The European Union's 2003 Regional CARDS Programme
Albania, Bosnia & Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro, Serbia and UNMIK/Kosovo

South-East Europe Core Regional Transport Network Development Plan

Five Year Multi Annual Plan 2007 to 2011

Common problems – Sharing solutions
November 2006
Volume 1

This Project is Founded by
The European Union

SEETO
SOUTH-EAST EUROPE TRANSPORT OBSERVATORY
The Project implemented by
SEETO Joint Venture

South-East Europe Core Regional Transport Network Development Plan

Five Year Multi Annual Plan 2007 to 2011

Common problems – Sharing solutions

November 2006

Volume 1

SEETO
SOUTH-EAST EUROPE TRANSPORT OBSERVATORY

This document has been produced under CARDS Contract 86/526 between the European Commission and SEETO Joint Venture: GOPA Consultants – TRADEMCO S.A.

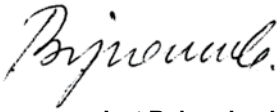
Foreword

It is again my privilege to commend to you this, our second, Multi Annual Plan for the period 2007 to 2011. Although it comes only 6 months after our approval of the first plan, it represents a significant improvement.

Firstly, because it contains a large and interesting section on the performance of the core network; it shows that there remains much to be done to rehabilitate the road routes and most of the railway infrastructure.

Secondly because the MAP correctly focuses on the road and rail subsectors with a well defined set of soft measures that will improve road safety and move the railways towards closer collaboration and thirdly because the MAP 2007 – 2011 better reflects our highest priority investments.

Finally, the MAP, I suggest, represents well, the labour of cooperation; as Chairman, I note that the Steering Committee will have met 10 times by the time the MAP is adopted by our ministers. The MAP, however, is only a tool. It is up to us to ensure that we use it well for the benefit of our region.



Izet Bajrambasic
Steering Committee Chairman

Executive Summary

RATIONALE AND OBJECTIVES OF THE MAP

The Memorandum of Understanding for the Development of the South East Europe Core Transport Network (MoU) signed in June 2004 sets out the requirements for cooperation, sharing information, improving performance, investment and institutional support. The MoU stipulates the preparation of a Five Year Multi Annual Plan (MAP) that details the implementation of the MoU.

The overall objective of the MAP is to bring benefits to transport users within and beyond the SEE Region of improved efficiency, lower costs and better quality of services. The specific objectives of the MAP can be stated as a) providing focus for regional cooperation essential for European integration, b) a base of information on the performance of the Core Network, c) a programme of soft measures to improve the management of the Core Network and d) a list of the highest priority investment projects that remove bottlenecks.

THE MAP PROCESS

The process of preparing the MAP is evolving. The Five Year Plan For The Development of the SouthEast Europe Core Regional Transport Network for the period 2007-2011 is the second of an annual rolling process within a planning horizon of 2020. This new plan updates the first MAP 2006-2010 that was approved by the Steering Committee in April 2006 through the addition of an overview of the performance of the Core Network, specific institutional initiatives that improve the efficiency of the transport network and a plan of highly ranked investment projects that are categorised according to their preparatory status.

COOPERATION AND INFORMATION SHARING

The MAP is the palpable output of considerable cooperation between all stakeholders manifested by 9 meetings of the Steering Committee, 6 workshops of National Coordinators and 2 Rail and Inter-modal Working Group Meetings. MAP 2007 – 2011 has taken into consideration the requirements of the first Annual Meeting of Ministers held in Skopje in November 2005.

Improvements in the provision of data and exchange of information are reflected in the MAP, though large sections of the Core Network have gone unrecorded and a significant number of performance parameters have yet to be reported.

DEFINING THE CORE NETWORK AND DATA COLLECTION

Questionnaires were delivered in June 2006 to collect data on the condition and performance of each of over 200 sections of the Core Transport Network as the first step for establishing a data base from which an assessment has been made. As a result of more accurate information obtained, the total length of the Core road network has been revised from MAP 2006/10 to 5866 km, consisting of 3033 km of corridors and 2833 km of routes. The total length of the core rail network is modified to 4264 km comprising 2731 km of corridors and 1533 km of routes. The Danube inland waterway in Croatia and Serbia is 588 km. In addition, 7 sea ports, 2 river ports and 11 airports have been included in the Core Network.

CONDITION AND PERFORMANCE OF THE CORE ROAD NETWORK

The condition assessment of the core road network shows that 36% of its length is classified as good or very good, being an improvement of 8% since the last assessment from the REBIS but 7% of corridor roads are classed as poor or very poor, the proportion rises to 29% for routes. The present condition of the infrastructure remains cause for concern as low accessibility, particularly on routes and in remoter areas, effects local economic development and social integration. Data on traffic flow remains insufficient, in particular for Croatia and Albania, Corridor Annual Average Daily Traffic (AADT) was found to be slightly less than 10,000 pcu per day and traffic flow on routes was about 7,500 pcu per day. Bottlenecks are predicted to affect 466 km or 8% of roads having traffic exceeding 10000pcu/day. Road safety remains a very serious issue, which has to be given more consideration

CONDITION AND PERFORMANCE OF THE CORE RAIL NETWORK

The information recently gathered covers 83% of the network and shows that only 10% of it is in good condition (instead of 12% according to REBIS) The remaining part is rated as medium poor, very poor and with much infrastructure in such a poor condition, and with very serious financial constraints, that performance of the railway network is significantly reduced, with adverse effects on speed, capacity and reliability. Consequently, a significant proportion of the network suffers from permanent speed restrictions that can be lifted only by the railways inspectorate after rehabilitation process. Mean traffic flow on core network railways is 46 trains per day; 20% of the core network conveys less than 20 trains per day. Effort is needed to return information on the outstanding part of the network.

INLAND WATERWAYS, SEA PORTS AND AIRPORTS

The capacity of the Danube waterway or PanTEN Corridor VII is affected by 20 sections of 41 km in length that suffer with silting. Cargo flowing on the river amounted to 14.3 mt and 60,000 passengers. Two inland ports have been selected in the core network, at Belgrade and Novi Sad, where improvements in handling are required. The Core Network also includes the Sava River where planned improvements will ensure the connectivity of Bosnia and Herzegovina and Croatia to Corridor VII and enhance the potential for inter-modal transport.

The core network includes 7 seaports: Rijeka, Split, Dubrovnik and Ploce in Croatia, Bar in Montenegro, Durres and Vlona in Albania, the last three being in great need of improvement. These ports handled 20 mt, of which 8 mt was liquid bulk; SEE ports also handled 100,000 teus or about 950,000 tons. Complete information is still missing, in particular for the Albanian seaports, condition of which is likely to be not satisfactory.

Eleven airports have been selected in the core network (Tirana in Albania, Sarajevo and Banja Luka in Bosnia-Herzegovina, Zagreb, Dubrovnik, and Split in Croatia, Pristina in UNMIK/Kosovo, and Skopje in the former Yugoslav Republic of Macedonia, Podgorica in Montenegro, Belgrade and Nis in Serbia). Core network airports handle 300 flights per day, 8 million passengers but less than 20,000 tons of cargo. More information should be made available to be in a position to plan for the necessary increases in airport capacity, as air traffic is likely to grow at around 10% per annum.

BORDER CROSSINGS

With 2339 km of additional borders (following the break up of Yugoslavia), there are 49 road and 18 railway border crossings on the core network that restrict flows on the core network to various degrees. Road border crossing performance improvements have been assessed at 16 border crossings, 12 of which being on the core network. Average border delay times have reduced significantly due to the TTFSE and Integrated Border Management Programmes. Border delays on railways for passenger and freight remain unacceptably high accounting for about 15% of passenger journey time and 25% of transit time of freight. An urgent priority is to collect and analyse railway border crossing performance data. The combined effect of speed restrictions and long border processing times reduces rail passenger commercial speeds to about 50 kph and 25 kph for freight trains. The Memorandum signed in Corfu June 2006 aims to improve performance of railway border crossings in Corridor X

UNDERLYING STRATEGY

The underlying strategy to the MAP established for 2006 to 2010 applies to all MAPs for short to medium term and comprises the following issues: a) enhancing regional interest through coherence with other actions,

b) stimulating economic development through better modal balance, c) improving sector management to ensure financial sustainability, d) providing for social integration, e) providing for safer operations and e) adopting common technical standards.

The MAP underlines the necessity of adopting soft measures that move the sub-region towards an integrated European Transport Market, in particular for railway and the road sub-sectors.

ROAD SUB-SECTOR

The key soft measures proposed for roads aim to satisfy three of the MAPs strategic objectives: enhancing regional interest through coherence with actions in other countries, providing safer operations and promoting common technical standards.

Improving road safety is considered as being of critical importance. As many factors contribute to road safety, including roads maintenance, drivers behaviour, law enforcement and also vehicles condition and traffic mix, a significant decrease of fatalities requires a coherent set of soft measures covering a wider scope of intervention. The MAP focuses on the introduction of mandatory safety audits and also enforcement of planning controls to combat informal roadside development that is considered to undermine the value of parts of the core road network.

RAILWAY SUB-SECTOR

The major challenges to be addressed in the railways sub-sector are the elimination of delays in border crossings and the harmonisation of future arrangements for open access to the network. The MAP recognises the relatively small scale of SEE Railways and promotes a regional approach to infrastructure management, that will develop synergies, maximises potential and achieves economies of scale. The proposal adopted by the Steering Committee is for a regionally common network statement, a set of access conditions and a scale of user charges in compliance with EU Directive 2001/14. As there is no precedent within the EU for either a multinational network statement or a regulatory body, further progress will require legal assistance. Meeting the challenge of introducing open access in January 2009 will require the closest collaboration and expert advice.

PROJECT SELECTION

Since MAP 2006-2010 was published in May 2006, there has been increasing interest in the process of regional cooperation considering 67 new projects have been submitted to SEETO and over 25% of the projects from the MAP 2006-2010 project pool have been updated. By the final closing date of 6th October 2006, a total of 276 projects have been processed by SEETO for MAP 2007-2011, of which 220 provided sufficient information to be selected in the project pool. Projects in the pool were prioritised by SEETO in accordance with procedures developed with the Steering Committee. Projects

submitted are all considered to be of national importance, the ranking of projects is intended to reflect their relative regional importance. The ranking process uses multi-criteria analysis; 16 criteria are used that relate to the strategic objectives for the MAP. The relative importance of the project prioritisation criteria was determined by the Steering Committee, the EC and SEETO. The final ranking of projects being based on summing a total weighted evaluation score for all criteria. Sensitivity analyses were carried out to give greater weight to economic criteria.

INDICATIVE PROGRAMME

The indicative investment programme covers the most important strategic sections of the Core Network with a total of 22 project groups with 35 sub-projects: 18 on corridors, 10 on routes and 7 in terminals. The priority projects cover 8% of the road network, 20% of the rail network, 30% of identified bottlenecks on the Danube, 4 out of 11 airports and 3 out of 7 seaports. Among the 35 selected projects, 18 are new constructions, 8 upgrades and 9 rehabilitations, reflecting the need both to develop as well as to repair the Core Network.

PREPARATORY STATUS OF PROJECTS

As to implementation, project status using information submitted by participants shows that 16 sub-projects are prepared with designs and with feasibility studies completed, 19 are at the early stage of preparation with 6 having prefeasibility studies available and 13 having the terms of reference giving the project description only and are at a very early stage in the project cycle.

INVESTMENT NEEDS

Indicative investment requirements for the prioritised 2007-2011 projects amount to approximately € 1.9 billion over the next five years, which represents 21% of the total estimated cost of € 9.1 billion for

all regional projects submitted to SEETO. Taking into account some additional costs and pending the utilisation of an updating index, the total planned expenditure can be roughly estimated to € 2 billions.

AFFORDABILITY

Determination of fiscal space is a matter for governments and the International Financial Institutions. Overall however, the indicative programme represents 0.5% of regional GDP at current prices.

RESULTS - INFRASTRUCTURE IMPROVEMENTS

By 2011, the priority list of projects should improve further 506 km of road and 834 km of railway tracks and signalling; bottlenecks on Danube navigation should disappear and seaport and airport improvements will raise capacity to meet rising demand. By 2011 border crossings should have become almost invisible due to passenger processing on moving trains and electronic interchange of rail freight data. All Balkan countries will be the part of the European Common Aviation Area (ECAA) and air traffic will have been boasted by increased competition and lower fares.

MANAGEMENT IMPROVEMENTS

By 2011 widespread legal and regulatory reform is expected through implementation of the acquis communautaire that will enhance integration into the EU transport market and reintegration of transport markets within the region. Road Management will be improved through independent authorities, employment of contemporary systems, expeditious financing and more consumer awareness. Road accident rates should have reduced, undertaking a variety of measures, to that of the EU average. Railways will have been restructured, downsized, become more productive, commercially attuned and financially stable. Railways are also expected to have reintegrated with one or two independent operators, have open access to international operators that use a common network statement, common access contract with common services and user charges.

MONITORING

The implementation of the Memorandum of Understanding through the Multi Annual Plan requires careful and comprehensive monitoring to ensure the ongoing credibility of the process, provide stakeholders with the evidence that they need to continue their support and users with objective information. Monitoring the MAP implementation since 2006 shows that several projects have advanced and reforms have taken place.

EVALUATION

Regarding the results expected from implementation of the MAP, evaluation indicators initiated in this MAP include a Network Condition Index (NCI ranges from 1 poor to 5 very good). For Core Network Roads the NCI in 2006 is 3.30 rising to 3.59 by 2011 based on data covering 88% of the network. A congestion indicator is being developed; capacity constraints are predicted to affect 8% of the core by 2011 road network. For railways the current NCI is 2.27 rising to 2.56 by 2011 based on data for 83% of the network. Rail operations are significantly constrained because 65% of the network has mandatory speed restrictions – this will fall to about 10% by 2011. Generally, road fatalities of 6 per million vehicles in the West Balkans are expected to reduce to 3 fatalities per million as the EU25 average. However, Core Network roads are expected to be safer than the national average. Traffic indices to be developed relate to the classification of traffic and most importantly, whether domestic, regional or international. Travel time indices will also be developed including waiting time at borders. The performance of soft measures will be monitored based on adoption of contemporary and commercial management practices, extent of involvement of the private sector, and implementation of EU compliant regulations. Regional cooperation currently evidenced through meetings and memoranda will materialise into concrete actions of reintegration as manifested through common regulations, institutions and services.

