriers, etc.), the maximum operational speed 160 km/h for passenger trains and 120 km\h for freight.
- Stage I of project preparation is finished. Results – the feasibility study, financial and economic analysis, cost-benefit analyses and preliminary design, EIA.
- Stage II of project preparation is currently under way. Results expected - Elaboration of detailed spatial plans and Technical design, Assessment for compliance with the essential requirements towards constructions, Assessment for compliance with the interoperability requirements, Implementation of an archeological investigations.

Modernization of Sofia-Pernik-Radomir Railway Line

- The investment project envisages: modernization of the infrastructure, superstructure, culverts, bridges, contact line, power supply, civil engineering, etc. introducing ERTMS / ETCS level 1, CTC (centralised traffic control), GSM-R, the maximum operational speed 160 km/h for passenger trains and 120 km\h for freight
- Stage I of project preparation is finished. Results – feasibility study, financial and economic analysis, cost-benefit analyses and preliminary design
- Stage II of project preparation is currently under way. Results expected – Elaboration of detailed spatial plans and Technical design, Assessment for compliance with the interoperability requirements, Assessment for compliance with the essential requirements towards constructions, Implementation of an archeological investigations

Modernization of the railway line Radomir – Kulata

Stage I of project preparation is currently under way. Results expected – feasibility study, financial and economic analysis, cost-benefit analyses and preliminary design for the modernization of the section, EIA, geological survey, archeological investigations.

GR – OSE

Electrification and Upgrade of line Border GR/BG – Promahonas – Strimonas – Thessaloniki

- constructions will deal with the upgrade of certain sections and the complete electrification of the line Thessaloniki – Bulgaria state border. Planed speed up to 160 km/h (100 for freight trains) on the section Strimonas – Thessaloniki and up to100 km/h (80 for freight trains) on the section Strimonas – border BG/GR.

Construction of the line Domokos – Lianokladi – Tithorea

- The ongoing project involves the construction of a new double-track High Speed Railway Line with electrification , ETCS level 1 and GSMR, for speeds of 160 – 200 km/h, in a totally new path, replacing the mountainous part of the existing single line of length 122 km with a length of 106 km. Planned max speed for freight trains, over 100 km/h

Electrification and Upgrade of line Inoi – SKA

- The railway line needs to be upgraded. Only electrification system has been installed. The upgrading works planned to be completed by 2017. The ERTMS system planned to be installed by 2015
- The planned project involves the complete renovation of the double railway line, other than those already renovated stations. Also includes the enlargement of some structures in specific parts of the line, reconstruction or repair of problematic embankments and slopes and extensive work in the area of Agios Stefanos (refurbishement of 3 tunnels in order to allow the circulation of freight wagons of enlarged gauge), construction of passing loops etc, in order to increase line capacity. Planned max speed for freight trains 100 km/h.

Construction of the line Thriassio – Ikonio (Pireaus Port)

- The new railway line equipped with signalling and telecommunications systems has been completed. The remaining construction deals with building GSM-R. Max speed for freight trains 90 km/h

Modernisation of safety installations

- the construction deals with building GSM-R and ETCS L1

Electrification and Upgrade of line Larissa – Volos

- Planned upgrade, including Electrification of the line, for max speed of freight trains up to100 km/h. Expected year of implementation 2015

Thriassio Complex (Marshalling yard and freight Station)

- The Operational Phase A of Thriassio Pedio has been completed. The Operational Phase B which mainly includes : the trackworks for the remaining railway lines inside the Complex, the installation of signalling, telecommanding and electrification systems on all tracks, the procurement of gantry cranes and mechanical equipment and the construction of building projects required to carry out the operations of the Complex is planned to be completed by 2015.

Within investments into railway infrastructure, OSE plans to modernise the limiting section border BG/GR – Thessaloniki including electrification, construction of a totally new line on the limiting section Domokos – Tithorea and electrification including speed increase on the limiting section Tithorea – Inoi – SKA.

6. Deployment Plan of ERTMS

The RFC 7, defined in accordance with the EU Regulation 913/2010, is based on the former ETCS Corridor E that was defined by the TSI CCS CR (2009/561/ES) and enlarged by the south branch via Bulgaria to Greece.

In the establishing process of the RFC 7 was agreed that the ETCS Corridor E project structures will be included in the organization structure of the RFC 7. In this process the ETCS Corridor E Management Committee was transformed to the ERTMS Deployment WG of the RFC 7 organization structure and the new companies that represent the south branch of the RFC 7 were joined into the WG.

The ERTMS Deployment WG

- is a supporting instrument for the Governance structure of the Rail Freight Corridor, it prepares data and documents for making decisions and realizes these decisions
- the basic task is to implement the ETCS project plan and to coordinate all other activities in this domain so as to improve the quality of the RFC
- is in charge of creating the organizational, technical and operational conditions so that ETCS on the RFC can be entirely operational on the whole stretch in time and for this reason it has to set up Expert teams and ad hog groups if necessary
- ensures that the RUs are involved in the project and their requirements are considered in the implementation plans

Statute of the ERTMS Deployment WG

The ERTMS Deployment WG provides for the RFC Governance structure the organization of following activities in the area of the ERTMS deployment on the RFC 7 lines:

- monitoring of the preparation and the realization of the investment plans of involved companies through an Annual Status Report
- exchange of the information among the involved IM's and RU's in the ERTMS deployment domain for the ensuring of the ERTMS deployment coordination on the corridor level
- establishing the expert teams for technical tasks and operational rules tasks and setting up ad hoc groups during the life cycle of the project – if necessary
- the negotiation on technical and operational rules tasks in frame of the RFC by expert teams (ad hoc groups) on the corridor level and on the bilateral level for the specific cross border sections
- the contact to the ERTMS Users Group (EUG) for the negotiation of selected tasks for the cross corridor coordination based on MoU signed between the EUG and the ETCS Corridor E Management Committee in 2008

Activities and coordination issues of the WG

- Since the beginning of the ETCS Corridor E project more bilateral technical consultations have taken place between SZDC and ZSSK Cargo, MÁV, CFR, ZSR
- 2010 - creation of “Technical Requirements for Technical Requirements for Development of ERTMS/ETCS L2 on the Czech part of Corridor E” (TR)
- 2011 - discussion of the TR with all ETCS Corridor E members and EUG, the consolidated version is put at the disposal of all corridor members
- The representatives of the ERTMS Deployment WG participated in the meeting of the Traffic Management WG held in Prague on 28th August 2012. The main discussed task was the necessity for close cooperation and good communication between both WG
- On 16th and 17th October 2012 there was a common meeting of the Czech representatives of the ERTMS Deployment WG and the ERA ERTMS Operational Feedback WP in Prague. The main discussed task was the possible harmonisation of the ETCS Operational rules and information on technical solutions used in the Czech Republic
- On 23rd November 2012 a bilateral meeting was organized between the ÖBB and the SŽDC and their ETCS suppliers so as to start the cooperation for the technical solution of the interconnection of both ETCS L2 systems in the cross border section CZ – AT

Implementation of the ETCS on the RFC 7 line sections

CZ - SŽDC

The ETCS L2 trackside v. 2.3.0d on the Czech corridor south branch from the state border SK/AT – Břeclav – Česká Třebová – Kolín (277 km) is under construction. The completion of this section is set for the end of 2014.

The ETCS L2 trackside v. 2.3.0d on the Czech corridor north branch from the state border DE – Dolní Žleb – Děčín – Praha Libeň – Kolín (215 km): the preparatory documentation is being elaborated. The realization of this section depends on finishing modernization and optimisation works on this section (see chapter 5 of Investment plan). The realization is expected 2014 – 2017.

AT – ÖBB

The ETCS L2 trackside v. 2.3.0d on the Austrian corridor part from the state border CZ (Břeclav) – Vienna (78 km) is under construction. The completion of this section is set for the end of 2013.

The ETCS L1 trackside v. 2.2.2 on the Austrian corridor part from Vienna - Border HU (Hegyeshalom) (68 km) is in operation. An upgrade of system version or level is planned for the future (after 2015).

SK – ŽSR

The main path of the Slovak corridor part in the sections border CZ (Breclav) - Kuty - Devinska N. Ves (58 km) and Devinska N. Ves - Junction Bratislava Rusovce – (HU Rajka) (63 km) is prepared to be equipped by ETCS L2 v. 2.3.0d. The preparatory documentation for these projects is under elaboration. The realization is expected in 2015 – 2016.

HU – MÁV

The section state border AT - Hegyeshalom – Budapešť (198 km) is already equipped by ETCS L1 v. 2.2.2 and in operation. An upgrade to ETCS L2 is planned after 2015.

The section Budapest - Szajol - Lőkösháza – state border RO (Curtici) (225 km) is prepared to be equipped by ETCS L2 v. 2.3.0d by 2015, the tender process is in preparation.

Budapest (Bp.-Kelenföld - Bp. Ferencváros) – the intention is to equip this part of the junction Budapest by ETCS L2 v. 2.3.0d by 2014, the tender process is in preparation.

RO – CFR

In the section Campina – Bucharest (92 km) ETCS L1 v. 2.3.0d is in operation.

The sections Predeal – Câmpina (53 km) and Bucharest – Constanta (225 km) are under construction. The ETCS L1 v. 2.3.0d will come into operation by 2013.

The section Lököshaza – Predeal (510 km) will be equipped by ETCS L2 v. 2.3.0d step by step – the start in 2015. The whole section will come into operation by 2020.

BG – NIRC

On the section Plovdiv – Dimitrovgrad the ETCS L1 v. 2.3.0d is already installed and tested. ETCS L1 v. 2.3.0d is under construction also on the section Dimitrovgrad – Svilengrad – Turkish/Greek borders (83 km). The commercial operation will start together on the whole line Plovdiv – Svilengrad – Turkish/Greek border in 2014.

The ETCS L1 v. 2.3.0d is under construction on the sections Septemvri – Plovdiv (53 km). The operation will start by 2015.

GR – OSE

ETCS L1 v. 2.3.0d is under construction on the section Thriasio – Ikonio (20 km), the commercial operation will start in 2014.

ETCS L1 v. 2.3.0d is under construction also on the section SKA - Promachonas (541 km), the commercial operation will start in 2015.

This overview shows that the migration process to the ETCS trackside on the main path of the RFC 7 lines has started. There is a very good chance to operate under ETCS supervision on more cross-border sections between neighbour member states after 2015.

The aim is to bring the ETCS deployment in a routine process for decreasing development works and on side testing by the exchange of experiences and the reuse of proved solutions. Then this can accelerate the deployment process and decrease the investment costs.

Implementation of the ETCS on-board

The situation in the equipping of vehicles by ETCS on-board units is shown in the table 6. 2 of Investment plan)

There is a very well managed Austrian project for equipping about 200 locos that will be completed in this year. This project gained the co-financing from the special budget of TEN-T fund for acceleration of ETCS deployment.

The equipping of the vehicles by ETCS is for RUs more difficult from the financial view. This process will be very slow in the future without the possibility of co-financing the vehicle equipping for RUs.

The Annual Status Report of the ETCS deployment brings the whole overview of the ETCS on the RFC 7- see tables 6.1, 6.2 and 6.3 of the Investment plan.

6.1 Table: ERTMS Deployment - Annual Status Report Trackside (2013)

ERTMS Annual Status Report 2013 : Trackside											
Member State	Line section	Length (km)	Tracks	Existing CCS	ETCS level			Realization		Status	Annex Number
					1	2	3	Start	End		
DE	Dresden Hbf-Schöna Grenze-(CZ)	51	2	PZB				-	2020	Out of time scope	-
CZ	(D)-Dolní Žleb-Děčín hl.n.-Praha Libeň-Kolín	201	2	LS				2014	2017	Under preparation	TS-CZ-1
CZ	Kolín-Breclav-Border AT/SK	277	2	LS				2012	2014	Under realization	TS-CZ-2
CZ	Brno-H.Brod-Kolín-Lysá n.L.-Ústí n. L. Střekov-Děčín-(DE)	355	2	LS				-	2020	Out of time scope	-
AT	(CZ Breclav) - Vienna	78	2	PZB				2011	2014	Under realization	TS-AT-1
AT	Vienna - Border HU (Hegyeshalom)	68	2	PZB				-	-	In operation	-
SK	Border CZ (Breclav) - Kuty - Devinska N. Ves	58	2	LS				2016	2020	Under preparation	TS-SK-1
SK	Devinska N. Ves - Junction Bratislava Rusovce – (HU Rajka)	63	2	LS partly				2016	2020	Under preparation	TS-SK-2
SK	Bratislava - Nove Zamky - Sturovo – (HU Szob)	143	2	LS partly				2018	2021	Out of time scope	-
SK	Nove Zamky - Komárno – (HU)	33	1	Without				2018	2021	Out of time scope	-
HU	(AT) - Hegyeshalom – Budapest upgrade to L2	198	2	EVM				-	-	In operation	-
								-	after 2018	Out of time scope	-
HU	(SK) - Szob - Budapest	63	2	EVM				-	2020	Out of time scope	-
HU	Budapest - Szajol - Lőkösháza - (RO Curtici)	225	2	EVM				2013	2015/ 2016	Tender under evaluation	TS-HU-1
HU	Budapest (Kelenföld - Ferencváros)	8	2	EVM				2013	2015	Tender under	TS-HU-2

										evaluation	
HU	Border SK - Komárom	3	1	Without				-	2020	Out of time scope	-
HU	Border SK - Hegyeshalom (GYSEV)										
RO	Lököshaza - Predeal	510	2	INDUSI				2012	2020	Under construction	TS-RO-1
RO	Predeal - Câmpina	53	2	INDUSI				2010	2013	Under construction	TS-RO-2
RO	Campina - Bucharest	92	2	INDUSI				-	-	In operation	-
RO	Bucharest - Constanta	225	2	INDUSI				2010	2013	Under construction	TS-RO-3
RO	Curtici - Craiova - Bucharest	607	2	INDUSI				2015	2020	Out of time scope	-
BG	Vidin-Medkovets-Ruska Byala (Mezdra)	182	1/2	Without				2015	2020	Out of time scope	-
BG	Mezdra - Sofia	85	2	Without				-	after 2020	Out of time scope	-
BG	Sofia – Pernik - Radomir	48+48	1/2	Without				2015	2020	Out of time scope	-
BG	Radomir – Kulata - GR	161	2	Without				after	2020	Out of time scope	-
BG	Sofia - Septemvri	103	2	EBICAB 700				2015	2020	Out of time scope	-
BG	Septemvri - Plovdiv	53	2	EBICAB 700				2012	2015	Under realization	TS-BG-1
BG	Plovdiv - Dimitrovgrad	78	1/2	Without				2007	2011	Installed and tested	TS-BG-2
BG	Dimitrovgrad – Svilengrad – Turkish/Greek borders	83	1	Without				2012	2014	Under realization	TS-BG-3
GR	SKA - Promachonas	541	2	Without				2007	2015	Under realization	TS-GR-1
GR	Thriasio – Ikonio	20	1	Without				2007	2013	Under realization	TS-GR-2

6.2 ERTMS Deployment - Annual Status Report GSM-R Trackside (2013)

ERTMS Annual Status Report GSM-R 2013 : Trackside										
Member State	Line section	Length (km)	Tracks	Existing radio system	GSM-R		Realization		Status	Note
					Voice	Data	Start	End		
DE	Dresden Hbf-Schöna Grenze-(CZ)	51	2	GSM-R						
CZ	(D)-Dolní Žleb-Děčín hl.n.-Praha Libeň-Kolín	201	2	GSM-R					In operation	
CZ	Kolín-Breclav-Border AT/SK	277	2	GSM-R					In operation	
CZ	Brno-H.Brod-Kolín	195	2	TRS			2014	2015	Under preparation	
CZ	Kolín - Lysá n.L.-Ústí n. L. Střekov-Děčín	160	2	150 Mhz					In operation	
AT	(CZ Breclav) - Vienna	78	2	GSM-R					In operation	
AT	Vienna - Border HU (Hegyeshalom)	68	2	GSM-R					In operation	
SK	Border CZ (Breclav) - Kuty - Devinska N. Ves	58	2							
SK	Devinska N. Ves - Junction Bratislava Rusovce – (HU Rajka)	63	2						In operation	
SK	Bratislava - Nove Zamky - Sturovo – (HU Szob)	143	2						In operation	
SK	Nove Zamky - Komárno – (HU)	33	1							
HU	(AT) - Hegyeshalom – Budapešť	198	2							
HU	(SK) - Szob - Budapest	63	2							
HU	Budapest - Szajol - Lőkösháza - (RO Curtici)	225	2							

HU	Budapest (Bp.-Kelenföld - Bp. Ferencváros)	8	2							
HU	Border SK - Komárom	3	1							
RO	Lököshaza - Predeal	510	2							
RO	Predeal - Câmpina	53	2							
RO	Campina - Bucharest	92	2							
RO	Bucharest - Constanta	225	2							
RO	Curtici - Craiova - Bucharest	607	2							
BG	Vidin-Medkovets-Ruska Byala (Mezdra)	182	1/2							
BG	Mezdra - Sofia	85	2							
BG	Sofia – Pernik - Radomir	48+48	1/2							
BG	Radomir – Kulata - GR	161	2							
BG	Sofia - Septemvri	103	2							
BG	Septemvri - Plovdiv	53	2							
BG	Plovdiv - Dimitrovgrad	78	1/2							
BG	Dimitrovgrad – Svilengrad – Turkish/Greek borders	83	1							
GR	SKA - Promachonas	541	2				2006	2014	Under preparation	
GR	Thriasio – Ikonio	20	1				2006	2014	Under preparation	

6.3 Table: ERTMS Deployment - Annual Status Report On-Board (2013)

ERTMS Annual Status Report 2013 : On-Board																			
Member State	Company	Series	Number	Existing CCS	Traction systems			Realization		Operation in:								Status	Annex Number
					25 kV 50 Hz	15 kV 16,7Hz	3 kV DC	Start	End	D	CZ	A	SK	HU	RO	BG	GR		
CZ	CD	380	20	MIREL, PZB, LZB				2018	2020									Planned	OB-CZ-1
CZ	CD	980	7	MIREL, PZB, LZB				2018	2020									Planed	OB-CZ-2
AT	ÖBB	1116	176	PZB, LZB				2009	2013									In operation	OB-AT-1
AT	ÖBB	1216	17	PZB, LZB				2010	2014									Under realization	OB-AT-2
SK	ZSSKC	38X*	1	MIREL				2015	2016									Planned prototype	OB-SK-1
SK	ZSSKC	38X*	1	MIREL				2015	2016									Planned	OB-SK-2
HU	MÁV	470	10	EVM,PZB				2011	2014									Under realization	OB-HU-1
HU	MÁV	480	25	EVM,PZB				2011	2015									Under realization	OB-HU-2
RO	CFR MARFA	-	103	INDUSI				-	2020									Out of time scope	Out of time scope
BG	BDZ	-	94	ETCS L1 V.1.2.0				-	2020**									In operation	Out of time scope
GR	OSE	460	6	--				2008	2010									In operation	OB-GR-1
GR	OSE	120	29	--				2007	2015									Under realization	OB-GR-2

GR	OSE	220	33	--				2007	2015									Under realization	OB-GR-3
GR	OSE	460	14	--				2007	2015									Under realization	OB-GR-4
GR	OSE	520	8	--				2007	2015									Under realization	OB-GR-5
GR	OSE	560	16	--				2007	2015									Under realization	OB-GR-6
GR	OSE	621	14	--				2007	2015									Under realization	OB-GR-7

traction system = yes

operation = yes

* New vehicle

** Upgrade planning

traction system = no

operation = no

7. Financial sources available for development

Regarding to the large number of the Investment plan items with the critical effect from the competitiveness viewpoint and regarding to the lack of national financial sources there is a strong interest of each Infrastructure Manager involved in the Orient Corridor to utilize also all other available financial sources - especially financial contributions of the European Union, including the Cohesion fund, the European Regional Development Fund (ERDF), the TEN-T programmes, the Connecting Europe Facility (CEF) etc. More detailed list of estimated costs and financial sources is introduced at the Annex no. 1 to the Investment Plan “Financial sources”.