INFORMATION RESOURCES

The SEETIS information system will become an increasingly important source for regional planning and management decision making. Since MAP 2006-10 was approved there have been over 250,000 hits to the Web Site.

NEXT PLAN

The next plan will cover the period 2008 to 2012. Its main features will include more documented projects prioritised according to the agreed methodology, traffic forecasts, accident data and analysis and border crossings performance.

Table of Contents

VOLUME 2
INFORMATION AND ANALYSIS

LIST OF ANNEXES

LIST OF FIGURES

LIST OF TABLES

List of abbreviations

AADT	Average annual daily traffic
AGR	Accord européen sur les grandes routes de trafic international (European agreement on main international traffic arteries)
AGTC	Accord européen sur les grandes routes lignes de transport international combiné et les installations connexees (European Agreement on Important International Combined Transport Lines and Related Installations)
AGC	Accord européen sur les grandes lignes internationales de chemin de fer (European agreement on main international railway lines)
AMM	Annual Meeting of Ministers
CARDS	Community Assistance for Reconstruction, Development and Stabilisation
CER	Council of European Railways
Consultant	GOPA Consultants – TRADEMCO (SEETO Joint Venture)
DBMS	Database management system
DG TREN	Directorate General for Transport and Energy
EU	European Union
EC	European Commission
et. al.	et alii (= and others)
eg	exempli gratia (= for example)
GIS	Geographical Information System
IFI	International Financing Institution
IT	Information Technology
ISG	Infrastructure Steering Group
km/h	Kilometre per hour
LT	Long Term
MCA	Multi Criteria Analysis
MoU	Memorandum of Understanding
NC	National Coordinator(s)
NCI	Network Condition Index
PC	Personal Computer
PM	Project Month(s)
REBIS	Regional Balkan Infrastructure Study
SAp	Stabilisation and Association Process
SEE	South East Europe
SEETO	South East Europe Transport Observatory
SEETIS	South East Europe Transport Information System
SC	Steering Committee
ST	Short Term
SS	Sub-section
TA	Technical Assistance
TEN-T	Trans European Networks (Transport)
ToR	Terms of Reference
TINA	Transport Infrastructure Needs Assessment
TIRS	Transport Infrastructure Regional Study
TPPF	Transport Project Preparation Facility project
UNMIK	United Nations Mission in Kosovo
Vpd	Vehicles per day

Introduction

1.1 BACKGROUND

1.1.1 Framework for Regional Cooperation

The five year Multi-Annual Plan (MAP) for the development of the Core Regional Transport Network is a requirement of the Memorandum of Understanding (MoU) signed 14th June 2004 by the Governments of Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Serbia, Montenegro, and the United Nations Mission in Kosovo and the European Commission. The comprehensive aims of the MoU are copied verbatim in the text box below:

The Aim of the MoU

The aim of this Memorandum of Understanding is to cooperate on the development of the main and ancillary infrastructure on the multimodal South East Europe Core Regional Transport Network (hereinafter the Network) and to enhance policies in this area which facilitate such development. The development of the Network should include maintenance (including preventive measures and repair), reconstruction, rehabilitation, upgrading and new construction of main and ancillary infrastructure as well as its operation and use with a view to fostering the most efficient and environmentally friendly transport modes on a regional scale. Thus, both infrastructure and related services, including administrative and regulatory procedures, are within the scope of this Memorandum.

The Memorandum of Understanding furthermore envisages close cooperation among participants on the harmonisation and standardisation, wherever feasible, of technical standards and regulatory or administrative provisions affecting the flow of transport in and across the region, in accordance with EU standards and directives. This includes cooperation in and, where possible, harmonisation of customs and border control procedures. This cooperation will include a commitment to carry out any institutional reforms needed for efficient transport management in the region (including measures to eliminate corruption or malpractice relating to administrative or tendering procedures), and an undertaking to exchange information on a regular basis concerning the progress of such reforms.

The Memorandum also commits the participants jointly to develop and implement an annual and multiannual rolling action plan (covering a period of 4-5 years) agreed by all participants in order to provide a platform for most efficient use of funds and knowhow provided by public and private sources.

Finally, this Memorandum seeks to promote and enhance local capacity for the implementation of investment programmes, management and data collection and analysis in the countries of the region.

The contents of the MAP are defined in the MoU as including a list of priority projects and information on performance of the Core Network. The MoU stresses the importance of soft measures to promote modern management and operational practices across the Network. The MoU establishes the institutional framework for regional cooperation led by a Steering Committee and supported by Technical Secretariat – SEETO.

1.1.2 Objectives for the MAP

Development of the regional core transport network is one of the crucial needs for the economic and social development of South-East Europe. It will strengthen links with neighbouring countries, expedite the flow of international trade, and provide better connectivity with the region's more remote areas.

The overall objective of the MAP is to bring benefits to transport users within and beyond the SEE Region of improved efficiency, lower costs and better quality of services. The specific objectives of the MAP can be stated as a) providing focus for regional cooperation essential for European integration, b) a base of information on the performance of the core network, c) a programme of soft measures to improve the management of the core network and d) a list of the highest priority investment projects that remove bottlenecks.

1.2 THE CORE NETWORK INITIATIVES

1.2.1 Previous Initiatives

Core Network development is actively supported by the European Union. The European Commission has expedited this through continuous engagement with the Transport Infrastructure Regional Study (TIRS) in 2001 – establishing the core regional transport network1; the Regional Balkan Infrastructure Study (REBIS) of 2002/3, identifying projects and measures needed2; the MoU of 2004 – creating a regional consensus to address the problems and develop the

network3; and currently the establishment of SEETO, 2004-2007, to implement the MoU.

1.2.2 Core Network Definition
The Core Transport Network has been defined in the MoU. Possible future changes will be a part of the planning process. A key function of the Plan, according to Annex II of the MoU, is to provide and keep updated an inventory of the condition, operation and performance of the Core Network.

1.2.3 Transport Policy
Development strategy for the Core Network must also take due account of the Common Transport Policy of the European Commission, as stated in the White Paper 'European Transport Policy for 2010 of 2001 and in the Mid-Term Review of June 2006. This White Paper proposes some 60 specific measures as part of the developing European Common Transport Policy. These are policies to which the MoU signatories must expect to adhere in the medium and longer term. The High Level Group for the extension of the major trans-European transport axes to the neighbouring regions concluded its findings in November 2005. The Core Transport Network constitutes part of the South-East Axis; therefore the projects included in MAP have significance not only for South-East Europe, but also for Europe as a whole, and for its links with the Caucasus and Middle East.

1.2.4 Multi-Annual Planning
This five-year Plan for development of the South-East Europe Core Regional Transport Network for the period 2007 to 2011 is the second output of an annual rolling process within a planning horizon of 2020. The first plan, MAP 2006-11, was adopted by the Steering Committee in April 2006. This new plan updates and enhances the previous plan with additional information and analysis which have become possible as the SEETO project evolves. The preparation of the MAP is an entirely collaborative exercise between all participating governments the EC, IFIs and other bodies such as the Corridor Secretariats and industry. The relationships, procedures, linkages are strengthening year on year.

1.3 INFORMATION GATHERING AND SHARING/SEETIS

1.3.1 Commitment to share information
Sharing of relevant information on development, use and operation of the Core Network is an essential element of cooperation in general and a sustainable planning process in particular. Obligations for the exchange of information are defined in the MoU (sub section 4). Information sharing is, therefore an objective to the MAP process. Ministers at their first Annual Meeting in Skopje in November 2005 reconfirmed their commitment to information sharing and acknowledged shortcomings and a need for much more progress. This MAP demonstrates the substantial progress that has been made.

1.3.2 Information systems
The development of Information Systems by SEETO is ongoing process. Data collection has advanced considerably in this plan through the hard work of National Coordinators. SEETO's website (www.seetoint.org) is being developed to become both the checkpoint for finding information and the forum for sharing it. The SEETO Information System is called SEETIS. This MAP is based on version 1 and utilised Questionnaires for the collection of project information and data on the condition and performance of the Core Network. The next MAP will be based on version 2 which will permit the exchange of information online using a geographic information system.

1.3.3 MAP 2007-11 Structure
The next section of the MAP elaborates in some detail the inventory, condition and performance of the Core Transport Network; the following section outlines the general requirements for reform and some specific measures for improving road and rail subsectoral management. Section 4 describes the formation of the priority list of projects, the investment needs and the Action Plan. The final section describes the results expected, outlines requirements for monitoring and introduces performance indicators for evaluation.

Useful links

See http://ec.europa.eu/ten/infrastructure/doc/tren_se_en.pdf

See http://www.seerecon.org/infrastructure/sectors/transport/documents/REBIS/Rebis_FR_Final.pdf

See http://www.seetoint.org/Library/MoU/2004_06_11_memorandum.pdf

See http://www.seetoint.org/MoM2005/FINALAGREEMENT_web.pdf

See http://ec.europa.eu/transport/white_paper/documents/index_en.htm

See http://ec.europa.eu/ten/transport/external_dimension/doc/2005_12_07_ten_t_final_report_en.pdf

See http://www.seetoint.org/MoM2005/FINALRESOLUTION_web.pdf

Core Network Performance/Assessment

2.1 INFORMATION NEEDS

An objective of the MAP process is to provide and keep updated an inventory of the condition, operation and performance of the Core Network as an essential input to the prioritisation of projects. Performance can be measured in terms of infrastructure and its condition; operational indicators such as traffic capacity and journey time; traffic levels and forecasts; and progress with the proposed rehabilitation and upgrading of the network.

Not all these data are yet available. In the first Multi-Annual Plan for 2006-10, initial priority was given to the selection of proposed rehabilitation projects, in accordance with a requirement of the MoU. For MAP 2007-11 an important extension of the data gathering exercise has been made with introduction of the Infrastructure and Traffic Questionnaire (ITQ). The ITQ has enabled key data on infrastructure description and condition and on traffic to be collected and added to the SEETIS data base, and to be analysed in a rational way. Although some gaps remain in these data, useful network indicators on traffic and infrastructure can now be compiled and used to indicate existing and potential bottlenecks in the network. Efforts will now be made, in cooperation with National Coordinators, to plug remaining data gaps and extend the data system further before production of the next MAP for 2008-12.

Key results of the performance analysis are presented in this section, together with a series of detailed network maps illustrating various key parameters. More detailed performance analyses for the different modes, with focus on infrastructure, condition and traffic, are shown in Annex B.

2.2 CORE NETWORK DESCRIPTION

The Core Network has been defined to include road, rail and inland waterway links in the seven SEE entities, together with a number of designated seaport, river port and airport nodes. The main international links include three road and rail arteries (Pan-European Corridors) plus one international waterway (the Danube), all of which connect with other European countries in each direction. These are defined as Corridors in the SEETO network. In addition, seven regional road arteries and six regional rail arteries have been included in the network, defined as Routes. The Core Network also includes seven seaports, two river ports and eleven airports.

The total length of the Core Road Network is some 5,866 km, consisting of 3,033 km of Corridors and 2,833 km of Routes. Total length of the Core Rail Network is 4,264 km, including 2,731 km of Corridors and 1,533 km of Routes. The total length of the River Danube (Corridor VII) within Serbia and Croatia is given as 588 km and the Sava River navigable length (as branch of Corridor VII) is 593 km. The lengths of the Core Network have differed to those quoted in the 2006-2010 MAP due to more accurate information – section by section.

More detailed descriptions of the different modal components of the Core Network are given in the following sections. A set of network maps (Figures 2-1 to 2-5) is included at the end of this section, and cross-references will be made in the text. Network data are also contained in Annex A.

Figure 2-1: Trans-European Corridors in South East Europe

Figure 2-2: Core Network Links (Roads)

Figure 2-3: Core Network Links (Railways and Waterways)

Figure 2-4: Core Network Links and Nodes

2.3 PERFORMANCE OF ROAD NETWORK

2.3.1 System Description

The Road Network contains the following components, as illustrated in Table 2-1. Road maps are shown in Figures 2-5 to 2-8.

The total length of the Core Road Network is thus 5,866 km, distributed as shown in Table 2-2. Serbia and Croatia account more or less equally for 48 per cent of the network, with the next largest networks accounting for 15 per cent in Bosnia and Herzegovina and 13 per cent in Albania.

Roads of four or more lanes (motorways or dual carriageways) account for 1,231 km (41 per cent) of the Corridor network, and for 315 km (11 per cent) of the Route network, giving an overall total of 1,546 km (26 per cent) of the whole Core Network. Of these multi-lane sections, 865 km lie along Corridor X in Croatia, Serbia and the former Yugoslav Republic of Macedonia, while 280 km lie on Route 1 down the western Croatian coast as far south as Split. All motorways are of four lanes, apart from some 5 and 6-lane sections in the former Yugoslav Republic of Macedonia. Numbers of lanes are indicated in Figure 2-6.

2.3.2 Road Condition

In assessing core network condition, the MAP is not starting from scratch. In 2002 REBIS made an extensive survey of road pavement condition, found to vary as follows:

Roads without problems	**28%**
Roads which need new wearing course	**25%**
Roads which need pavement rehabilitation	**24%**
Roads needing overlay + wearing course	**12%**
Roads needing completely new pavement	**11%**

Although the REBIS classification is not the same as SEETOs, there is an indication that 28% of the Core Road Network could be classified as being in good condition, 49% as fair and 23% as in poor condition. Furthermore, the widths of 870 km or 13% of the network were below the 7m AGR standard.