Total estimated costs for the RFC 7 are approximately € 22 000 Mio. at present (but partly obviously unknown).

8. Suggestions on how to proceed

Regarding to the common aim to make the corridor fully operational within the term defined by the Regulation 913/2010/EU and to ensure its good-quality functionality and competitiveness it is necessary to eliminate all the bottlenecks with the critical effect as described at the chapters 2 and 3 as soon as possible, to implement the Investment plan specified at the list of developments as described at the chapters 4 and 5 and also to implement the Deployment Plan of ERTMS as described at the chapter 6. Therefore the management board shall periodically review this Investment plan each year with the focus on the Investment plan implementation progress.

ANNEX

1. Financial sources

Rail Freight Corridor 7 - Orient Corridor: Investment Plan - Annex: Financial sources

Country	Railway section	Content of development	Start date of works	End date of works	Actual status	Estimated cost (Million EUR)	Financial sources
		e.g. track reconstruction / signalling improvement / ERTMS installation / structures / etc.	Every ONGOING or PLANNED development project should be listed		preparatory (e.g. feasibility) study underway / designing underway / costruction underway		e.g. state (national) funding / EU funding / company own sources / PPP / unknown / etc.
CZ	Praha-Bubeneč - Praha-Holešovice	Reconstruction, increase speed limit	2013	2015	under construction	52	EU and national
CZ	Praha-Běchovice - Úvaly	Reconstruction, increase speed limit	2013	2015	under construction from 07/2013	88	EU and national
CZ	Pardubice	Reconstruction of station, increase speed limit	2018	2020	prepared	80	EU and national
CZ	Choceň -Ústí nad Orlicí	Modernisatin, shortening, increase speed limit	currently not fixed		prepared	120	EU and national
CZ	Ústí nad Orlicí	Reconstruction of station, increase speed limit	2012	2014	under construction	68	EU and national
CZ	Česká Třebová	Reconstruction of station, increase speed limit	2018	2020	prepared	80	EU and national
CZ	Brno-Židenice - Modřice	Modernisation of railway junction Brno	currently not fixed		prepared	800	EU and national
CZ	Břeclav	modernisation of part of statin Břeclav	2012	2014	under construction	48	EU and national
CZ	Kolín - Břeclav	Implementation of ETCS Level 2	2012	2014	under construction	40	EU and national
CZ	Děčín - Praha - Kolín	Implementation of ETCS Level 2	2014	2017	prepared	25	EU and national
CZ	Kolín - Brno	alternativ routing via Havlíčkův Brod, Implementation of GSM-R	2012	2014	under construction	30	EU and national
SK	Bratislava hl.st - Petržalka	Project ERTMS, uprade signaling system, if financial means ERTMS on the section Kúty - Bratislava. Project TEN-T 17, 2.track, Bahl.st. - BA NM (2020 - 2023)	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T, for a project documentation of ERTMS on the section Kúty - Bratislava. Project TEN-T 17, 2.track, Bahl.st. - BA NM (2020 - 2023)	72,92	EU and national
SK	Petržalka - Rusovce/st.b/HU	project ERTMS, upgrade signaling system, if financial means	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T, for a project documentation of ERTMS on the section Kúty - Bratislava.		EU and national
SK	Petržalka - st.b. A, Kitsee	project ERTMS, upgrade signaling system, if financial means	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T, for a project documentation of ERTMS on the section Kúty - Bratislava.		EU and national
SK	Devínska N.Ves - st. b. A, Marchegg	projects ERTMS, electrification and new second track and bridge, Single project: project of electrification single track (till 2018); and other single project: new second track and bridge (after 2019-2021),	2016	2021	Single project: project of electrification single track (till 2018) projekt dokumentation; and other single project: new second track and bridge (after 2019-2021),		EU and national
SK	Devínska N.Ves - Bratislava hl. st.	project ETCS, GSM-R, upgrade signaling system (if financial means)	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T, for a project documentation of ERTMS on the section Kúty - Bratislava.		EU and national
SK	Kúty - st. b. CZ, Lanžhot	project ETCS, GSM-R, upgrade signaling system (if financial means)	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T, for a project documentation of ERTMS on the section Kúty - Bratislava.	43,35	EU and national
SK	Kúty - Devínska N.Ves	project ETCS, GSM-R, upgrade signaling system (if financial means)	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T, for a project documentation of ERTMS on the section Kúty - Bratislava.		EU and national
SK	Bratislava hl. st. - Galanta	project ETCS, GSM-R, upgrade signaling system (if financial means)	2019	2021	ERTMS study	57,6	EU and national
SK	Galanta - Nové Zámky	project ETCS, GSM-R, upgrade signaling system (if financial means)	2019	2021	ERTMS study		EU and national
SK	Nové Zámky - Štúrovo	project ETCS, GSM-R, upgrade signaling system (if financial means)	2019	2021	ERTMS study	46,25	EU and national
SK	Štúrovo - st. b. /HU, Szob	project ETCS, GSM-R, upgrade signaling system (if financial means)	2019	2021	ERTMS study		EU and national
SK	Nové Zámky - Komárno	project ETCS, GSM-R, upgrade signaling system (if financial means)	2020	2020	ERTMS study	29,65	EU and national
SK	Komárno - st. b./HU, Komárom	project ETCS, GSM-R, upgrade signaling system (if financial means)	2020	2020	ERTMS study		EU and national
A	Břeclav - Wien	Implementation ETCS	2012	2013	construction underway	approx. 20	EU + national
A	Břeclav - Wien	Moderisation (increase maximum speed and capazity)	not fixed	not fixed	feasibility study	approx. 400 - 500	not fixed
A	Wien - Wr. Neustadt	Doubletrack Wien-Blumental - Müchendorf	2013	2020	designing underway	approx. 400	national
A	Wien - Wr. Neustadt	Doubletrack Münchendorf - Wampersdorf	2016	2023	designing underway	approx. 235	national
A	Wien - Wr. Neustadt	Terminal Inzersdorf (Cargo Center Vienna)	2012	2017	construction underway	approx. 300	EU + national
A	Wr. Neustadt - Sopron	Electrification existing line	not fixed	not fixed	feasibility study	approx. 25 - 35	not fixed
H	Rajka - Hegyeshalom	ETCS installation	2015	2015	preparation (feasibility study in progress)	3,3	KöZOP (Transport Operative Program – on behalf of the National Development Agency)
H	Györ - Sopron border	Paralellisation (constructing a second track) + raise speed limit to 160 km/h	2017	2020	preparation (feasibility study in progress)	Only the preparation phase including feasibilty study: approx. 700 Mill €, total budget: unknown	EU + national
H	Budapest - Hegyeshalom border	Renewal of south railway bridge (Budapest)	2013	2013	Designing	17,4	state funding
H	Budapest - Hegyeshalom border	Renewal of Biatorbágy - Tata section	2015	2018	Designing	370	EU funding
H	Budapest - Hegyeshalom border	Upgriding of ETCS L1 to ETCS L2	2017	2020	Designing	35	EU funding
H	Budapest - Szob border	Renewal of Vác station	2013	2015	Designing	n.a.	EU funding
H	Budapest - Szob border	Rehabilitation of Budapest-Szob section	2019	2020	Designing	n.a.	EU funding
H	Budapest - Lököshza border	Szolnok - Szajol section track reconstruction	2014	2015	Designing	n.a.	EU funding
H	Budapest - Lököshza border	Szajol - Püspöladany section track reconstruction and signalling improvement	2013	2016	Designing	n.a.	EU funding
H	Budapest - Lököshza border	Szajol - Debrecen ETCS L2	2016	2017	Designing	n.a.	EU funding
H	Budapest - Lököshza border	Gyoma - Bekescsaba section track reconstruction and signalling improvement	2013	2015	Designing	n.a.	EU funding
H	Budapest - Lököshza border	Building of 2nd track between Bekecsaba - Lököshaza border	2014	2018	Designing	200	EU funding

RO	Predeal-Brașov	track modernization, signalling improvement, ERTMS	2016	2020	Revised Feasibility Study (FS), launching of the Environment Agreement	200	proposal SOP T 2014-2020 + State Budget (SB)
RO	Brașov-Sighișoara	track modernization, signalling improvement, ERTMS	2016	2021	FS and Technical Design (TD) elaborated	1 740	proposal SOP T 2014-2020 + State Budget
RO	Coșlariu - Sighișoara	track modernization, signalling improvement, ERTMS	2012	2016	ongoing works; 6,18% realised	944	SOP T 2007-2013+SB
RO	Simeria-Coșlariu	track modernization, signalling improvement, ERTMS	2012	2016	Sectiion Vintu de Jos -Coșlariu:ongoing works, 7,62% realised; Section Simeria-Vințu de Jos-in tender procedure	663	SOP T 2007-2013+SB
RO	km 614-Gurasada and Gurasada-Simeria	track modernization, signalling improvement, ERTMS	2014	2020	FS and Technical Design (TD) elaborated	1 970	proposal SOP T 2014-2020 + SB
RO	Border-Curtici-Arad--km 614	track modernization, track doubling where necessary, signalling improvement, ERTMS	2012	2014	ongoing works; 21% realised	283	SOP T 2007-2013+SB
RO	Caransebes-Timisoara-Arad	track modernization, track doubling where necessary, signalling improvement, ERTMS		2020	in elaboration the tender documentation for the FS supply	670	TEN-T financing for the FS, unknown for works
RO	Caransebes-Drobeta Turnu Severin-Craiova,	track modernization, track doubling where necessary, signalling improvement, ERTMS		2020	in elaboration the tender documentation for the FS supply	1 620	Proposal SOP T for FS, unknown for works
RO	Craiova-Calafat	track modernization, electrification, signalling improvement, ERTMS		2020	FS revised , the financing request for TD under elaboration	567	unknown
RO	Bucuresti Nord-Jilava-Giurgiu	track modernization, track doubling where necessary,electrification, signalling improvement, ERTMS	2020	2030	Project proposal	276	unknown
RO	Giurgiu-Videle-Bucuresti	track modernization, track doubling where necessary,electrification, signalling improvement, ERTMS,	2020	2030	FS elaborated in 2006	725	unknown
RO	Craiova – Roșiori - Videle	track modernization, signalling improvement, ERTMS	2020	2030	Project proposal	395	unknown
RO	Dej – Apahida-Coslariu	track modernization, track doubling where necessary,electrification, signalling improvement, ERTMS	2020	2030	Project proposal	1 150	unknown
RO	Cluj-Oradea	track modernization, signalling improvement, ERTMS	n.a.	n.a.	Project proposal	544	unknown
BG	**Vidin-Sofia**	Track reconstruction, new structures, signalling and telecommunication systems upgrading, ERTMS, catenary upgrading etc.			Feasibility study - implemented; Preliminary design elaborated; EIA Report elaborated		EU+national
	Sub-sections:						
	Vidin-Medkovetz		2016 (expected)	2021 (expected)		537	
	Medkovetz-Ruska Biala		2016 (expected)	2021 (expected)		735	
	Ruska Biala-Sofia		2021 (expected)	2028 (expected)		1 408	
BG	**Sofia - Radomir**	Track reconstruction, new structures, signalling and telecommunication systems upgrading, ERTMS, catenary upgrading etc.	2015 (expected)	2020 (expected)	Feasibility study - implemented; Preliminary design elaborated	360	EU + national
BG	**Radomir-Kulata**	Track reconstruction, new structures, signalling and telecommunication systems upgrading, ERTMS, catenary upgrading etc.	After 2020		Feasibility study and preliminary design underway	767	EU + national
BG	**Sofia - Plovdiv (alternaive line)**	Track reconstruction, new structures, signalling and telecommunication systems upgrading, ERTMS, catenary upgrading etc.					EU + national
	Sub-sections:						
	Sofia - Septemvri		2016 (expected)	2020 (expected)	Feasibility study - implemented; Preliminary design elaborated; EIA Report ongoing	1 045	
	Septemvri - Plovdiv		December 2012	June 2015	Construction underway	322	
BG	**Plovdiv - Svilengrad -Turkish/Greek borders (alternative line)**	Track reconstruction, new structures, signalling and telecommunication systems upgrading, ERTMS, catenary upgrading etc.					EU+national
	Sub-sections:						
	Plovdiv - Dimtrovgrad		2006	2011	Construction completed	170	
	Dimitrovgrad - Svilengrad - GR border		2012	August 2014	Construction underway	207	
	Svilengrad - TR border		2009	June 2013	Construction underway	36	
GR	Pireaus - Athens RS -3 Gefyres	Infrastructure and superstructure upgrade, signaling and ERTMS installation, electrification, construction of the underground line section Athens RS - 3 Gefyres with 4 lines, R.Station upgrades. the subleveling of the triple rail corridor section of Redi S.S to Athens	2014	2020	under study	487,7	EU + national (for studies) Proposed by OSE for funding from 5th PP 2014 - 2020 (for Works)
GR	3 Gefyres - SKA	New double railway line, bypassing Acharnes Municipality	2016	2019	under study	70	EU + national (for studies) Proposed by OSE for funding from 5th PP 2014 - 2020 (for Works)
GR	SKA - Thriassio	New double railway line with electrification, signalling, ETCS L1	1999	2010	Completed	-	-
GR	Thriassio - Ikonio (Pireaus Port)	New railway line.	2001	2013	Completed	-	-
GR	SKA - Inoi	Upgrade of the existing line and structures, ERTMS installation, Restitution of Electrification	2013	2017	under study	98	EU + national (for studies) Proposed by OSE for funding from 5th PP 2014 - 2020 (for Works)
GR	Inoi - Tithorea	Restitution of Electrification and ERTMS installation	2010	2015	under construction	48,5	EU + national
GR	Tithorea - Lianokladi	New double-track High Speed Railway Line with electrification , ETCS level 1 and GSMR	1997	2015	under construction	184	EU + national
GR	Lianokladi - Domokos	New double-track High Speed Railway Line with electrification , ETCS level 1 and GSMR	2006	2016	under construction	214	EU + national Proposed by OSE for funding from 5th PP 2014 - 2020
GR	Domokos - Thessaloniki	ERTMS installation	2010	2015	under construction	22	EU + national
GR	Thessaloniki - Strimonas - Promachonas (Kulata)	Limited Upgrade of the existing line and electrification	2014	2016	under study	80	Proposed by OSE for funding from 5th PP 2014 - 2020
GR	Larissa - Volos	Upgrade of the existing line and electrification	2013	2015	under study	18	National

Total estimated costs for the RFC 7 are approximately € 22 000 Mio. at present (but partly obviously unknown).