From the information received in 2006 it is clear that the overall condition of the Core Network has been improving since REBIS, especially where new motorways have been constructed in Croatia and the former Yugoslav Republic of Macedonia. Information from the ITQ's graded road sections on a five-point scale ranging from Very Good to Very Poor, and results are summarised in Table 2-3. Road condition

Table 2-1: Components of the Road Network

CORRIDORS	
Corridor V B (308 km)	Rupa (Slovenian border) – Zagreb (Croatia) – Gorican (Hungarian border)
Corridor V C (559 km)	Udvar (Hungarian border) – Osijek (Croatia) – Sarajevo (Bosnia and Herzegovina) – Opuzen (Croatia) – Ploce (Croatia)
Corridor VIII (716 km)	Tirana/ Durres/ Vlore (Albania) – Skopje (the former Yugoslav Republic of Macedonia) – Devebair (Bulgarian border)
Corridor X (1,052 km)	Bregana (Slovenian border) – Zagreb (Croatia) – Beograd (Serbia) – Skopje (the former Yugoslav Republic of Macedonia) – Bogorodica (Greek border)
Corridor X A (63 km)	Donji Macelj (Slovenian border) – Zagreb West (Croatia)
Corridor X B (185 km)	Horgos (Hungarian border) – Novi Beograd (Serbia)
Corridor X C (98 km)	Nis (Serbia) – Gradina (Bulgarian border)
Corridor X D (116 km)	Veles (the former Yugoslav Republic of Macedonia) – Medzitlija (Greek border)
ROUTES	
Route 1 (616km)	Bosiljevo (Croatia) – Split (Croatia) – Ploce (Croatia) – Neum (Bosnia and Herzegovina) – Dubrovnik (Croatia) – Bar (Montenegro)
Route 2 A (236 km)	Okucani (Croatia) – Banja Luka (Bosnia and Herzegovina) – Lasva (Bosnia and Herzegovina)
Route 2 B (396 km)	Sarajevo (Bosnia and Herzegovina) – Podgorica (Montenegro) – Vore (Albania)
Route 2 C (136 km)	Fier (Albania) – Kakevile (Greek border)
Route 3 (184 km)	Sarajevo (Bosnia and Herzegovina) – Uzice (Serbia)
Route 4 (581 km)	Vatin (Romanian border) – Beograd (Serbia) – Bar (Montenegro)
Route 5 (107 km)	Paracin (Serbia) – Vrska Cuka (Bulgarian border)
Route 6 (253 km)	Ribarevina (Montenegro) – Ribarice (Serbia) – Pristina (UNMIK/Kosovo) – Skopje (the former Yugoslav Republic of Macedonia)
Route 7 (338 km)	Lezhe (Albania) – Pristina (UNMIK/Kosovo) – Doljevac (Serbia).

Table 2-2: Road Corridor and Route Lengths in SEETO Countries and Territories

	Corridors		Routes		Totals	
	km	%	km	%	km	%
Albania	369	12%	407	14%	776	13%
Bosnia and Herzegovina	400	13%	470	17%	870	15%
Croatia	855	28%	511	18%	1,366	23%
the former Yugoslav Republic of Macedonia	617	20%	20	1%	637	11%
Montenegro	0	0%	506	18%	506	9%
Serbia	792	26%	671	24%	1,463	25%
UNMIK/Kosovo	0	0%	248	9%	248	4%
Total Lengths	3,033	100%	2,833	100%	5,866	100%

Source: SEETIS

Table 2-3: Core Road Network Condition Analysis

Road Condition	Corridors		Routes		Corridors & Routes	
	km	%	km	%	km	%
Very Good	672	22%	280	10%	952	16%
Good	664	22%	525	19%	1,189	20%
Medium	977	32%	982	35%	1,959	33%
Poor	156	5%	376	13%	532	9%
Very Poor	31	1%	472	17%	503	9%
Not Specified	533	18%	198	7%	731	12%
Total	3,033	100%	2,833	100%	5,866	100%

Source: Responses to Infrastructure Questionnaries

is also illustrated for the whole Core Network in Figure 2-6. It is seen from the table that 36 per cent of the network was graded as Good or Very Good, while 18 per cent was classified as Poor or Very Poor, indicating significant improvement over the REBIS figures for 2002. However, for 12 per cent of the Core Network, including 17 per cent of the Corridors, road condition was not specified. Efforts will be made to improve coverage of this important parameter before the preparation of the next Plan, especially in the former Yugoslav Republic of Macedonia and Albania. Furthermore, geometric data submitted shows that substandard width roads constitute only 9% of the network.

2.3.3 Traffic

As might be expected from the widely varying economic and demographic conditions in the region, traffic flows vary quite widely over the Core Network, with flows exceeding 100,000 passenger car units (pcu) per day on some sections, mostly near or passing through Belgrade. Details are given in Table 2-4, where data generally refer to the year 2005. Over the whole network, flows were below 5,000 pcu/day on 2,039 km (35 per cent of the network), between 5,000 and 9,999 pcu/day on 1,564 km (27 per cent), and over 10,000 pcu/day on 1,082 km (18 per cent). On the Corridor network alone, only 602 km (20 per cent) recorded flows below 5,000 pcu/day, while 731 km (24 per cent) had flows of 10,000 pcu/day.

The high rate of nonresponse on traffic flows must be noted, with these not being available for 19 per cent of the Core Network, including no less than 28 per cent of the Corridors. Again efforts will be made to improve response to this key parameter, especially in Croatia and Albania.

For the 4,778 km (81 per cent) of the Core Network where traffic data were available, calculations were made of average flows, showing the mean value of 7,759 pcu/day and the median value of 6,200 pcu/day (with 50 per cent of the network having both lower and higher flows). For the Corridor roads the mean value rose to 9,586 pcu/day, while the median flow was 7,548 pcu/day.

The proportion of international traffic (originating or terminating beyond national boundaries) is an important indicator for the use and performance of the Core Network, as it illustrates the level of economic activity as well as the improving efficiency and lowering cost of use. Whilst only few respondents recorded details of the proportion of international traffic

Table 2-4: Core Road Network Traffic Analysis

Traffic Range	Corridors		Routes		Corridors & Routes	
AADT	km	%	km	%	km	%
0–999	0	0%	93	3%	93	2%
1,000–1,999	61	2%	334	12%	395	7%
2,000–4,999	541	18%	1,103	39%	1,644	28%
5,000–9,999	840	28%	724	26%	1,564	27%
10,000–14,999	288	9%	97	3%	385	7%
15,000–19,999	361	12%	215	8%	576	10%
> 20,000	82	3%	39	1%	121	2%
Data missing	860	28%	228	8%	1,088	19%
Total	3,033	100%	2,833	100%	5,866	100%

Average Traffic Flow (pcu/day)			
Average Flow (AADT)	All Corridors	All Routes	All Corridors and Routes
Mean traffic flow (a)	9,586	6,266	7,759
Median traffic flow (b)	7,548	4,733	6,200

Source: Responses to Infrastructure Questionnaires
Notes:
(a) (Summation of Flows x Lengths) divided by (Total Network Length)
(b) Flow on Median Section of Network Ranked by Traffic Flows (with equal lengths having lower and higher flows).

evidence indicates that the levels vary from over 40% on Corridor X to less than 2% on remoter routes. More analysis will be presented in the next MAP, and also continuously on line on the SEETO Web Site as new information comes in.

The proportion of goods vehicle traffic similarly indicates the increasing importance of the core network to the economy. Figure 2-9 shows the road traffic density and composition, with trucks accounting for as much as 33% of the traffic on sections of E 75 in Corridor X. Of course this is also an indicator of the extent to which intermodality needs to improve in SEE, as much of the demand could switch to rail as it improves in quality.

Fuller details are available in Annex B, including analyses for the individual SEETO entities. Traffic flows are also illustrated in Figure 2-8.

2.3.4 Identification of Bottlenecks

The available traffic data can be used to identify existing or potential bottlenecks (a bottleneck being a function of the propensity for delay due to congestion or other causes). On the basis of available data this cannot be done with sophistication, taking detailed account of factors such as vertical and horizontal alignments, surface condition, traffic mix and other factors determining exact traffic capacity of any individual road. Nevertheless, it is possible to set crude traffic thresholds at which it will be prudent for planners to consider the need for upgrading the existing roads. For instance, with expected traffic growth at 5 per cent or more per annum and with an inevitable time lag in undertaking major capacity improvements, it is considered appropriate to classify all two-lane roads currently carrying more than 10,000 pcu/day as having potential capacity problems. A similar threshold for four-lane roads is taken as 40,000 pcu/day.

Table 2-5 therefore lists all two-lane roads which currently have reported traffic flows exceeding 10,000 pcu/day. There are 466 km of such routes, of which 152 km are Corridor routes, principally in Bosnia and Herzegovina. The 314 km of Route sections with high traffic flows are mostly in Serbia and UNMIK/Kosovo. These sections are marked in red in Figure 2-8.

There are also four-lane sections on Corridor X in the Belgrade area where stated traffic flow exceed 40,000 pcu/day namely:

Novi Beograd (Tosin Bunar) – Beograd (petlja Mostar)	AADT 142,676
Beograd (petlja Mostar) – Beograd (petlja Autokomanda)	AADT 116,612
Beograd (petlja Autokomanda) – Bubanj Potok	AADT 48,690

This traffic flow serve to confirm the importance of constructing the Belgrade bypass as soon as possible, so as to relieve the heavily used motorway route through the city centre.

2.3.5 Other Issues

The Infrastructure and Traffic Questionnaire also asked for data by road section on operating speed as against design speed. There can be difficulties in defining these terms precisely, and responses to these questions have not been analysed clearly in the present Plan, but it is hoped to develop the concept further in the MAP 2008-12.

Of great importance is the operational safety of Core Network roads to the extent that safety will become a critical issue in future MAPs. Despite the existence of questions on accidents in the ITQ, response has not materialised. This is due to the way in which accident data is aggregated at national level rather than by route. This is not helpful to the planner, desirous of making route by route improvements. The application of safety inspection and auditing to highways in SEE in the future will bring about the changes necessarily.

Traffic forecasting will also be carried out during the coming year, so as to provide a more robust base for comparison of potential traffic against road capacity.

Table 2-5: Core Road Network: Two-Lane Sections with Traffic Exceeding 10,000 Pcu/Day

	Country/territory	Road section	Length [km]	Traffic flow (PCU/day)
Corridors				
Corridor VC	Bosnia and Herzegovina	Seslije–Doboj	15	10,328
	Bosnia and Herzegovina	Doboj–Karuse	8	13,155
	Bosnia and Herzegovina	Zenica–Lasva–Visoko	43	11,322
	Bosnia and Herzegovina	Visoko– Josanica	9	12,860
	Bosnia and Herzegovina	Josanica–Semizovac–Sarajevo	17	19,532
	Bosnia and Herzegovina	Sarajevo–Blazuj	9	48,250
	Bosnia and Herzegovina	Mostar by-pass	20	12,000
Corridor VIII	Albania	Lushnje–Fier	31	10,940
		Total Length	152	
Routes				
Route 1	Croatia	Split–Opuzen	23	11,769
	Croatia	Dubci–Makarska	19	10,374
	Croatia	Sustjepan–Cibuca	8	10,576
Route 2A	Bosnia and Herzegovina	Gradiska–Klasnica	31	12,131
Route 4	Serbia	Vrsac–Pancevo	57	16,400
	Serbia	Beograd–Orlovaca	8	25,850
	Serbia	Orlovaca–Lazarevac	44	16,900
Route 6	UNMIK/Kosovo	Mitrovica–Pristina	35	15,100
	UNMIK/Kosovo	Pristina–Lipljan	12	35,100
	UNMIK/Kosovo	Lipljan–Donja Grilica	23	15,100
	UNMIK/Kosovo	DonjaGrilica–Kacanik	17	13,000
Route 7	UNMIK/Kosovo	SuvaReka–Crnoljevo	18	15,100
	UNMIK/Kosovo	Crnoljevo–Lipljan	19	15,100
		Total Length	314	
Corridors and Routes				
		Total Length	466	