Country	Corridor Section		Line		Length of line (km)	Number of Tracks	Electric Traction (kV/Hz)	Maximum length of train (m)	Track Category		Maximum gradient (‰)		Profile (P/C)	Loading gauge	Maximum speed (km/h)	ERTMS equipment (ETCS, GSM-R)	Services		
	From-To	Category	From	To					Axle load	Load per length unit (t/m)	From to	Back					Intermodal terminal / keeper	Marshalling yard / keeper	Other service facilities / keeper
Czech Republic	Praha - Česká Třebová	main line	Praha-Libeň	Poříčany	33	3	3 kV DC	600	22,5	8	7	7	78/402	GČD	120/140	GSM-R	Praha Uhříněves /Metrans	Praha Libeň / SŽDC	
Czech Republic	Praha - Česká Třebová	main line	Poříčany	Kolín	23	2	3 kV DC	600	22,5	8	4	4	78/402	GČD	160	GSM-R		Kolín seř.n. / SŽDC	
Czech Republic	Praha - Česká Třebová	main line	Kolín	Pardubice	42	2	3 kV DC	600	22,5	8	4	4	78/402	GC	160	GSM-R		Pardubice / SŽDC	
Czech Republic	Praha - Česká Třebová	main line	Pardubice	Česká Třebová	60	2	3 kV DC	600	22,5	8	8	2	78/402	GČD	100/160	GSM-R			
Czech Republic	Česká Třebová - Brno	main line	Česká Třebová os.n.	Svitavy	17	2	3 kV DC	600	22,5	8	7	7	78/402	GC	120/140	GSM-R	Česká Třebová / Metrans	Česká Třebová / SŽDC	
Czech Republic	Česká Třebová - Brno	main line	Svitavy	Brno hl.n.	74	2	25 kV AC / 50 Hz	600	22,5	8	5	0	78/402	GČD	80/120	GSM-R			Brno-wagon wash/TSS a.s.
Czech Republic	Brno - Lanžhot	main line	Brno hl.n.	Břeclav	60	2	25 kV AC / 50 Hz	700	22,5	8	3	2	78/402	GČD	120/160	GSM-R	Brno / Intrans	Brno Maloměřice / SŽDC	
Czech Republic	Brno - Lanžhot	main line	Břeclav	Lanžhot st.hr.	12	2	25 kV AC / 50 Hz	700	22,5	7,2	5	5	78/402	GC	160	GSM-R		Břeclav přednádraží / SŽDC	
Czech Republic	Kolin - Havlíčkův Brod	alternative line	Kolín	Kutná Hora	11	2	3 kV DC	700	22,5	8	8	1	57/381	GC	120				
Czech Republic	Kolin - Havlíčkův Brod	alternative line	Kutná Hora	Havlíčkův Brod	63	2	25 kV AC / 50 Hz	700	22,5	8	11	10	57/381	GC	120			Havlíčkův Brod / SŽDC	
Czech Republic	Havlíčkův Brod - Brno	alternative line	Havlíčkův Brod	Křižanov	58	2	25 kV AC / 50 Hz	700	22,5	8	9	8	57/381	GC	110				
Czech Republic	Havlíčkův Brod - Brno	alternative line	Křižanov	Brno-Židenice	63	2	25 kV AC / 50 Hz	700	22,5	8	17	13	57/381	GČD	110				
Czech Republic	Děčín - Praha	connecting line	Děčín hl.n.	Lovosice	45	2	3 kV DC	600	22,5	8	1	2	78/402	GC	120/140	GSM-R	CD-DUSS Terminal a.s; Trans-Speed Counsult s.r.o.	Děčín / SŽDC,	
Czech Republic	Děčín - Praha	connecting line	Lovosice	Kralupy nad Vltavou	57	2	3 kV DC	600	22,5	8	2	2	47/360	GČD	100/160	GSM-R		Kralupy nad Vtavou / SŽDC	
Czech Republic	Děčín - Praha	connecting line	Kralupy nad Vltavou	Praha-Holešovice	28	2	3 kV DC	600	22,5	8	5	5	78/402	GČD	100	GSM-R			
Czech Republic	Děčín - Praha	connecting line	Praha-Holešovice	Praha-Libeň	6,1	2	3 kV DC	700	22,5	8	8	6	78/402	GČD		GSM-R	Praha Uhříněves /Metrans	Praha Libeň / SŽDC	
Czech Republic	Děčín - Nymburk - Kolín	connecting line	Děčín východ	Mělník	87	2	3 kV DC	600	22,5	8	41	12	67/391	GB	80/120		Mělník / Star Container		
Czech Republic	Děčín - Nymburk - Kolín	connecting line	Mělník	Nymburk hl.n.	48	2	3 kV DC	600	22,5	8	5	5	78/402	GČD	120			Nymburk / SŽDC	
Czech Republic	Děčín - Nymburk - Kolín	connecting line	Nymburk hl.n.	Kolín	24,7	2	3 kV DC	600	22,5	8	98	17	78/402	GC	120			Kolín seř.n. / SŽDC	
Austria	Břeclav - Wien Zvbf	main line	Břeclav	Gänserndorf	53	2	25 kV AC / 50 Hz ~15 kV / 16,7 Hz	650	22,5	8	28	0	70/400	GC	140	ETCS			
Austria	Břeclav - Wien Zvbf	main line	Gänserndorf	Wien Zvbf	37	2	~15 kV/16,7 Hz	650	22,5	8	11	0	70/400	GC	140	ETCS	Wien Freudenau / Wiencont, Wien Nordwest / ÖBB Infra	Wien Zvbf / ÖBB Infra	Scale at Wien Zvbf, Refueling station in Stadlau
Austria	Wien Zvbf - Hegyeshalom	main line	Wien Zvbf	Hegyeshalom	66	2	~15 kV/16,7 Hz	650	22,5	8	8	0	70/400	GC	140	ETCS	Wien Freudenau / Wiencont, Wien Nordwest / ÖBB Infra	Wien Zvbf / ÖBB Infra	Scale at Wien Zvbf, Refueling station in Stadlau
Austria	Gänserndorf - Devínska Nová Ves	alternative line	Gänserndorf	Marchegg	18	1	Non-electrified	650	22,5	8	0	16	70/400	GC	100	GSM-R			
Austria	Gänserndorf - Devínska Nová Ves	alternative line	Marchegg	Devínska Nová Ves	3,7	1	Non-electrified	700	22,5	8	8	0	70/400	GC	80				
Austria	Parndorf - Bratislava-Petržalka	alternative line	Parndorf	Kittsee	20	1	~15 kV/16,7 Hz	650	22,5	8	0	13	70/400	GC	160	GSM-R			
Austria	Parndorf - Bratislava-Petržalka	alternative line	Kittsee	Bratislava-Petržalka	2,4	1	~15 kV/16,7 Hz	540	22,5	8	0	0	70/400	GC	140	GSM-R			
Austria	Wien Zvbf. - Wiener Neustadt Hbf.	alternative line	Wien Zvbf	Inzersdorf Ort		2	~15 kV/16,7 Hz	650	22,5	8	0	10	70/400	GC	160	GSM-R	Wien Freudenau / Wiencont, Wien Nordwest / ÖBB Infra	Wien Zvbf / ÖBB Infra	Scale at Wien Zvbf, Refueling station in Stadlau
Austria	Wien Zvbf. - Wiener Neustadt Hbf.	alternative line	Inzersdorf Ort	Wiener Neustadt		2	~15 kV/16,7 Hz	650	22,5	8	0	10	70/400	GC	160	GSM-R			
Austria	Wiener Neustadt - Sopron	alternative line	Wiener Neustadt	Sopron	30	1	Non-electrified	650	22,5	8	11	0	70/400	GC	120				
Austria	Wien Zvbf. - Ebenfurth	alternative line	Wien Zvbf	Achau		1	~15 kV/16,7 Hz	650	22,5	8	15	0	70/400	GC	140	ETCS	Wien Freudenau / Wiencont, Wien Nordwest / ÖBB Infra	Wien Zvbf / ÖBB Infra	Scale at Wien Zvbf, Refueling station in Stadlau
Austria	Wien Zvbf. - Ebenfurth	alternative line	Achau	Wampersdorf		2	~15 kV/16,7 Hz	650	22,5	8	6	0	70/400	GC	120	GSM-R			
Austria	Wien Zvbf. - Ebenfurth	alternative line	Wien Zvbf	Gramatneusiedl		2	~15 kV/16,7 Hz	650	22,5	8	6	0	70/400	GC	120	GSM-R			

Country	Corridor Section		Line		Length of line (km)	Number of Tracks	Electric Traction (kV/Hz)	Maximum length of train (m)	Track Category		Maximum gradient (‰)		Profile (P/C)	Loading gauge	Maximum speed (km/h)	ERTMS equipment (ETCS, GSM-R)	Services		
	From-To	Category	From	To					Axle load	Load per length unit (t/m)	From to	Back					Intermodal terminal / keeper	Marshalling yard / keeper	Other service facilities / keeper
Austria	Wien Zvbf. - Ebenfurth	alternative line	Gramatneusiedl	Wampersdorf	14	1	~15 kV/16,7 Hz	650	22,5	8	6	0	70/400	GC	120	GSM-R			
Austria	Wien Zvbf. - Ebenfurth	alternative line	Wampersdorf	Ebenfurth		2	~15 kV/16,7 Hz	650	22,5	8	6	0	70/400	GC	120	GSM-R			
Austria	Ebenfurth - Sopron	alternative line	Ebenfurth	Sopron	33	2-1	~15 kV/16,7 Hz	650	22,5	8	15	0	70/400	GC	120				
Austria	Ebenfurth - Wiener Neustadt	alternative line	Ebenfurth	Wiener Neustadt	13	2	~15 kV/16,7 Hz	650	22,5	8	15	0	70/400	GC	140	ETCS			
Slovakia	Lanzhot - Bratislava	main line	Lanzhot	Kúty	6,9	2	~25 kV/50 Hz	700	22,5	7,2	5	5	70/400	GB	120				
Slovakia	Lanzhot - Bratislava	main line	Kúty	Zohor	38,3	2	~25 kV/50 Hz	700	22,5	7,2	5	5	70/400	GB	140				
Slovakia	Lanzhot - Bratislava	main line	Zohor	Devínska Nová Ves	12,6	2	~25 kV/50 Hz	700	22,5	7,2	7	5	70/400	GB	140			Devínska N.Ves/ ŽSR	Devínska N.Ves/ scale
Slovakia	Lanzhot - Bratislava	main line	Devínska Nová Ves	Bratislava hl.st	12,8	2	~25 kV/50 Hz	700	22,5	8	8	8	70/400	GB	120		Bratislava UNS / Intrans, Bratislava Pálenisko/SPaP	Devínska N.Ves/ ŽSR	Devínska N.Ves/ scale
Slovakia	Bratislava - Szob	main line	Bratislava hl.st	Odb Močiar	9,6	2	~25 kV/50 Hz	700	22,5	8	3	8	70/400	GB	120	Bratislava hl.st. - Sládkovičovo: GSM-R	Sládkovičovo/ Lörinz	Bratislava východné/ ŽSR;	Bratislava východné/ ŽSR;
Slovakia	Bratislava - Szob	main line	Odb Močiar	Galanta	39,1	2	~25 kV/50 Hz	700	22,5	8	3	3	70/400	GB	120				
Slovakia	Bratislava - Szob	main line	Galanta	Palárikovo	32,3	2	~25 kV/50 Hz	700	22,5	8	4	4	70/400	GB	120				
Slovakia	Bratislava - Szob	main line	Palárikovo	Nové Zámky	10	2	~25 kV/50 Hz	700	22,5	8	2	1	70/400	GB	120			Nové Zámky/ ŽSR	Nové Zámky/ ŽSR
Slovakia	Bratislava - Szob	main line	Nové Zámky	Stúrovo	44,2	2	~25 kV/50 Hz	700	22,5	8	3	3	70/400	GB	120/140			Nové Zámky/ ŽSR	Nové Zámky/ ŽSR
Slovakia	Bratislava - Szob	main line	Stúrovo	Szob	13,8	2	~25 kV/50 Hz	700	22,5	8	1	4	70/400	GB	120			Štúrovo/ŽSR	Štúrovo/ŽSR
Slovakia	Nové Zámky - Komárom	main line	Nové Zámky	Komárno zr.st	24,7	1	~25 kV/50 Hz	620	22,5	8	8	4	70/400	GB	100			Komárno zr.st./ ŽSR	
Slovakia	Nové Zámky - Komárom	main line	Komárno zr.st	Komárom	8,7	1	~25 kV/50 Hz	620	22,5	8	5	4	70/400	GB	100			Komárno zr.st./ ŽSR	
Slovakia	Bratislava - Rajka	main line	Bratislava hl.st.	Bratislava-Nové Mesto	5,3	1	~25 kV/50 Hz	690	22,5	8	0	14	70/400	GB	80	GSM-R			
Slovakia	Bratislava - Rajka	main line	Bratislava-Nové Mesto	Bratislava Petržalka	12,4	2	~25 kV/50 Hz	690	22,5	8	8	8	70/400	GB	80	GSM-R			
Slovakia	Bratislava - Rajka	main line	Bratislava Petržalka	Rajka	14,7	1	~25 kV/50 Hz	690	22,5	8	0	3	70/400	GB	80	GSM-R			
Slovakia	Bratislava - Dunajská Streda - Komárno	connecting line	Bratislava-Nové Mesto	Dunajská Streda	38,9	1	Non-electrified	625	20	8	5	5	70/400	GB	80		Dunajská Streda/ Metrans		
Slovakia	Bratislava - Dunajská Streda - Komárno	connecting line	Dunajská Streda	Komárno	53,1	1	Non-electrified	240	22,5	8	4	3	70/400	GB	80		Dunajská Streda/ Metrans		
Slovakia	Kúty - Trnava - Galanta	alternative line	Kúty	Trnava	67,5	1	~25 kV/50 Hz	720	22,5	8	12	12	70/400	GB	80				
Slovakia	Kúty - Trnava - Galanta	alternative line	Trnava	Sered	14,5	1	~25 kV/50 Hz	670	22,5	8	5	5	70/400	GB	80				
Slovakia	Kúty - Trnava - Galanta	alternative line	Leopoldov	Galanta	29,7	1	~25 kV/50 Hz	690	22,5	8	2	2	70/400	GC	100				
Slovakia	Trnava - Bratislava	alternative line	Trnava	Bratislava-Rača	38,9	2	~25 kV/50 Hz	650	22,5	8	6	7	70/400	GC	160	ETCS			
Slovakia	Trnava - Bratislava	alternative line	Bratislava-Rača	Bratislava hl. st.	7,4	2	~25 kV/50 Hz	650	22,5	8	8	2	70/400	GB	100		Bratislava UNS / Intrans, Bratislava Pálenisko/SPaP		
Hungary	Hegyeshalom - Budapest-Ferencváros	main line	Hegyeshalom OH	Hegyeshalom	4,9	2	25 kV/50 Hz	750	21	7,2	4	4	80/410	GA	140	ETCS		Hegyeshalom (MÁV)	RoLa, Hegyeshalom/refuelling
Hungary	Hegyeshalom - Budapest-Ferencváros	main line	Hegyeshalom	Komárom	83,9	2	25 kV/50 Hz	750	21	7,2	5	3	80/410	GA	160	ETCS		Komárom - Rendező (MÁV) Győr - Rendező (MÁV)	RoLa, Győr-Rendező, Komárom-Rendező, Mosonmagyaróvár/scale
Hungary	Hegyeshalom - Budapest-Ferencváros	main line	Komárom	Tata	20,1	2	25 kV/50 Hz	750	21	7,2	8	8	80/410	GA	160	ETCS		Komárom - Rendező (MÁV)	RoLa
Hungary	Hegyeshalom - Budapest-Ferencváros	main line	Tata	Biatorbágy	51,2	2	25 kV/50 Hz	750	21	7,2	8	8	80/410	GA	140	ETCS			RoLa
Hungary	Hegyeshalom - Budapest-Ferencváros	main line	Biatorbágy	Kelenföld	17,3	2	25 kV/50 Hz	750	21	7,2	8	8	80/410	GA	120	ETCS			RoLa
Hungary	Hegyeshalom - Budapest-Ferencváros	main line	Kelenföld	Ferencváros	5,7	2	25 kV/50 Hz	750	21	7,2	8	8	80/410	GA	80	ETCS		Kelenföld (MÁV) Ferencváros (MÁV)	RoLa

Country	Corridor Section		Line		Length of line (km)	Number of Tracks	Electric Traction (kV/Hz)	Maximum length of train (m)	Track Category		Maximum gradient (‰)		Profile (P/C)	Loading gauge	Maximum speed (km/h)	ERTMS equipment (ETCS, GSM-R)	Services		
	From-To	Category	From	To					Axle load	Load per length unit (t/m)	From to	Back					Intermodal terminal / keeper	Marshalling yard / keeper	Other service facilities / keeper
Hungary	Rajka OH - Hegyeshalom	main line	Rajka OH	Hegyeshalom	15,7	1	25 kV/50 Hz	650	21	7,2	4	4	70/400	GA	100				
Hungary	Szob - Ferencváros	main line	Szob OH	Vác	30,5	2	25 kV/50 Hz	750	21	7,2	4	6	70/400	GA	100				
Hungary	Szob - Ferencváros	main line	Vác	Rákospalota-Újpest	25,6	2	25 kV/50 Hz	750	21	7,2	4	6	70/400	GA	120				
Hungary	Szob - Ferencváros	main line	Rákospalota - Újpest	Angyalföld elág.	3,3	1	25 kV/50 Hz	750	21	7,2	7	7	70/400	GA	60				
Hungary	Szob - Ferencváros	main line	Angyalföld elág.	Kőbánya felső	8,9	2	25 kV/50 Hz	750	21	7,2	7	7	70/400	GA	80				
Hungary	Szob - Ferencváros	main line	Kőbánya felső	Ferencváros	4,7	2	25 kV/50 Hz	750	21	7,2	7	7	70/400	GA	60				
Hungary	Ferencváros - Lőkösháza OH	main line	Ferencváros	Kőbánya felső	4,7	2	25 kV/50 Hz	750	21	7,2	7	7	80/410	GA	60				
Hungary	Ferencváros - Lőkösháza OH	main line	Kőbánya felső	Rákos	3,3	2	25 kV/50 Hz	750	21	6,4	7	7	80/410	GA	80				Rákos/scale
Hungary	Ferencváros - Lőkösháza OH	main line	Rákos	Újszász	76,1	2	25 kV/50 Hz	750	21	6,4	6	6	80/410	GA	100				
Hungary	Ferencváros - Lőkösháza OH	main line	Újszász	Szolnok	17,3	2	25 kV/50 Hz	750	21	6,4	4	4	80/410	GA	120			Szolnok/MÁV	
Hungary	Ferencváros - Lőkösháza OH	main line	Szolnok	Szajol	10,3	2	25 kV/50 Hz	750	21	7,2	4	4	80/410	GA	120			Szolnok/MÁV	
Hungary	Ferencváros - Lőkösháza OH	main line	Szajol	Lőkösháza OH	117,1	2-1	25 kV/50 Hz	750	21	6,4	4	2	70/400	GA	120/100				
Hungary	Ferencváros - Soroksár-Terminál	connecting line	Ferencváros	Soroksári út	1,8	2	25 kV/50 Hz	750	22,5	7,2	11	2	80/410	GA	80				Ferencváros/refuelling, Ferencváros-Keleti rendező/scale
Hungary	Ferencváros - Soroksár-Terminál	connecting line	Soroksári út	Soroksár	7,1	1	25 kV/50 Hz	750	22,5	7,2	11	2	80/410	GA	100				Soroksári út-Rendező/scale
Hungary	Ferencváros - Soroksár-Terminál	connecting line	Soroksár	Soroksár-Terminál	3,5	1	25 kV/50 Hz	750	21	7,2	5	5	80/410	GA	40		Soroksár - Terminál (MÁV)		
Hungary	Sopron - Győr	alternative line	Sopron OH	Pinnye	22,5	1	25 kV/50 Hz	600	21	8	7	7	70/400	GA	100			Sopron (GYSEV)	Sopron/refuelling
Hungary	Sopron - Győr	alternative line	Pinnye	Fertőszentmiklós	6,8	1	25 kV/50 Hz	600	22,5	8	7	7	70/400	GA	120				
Hungary	Sopron - Győr	alternative line	Fertőszentmiklós	Petőháza	2,3	1	25 kV/50 Hz	600	21	8	7	7	70/400	GA	100				
Hungary	Sopron - Győr	alternative line	Petőháza	Győr	58,1	1	25 kV/50 Hz	600	21	8	0	1	70/400	GA	120				
Hungary	Ferencváros - Szolnok	alternative line	Ferencváros	Kőbánya-Kispest	5,1	2	25 kV/50 Hz	750	22,5	7,2	8	8	70/400	GA	80				RoLa
Hungary	Ferencváros - Szolnok	alternative line	Kőbánya-Kispest	Vecsés	10,5	2	25 kV/50 Hz	750	22,5	7,2	7	3	70/400	GA	120				RoLa
Hungary	Ferencváros - Szolnok	alternative line	Vecsés	Albertirsa	34	2	25 kV/50 Hz	750	21	7,2	7	3	70/400	GA	120				RoLa
Hungary	Ferencváros - Szolnok	alternative line	Albertirsa	Szolnok	45,1	2	25 kV/50 Hz	750	22,5	7,2	2	3	70/400	GA	120			Szolnok/MÁV	RoLa, Cegléd/scale
Hungary	Szajol - Biharkeresztes OH	alternative line	Szajol	Püspökladány	67	2	25 kV/50 Hz	750	21	7,2	5	5	70/400	GA	120				RoLa, Törökszentmiklós/scale
Hungary	Szajol - Biharkeresztes OH	alternative line	Püspökladány	Biharkeresztes OH	56,8	1	Non-electrified	750	21	6,4	3	3	70/400	GA	100				RoLa, Püspökladány/scale
Hungary	Vác - Hatvan - Újszász	alternative line	Vác	Vácrátót	9,1	1	25 kV/50 Hz	750	21	6,4	8	8	70/400	GA	80				
Hungary	Vác - Hatvan - Újszász	alternative line	Vácrátót	Galamácsa	14,9	1	25 kV/50 Hz	700	21	6,4	12	1	70/400	GA	80				
Hungary	Vác - Hatvan - Újszász	alternative line	Galamácsa	Aszód	9,8	1	25 kV/50 Hz	750	21	6,4	5	3	70/400	GA	80				
Hungary	Vác - Hatvan - Újszász	alternative line	Aszód	Hatvan	15,9	2	25 kV/50 Hz	750	22,5	7,2	8	8	70/400	GA	120			Hatvan-Rendező/MÁV	Hatvan/refuelling, Hatvan-Rendező/scale
Hungary	Vác - Hatvan - Újszász	alternative line	Hatvan	Újszász	52,3	1	25 kV/50 Hz	750	21	6,4	3	3	70/400	GA	100			Hatvan-Rendező/MÁV	Hatvan/refuelling, Hatvan-Rendező/scale
Romania	Lőkösháza OH - Arad	main line	Lőkösháza OH	Curtici	11,1	1	25 kV/50 Hz	750	20	7,2	1	8	45/375	C	100				
Romania	Lőkösháza OH - Arad	main line	Curtici	Arad	17	2	25 kV/50 Hz	720	20	7,2	3	0	45/375	C	120				