Source: Responses to Infrastructure Questionnaires

Figure 2-5: Condition of Roads

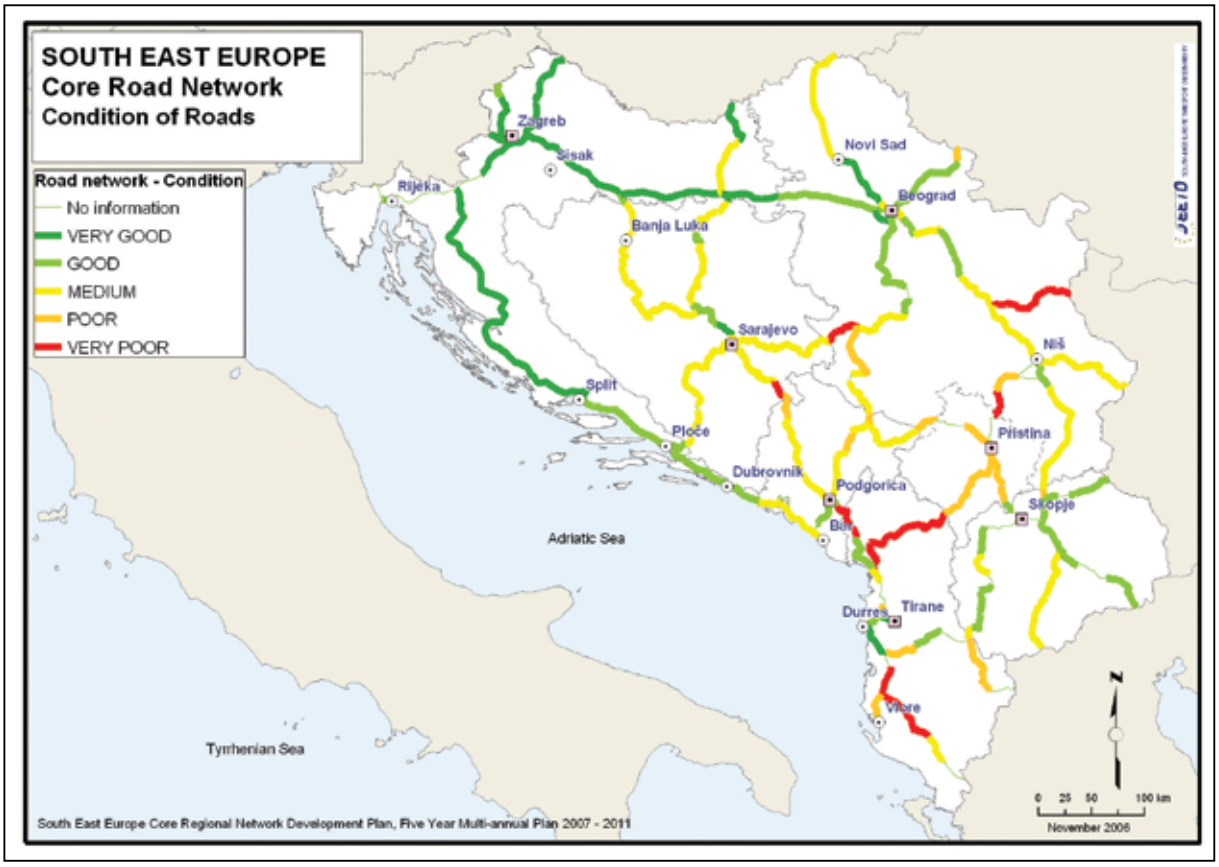


Figure 2-6: Roads – Number of Lanes

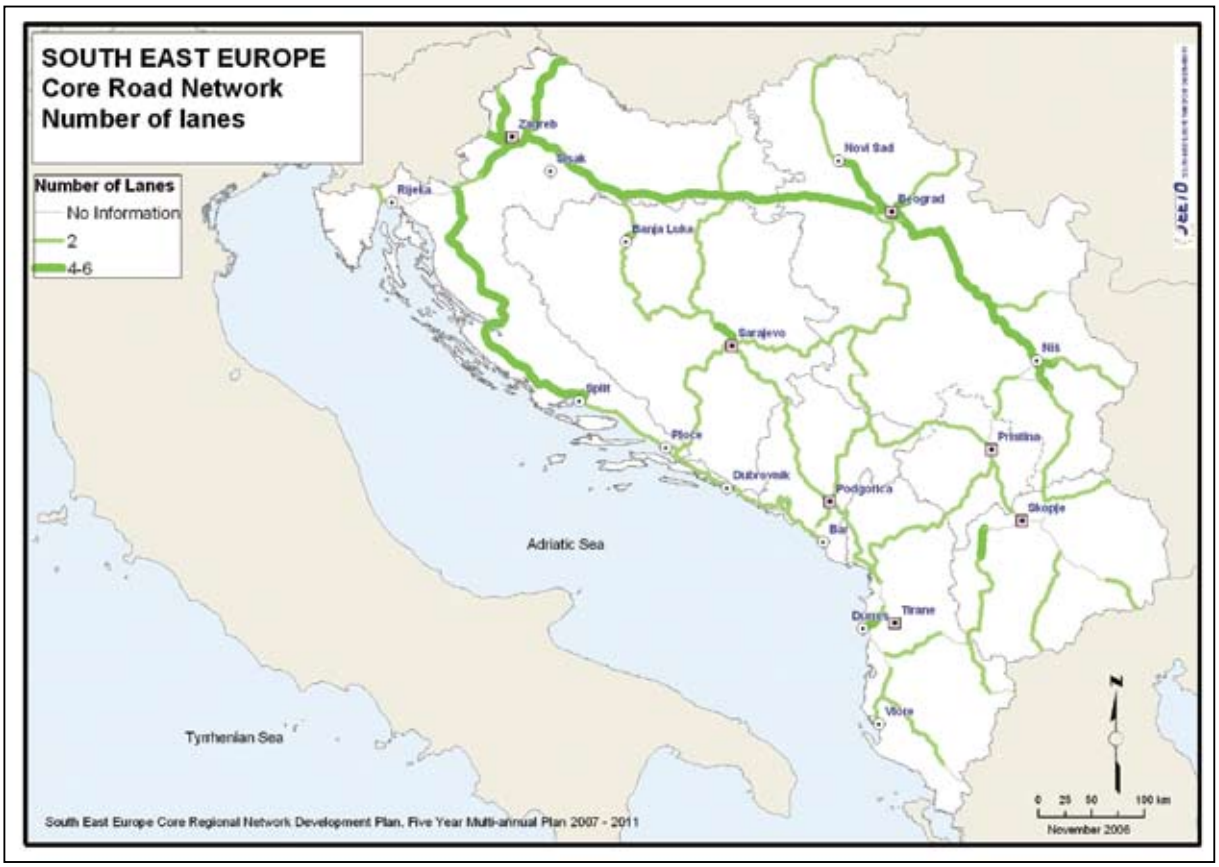
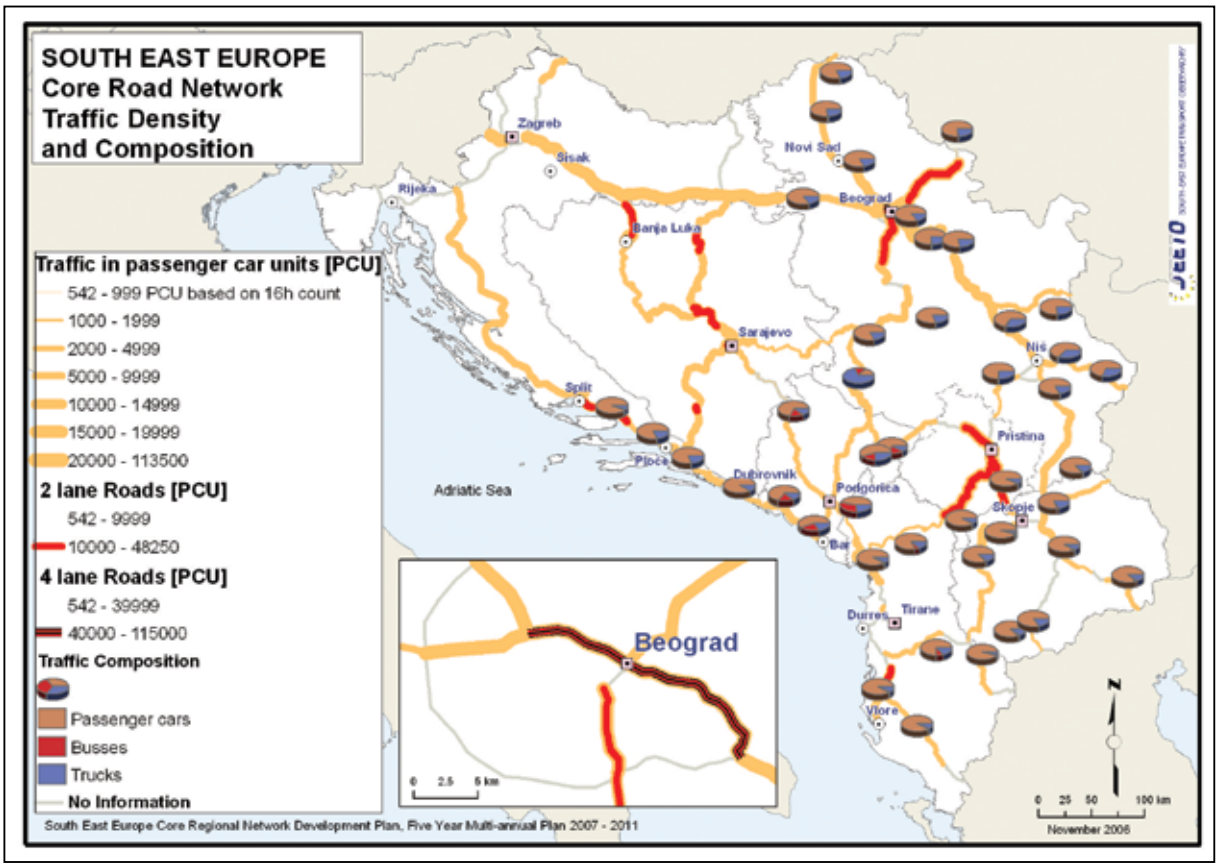


Figure 2-7: Roads – Operating Speed vs. Design Speed

Figure 2-8: Road - Traffic Density and Composition



2.4 PERFORMANCE OF RAIL NETWORK

2.4.1 System Description

The Rail Network is listed in Table 2-6. Sections to be constructed are also listed. Rail maps are shown in Figures 2-9 to 2-12.

km (15 per cent) of the whole Core Network. Corridor X alone contains 527 km of double track in Serbia and Croatia. All double-track sections are electrified. The electrified portion of the whole Core Network is 2,550 route-km (60 per cent), comprising 1,976 km (72 per cent) of the Corridor network and 574 km (37 per cent) of the Route network. Details are given in Annex B,

Table 2-6: Components of the Rail Network

CORRIDORS
Corridor V B (341 km): Sapjane (Slovenian border) – Zagreb (Croatia) – Botovo (Hungarian border)
Corridor V C (534 km): Beli Manastir (Hungarian border) – Osijek (Croatia) – Sarajevo (Bosnia and Herzegovina) – Ploce (Croatia)
Corridor VIII (planned for 676 km, of which 436 km exist at present): Tirana/ Durres/ Vlore (Albania) – Lin/ Pogradec (Albania) (273 km) Kicevo (*fYR Macedonia) – Skopje – Kumanovo (*fYR Macedonia) (163 km)
Plus Planned Extensions:
Albania: Lin – *fYR Macedonian border / (4 km) Pogradec – Korce (Greek border) (80 km) *fYR Macedonia: Kafasan (Albanian border) – Kicevo (66 km) Kumanovo – Kriva Palanka – Devebair (Bulgarian border) (90 km)
Corridor X (1,058 km): Savski Marov (Slovenian border) – Zagreb (Croatia) – Belgrade (Serbia) – Skopje (*fYR Macedonia) – Gevgelija (Greek border)
Corridor X B (149 km): Subotica – Stara Pazova (Serbia)
Corridor X C (97 km): Nis (Serbia) – Dimitovgrad (Bulgarian border)
Corridor X D (179 km): Veles – Kremenica (179 km)
ROUTES
Route 1 (326 km): Ostarije (Croatia) – Split (Croatia)
Route 2 (143 km): Podgorica (Montenegro) – Vore (Albania)
Route 4 (601 km): Vrsac (Romanian border) – Belgrade (Serbia) – Bar (Montenegro)
Route 9 (87 km): Banja Luka (Bosnia and Herzegovina) – Doboj (Bosnia and Herzegovina)
Route 10 (252 km): Kraljevo (Serbia) – Pristina (UNMIK/Kosovo) – Gorce Petrov (*fYR Macedonia)
Route 11 (138 km): Pozega (Serbia) – Stalac (Serbia)

*fYR Macedonia – the former Yugoslav Republic of Macedonia

The total length of the Core Rail Network is 4,264 km, distributed as shown in Table 2-7. Serbia has the largest portion of the network with 33 per cent, followed by Croatia with 26 per cent and the former Yugoslav Republic of Macedonia with 13 per cent.

Double-track sections account for 613 route-km (22 per cent) of the Corridor network, and for just 33 km (2 per cent) of the Route network, giving an overall total of 646 while double-track and electrified sections are illustrated in Figure 2-10.

2.4.2 Railway Condition

Much of the railway network is in run-down condition, following many years of insufficient maintenance and investment, due partly to financial problems caused by heavy traffic losses since 1990. Responses to the

Table 2-7: Distribution of the Core Rail Network

	Corridors		Routes		Corridors & Routes	
	km	%	km	%	km	%
Albania	273	10%	118	8%	391	9%
Bosnia and Herzegovina	408	15%	87	6%	495	12%
Croatia	763	28%	326	21%	1,089	26%
the former Yugoslav Republic of Macedonia	527	19%	32	2%	559	13%
Montenegro	0	0%	192	13%	192	5%
Serbia	760	28%	628	41%	1,388	33%
UNMIK/Kosovo	0	0%	150	10%	150	4%
Total Length	2,731	100%	1,533	100%	4,264	100%

Source: SEETIS

ITQ's graded rail sections on a five-point scale, with results being summarised in Table 2-8. Fuller details are available in Annex B, with condition of the Core Network being illustrated in Figure 2-9.

The table shows that only 8 per cent of the Core Network was graded as good, while 27 per cent was classified as poor or very poor, including 36 per cent of the Corridors. However, for 17 per cent of the Core Network, including 37 per cent of the Routes, railway condition was not specified. Attention will be paid to improving coverage of this important parameter before the next Plan.

There has been only modest improvement for rail since REBIS, whose classification made in 2003 showed that 12% of the core rail network was considered as good, 50 % as in medium condition and 38 % as in poor condition. The resulting timetables had embedded in them speed restrictions on 88% of the network in 2003. In 2005 speed restrictions may still account for approximately 70% of the network.

2.4.3 Traffic

Despite large reported falls in traffic since 1990, significant traffic flow, in terms of trains per day, is reported for much of the network. Details are given below in Table 2 9, with data generally referring to the year 2005. Rail traffic flow is also illustrated in Figure 2-12.

On double-track sections, train numbers were available for 298 km, or only 46 per cent of the route length of 646 km. Over these 298 km, none had flow below 20 trains per day, while 86 km (29 per cent) had flow of 20-49 trains, 152 km (51 per cent) had flow of 50-99 trains, and 60 km (20 per cent) had flow of 100 or more trains per day.

On single-track sections, train numbers were available for 2,482 km, or 69 per cent of the route length of 3,636 km; in Albania these were for passenger trains only. These 2,482 km included 837 km (34 per cent) with flow up to 19 trains per day, 909 km (37 per cent) with flow of 20-49 trains, and 736 km (30 per cent) with flow of 50 or more trains per day.

Table 2-8: Core Rail Network Condition Analysis

Rail Condition	Corridors		Routes		Corridors & Routes	
	km	%	km	%	km	%
Very Good	0	0%	0	0%	0	0%
Good	351	13%	0	0%	351	8%
Medium	1,211	44%	790	52%	2001	47%
Poor	943	35%	175	11%	1118	26%
Very Poor	50	2%	0	0%	50	1%
Not Specified	176	6%	568	37%	744	17%
Total	2,731	100%	1,533	100%	4264	100%

Source: Responses to Infrastructure Questionnaires

Table 2-9: Core Rail Network Traffic Analysis

No. of Trains	Double Track		Single Track		All routes	
per day	km	%	km	%	km	%
0–19	0	0%	837	23%	837	20%
20–49	86	13%	909	25%	995	23%
50–99	152	24%	736	20%	888	21%
100–199	60	9%	0	0%	60	1%
> 200	0	0%	0	0%	0	0%
Not specified	348	54%	1,136	31%	1,484	35%
Total	646	100%	3,618	100%	4,264	100%

Source: SEETO Infrastructure Questionnaires

The network lengths for which numbers of trains were not available comprised 54 per cent of the double-track network and 31 per cent of the single-track network, making up 35 per cent of the whole Core Network. Special efforts will be devoted to ensuring that these data are available for the MAP 2008-12, especially in Serbia and Albania.

2.4.4 Other Issues

With much infrastructure in poor condition, and with serious financial constraints, performance of the rail network is inevitably reduced, with adverse effects on speed, capacity and reliability. As an indicator of reductions in speed, respondents to the ITQ were asked to give information on both design speeds and actual operating speeds on individual sections of track. Figure 2-11 highlights sections where discrepancies between the two values are particularly great, notably over a continuous 392 km of Corridor X from Vinkovci (Croatia) through Belgrade to Nis (Serbia), where actual speeds do not exceed 50 per cent of design speeds. In fact the imposition of speed restriction by the rail engineer is a legal expediency for safety reasons. Information from timetables shows that a significant proportion of the network suffers from permanent restrictions that can only be lifted following a rehabilitation exercise. The proportion of the network with speed restrictions is a good indicator of track condition that will be explored in the coming Plan.

While in the longer term there may be justification for important investment projects (such as further electrification or doubling of single-track sections) to increase train capacity, the immediate emphasis must be on the rehabilitation of track, signalling and rolling stock. Attention to this aspect, together with implementation of necessary soft measures (see Section 3) will help ensure that the overall network can emerge from on-going restructuring as a coherent and viable operating entity to face the competitive markets of the future.

Figure 2-9: Rail - Condition of Tracks

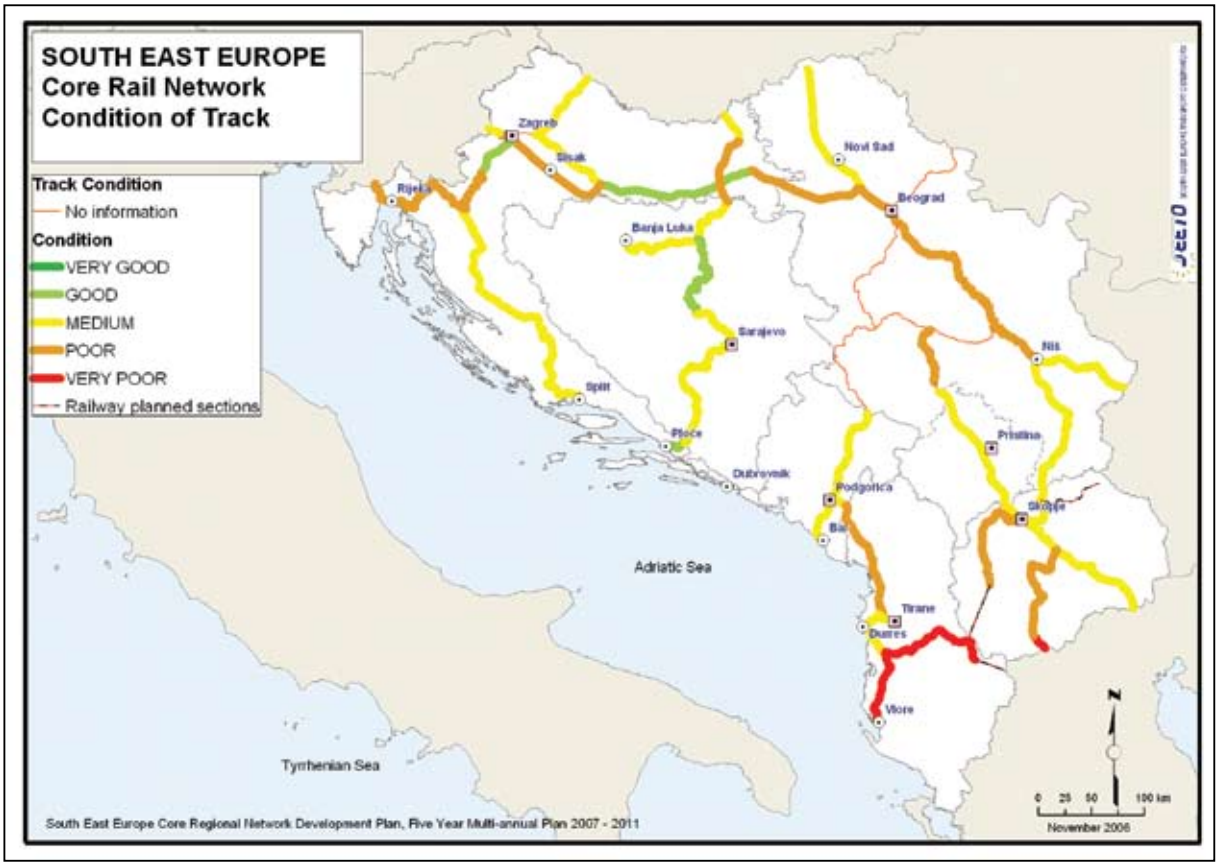


Figure 2-10: Rail - Number of Tracks and Electrification

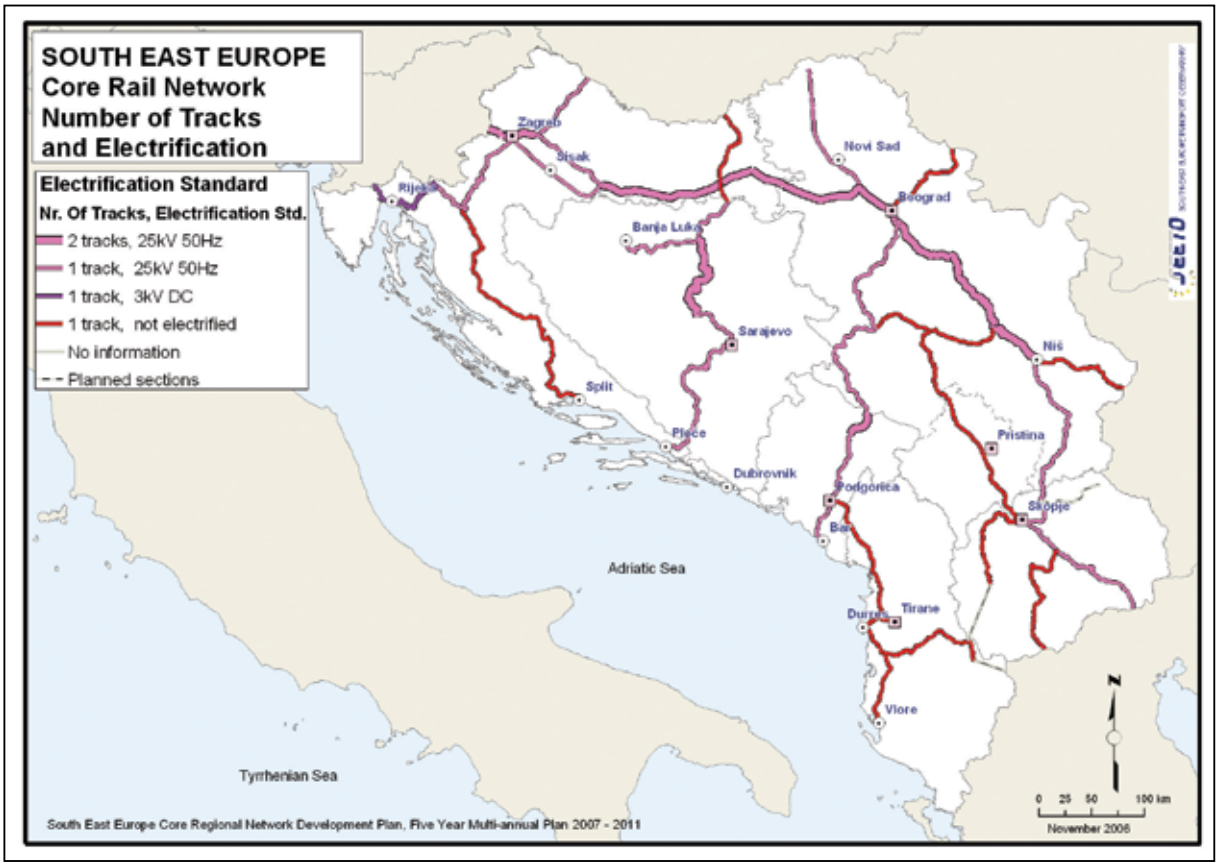


Figure 2-11: Rail - Operating Speed vs. Design Speeds

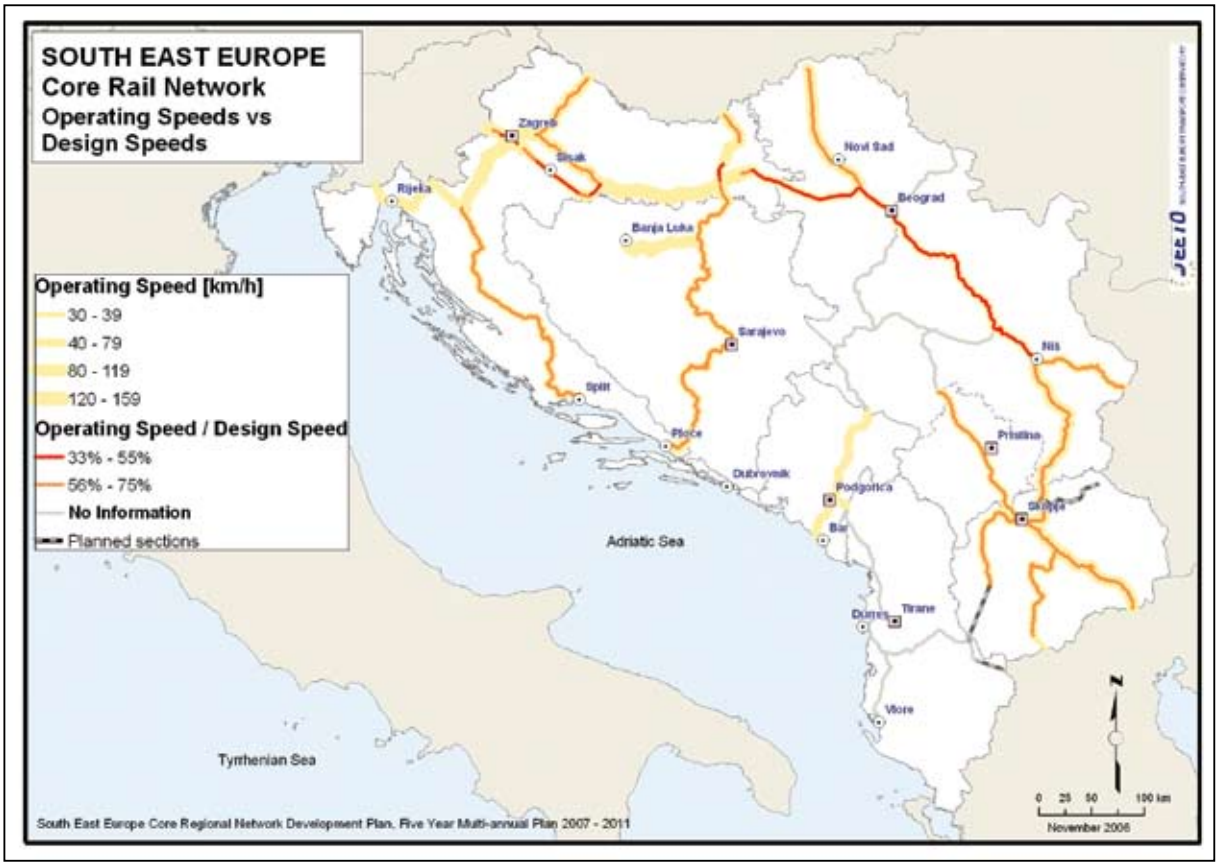
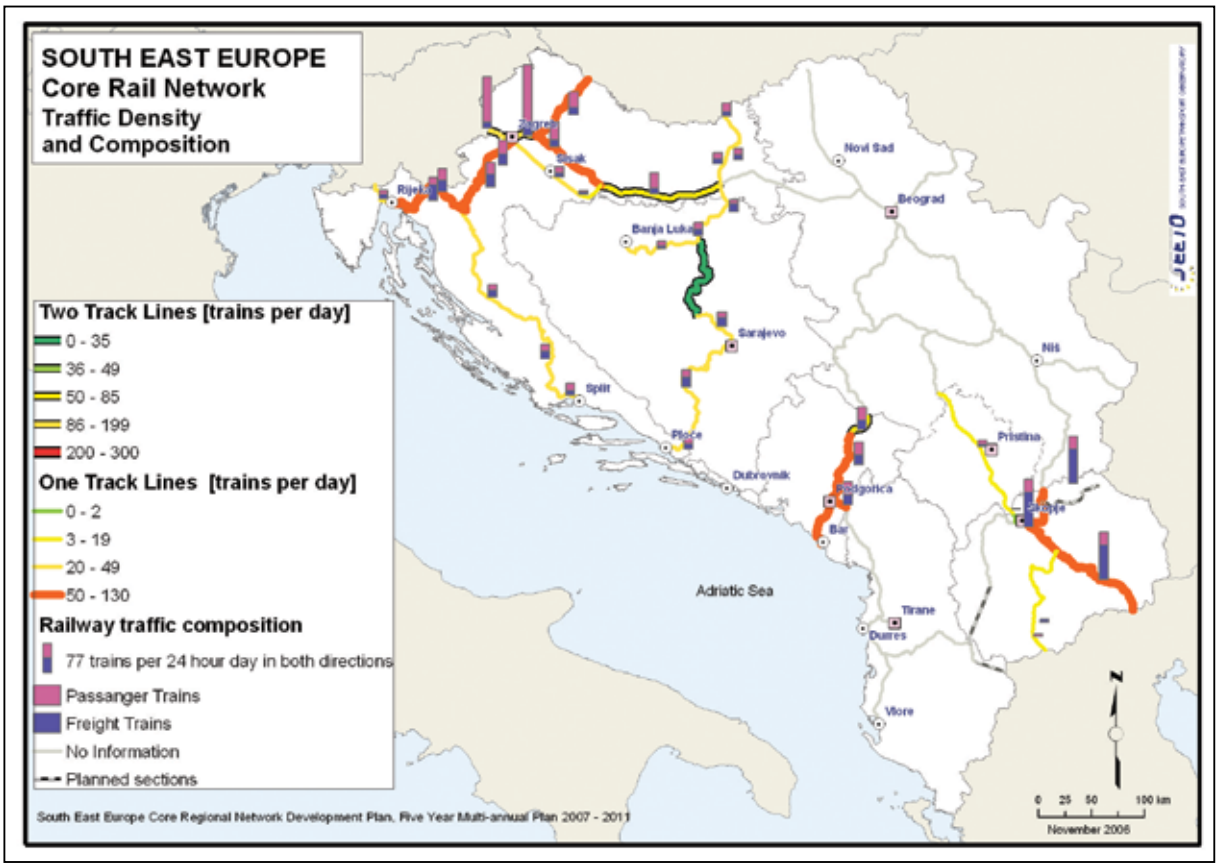


Figure 2-12: Rail - Traffic Density and Composition



2.5 PERFORMANCE OF INLAND WATERWAY NETWORK

2.5.1 Waterways

The Core Inland Water Network comprises the Danube and Sava Rivers. The Danube extends for a distance of 588 km from km 845 at the Romanian border through Belgrade and Novi Sad to km 1433 at the Hungarian border. From Romania upstream to Backa Palanka it either forms the Serbo-Romanian border or lies wholly within Serbia, while upstream of Backa Palanka it lies either along or very close to the Serbo-Croatian border.