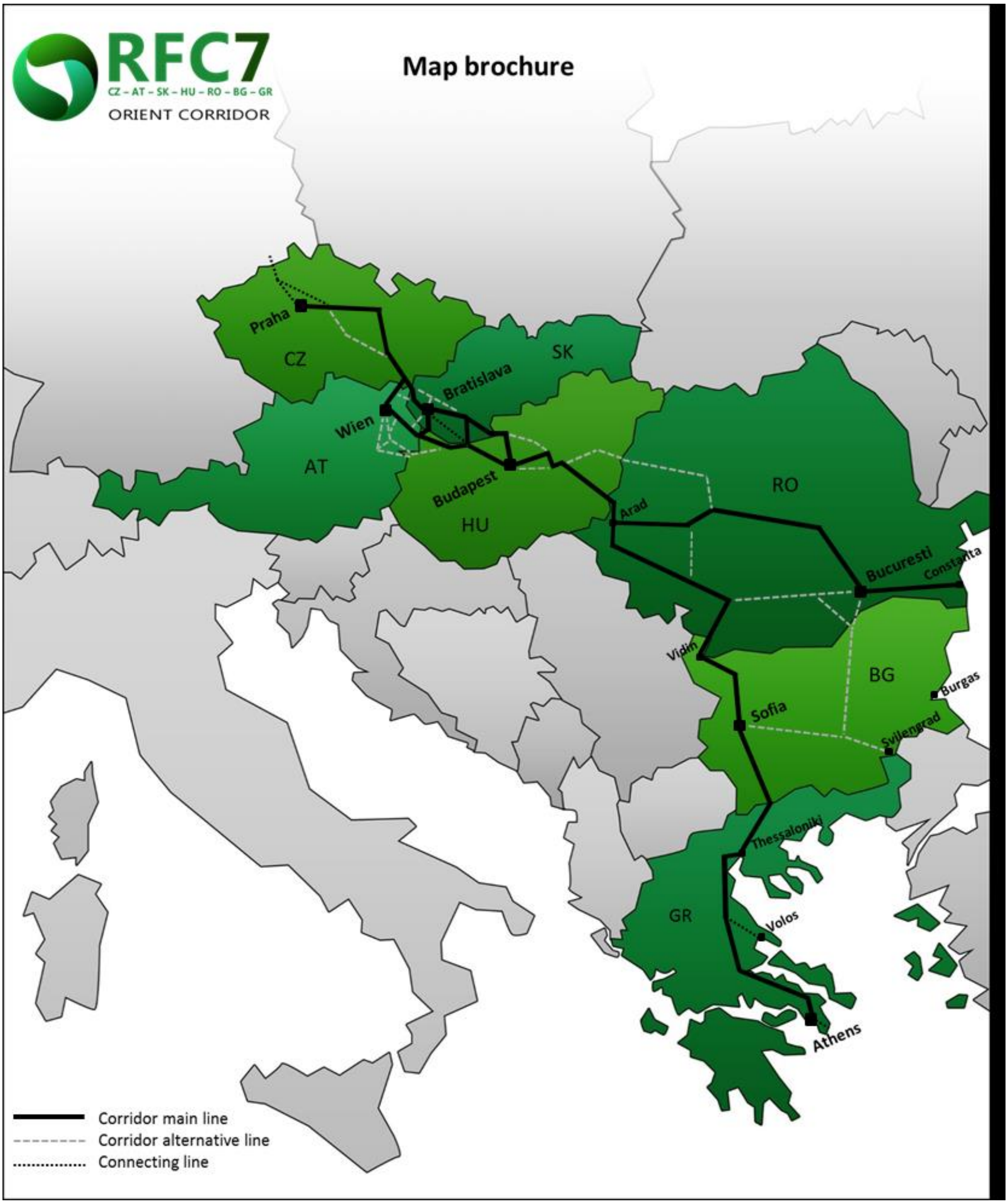
Country	Corridor Section		Line		Length of line (km)	Number of Tracks	Electric Traction (kV/Hz)	Maximum length of train (m)	Track Category		Maximum gradient (‰)		Profile (P/C)	Loading gauge	Maximum speed (km/h)	ERTMS equipment (ETCS, GSM-R)	Services		
	From-To	Category	From	To					Axle load	Load per length unit (t/m)	From to	Back					Intermodal terminal / keeper	Marshalling yard / keeper	Other service facilities / keeper
Romania	Arad - Timisoara	main line	Arad	Timisoara	57,3	2	25 kV/50 Hz	720	20	7,2	5	5	45/375	C	120				
Romania	Timisoara - Craiova	main line	Timisoara	Orsova	186,5	1	25 kV/50 Hz	720	20	7,2	21	1	45/375	B	140				
Romania	Timisoara - Craiova	main line	Orsova	Filiasi	101,9	1	25 kV/50 Hz	720	20	7,2	30	2	45/375	B	120				
Romania	Timisoara - Craiova	main line	Filiasi	Craiova	35,9	2	25 kV/50 Hz	750	20	7,2	9	6	45/375	C	120				
Romania	Craiova - Calafat	main line	Craiova	Calafat	107,7	1	Non-electrified	600	20	7,2	13	0	45/375	C	100				
Romania	Calafat - Vidin	main line	Calafat	Vidin			Non-electrified		20	7,2			45/375						
Romania	Curtici - Simeria	main line	Curtici	Arad	17	2	25 kV/50 Hz	720	20	7,2	3	0	45/375	C	120				
Romania	Curtici - Simeria	main line	Arad	Simeria	157,3	2	25 kV/50 Hz	720	20	7,2	4	0	45/375	C	100				
Romania	Simeria - Bucuresti	main line	Simeria	Coslariu	69,3	2	25 kV/50 Hz	675	20	7,2	5	8	45/375	C	120				
Romania	Simeria - Bucuresti	main line	Coslariu	Sighisoara	98,4	2	25 kV/50 Hz	600	20	7,2	6	6	45/375	C	120				
Romania	Simeria - Bucuresti	main line	Sighisoara	Brasov	128,6	2	25 kV/50 Hz	600	20	7,2	12	0	45/375	C	100				
Romania	Simeria - Bucuresti	main line	Brasov	Predeal	26,2	2	25 kV/50 Hz	650	20	7,2	28	5	45/375	B	120				
Romania	Simeria - Bucuresti	main line	Predeal	Brazi	92,2	2	25 kV/50 Hz	640	20	7,2	17	3	45/375	C	85				
Romania	Simeria - Bucuresti	main line	Brazi	Chitila - Bucuresti	51,8	2	25 kV/50 Hz	720	22,5	8	5	5	45/375	C	160	ETCS			
Romania	Bucuresti - Constanta	main line	Chitila - Bucuresti	Fetesti	146,6	2	25 kV/50 Hz	720	22,5	8	6	3	45/375	C	160				
Romania	Bucuresti - Constanta	main line	Fetesti	Constanta	78,4	2	25 kV/50 Hz	720	22,5	8	15	3	45/375	C	160	ETCS			
Romania	Biharkeresztes OH - Coslariu	alternative line	Biharkeresztes OH	Episcopia Bihor	7,7	1	Non-electrified	750	20	7,2	5	7	45/375	C	120				
Romania	Biharkeresztes OH - Coslariu	alternative line	Episcopia Bihor	Orodea Est		2	Non-electrified	600	20	7,2	20	0	45/375	C	120				
Romania	Biharkeresztes OH - Coslariu	alternative line	Orodea Est	Cluj Napoca Est	266,6	1-2	Non-electrified	600	20	7,2	20	0	45/375	C	120				
Romania	Biharkeresztes OH - Coslariu	alternative line	Cluj Napoca Est	Coslariu		2	25 kV/50 Hz	600	20	7,2	20	0	45/375	C	120				
Romania	Craiova - Bucuresti	alternative line	Craiova	Videle	213	2	25 kV/50 Hz	750	20	7,2	9	8	45/375	C	120				
Romania	Craiova - Bucuresti	alternative line	Videle	Chitila - Bucuresti		2	25 kV/50 Hz	750	20	7,2	9	8	45/375	C	120				
Romania	Videle - Ruse	alternative line	Videle	Giurgiu Nord	61,4	1	Non-electrified	600	20	7,2	16	8	45/375	C	100				
Romania	Videle - Ruse	alternative line	Giurgiu Nord	Ruse		1	Non-electrified	600	20	7,2	10	0	45/375	C	100				
Romania	Bucuresti - Ruse	alternative line	Chitila - Bucuresti	Giurgiu Nord	64	2-1	Non-electrified	740	20	7,2	10	4	45/375	C	100				
Romania	Bucuresti - Ruse	alternative line	Giurgiu Nord	Ruse		1	Non-electrified	600	20	7,2	10	0	45/375	C	80				
Romania	Simeria - Filiasi	alternative line	Simeria	Gura Motru	206,5	2-1	25 kV/50 Hz	550	20	7,2	18	0	45/375	B	95				
Romania	Simeria - Filiasi	alternative line	Gura Motru	Filiasi		2	25 kV/50 Hz	720	20	7,2			45/375	B	120				
Bulgaria	Vidin - Sofia	main line	Vidin	Brusartsi	86,9	1	25 kV/50 Hz	584	22,5	8	1	26	45/364	GB	70				
Bulgaria	Vidin - Sofia	main line	Brusartsi	Mezdra	94,3	1	25 kV/50 Hz	550	22,5	8	9	17	59/389	GB	80				
Bulgaria	Vidin - Sofia	main line	Mezdra	Sofia	83,1	2	25 kV/50 Hz	690	22,5	8	7	11	59/389	GB/GA	70				
Bulgaria	Sofia - Kulata	main line	Sofia	Radomir	40,1	1-2	25 kV/50 Hz	571	22,5	8	3	12	59/389	GB	80				

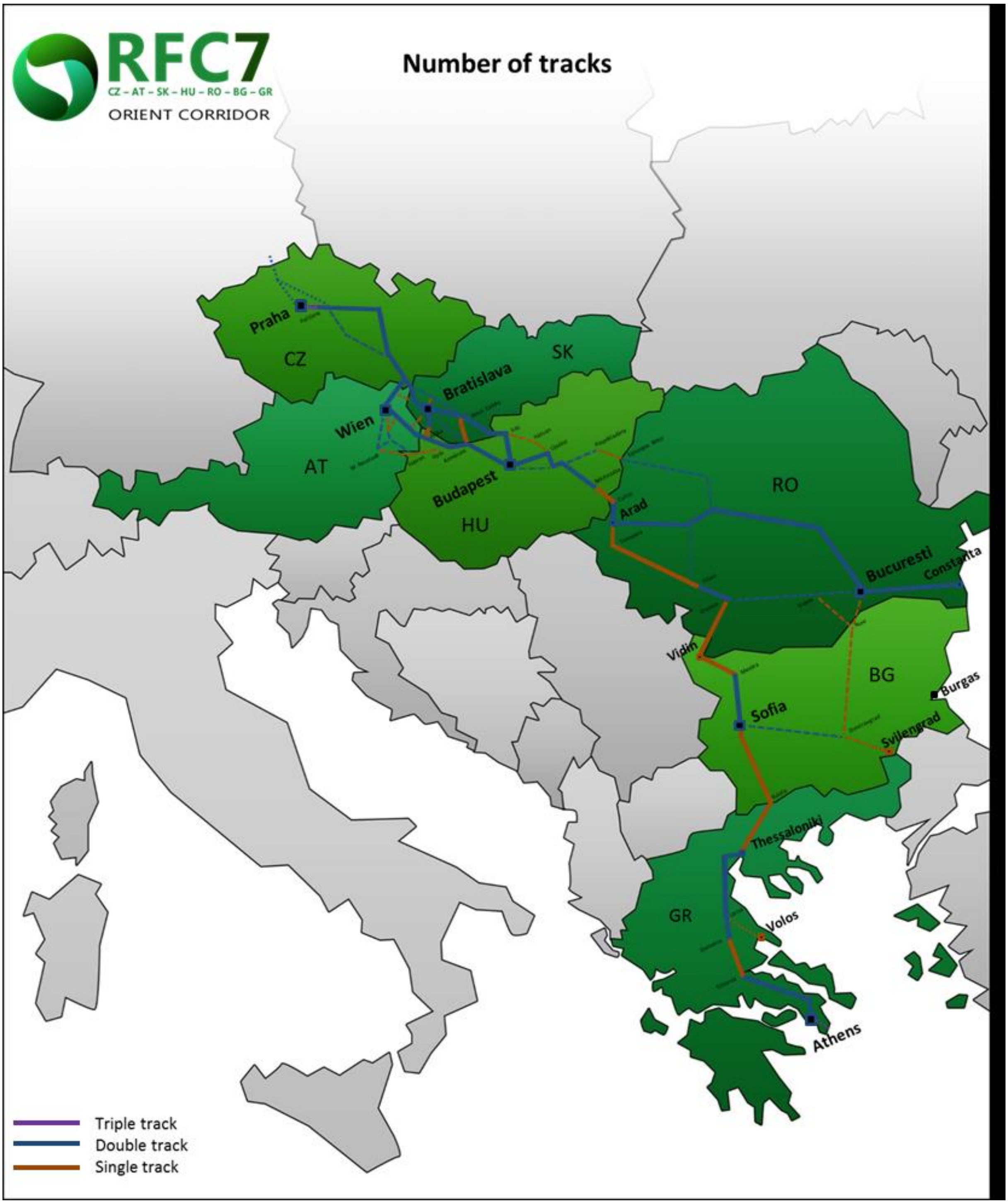
Country	Corridor Section		Line		Length of line (km)	Number of Tracks	Electric Traction (kV/Hz)	Maximum length of train (m)	Track Category		Maximum gradient (‰)		Profile (P/C)	Loading gauge	Maximum speed (km/h)	ERTMS equipment (ETCS, GSM-R)	Services		
	From-To	Category	From	To					Axle load	Load per length unit (t/m)	From to	Back					Intermodal terminal / keeper	Marshalling yard / keeper	Other service facilities / keeper
Bulgaria	Sofia - Kulata	main line	Radomir	Kulata	169	1	25 kV/50 Hz	535	22,5	8	5	19	59/389	GB	80				
Bulgaria	Sofia - Svilengrad	alternative line	Sofia	Septemvri	102,8	2	25 kV/50 Hz	636	22,5	8				GC/GB	130				
Bulgaria	Sofia - Svilengrad	alternative line	Septemvri	Plovdiv	52,8	2	25 kV/50 Hz	690	22,5	8				GC	130				
Bulgaria	Sofia - Svilengrad	alternative line	Plovdiv	Dimitrovgrad	77,5	2	25 kV/50 Hz	700	22,5	8				GC/GB	160	ETCS			
Bulgaria	Sofia - Svilengrad	alternative line	Dimitrovgrad	Svilengrad	65,6	2-1	Non-electrified	568	22,5	8				GC	85				
Bulgaria	Ruse - Dimitrovgrad	alternative line	Giurgiu Nord Border	Ruse	5,7	1	Non-electrified		22,5	8					60				
Bulgaria	Ruse - Dimitrovgrad	alternative line	Ruse	Stara Zagora	256,8	1-2	25 kV/50 Hz		22,5	8					55				
Bulgaria	Ruse - Dimitrovgrad	alternative line	Stara Zagora	Mihaylovo	23,5	2	25 kV/50 Hz		22,5	8					60				
Bulgaria	Ruse - Dimitrovgrad	alternative line	Mihaylovo	Dimitrovgrad	29,9	1	25 kV/50 Hz		22,5	8					40				
Greece	Kulata - Thessaloniki	main line	Kulata	Promachonas		1	Non-electrified		20	8			45/375	DE3	25				
Greece	Kulata - Thessaloniki	main line	Promachonas	Strymonas	13,5	1	Non-electrified	>750	20	8			45/375	DE3	80				
Greece	Kulata - Thessaloniki	main line	Strymonas	Mouries	45	1	Non-electrified	640	20	8			45/375	DE3	80				
Greece	Kulata - Thessaloniki	main line	Mouries	Thessaloniki rail way yard	76	1	Non-electrified	640	20	8			45/375	DE3	100				
Greece	Kulata - Thessaloniki	main line	Thessaloniki rail way yard	Thessaloniki Port	5,5	2	Non-electrified		20	8			45/375	DE3	80				
Greece	Thessaloniki - Athens	main line	Thessaloniki rail way yard	Platy	32,1	2	25 kV/50 Hz	>750	20	8			45/375	DE3	160				
Greece	Thessaloniki - Athens	main line	Platy	Larisa	127,9	2	25 kV/50 Hz	>750	20	8			45/375	DE3	160				
Greece	Thessaloniki - Athens	main line	Larisa	Domokos	57,5	2	25 kV/50 Hz	>750	20	8			45/375	DE3	160				
Greece	Thessaloniki - Athens	main line	Domokos	Tithorea	121,6	1	Non-electrified	>700	20	8			45/375	DE3	120				
Greece	Thessaloniki - Athens	main line	Tithorea	Inoi	93,2	2	Non-electrified	>750	20	8			45/375	DE3	160				
Greece	Thessaloniki - Athens	main line	Inoi	SKA	52,3	2	Non-electrified	>700	20	8			45/375	DE3	100				
Greece	Thessaloniki - Athens	main line	SKA	Athens	8,9	2	Non-electrified	500	20	8			45/375	DE3	100	ETCS			
Greece	Athens - Piraeus	connecting line	Athens	Rouf	2,6	2	Non-electrified	>700	20	8			45/375	DE3	80	ETCS			
Greece	Athens - Piraeus	connecting line	Rouf	Rentis	3,6	3	Non-electrified	>700	20	8			45/375	DE3	80				
Greece	Athens - Piraeus	connecting line	Rentis	Piraeus	3,4	2	Non-electrified	>700	20	8			45/375	DE3	80				
Greece	Larisa - Volos Port	connecting line	Larisa	Volos Port	61	1	Non-electrified	500	20	8			45/375	DE3	100				