The Sava river extends for 933 km and is navigable (on 593 km) from its confluence with the Danube at Belgrade to Sisak with category 4 to Brcko and with category 3 from Brcko to Sisak. Its location is shown in Figure 2-4.

In general the Danube is navigable to EU standards, having a minimum draught of 2.5 metres and a minimum bridge height of 12.8 metres. Normal operating speed is given as 5 to 7 km per hour upstream and 11 to 13 km/h downstream. Upstream of Belgrade there are five sections, with total length of 11 km, where condition is described as only medium. There are also 15 sections, with total length of 30 km, where width is given as a constraint. Traffic flow on the Danube is given for 2005 as 14.29 million tonnes of cargo, and 60,000 passengers.

2.5.2 Inland Ports

Two ports are designated as part of the Core Network, both on the Danube in Serbia at Belgrade and Novi Sad. Belgrade port has a total area of 100 ha, covered storage of 30 ha (300,000 sq metres), and a container stacking area for 12,000 TEU. Total throughput at the port was 284,000 tonnes in 2003. Novi Sad port has a total area of 240 ha, covered storage of 44,000 sq metres, and a stacking area for 1,000 TEU. Cargo handled in 2003 was 347,000 tonnes.

2.6 PERFORMANCE OF SEAPORTS

The Core Network includes seven seaports, including Rijeka, Split, Dubrovnik and Ploce in Croatia; Bar in Montenegro; and Durres and Vlore in Albania. Completed ITQ's were received for all ports except Split and Vlore, though some partial information has now been received (without completed ITQ) for Vlore. Key data for ports are shown in Figures 2-13 and 2-14.

Data received for the five ports with completed ITQ's on infrastructure, condition and traffic are summarised in Table 2-10, which also includes partial data for Vlore. Their locations and traffic levels are shown in Figures 2-4 and 2-13, while container, transhipment and Ro-Ro facilities are illustrated in Figure 2-14.

It is seen that Rijeka is the largest port in terms of cargo throughput, import of liquid bulk (all fuel), and container throughput. Approximately half of general cargo traffic is containerised at Rijeka and Ploce ports, but the proportion is much lower at Bar and Durres. Dubrovnik is purely a passenger port, and does not handle cargo.

Table 2-10: Infrastructure and Performance Data for Seaports

Port:	Rijeka	Ploce	Dubrovnik	Bar	Durres	Vlore
Port Area (ha)	200	238	9	200	14	
Container terminal	Yes	No	No	Yes	Yes	
Ro-Ro facilities	Yes	Yes	Yes	Yes	No	
Transhipment centre	Yes	No	No	No	No	
Minimum draught (m)	5.5	4.5	6.0	6.0	N/A	
Condition	Good	Good	Good	Medium	Very Poor	
No of vessels (2005)	2,499	472	2,915	1,127	1,377	235
Cargo Traffic (2005):						
Loaded (mn tonnes)	2.51	0.95	----	1.24	0.18	0.02
Unloaded (mn tonnes)	9.35	1.87	----	0.92	2.53	0.37
Total (mn tonnes)	11.86	2.82	----	2.16	2.71	0.39
Including:						
Liquidbulk	7.02	0.30	----	0.39	0.22	0.04
Dry bulk	3.19	2.21	----	1.04	Not clear	
General cargo	1.09	0.30	----	0.73	2.50	0.35
Container traffic (TEU)	76,258	17,965	----	12,258	4,250	
Container traffic ('000tonnes)	565	132	----	94	150	
Ro-Ro traffic (mn tonnes)	0.35	0.14	32,844 veh.	0.08	0.35	0.06
Passengers(2005) ('000pass)	218	102	827	66	700	

Source: SEETO Infrastructure Questionnaries

Figure 2-13: Port Traffic Data

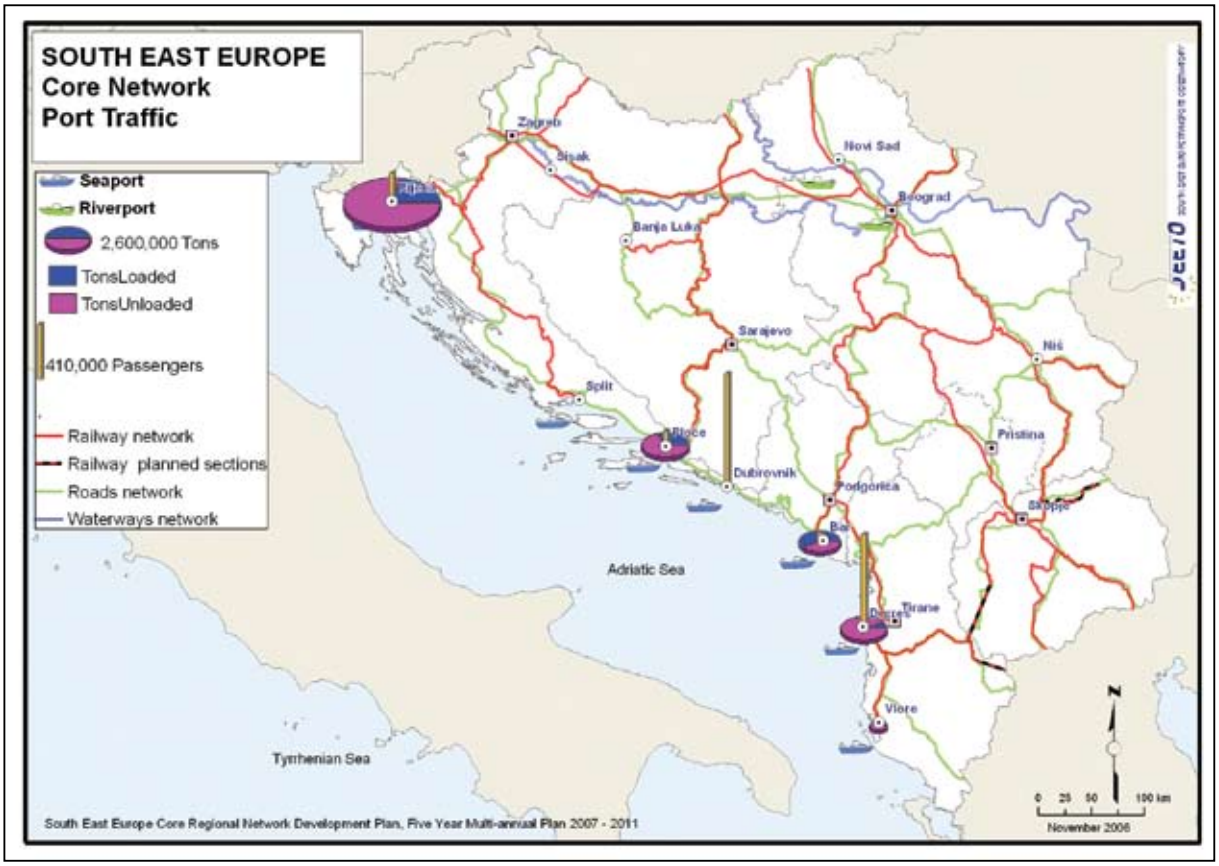


Figure 2-14: Port Cargo Composition and Terminal Facilities

Passenger traffic is heaviest at Dubrovnik and Durres, followed by Rijeka. The annual passenger flow at Dubrovnik is 827,000. Passenger demand is growing both nationally and internationally at all ferry terminals.

2.7 PERFORMANCE OF AIRPORTS

The Core Network includes eleven airports, including Tirana (1) in Albania; Sarajevo and Banja Luka (2) in Bosnia and Herzegovina; Zagreb, Dubrovnik and Split (3) in Croatia; Pristina (1) in UNMIK/Kosovo; Skopje (1) in the former Yugoslav of Macedonia; Podgorica (1) in Montenegro; and Belgrade and Nis (2) in Serbia. Usable data were received through National Coordinators for all eleven, though completed questionnaires were not received in all cases. Locations of the airports are shown in Figure 2-4.

Data received on infrastructure, condition and traffic are summarised in Table 2-11. Runway lengths and traffic levels are also illustrated in Figures 2-15 and 2-16. Thus three of the eleven airports (Belgrade, Zagreb and Dubrovnik) have runways of 3,250 to 3,400 metres, while the other eight have runways of around 2,500 metres. Passenger traffic currently exceeds 1.0 million passengers per annum at Belgrade, Zagreb and Dubrovnik, but also approaches that level at Split and Pristina. With the inclusion of the Western Balkans in the European Common Aviation Area (ECAA), there is a good reason to expect airport traffic to grow at around 10 per cent per annum over the next few years, and therefore a need to plan carefully for necessary increases in airport capacity.

Table 2-11: Infrastructure and Performance Data for Airports

Airport:	Belgrade	Nis	Zagreb	Dubrovnik
Runway Length (m)	3,400	2,500	3,250	3,300
Flights per day	103	N/A	30	20
Passengers ('000 per annum)	2,032	N/A	1,552	1,084
Cargo volume ('000 tonnes per annum)	10.9	0.4	12.5	0.7

Airport:	Split	Sarajevo	Banja Luka	Podgorica
Runway Length (m)	2,550	2,550	2,400	2,500
Flights per day	14	15	2	11
Passengers ('000 per annum)	908	433	20	385
Cargo volume ('000 tonnes per annum)	1.3	N/A	N/A	0.5

Airport:	Skopje	Pristina	Tirana
Runway Length (m)	2,550	2,500	2,750
Flights per day	N/A	14	44
Passengers ('000 per annum)	54	930	785
Cargo volume ('000 tonnes per annum)	4.0	1.2	2.1

Source: SEETO Infrastructure Questionnaries

Figure 2-15: Airports – Runway Lengths and Traffic Levels

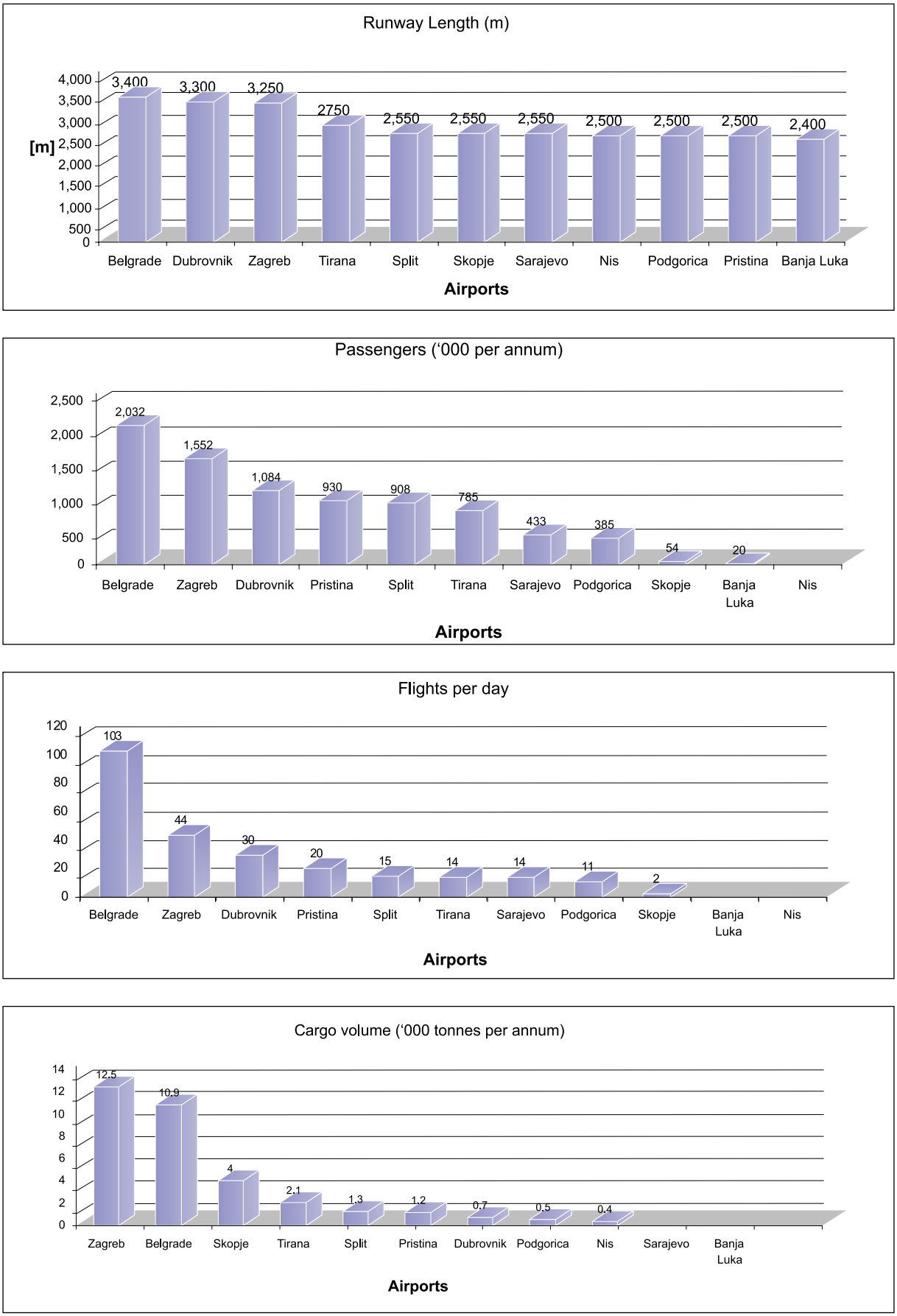
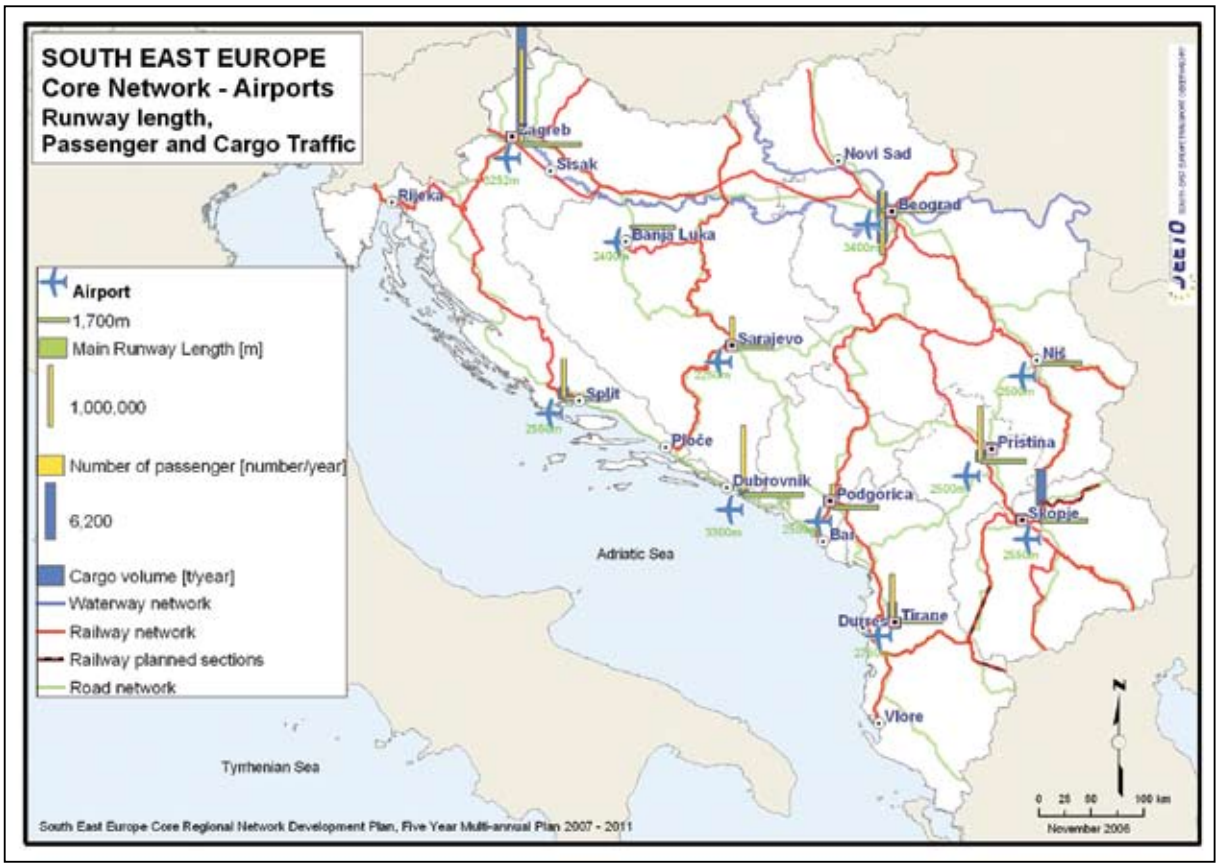


Figure 2-16: Airports - Runway Lenghts, Passenger and Cargo Traffic



2.8 BORDER CROSSINGS

2.8.1 Road Border Crossings

With the emergence of new states since 1991, the number of border crossings in South-East Europe has increased sharply. These new crossings are potential sources of delay and increased transport costs, and thus act against the goal of seamless transport which is an essential requirement of the future integrated European market. It is therefore of great importance that border crossing delays be minimised.

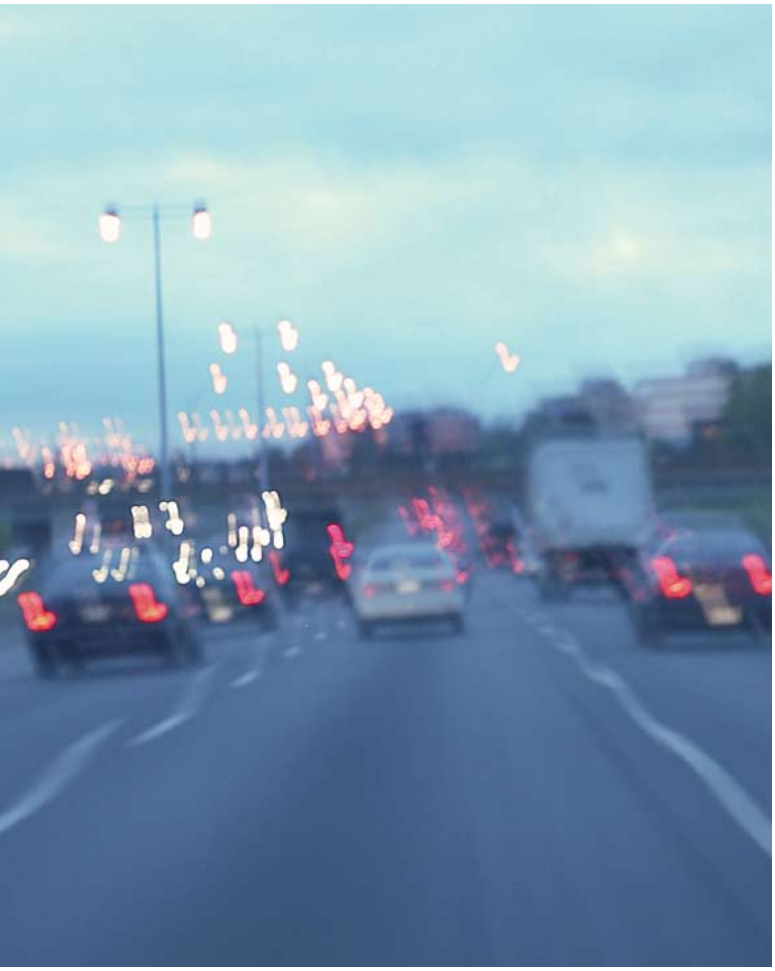
With the accession of Romania and Bulgaria there will be 55 'external' road border crossings between the Western Balkans and EU member states, and a further 60 'internal' crossings within the Western Balkans region itself, as shown in Table 2-12. Of these

Table 2-12: Inventory of Road Border Crossings in Western Balkans

	Core Network		Other Roads	Total	Percentage on Core Network
	Corridors	Routes			
External borders, with EU states (a)	10	3	42	55	24
Internal borders	5	13	42	60	30
Total	15	16	84	115	27

Border posts required	Core Network		Other Roads	Total	Percentage on Core Network
	Corridors	Routes			
To/from EU states (a)	10	3	42	55	24
Internal borders	10	26	84	120	30
Total	20	29	126	175	28

Note: (a) Including Bulgaria and Romania, joining EU January 2007.
Source: SEETO



13 external and 18 internal crossings lie on the Core Network, including 15 on the Corridors, and 16 on the Routes. With two countries or entities being involved at each border crossing, controls must thus be exercised at 13 'external' and 36 'internal' border posts on the Core Network.

2.8.2 Border Crossing Improvement Programmes

The problem of frequent border crossings in the Western Balkans has been recognised by the governments and international financing agencies, and considerable effort has already been devoted to its alleviation, notably through the Trade and Transport Facilitation in South-East Europe (TTFSE) programme initiated in 2000, covering all SEETO participants plus Bulgaria, Romania and Moldova.

This programme has set out to reduce transport costs, reduce malpractice at borders, and help Customs administrations align their procedures with those of the EU. In the Western Balkans it became active in 2001, except in Serbia and in Montenegro where the start year was 2002. While saving border costs by reducing goods inspection rates, it has also been successful in achieving substantial reductions in border crossing times and inspection costs per tonne of cargo.

The programme included piloting border performance improvements at 16 border posts in the Western Balkans, 12 of which were on the Core Network. Average border delay times, along with other costs data, were recorded each month for vehicles entering and exiting through the various posts. For the present analysis these have been converted to average 3-monthly figures for all quarters in which at least two monthly Total were recorded in the original TTFSE report. Key results are summarised in Table 2-13, while fuller details can be found in Annex B. Figure 2-17 illustrates changes in times required for entry procedures between 2002 and 2004.

On some routes spectacular reductions have been achieved in border delay times. For instance, at Tabanovce, the former Yugoslav Republic of Macedonia, on the Corridor X border with Serbia, average entry times fell from 104 minutes in January-March 2002 to 75 minutes in Jan-Mar 2003, and to 23 minutes in Jan-Mar 2004. At Gradiska, Croatia, on the Route 2a Bosnian border, exit times fell from 169 minutes in January-March 2001 to 49 minutes in the first quarter of 2002, then 14 minutes in 2003 and 8 minutes in 2004. At Deve Bair, the former Yugoslav Republic of Macedonia, on the Corridor VIII Bulgarian border, average entry times were around five hours in Jan-Mar 2001, and seven hours in the first quarter of 2002, but then fell to two hours in 2003 and 31 minutes in 2004. At some other crossings, however, time savings have been more modest.

No data have been available after June 2004 but a general reduction in border waiting times is discernible at most of the pilot border stations. The accumulated waiting times at border crossings on Corridor X (Zagreb-Belgrade-Sofia-Istanbul) is shown in Table 2-14. It is interesting to record no significant change in waiting time eastbound and reversal of the early improvements westbound. Despite the input of TTFSE phase I, there appears to be no sustainable monitoring activity of border crossing waiting times by National Governments. The variable performance in the table below demonstrates the need for constant vigilance by national governments.

Similarly total delays may be calculated as in Table 2-15 for Corridor VIII through Albania and the former Yugoslav Republic of Macedonia on the Durres – Sofia route.

In the eastbound direction, total reported delay times were low, and actually increased up to mid 2004. Westbound they were significantly longer, but fell substantially by mid 2004, with savings at both the former Yugoslav Republic of Macedonia and Albania entry posts.

The TTFSE project covered 12 of the 49 road border posts on the Core Network, and has helped achieve significant reductions in border crossing times. Clearly work must continue, especially on railway borders (not yet covered by TTFSE), where border delays for freight in particular remain unacceptably high. Soft measures that will improve performance are outlined in Section 3. SEETO will initiate the collection and analysis of data for traffic throughput and performance at Core Network border crossings in the next planning period.

Figure 2-13: Border Crossing Delay Times For Goods Vehicles at Pilot Border Stations under TTFSE Programme, 2002-2004

(Average Minutes Delay for Entrance and Exit Procedures)

Country/ Entity	Neighbouring/ Country	Border/ Post	Crossing Type	Corridor/ Route	Entry/Exit Times (mins)									
					2002				2003				2004	
Entry Times					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Albania	*fYR Macedonia	Qafe Thane	Internal	Corr VIII	63	75	89	54	45	43	40	32	26	28
Bosnia & H.	Croatia	Gradiska	Internal	Route 2 a	6	5	5	5	5	5	5	5	5	5
Croatia	Bosnia & H.	Gradiska	Internal	Route 2 a	15	15	15	15	15	15	15	15	15	15
Croatia	Slovenia	D. Macelj	External	Corr X a	127	111	93	83	66	61	54	52	49	41
*fYR Macedonia	Bulgaria	Deve Bair	External	Corr VIII	433	173	248	183	121	45	40	34	31	23
*fYR Macedonia	Albania	Kafasan	Internal	Corr VIII	18	---	17	19	18	17	21	20	19	28
*fYR Macedonia	Serbia	Tabanovce	Internal	Corr X	104	89	86	73	75	29	24	26	23	22
Montenegro	Croatia	Debeli Brijeg	Internal	Route 1	---	---	---	---	22	65	51	47	51	45
Serbia	*fYR Macedonia	Presevo	Internal	Corr X	---	---	---	---	---	117	77	90	68	78
Serbia	Bulgaria	Gradina	External	Corr X c	---	---	---	---	---	148	165	80	98	131
Serbia	Hungary	Horgos	External	Corr X b	---	---	---	---	---	98	104	122	94	78
Serbia	Croatia	Batrovci	Internal	Corr X	---	---	---	---	---	82	55	54	51	68
Entry Times					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Albania	*fYR Macedonia	Qafe Thane	Internal	Corr VIII	---	10	12	10	10	12	10	23	19	19
Bosnia & H.	Croatia	Gradiska	Internal	Route 2 a	---	3	3	3	3	3	3	3	3	3
Croatia	Bosnia & H.	Gradiska	Internal	Route 2 a	49	33	31	60	14	23	45	19	8	8
Croatia	Slovenia	D. Macelj	External	Corr X a	9	9	9	9	9	9	9	9	9	9
*fYR Macedonia	Bulgaria	Deve Bair	External	Corr VIII	11	13	14	14	9	8	6	6	6	6
*fYR Macedonia	Albania	Kafasan	Internal	Corr VIII	15	---	11	13	14	14	12	11	11	11
*fYR Macedonia	Serbia	Tabanovce	Internal	Corr X	27	24	17	19	13	11	8	9	7	7
Montenegro	Croatia	Debeli-Brijeg	Internal	Route 1	---	---	---	---	13	11	7	6	6	6
Serbia	*fYR Macedonia	Presevo	Internal	Corr X	---	---	---	---	---	22	16	45	8	7
Serbia	Bulgaria	Gradina	External	Corr X c	---	---	---	---	---	33	63	39	72	54
Serbia	Hungary	Horgos	External	Corr X b	---	---	---	---	---	24	25	19	13	9
Serbia	Croatia	Batrovci	Internal	Corr X	---	---	---	---	---	69	22	12	18	24