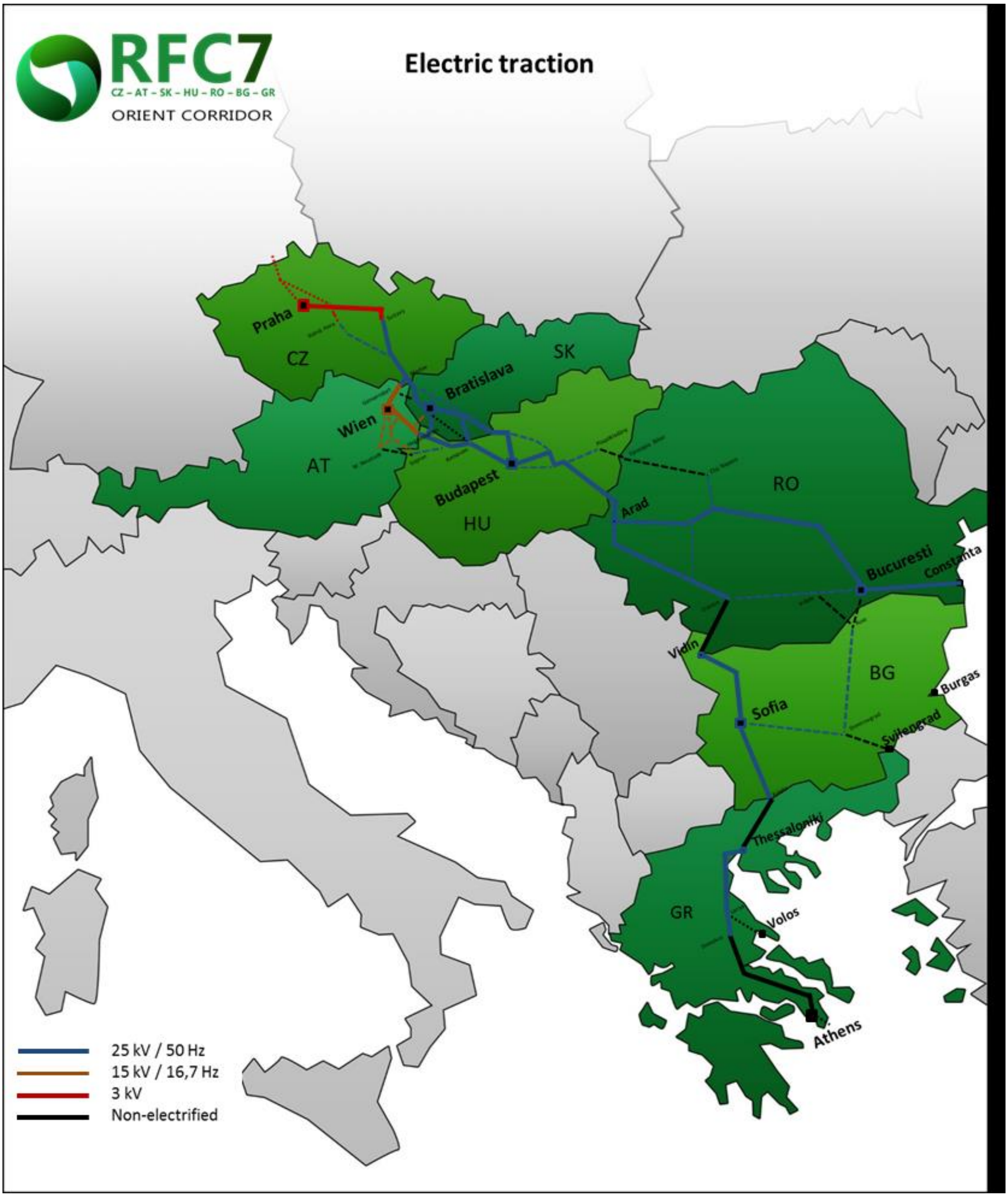
MAPS OF INFRASTRUCTURE CHARACTERISTICS

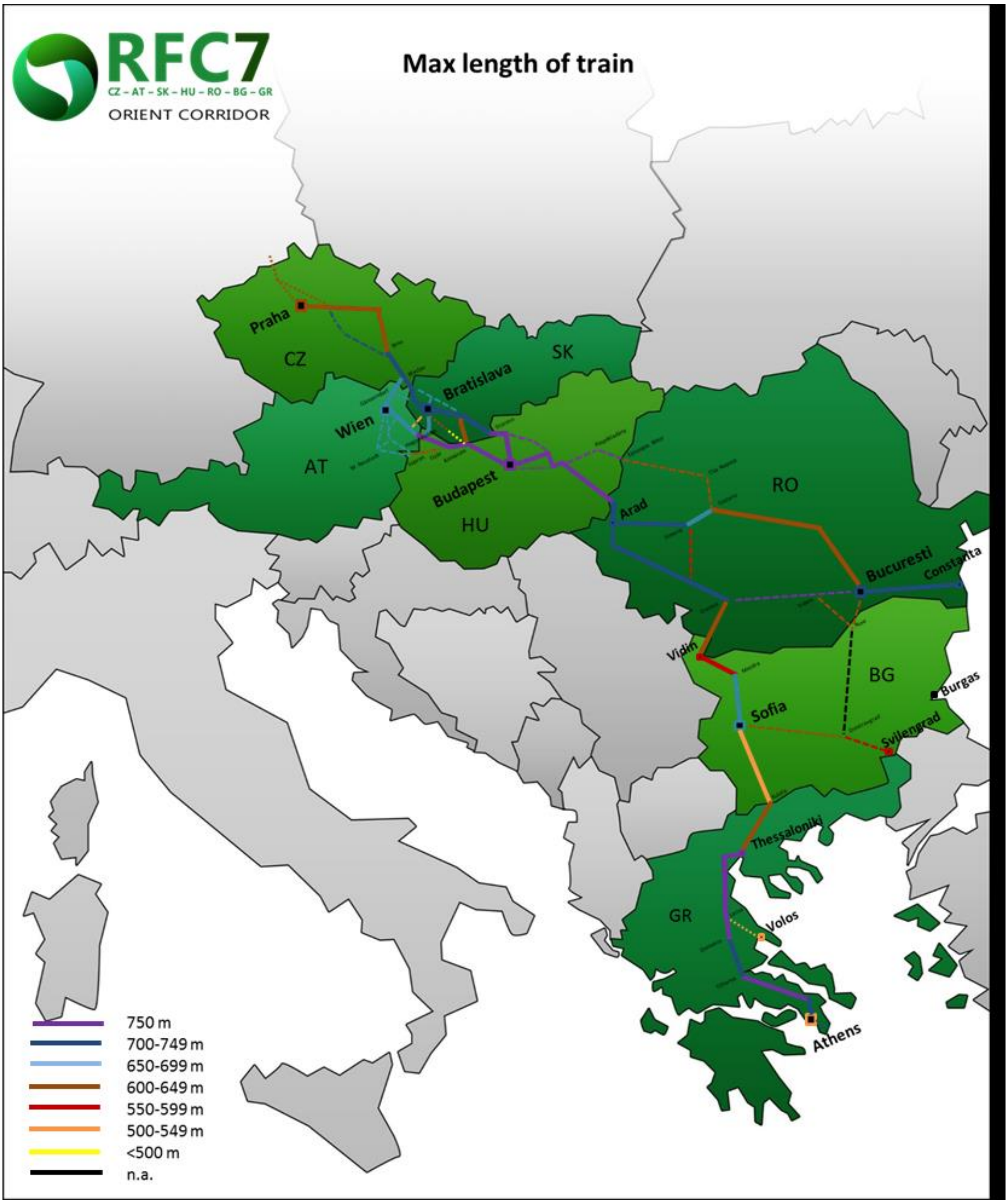
to Annex 7 of Implementation Plan

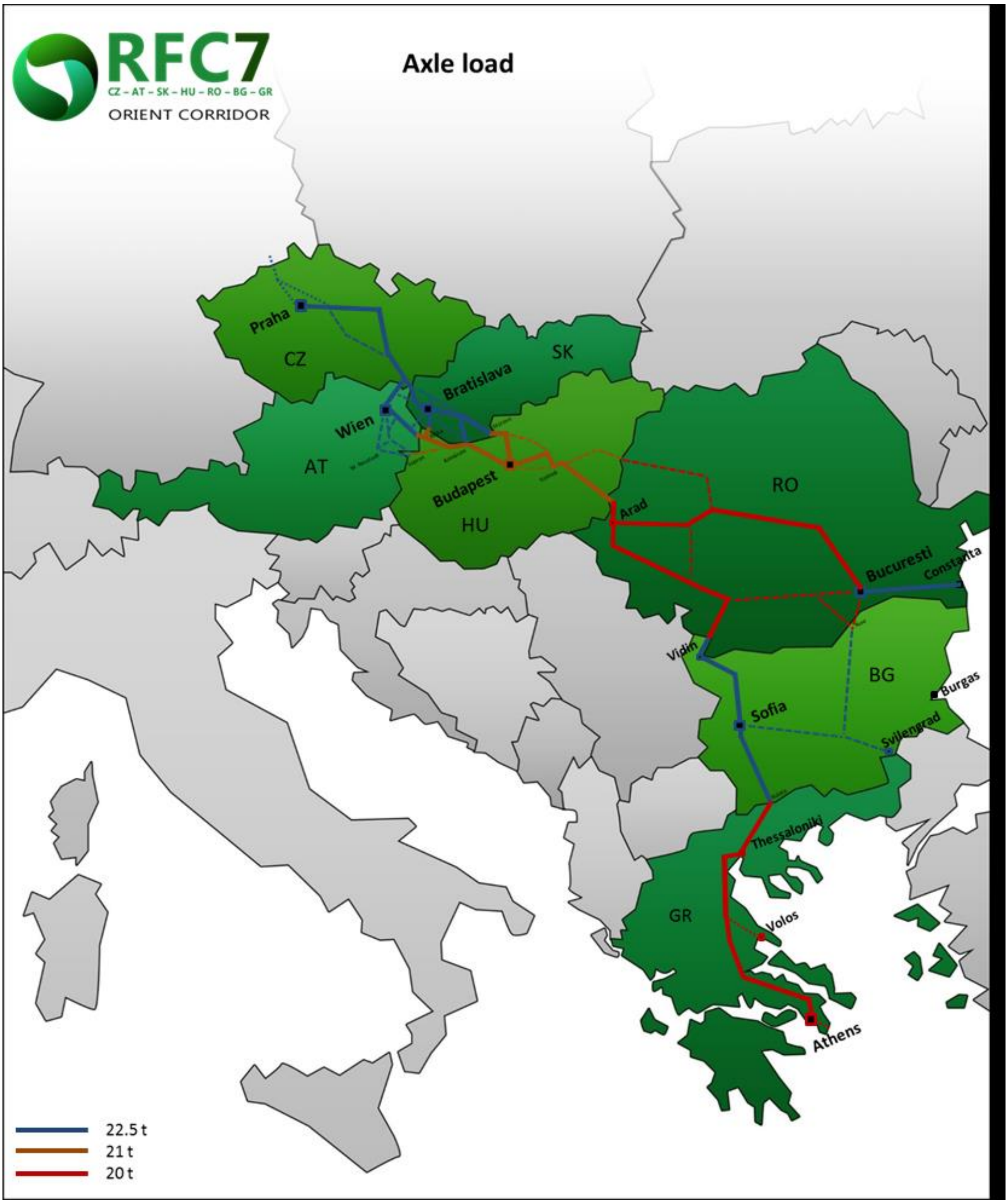
November 2013

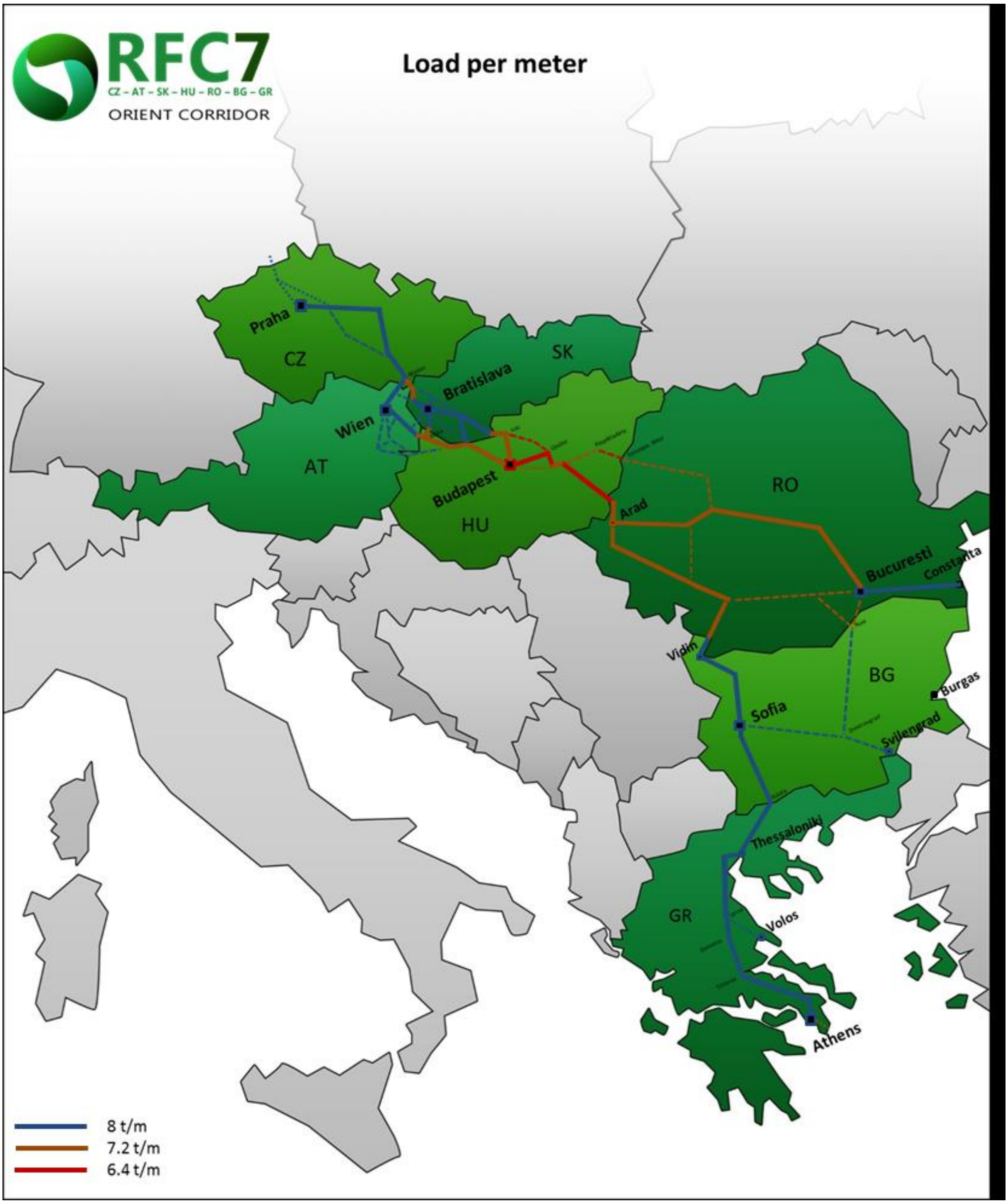

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Map brochure
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
Corridor main line
Corridor alternative line
Connecting line

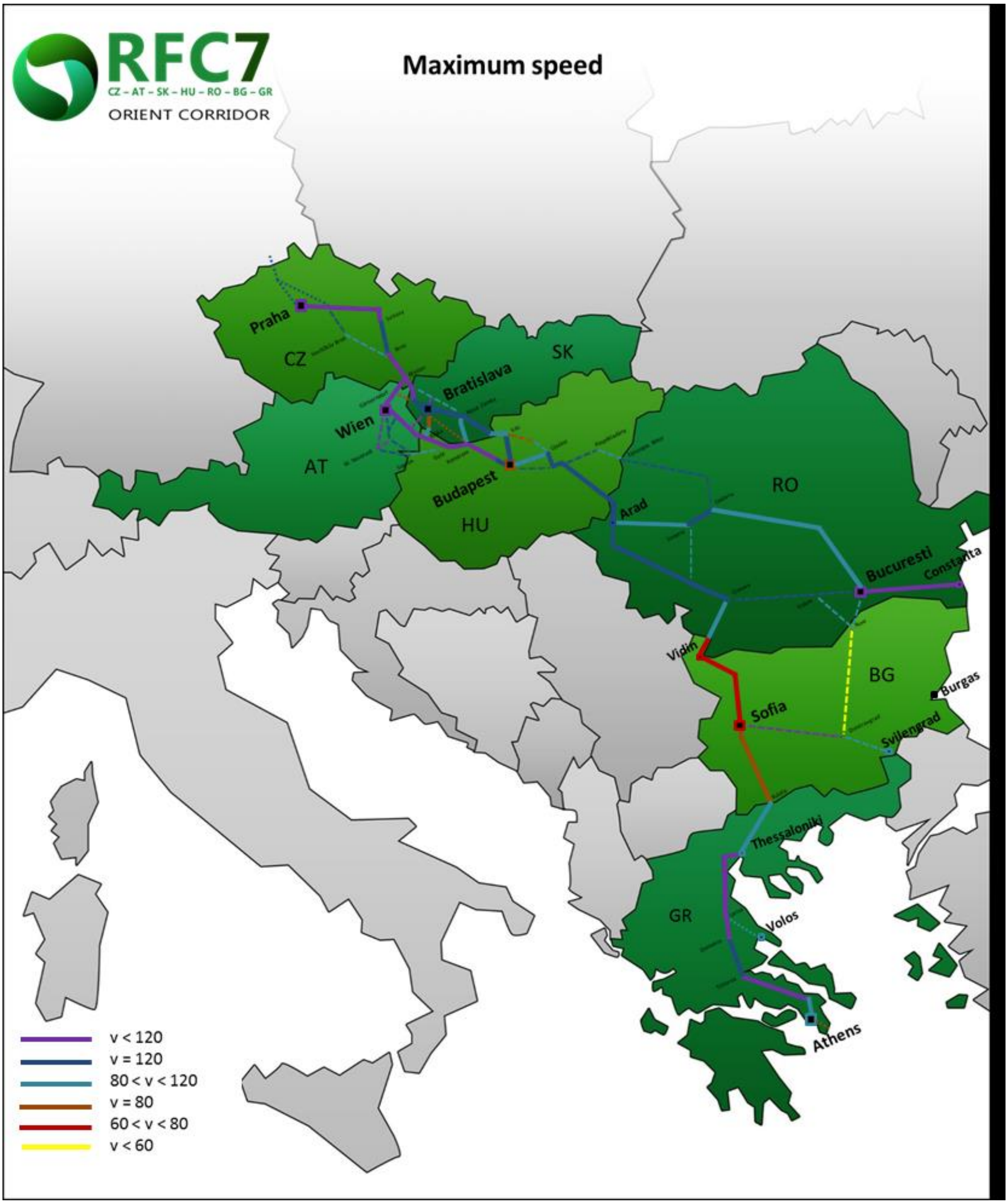

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Number of tracks
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
Triple track
Double track
Single track

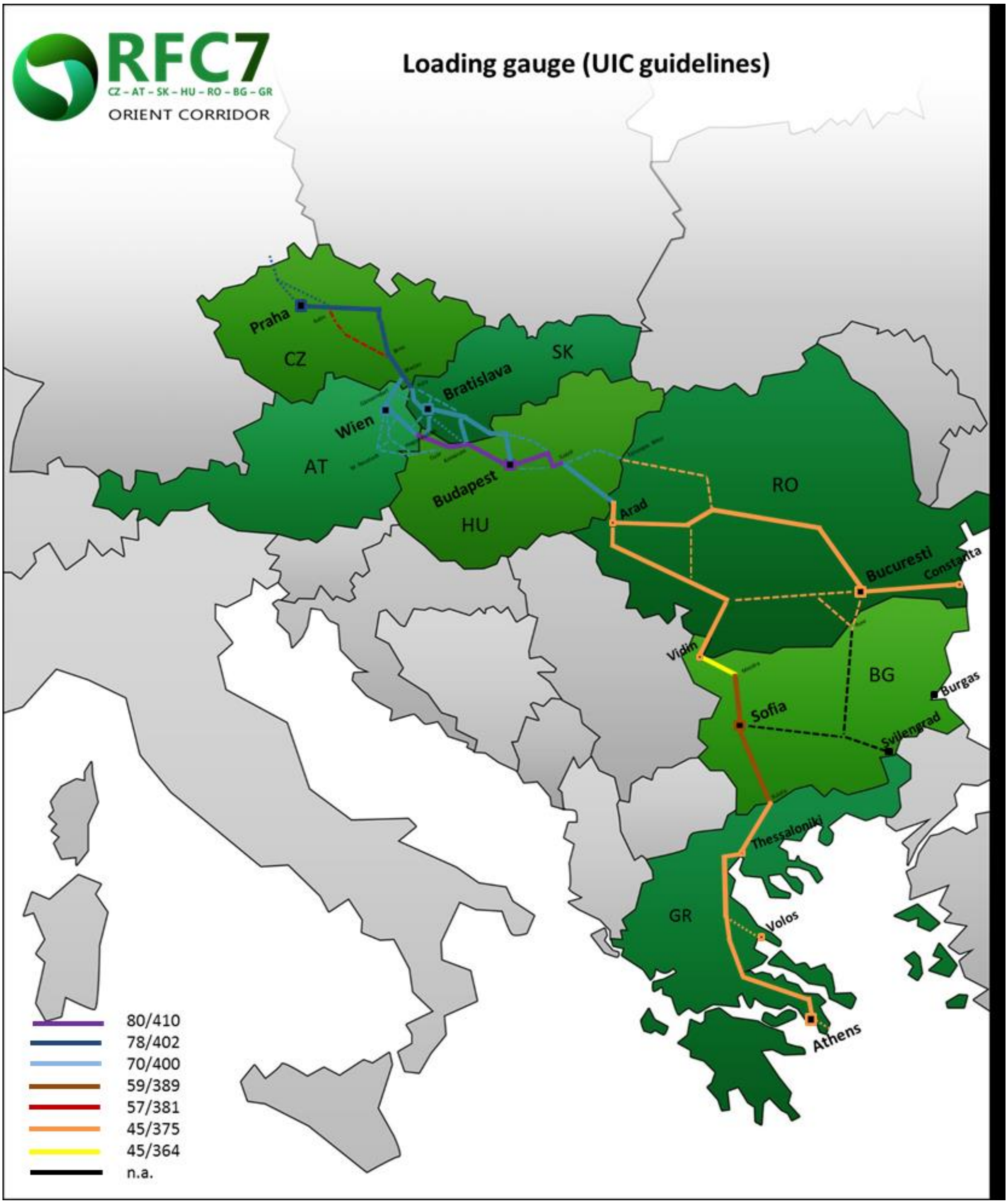

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Electric traction
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
25 kV / 50 Hz
15 kV / 16,7 Hz
3 kV
Non-electrified

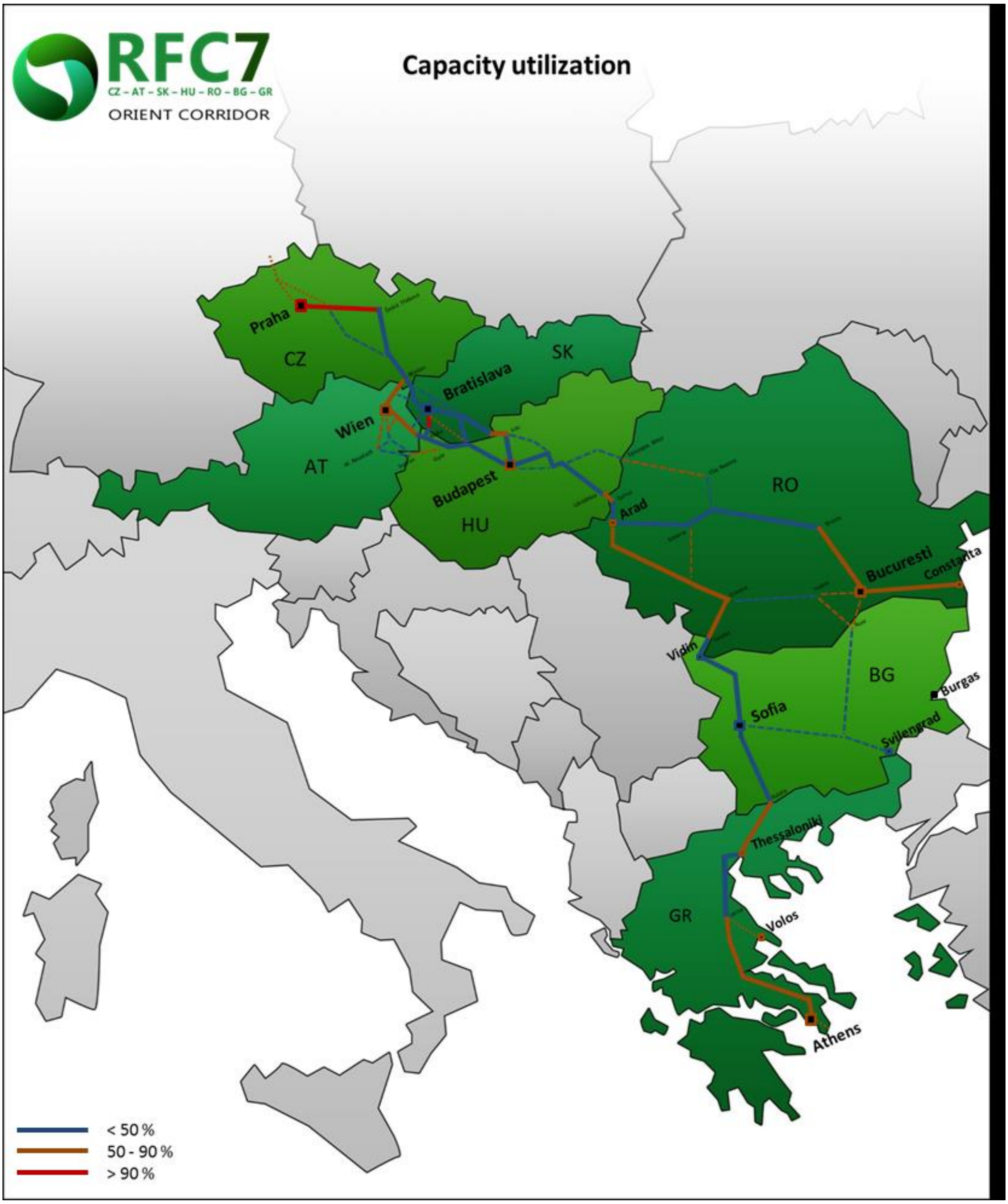

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Max length of train
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
750 m
700-749 m
650-699 m
600-649 m
550-599 m
500-549 m
<500 m
n.a.

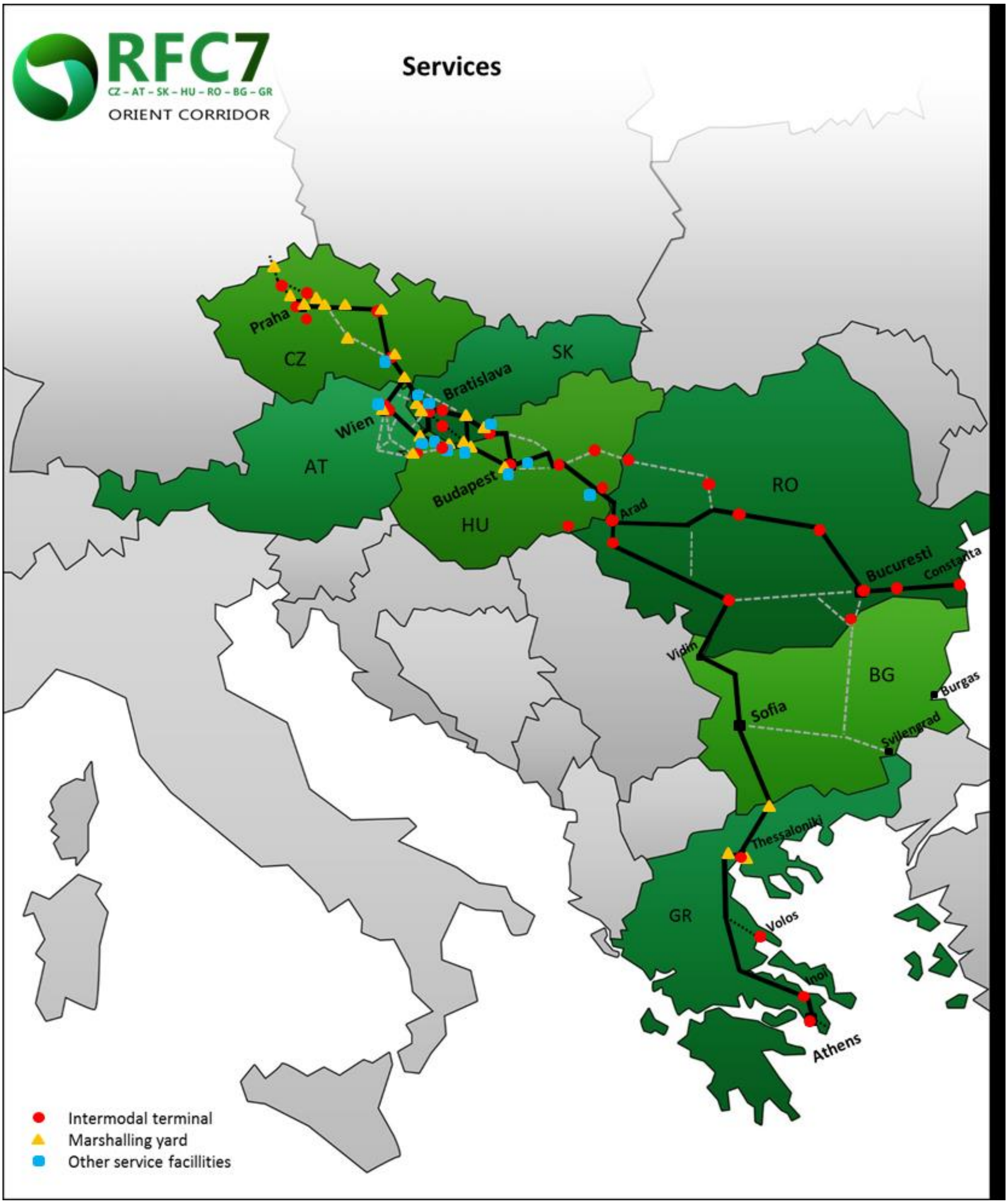

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Axle load
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
22.5 t
21 t
20 t

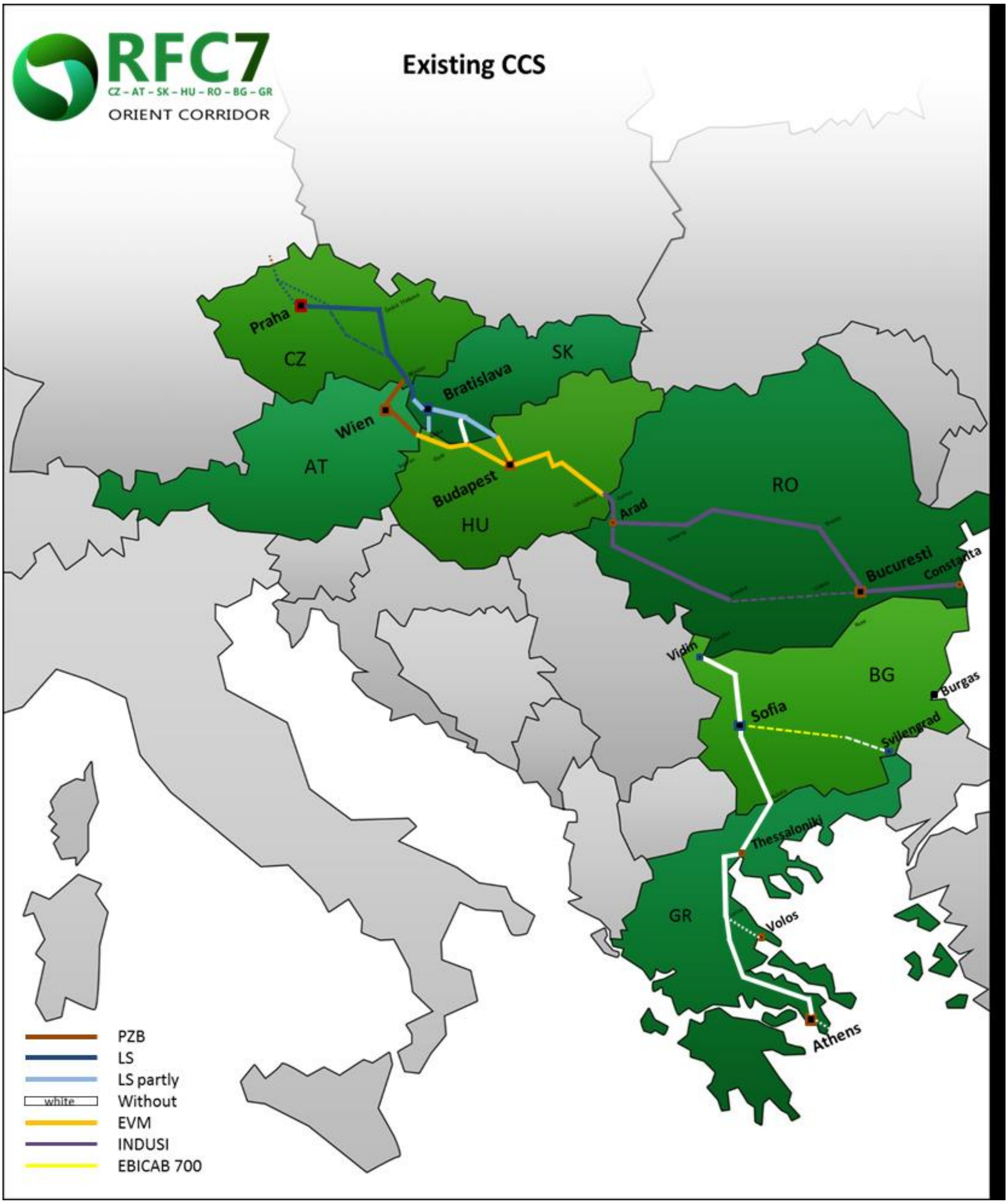

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Load per meter
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
8 t/m
7.2 t/m
6.4 t/m

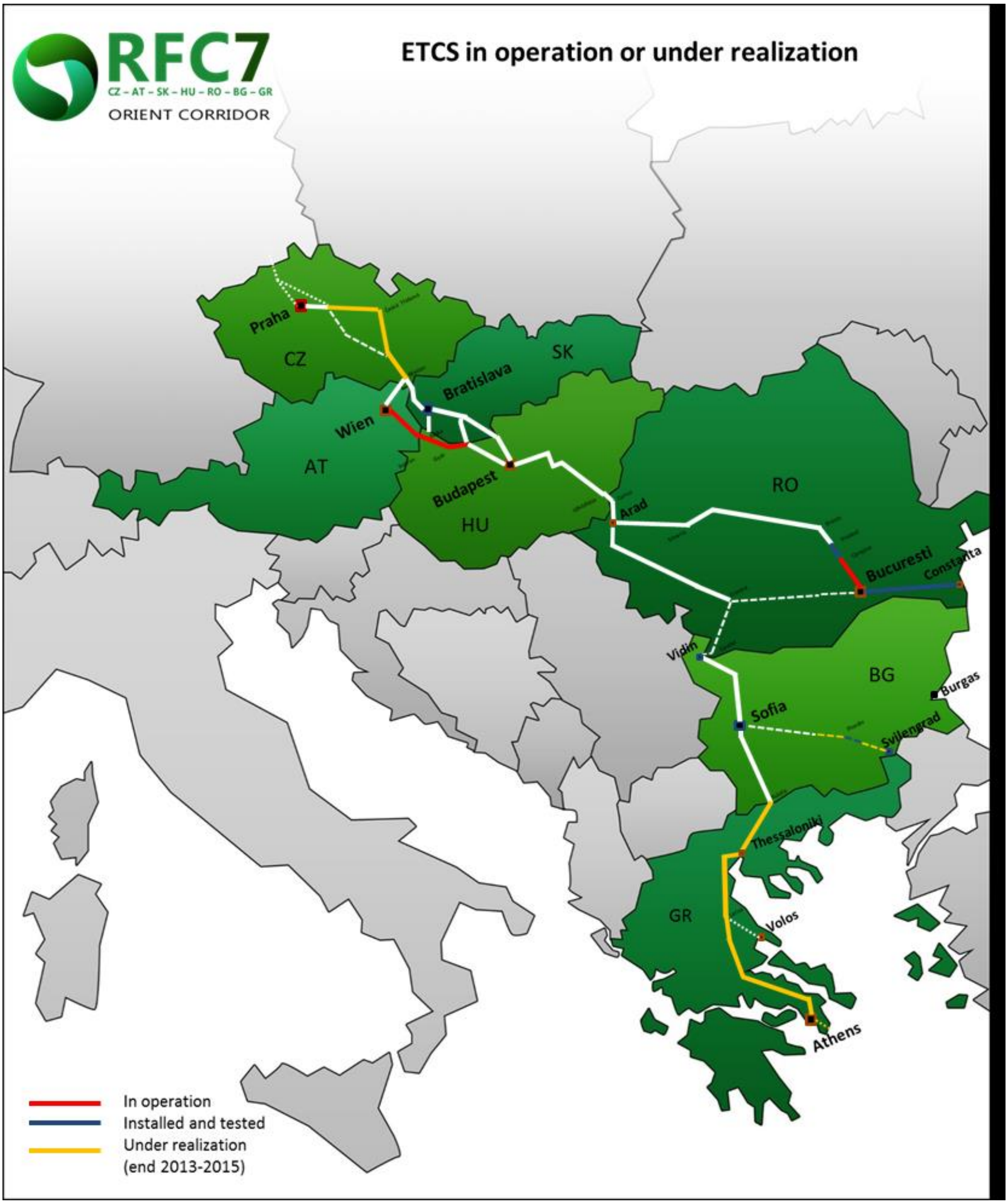

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Maximum speed
Praha
CZ
Bratislava
SK
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
v < 120
v = 120
80 < v < 120
v = 80
60 < v < 80
v < 60

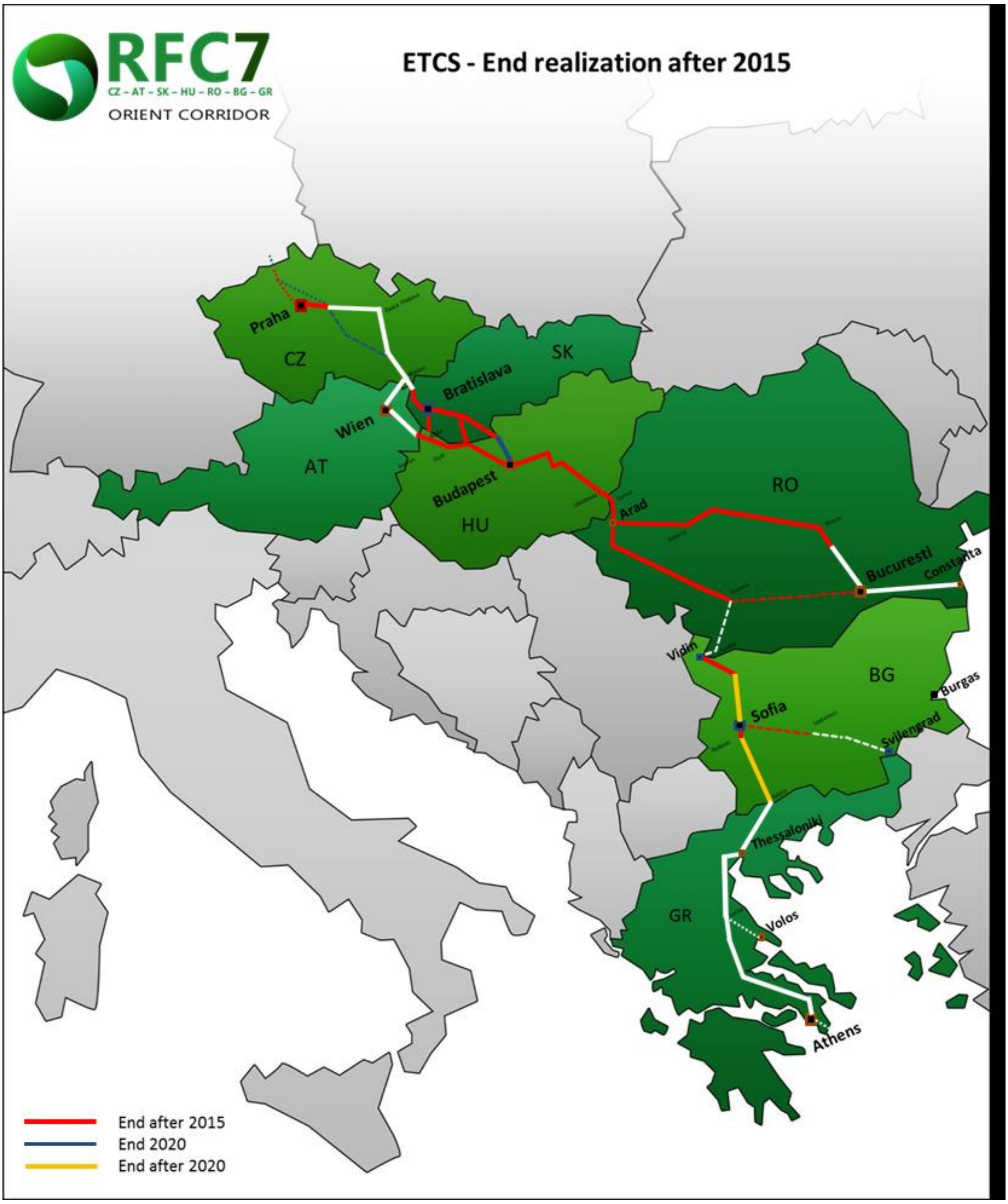

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Loading gauge (UIC guidelines)
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
80/410
78/402
70/400
59/389
57/381
45/375
45/364
n.a.

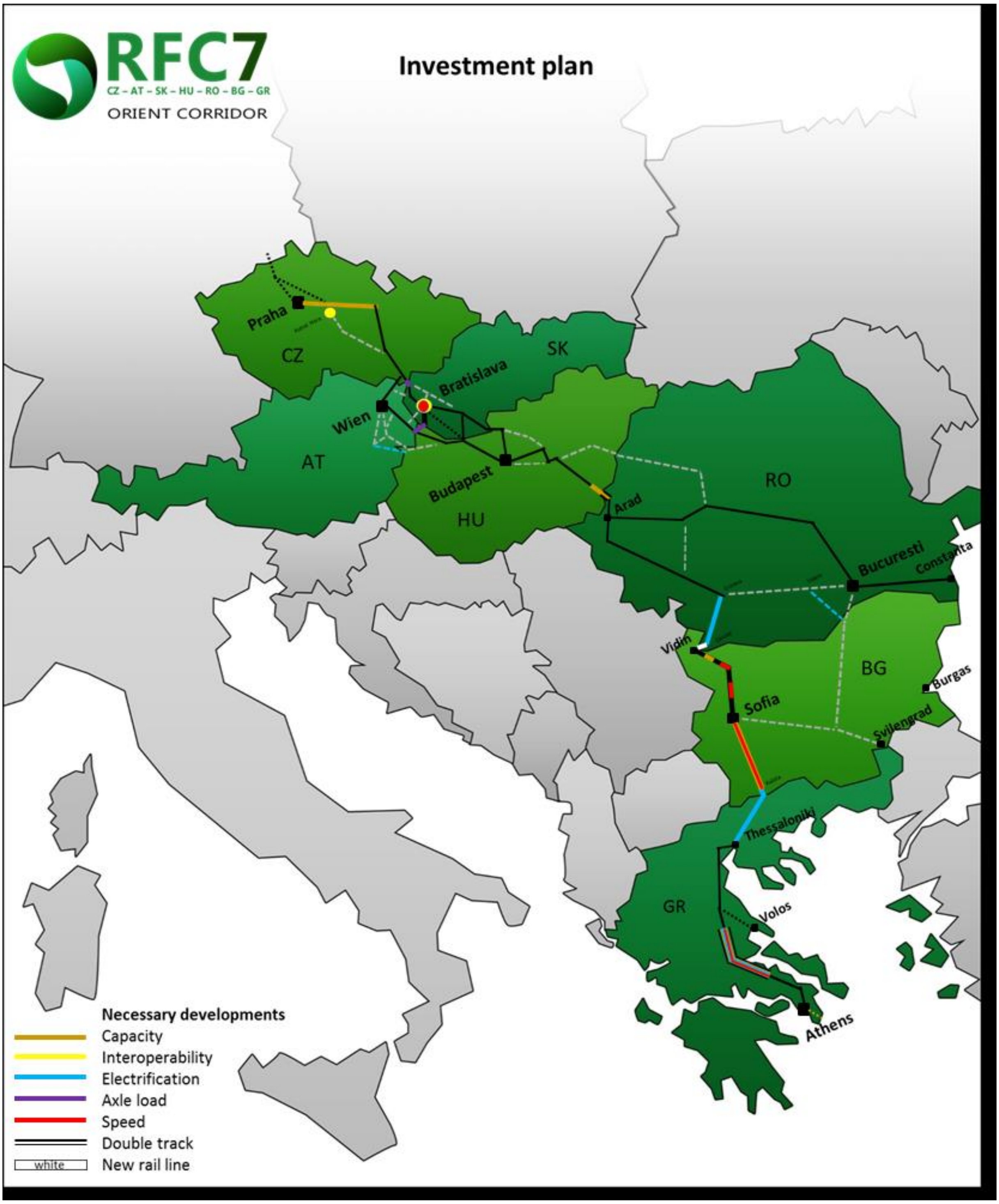

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Capacity utilization
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
< 50 %
50 - 90 %
> 90 %


RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Services
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Inoi
Athens
Intermodal terminal
Marshalling yard
Other service facillities


RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Existing CCS
Praha
CZ
Bratislava
SK
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
PZB
LS
LS partly
white
Without
EVM
INDUSI
EBICAB 700

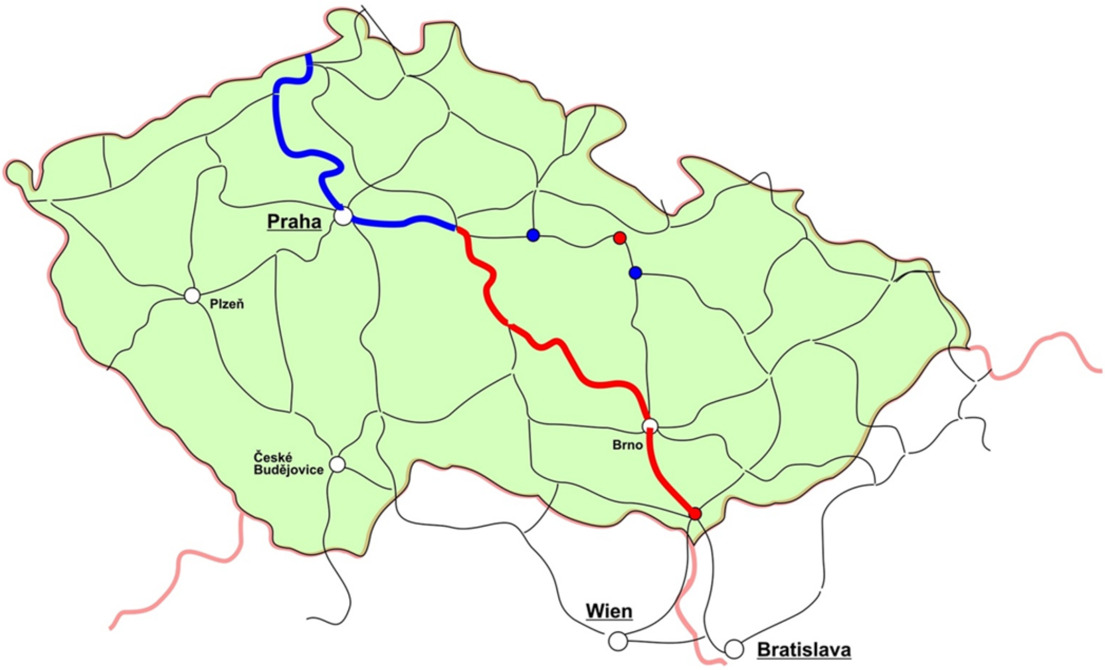

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
ETCS in operation or under realization
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
In operation
Installed and tested
Under realization
(end 2013-2015)


RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
ETCS - End realization after 2015
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
End after 2015
End 2020
End after 2020


RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR
Investment plan
Praha
CZ
SK
Bratislava
Wien
AT
Budapest
HU
Arad
RO
Bucuresti
Constanta
Vidin
BG
Burgas
Sofia
Svilengrad
Thessaloniki
GR
Volos
Athens
Necessary developments
Capacity
Interoperability
Electrification
Axle load
Speed
Double track
white
New rail line

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR

Investment Plan



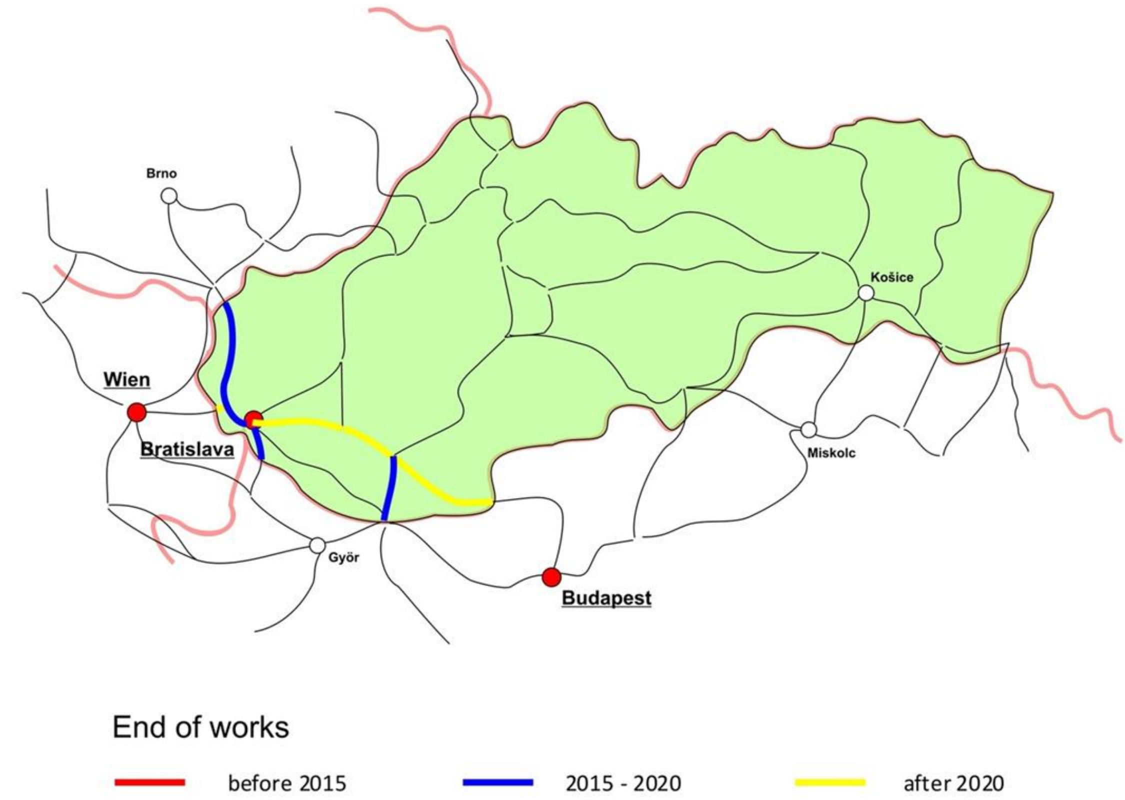
End of works

before 2015 | 2015 - 2020 | after 2020

Railway section	Content of development	Start date of works	End date of works	Actual status	Estimated cost (Miliion EUR)	Financial sources
Praha-Bubeneč - Praha-Holešovice	Reconstruction; increase speed limit	2013	2015	under construction	52	EU and national
Praha-Běchovice - Úvaly	Reconstruction, increase speed limit	2013	2015	under construction from 07/2013	88	EU and national
Pardubice	Reconstruction of station, increase speed limit	2018	2020	prepared	80	EU and national
Choceň - Ústí nad Orlici	Modernisatin, shortening, increase speed limit	currently not fixed		prepared	120	EU and national
Ústí nad Orlici	Reconstruction of station, increase speed limit	2012	2014	under conslruction	68	EU and national
Česka Třebová	Reconstruction of station, increase speed limit	2018	2020	prepared	80	EU and national
Brno-Židenice - Modřice	Modernisation of railway juncáon Brno	currently not fixed		prepared	800	EU and national
Břeclav	modernisabon of part of statin Břeclav	2012	2014	under construction	48	EU and national
Kolín - Břeclav	Implementation of ETCS Level 2	2012	2014	under construction	40	EU and national
Děčin - Praha - Kolín	Implementation of ETCS Level 2	2014	2017	prepared	25	EU and nationai
Kolin - Brno	alternativ routinq via Havlíčkův Brod, Implementation of GSM-R	2012	2014	under construction	30	EU and national

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR

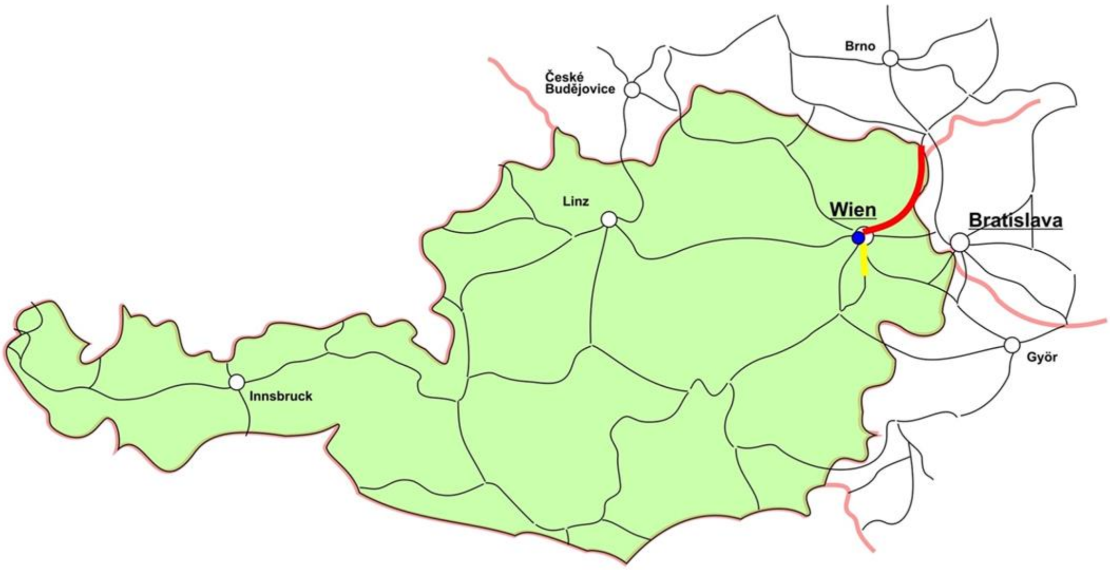
Investment Plan



Railway section	Content of development	Start date of works	End date of works	Actual status	Estimated cost (Miliion EUR)	Financial sources
Bratislava hl.st - Petržalka	Project ERTMS. uprade signaling systém, if finaneial means ERTMS on the section Kúty • Bratislava. Projed TEN-T 17,2.lrack Bahl.st. - BA NM (2020 - 2023)	2016	2018	ŽSR sent application form to attend CaU for proposals 2012 TEN-T, tor a projed documentation of ERTMS on the section Kuty-Bratislava. Project TEN-T 17,2.track, Bahl.sl - BA NM (2020 - 2023)		EU and national
Petržalka - Rusovce/st-b/HU	projed ERTMS. upgrade signaling systém, if finaneial means	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T. for a projed documentation of ERTMS on the section Kuty-Bratislava.		EU and national
Petržalka-sLb. A. Kitsee	project ERTMS. upgrade signaling systém, it finaneial means	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T. fóra project documentation of ERTMS on the section Kúty - Bratislava.	72,92	EU and national
Devinska N.Ves - st b. A Marchegg	projects ERTMS, eJectrification and new second track and bndge, Single projed project of electriftcabon single track (till 2018). and other single project new second track and bridoe íafter 2019-20211	2016	2021	Single project project of electrification single track (til 2018) projekt dokumentation. and other single project new second track and bridge íafter 2019-2021).		EU and national
Devinska N.Ves - Bratislava hl. st.	projed ETCS, GSM-R. upgrade signaling systém (if finaneial means)	2016	2018	ŽSR sent application form to attend CaH for proposals 2012 TEN-T, for a project documentation of ERTMS on the section Kúty - Bratislava.		EU and national
Kúty-st. b. CZ, Lanžhot	project ETCS, GSM-R. upgrade signaling systém (if finaneial means)	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T, for a projed documentation of ERTMS on the section Kúty - Bratislava.	43,35	EU and national
Kúty • Devinska N.Ves	projed ETCS, GSM-R. upgrade signaling systém (if finaneial means)	2016	2018	ŽSR sent application form to attend Call for proposals 2012 TEN-T,fora project documentation of ERTMS on the section Kúty - Bratislava.		EU and national
Bratislava hL st - Galanta	project ETCS. GSM-R, upqrade siqnakng systém (if finaneial means)	2019	2021	ERTMS study	57,6	EU and national
Galanta - Nově Zámky	project ETCS. GSM-R. upqrade siqnalinq systém (if finaneial means)	2019	2021	ERTMS study		EU and national
Nové Zámky • Sturovo	project ETCS, GSM-R, upqrade signaling systém (if finaneial means)	2019	2021	ERTMS study	46,25	EU and national
Štúrovo-stb. /HU.Szob	project ETCS, GSM-R, upqrade siqnalinq systém (if finaneial means)	2019	2021	ERTMS study		EU and national
Nově Zámky - Komárno	protéct ETCS, GSM-R. upqrade siqnaling systém (if finaneial means)	2020	2020	ERTMS study	29,65	EU and national
Komárno - st. b./HU, Komárom	proiect ETCS, GSM-R, upqrade siqnalinq systém (if finaneial means)	2020	2020	ERTMS study		EU and national

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR

Investment Plan



End of works

before 2015 — 2015 - 2020 — after 2020

Railway section	Content of development	Start date of works	End date of works	Actual status	Estimated cost (Miliion EUR)	Financial sources
Břeclav - Wien	Implementation ETCS	2012	2013	construction underway	approx. 20	EU + national
Břeclav - Wien	Moderisation (increase maximum speed and capazity)	not fixed	not fixed	feasibility study	approx. 400 - 500	not fixed
Wien- Wr. Neustadt	Doubletrack Wien - Blumental - Miichendorf	2013	2020	designing underway	approx. 400	national
Wien - Wr. Neustadt	Doubletrack Múncftendorf - Wampersdorf	2016	2023	designing underway	approx. 235	national
Wien- Wr. Neustadt	Terminál Inzer sdorf (Carqo Center Vienna)	2012	2017	construction underway	approx. 300	EU + national
Wr. Neustadt - Sopron	Electrification existinq bne	not fixed	not fixed	feasibility study	approx. 25 - 35	not fixed

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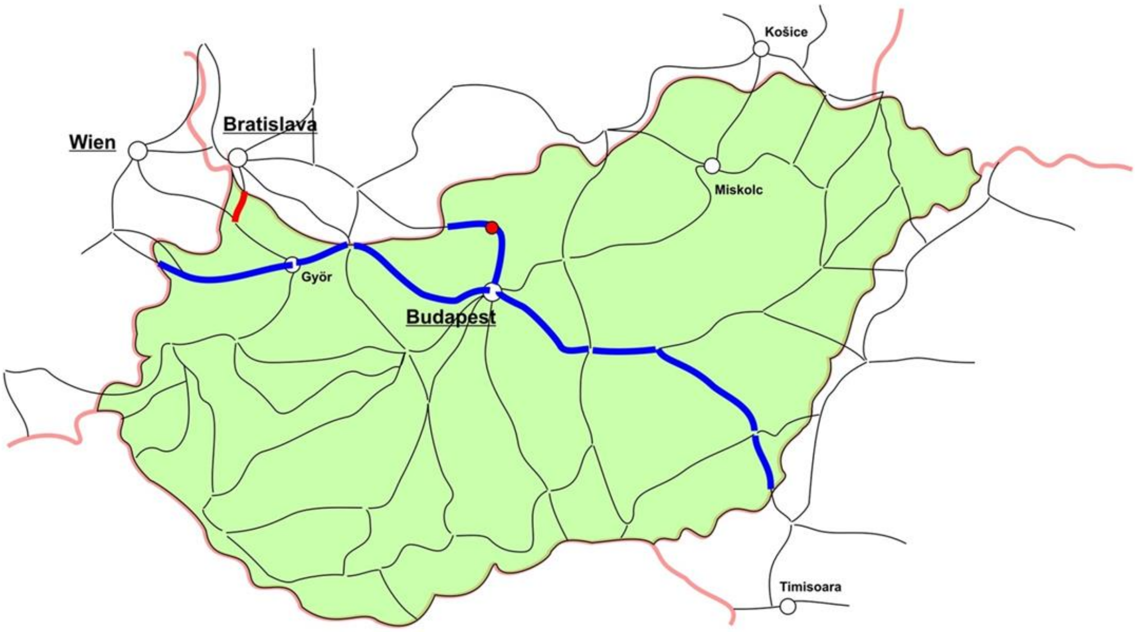
Investment Plan



End of works

before 2015 | 2015 - 2020 | after 2020

Railway section	Content of development	Start date of works	End date of works	Actual status	Estimated cost (Miliion EUR)	Financial sources
Rajka - Hegyeshalom	ETCS installation	2015	2015	preparaton (feasibility studym progress)	3,3	KoZOP (Transport Operative Program-onbehalfofthe National Development Aoenwl
Györ - Sopron border	Paralellisaton (constructing a second track) raise speed limit to 160 km/h	2017	2020	preparation (feasibility studyin progress)	Only the preparation phase mcluding feasibilty study approx. 700 MiH €. total budget; unknown	EU + national
Budapest - Hegyeshalom border	Renewal of scuth railway bridqe (Budapest)	2013	2013	Designing	17,4	statě fundmg
Budapest - Hegyeshalom border	Renewal of Biatorbáqy - Tata section	2015	2018	Designing	370	EU funding
Budapest - Hegyeshalom border	Upqridinq of ETCS L1 to ETCS L2	2017	2020	Designing	35	EU funding
Budapest - Szob border	Renewal of Vác station	2013	2015	Designing	n.a.	EU funding
Budapest - Szob border	Rehabilitation of Budapest-Szob section	2019	2020	Designing	n.a.	EU funding
Budapest - Lököshza border	Szolnok - Szajol section track reconstruction	2014	2015	Designing	n.a.	EU funding
Budapest - Lököshza border	Szajol - Püspöladany section track reconstruction and siqnallmq mprovement	2013	2016	Designing	n.a.	EU funding
Budapest - Lököshza border	Szajol - Debrecen ETCS L2	2016	2017	Designing	n.a.	EU funding
Budapest - Lököshza border	Gyoma - Bekescsaba section track reconstruction and siqnallinq improvement	2013	2015	Designing	n.a.	EU funding
Budapest - Lököshza border	Buildinq of 2nd track between Bekecsaba - Lököshza border	2014	2018	Designing	200	EU fundmg

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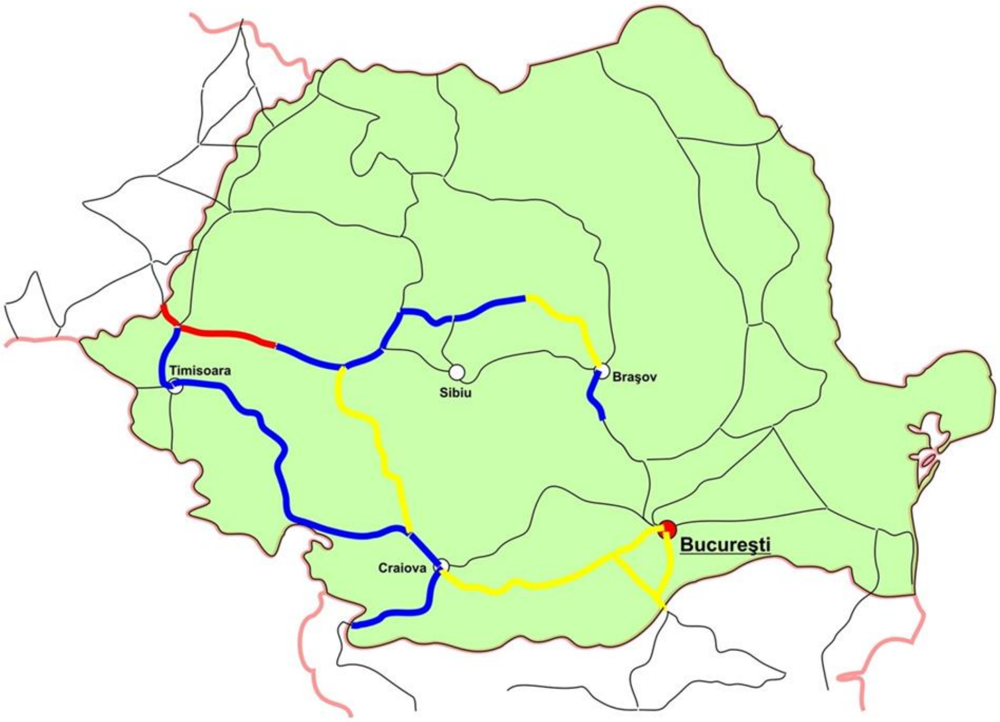
Investment Plan



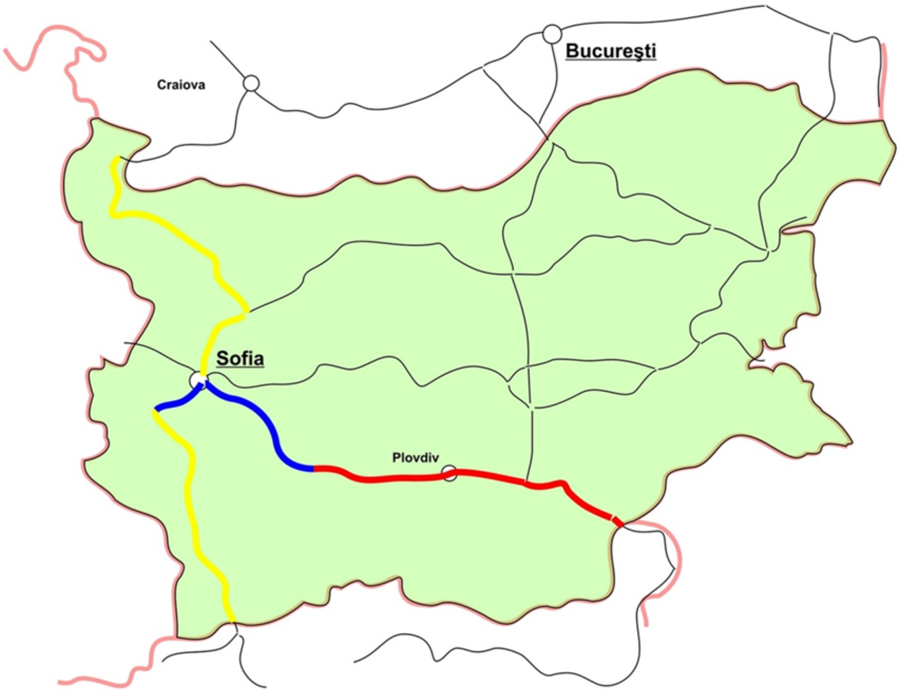
End of works

before 2015 | 2015 - 2020 | after 2020

Railway section	Content of development	Start date of works	End date of works	Actual status	Estimated cost (Miliion EUR)	Financial sources
Predeal - Brasov	track modernization, signalling improvement, ERTMS	2016	2020	Revised Feasibility Study (FS), launching of the Environment Agreement	200	proposal SOP T 2014-2020 - State Budaet(SB)
Brasov - Sighisoara	track modernization, signalling improvement. ERTMS	2016	2021	FS and Techmcal Design (TD) elaúorated	1 740	proposal SOP T 2014-2020 + State Budaet
Coslariu - Sighisoara	tack modernization signalling improvement, ERTMS	2012	2016	onqoinq works, 6,18% realised	944	SOP T 2007-2013+SB
Simeria - Coslariu	tack modernization, signalling improvement, ERTMS	2012	2016	Sectiion Vintu de Jos -Coslariu.ongoing works, 7,62% realised, Section Simeria-Vintu de Jos- in tender orocedure	663	SOP T 2007-2013+SB
km 6 U - Gurasada and Gurasada - Simeria	track modernization. signalling improvement, ERTMS	2014	2020	FS and Technical Desiqn (TD) elaborated	1 970	proposal SOP T 2014-2020 + SB
Border - Curtici - Arad - km 614	track modernization, track doubiing where necessary, signalling improvement. ERTMS	2012	2014	ongoing works; 21% realised	283	SOP T 2007-2013+SB
Caransebes - Timisoara - Arad	track modernization, track doubiing where necessary, signalling improvement, ERTMS		2020	m elaboration the tender documentation for the FS supply	670	TEN-T financing for the FS, unknown tor works
Caransebes - Drobeta Turnu Severin - Craiava.	track modernization. track doubiing where necessary, signalling improvement, ERTMS		2020	m elaboration the tender documentation for the FS supply	1 620	Proposal SOP T for FS. unknown for
Craiova - Calafat	track modernization, electrification, signalling improvement, ERTMS		2020	FS revised, the financmq request for TD under elaboration	567	unknown
Bucuresti Nord - Jilava - Giurgiu	track modernization, track doubiing where necessary,electrification, signalling imorovement. ERTMS	2020	2030	Project proposal	276	unknown
Giurgiu - Videle - Bucuresti	track modernization. track doubiing where necessary,electrification, signalling imorovement. ERTMS.	2020	2030	FS elaborated in 2006	725	unknown
Craiova - Rosiori - Videle	track modernization, signalling improvement, ERTMS	2020	2030	Project proposal	395	unknown
Dej - Apahida - Coslariu	track modernization. track doubiing where necessary,electrification signalling tmorovement. ERTMS	2020	2030	Project proposal	1 150	unknown
Cluj - Oradea	track modernization, signalling improvement, ERTMS	n.a.	n.a.	Project proposal	544	unknown

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR

Investment Plan



End of works

before 2015 — 2015 - 2020 — after 2020

Railway section	Content of development	Start date of works	End date of works	Actual status	Estimated cost (Miliion EUR)	Financial sources
Vidin - Medkovetz	Track reconstruction. new structures, signalling and telecommunication systems ucaradmo. ERTMS. catenarv tioaradinq etc.	2016 (expected)	2021 (expected)	Feasbility study - implemented; Pretíminary design elaborated; EIA Resort elaborated	537	EU+national
Medkovetz - Ruska Biala		2016 (expected)	2021 (expected)		735	
Ruska Biala - Sofia		2021 (expected)	2028 (expected)		1408	
Sofia - Radomír	Track reconstruction. new structures, signalling and telecommunication systems uoaradina. ERTMS. catenarv uoaradina etc.	2015 (expected)	2020 (expected)	Feasibility study - implemented, Pretíminary design elaborated	360	EU + national
Radomir - Kulata	Track reconstruction. new structures signalling and telecommunication systems ucaradino. ERTMS. catenarv UDoradina etc.	After 2020		Feasibility study and preliminary design underway	767	EU + national
Sofia - Septemvri	Track reconstruction new structures. signalling and telecommunication systems uoaradino. ERTMS. catenarv UDoradina etc.	2016 (expected)	2020 (expected)	Feasibility study - implemented, Pretíminary design elaborated: EIA Report onooma	1 045	EU + national
Septemvri - Plovdiv		December 2012	June 2015	Construction underway	322	
Plovdiv - Dimtrovgrad	Track reconstruction. new structures. signalling and telecommunication systems uoaradino. ERTMS. catenarv UDoradina etc.	2006	2011	Construction completed	170	EU + national
Dimitrovgrad - Svilengrad - GR border		2012	August 2014	Construction underway	207	
Svilengrad - TR border		2009	June 2013	Construction underway	36	

RFC7
CZ – AT – SK – HU – RO – BG – GR
ORIENT CORRIDOR

Railway section	Content of development	Start date of works	End date of works	Actual status	Estimated cost (Miliion EUR)	Financial sources
Pireaus - Athens RS - 3 Gefyres	Infrastructure and superstructure upgrade, signaling and ERTMS installation, electrification. construction of the underground line section Athens RS - 3 Gefyres with 4 lineš. R.Station upgrades. the subleveling of the triple rail corridor section of Redi S.S to Athens	2014	2020	under study	487.7	EU + national (for studies) Proposed by OSE for funding from 5th PP 2014-2020 (for Works)
3 Gelyres - SKA	New double railway line bypassmg Acharnes Municipality	2016	2019	under study	70	EU + national (for studies) Proposed by OSE for funding from 5th PP 2014-2020 ifor Works)
SKA - Thriassio	New double railway liře with electrification, signalling, ETCS L1	1999	2010	Completed		
Thriassio - Ikonio (Pireaus Port)	New railway line.	2001	2013	Completed		
SKA - Inoi	Upgrade of the existing line and structures. ERTMS installation, Restitution of Electrification	2013	2017	under study	98	EU + national (for studies) Proposed by OSE for funding from 5th PP 2014-2020 (for Works)
Inoi - Tithorea	Restitution of Electrification and ERTMS installation	2010	2015	under construction	48,5	EU + national
Tithorea - Lianokladi	New double-track High Speed Railway Line with electrification . ETCS level 1 and GSMR	1997	2015	under construction	184	EU national
Lianokladi-Domokos	Mew double-lrack High Speed Railway Line with electrification . ETCS level 1 and GSMR	2006	2016	under construction	214	EU + national Proposed by OSE for funding from 5th PP 2014-2020
Domokos- Thessaloniki	ERTMS installation	2010	2015	under construction	22	EU + national
Thessaloniki - Strimonas - Promachonas (Kulata)	Limited Upgrade of the existing line and electrification	2014	2016	under study	80	Proposed by OSE for funding from 5th PP 2014-2020
Larissa - Volos	Upgrade of the existing line and electrification	2013	2015	under study	18	National