Source: TTFSE Program, Third Progress Report: World Bank

*fYR Macedonia – the former Yugoslav Republic of Macedonia

Figure 2-17: Border Crossing Entry Times

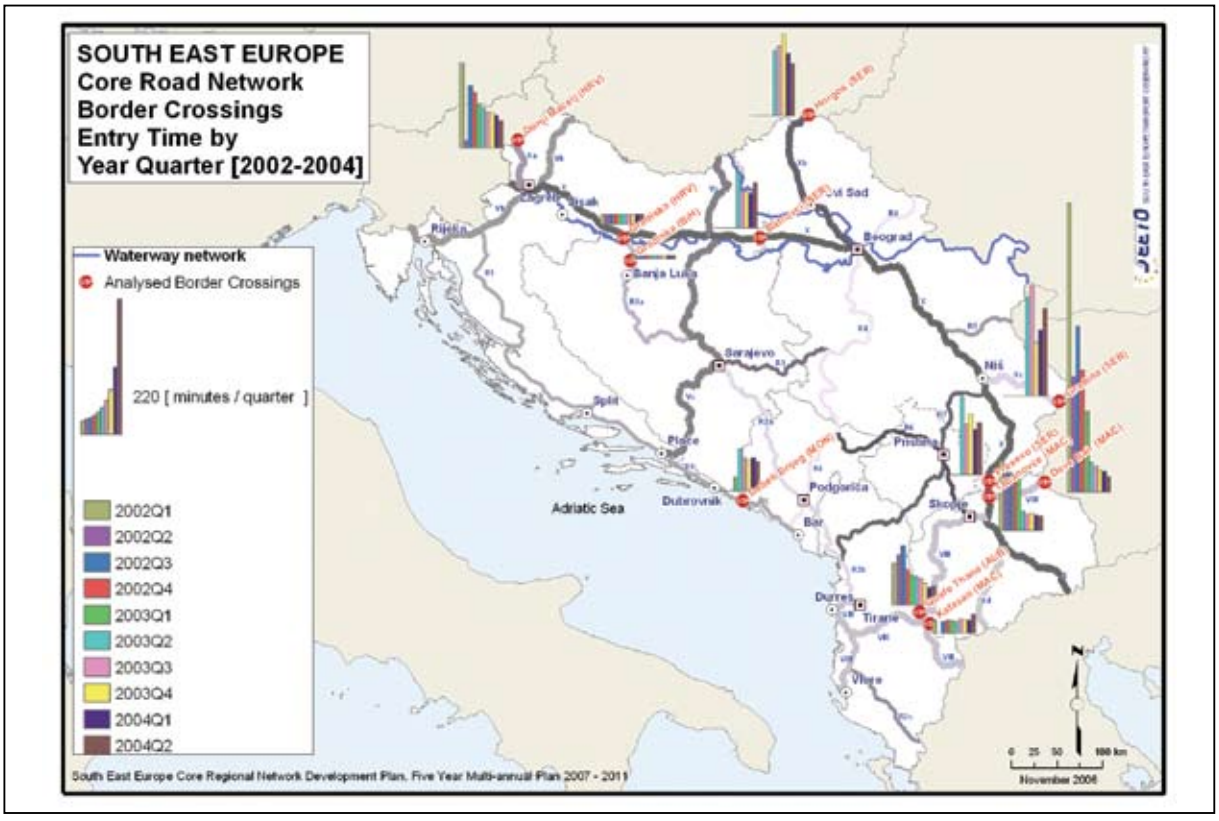


Table 2-14: Border Crossing Delays For Goods Vehicles on Graz–Sofia Route

Country	Procedure	Location	Average Delay in Minutes 2003 Q1	2003 Q2	2003 Q3	2003 Q4	2004 Q1	2004 Q2
Eastbound								
Croatia	Entry	D. Macelj	66	61	54	52	49	41
Croatia	Exit	Lipovac	---	---	---	---	---	---
Serbia	Entry	Batrovci	---	82	55	54	51	68
Serbia	Exit	Gradina	---	33	63	39	72	54
Total (3 posts)			---	176	172	145	172	163
Westbound								
Serbia	Entry	Gradina	---	148	165	80	98	131
Serbia	Exit	Batrovci	---	69	22	12	18	24
Croatia	Entry	Lipovac	---	---	---	---	---	---
Croatia	Exit	D. Macelj	9	9	9	9	9	9
Total (3 posts)			---	226	196	101	125	164

Source: World Bank (TTFSE)

Table 2-15: Border Crossing Delays for Goods Vehicles on Durres-Sofia Route

Country	Procedure	Location	Average Delay in Minutes 2003 Q1	2003 Q2	2003 Q3	2003 Q4	2004 Q1	2004 Q2
Eastbound								
Albania	Exit	Qafe Thane	10	12	10	23	19	19
*fYR Macedonia	Entry	Kafasan	18	17	21	20	19	28
*fYR Macedonia	Exit	Deve Bair	9	8	6	6	6	6
Total (3 posts)			37	37	37	49	44	53
Westbound								
*fYR Macedonia	Entry	Deve Bair	121	45	40	34	31	33
*fYR Macedonia	Exit	Kafasan	14	14	12	11	11	11
Albania	Entry	Qafe Thane	45	43	40	32	26	28
Total (3 posts)			180	102	92	77	68	72

Source: World Bank (TTFSE)

*fYR Macedonia – the former Yugoslav Republic of Macedonia

2.9 RAILWAY BORDER CROSSINGS

2.9.1 Information Gaps

Delays at railway borders appear to be much longer than those at road borders but there is a lack of information and performance data to check the visual and anecdotal evidence. There is no doubt that this has to be rectified in the MAP 2008-12 and steps have to be taken by the SEETO to ensure that the data is forthcoming. It is particularly important because the sub-sector, as a whole, is underperforming and the international community working with national governments is prepared to undertake certain activities. In fact, the MAP proposes a number of hard and soft measures designed to improve the performance.

2.9.2 Processing times

Notwithstanding the belief that railway borders are the cause of delay, it is necessary to put this issue into perspective. When measured on per capita basis or tonne basis, railway border controls are performed as efficiently as on any other mode. However, due to the fact that the progress cannot be made by a single individual or an item of freight until the entire train is cleared, the waiting time is much longer. For example, a train of 200 persons may take 45 minutes to clear a border station – the individual processing time is less than 5 minutes. A train of 600 tonnes of freight may take 6 hours, but 30 tonnes – equivalent of a truck load – takes only 18 minutes - which is as good performance, if not better, as at road borders as discussed above. This is the reason why the border processing for rail has

to use procedures and technology that takes advantage of the particular characteristics of a train. Certain soft measures designed to achieve this are proposed in the next section.

2.9.3 Technical Acceptance - Change of equipment
The railway operations and safety are managed nationally, the level of interoperability has reduced and it is normal for locomotives and crews to change at the border. It is also necessary for the equipment of one railway to satisfy the technical and safety requirements on the next. The certification of operators and procedure for acceptance of equipment is a matter covered by international conventions and also EU Directives. Once these are implemented delays at railway borders will be reduced further.

2.9.4 Measuring Processing Times
In order to collect railway border control and processing data in a uniform manner it is necessary to set out all of the steps that take place. The working group on Railways and Intermodal Transport will set out these steps, thus data collection can proceed, performance be monitored and improvements made.

being continuously improved, forms an integral part of this section of the MAP, depicting the position of the Core Network within the European transport system, and some of the key infrastructure and performance parameters for the Network itself. An overall summary of their subject matter may now be drawn together.

Figure 2-1 shows the transport network of surrounding countries and the main links between these countries and the SEETO network. Figures 2-2 and 2-3 then show the land links of the SEETO Core Network, firstly for roads and secondly for railways and inland waterways. Figure 2-4 shows the principal nodes of the Core Network, including seaports, river ports and airports.

Figures 2-5 to 2-8 illustrate condition and performance measures for the Core Road Network. Figure 2-5 shows road condition by sections on a five-point scale, while Figure 2-6 indicates which sections of road have more than two lanes. Figure 2-7 then compares operating speeds and design speeds, while Figure 2-8 shows details of traffic flow and compositions.

2.9.5 Positive Steps
Arising from the National Strategy for Integrated Border Management, the Government of Serbia has concluded bilateral agreements with neighbouring countries to improve the efficiency and effectiveness of border controls. An example of this is the establishment of joint border control with Bulgaria in Dimitrovgrad. Traffic in 2005 was 60 trains per day, 1.7 million tonnes and 50,000 passengers. The effect of the one-stop procedure, where both authorities work together, is to accomplish predicted processing times for passengers from more than 2 hours to less than 1 hour, and from about 15 hours to 2.5 hours for freight.

2.10 Core Network Digital Mapping
The series of maps have been developed using geodetic data provided by Eurostat in conformity with that used by EU DGTREN. The mapping, which is

Figures 2-9 to 2-12 illustrate parameters for the Core Rail Network. Figure 2-9 shows condition of the network by section, and Figure 2-10 identifies which sections are double-track and single-track, and also which sections are electrified. Figure 2-11 then compares operating speeds with design speeds, while Figure 2-12 gives details of traffic flow in terms of trains per day.

Figures 2-13 and 2-14 refer to seaports. Figure 2-13 shows traffic volumes at the different ports, while Figure 2-14 identifies key infrastructure facilities, including container terminals, Ro-Ro facilities and transhipment centres. Figures 2-15 and 2-16 depict the airports of the Core Network, showing details of runway lengths, and of passenger and cargo traffic throughputs. Finally Figure 2-17 shows border posts covered by the TTFSE programme, and the reductions that have been achieved in entry and exit times.

Transport Policy and Sector Reforms

3.1 IMPORTANCE OF SECTOR REFORMS

3.1.1 Overall Strategy

From 1 January 2007, Romania and Bulgaria will be the members of the EU. This means that the West Balkans subregion will be entirely surrounded by EU Member States. It will therefore be of considerable interest to integrate as possible the economic activity of the sub-region with that of the EU. Arising from the transport policies set out in the MAP 2006–10, the general objectives for the MAP may be stated as follows:

i. Enhancing regional interest through coherence with actions in other countries,
ii. Stimulating economic development through better modal balance and expeditious use of resources,
iii. Providing more efficient and effective management that will ensure financial sustainability,
iv. Providing for improvement of social integration and better living conditions,
v. Providing for safer transport operations,
vi. Enabling the adoption of common and appropriate technical standards so as to provide homogeneous services across the Core Network.

3.1.2 Programme of Soft Measures

An extensive programme of soft measures was approved by the Steering Committee in the MAP 2006-10. Some of these measures have been selected for implementation in the MAP 2007-11. To promote continuity between successive MAPs, details of all soft measures approved by the SC for the transport sector as a whole, for road and rail transport, and for intermodal transport have been tabulated in detail in Annexes C 1, C 2, C 3 and C 7. Two key areas for reform are elaborated in the MAP 2007-11.

- *Developing regional approach to railway management,*

For regional railways the objective *is to harmonise compliance with EU directives, and in particular with EC Directive 2001/14 on access, and to develop synergies that maximise their potential and achieve economies of scale.*

- *Improving regional road management - especially safety.*

For regional roads the objective is to ensure that the core road network provides regionally consistent levels of service, that it is managed in a sustainable way, and collaboratively organised for private sector participation. (Road Level of Service in this context is defined to cover planning, environmental and operational standards, as well as technical requirements).

3.2 REGIONAL RAILWAY SUB-SECTOR REFORM

3.2.1 Introduction

Good progress has been made since the MAP 2006-10 in developing a programme for assisting with the reform of the railways. The EC has supported the Working Group for rail and intermodal transport, and is formulating its future programme of support to the sub-sector. The World Bank is also committed to reform of the sub-sector, and is expected to support many of the soft measures adopted by the SC.
The major soft measures proposed for railways predominantly satisfy two of the overall strategic aims of the MAP, namely:

- Enhancing regional interest through coherence with actions in other countries; and
- Enabling common and appropriate technical standards to be adopted to provide homogeneous services through the Core Network;

The major challenges to be addressed are:

- The elimination of delays at railway border crossings
- The harmonization of future arrangements for access to the railway network

These two needs are interrelated since, without agreements on through operations and the processing of international trains, there will be little benefit from opening access to third-party operators.

3.2.2 Railway Working Group

The priority actions adopted by the Steering Committee have become the subject of action by the SEETO Railway Working Group. From its meetings in June and September 2006 a consensus is emerging.
The mandate focuses on monitoring reforms and, in particular, on maximising harmonisation in the sphere of network access and charging. The mandate also includes the harmonisation of freight tariffs and common conditions of carriage. The WG also proposes making progress on the development of inter-modal transport. The mandate importantly includes recommending actions to improve railway border crossings. The Railway Working Group also invites observers from neighbouring countries to exchange experience and cooperate, where needed, in the reform process, so as to develop a regionally integrated railway market.

During its inaugural meeting, the WG set out the three main priority tasks, namely:

- Preparation of network statements, with a view to their harmonisation over the region, including examination of the practicability of preparing the Common Network Statement;
- Reductions of delays at border crossings; and
- Harmonisation of rail access charges.

The second meeting concentrated on the status of rail reform in the various rail networks of the region, and on the preparation of network statements and possibly of the common network statement. It was agreed that a concise report should be prepared by December 2006 summarising findings of the group to date, and making recommendations to participant Governments. It was agreed that the next meeting in January 2007 would focus on border crossing problems and track access charging.

3.2.3 Network Management and Access

In 2007, all EU railways will have to provide access to any qualified railway operator without constraint. Although the West Balkans countries are not EU members, most participants want to implement the European Directives within the next three to five years so as to become the part of an integrated European railway market. The Directives provide a general legislative framework, but leave to the sovereign entities to detail the regulations. Therefore, it is possible to envisage variations between different owners of the Core Network railway infrastructure in capacity allocation and access procedures, timetabling, the range of infrastructure services provided, and the tariff of user charges for those services.

The access regime also requires sufficient management capacity and a good legal system to prepare transactions and arbitrate in the event of disputes. The document setting out the regulations for the user is called the Network Statement. The proposal adopted by the Steering Committee is to have a single Common Network Statement, set of access conditions and scale of charges, or a common model that is adopted with the minimum of variations between railways. The Railway Working Group has reached an agreement in principle for use of a common format. Further progress regarding the common network statement and common regulatory authority will require legal direction from the EC, as there is no regional precedent within the existing 25 member EU, though a political consensus for such cooperation exists among the West Balkans governments. The details of the statement and modus

operandi can be elaborated by the working group and technical advisers from the EU.

Related soft measures in the MAP 2006-10 include
(a) regional railways sub-sectoral strategy, and
(b) harmonisation of infrastructure user conditions and basis for charging.

The railways of SEE are technically interoperable, but compliance with EU Open Access Directives may lead to fragmentation, if implemented separately by each railway. This would significantly undermine the development of an integrated railway market. Considering six of the eight railways have networks of less than 500 km, setting up and running the independent regulatory and infrastructure management bodies, as required by Directives, may be difficult and relatively expensive. Accounting in each railway may not at present be appropriate for the calculation of Infrastructure User Charges (IUC), due to ongoing restructuring and also for the reason that immediate past performance has not been optimal. Furthermore, the prospect of eight different sets of IUCs will do little to encourage the market. A commonly agreed method for calculating the IUC, leading to a uniform tariff of IUCs, would be greatly preferable. The ultimate aim of this measure is to prepare a single common network statement covering the core railway network. The starting point is the adoption of the common RNE (Rail Network Europe) format. Principal steps required are as follows:

3.2.4 Preparing a Common Network Statement

A stepwise approach has been advocated in general by the CER at its meeting in Vienna on 31 August 2006, as follows:

Step 1: Determine the items in the RNE Model that are in common; prepare the common texts to be inserted.

Step 2: Determine the items in the RNE Model where the general agreement exists, though the details may be different; prepare the common texts where the general agreement exists, and obtaining the details from each participant. Compare the variations in details and prepare a harmonised set of statements.

Step 3: Determine a common format for presenting network data; collect the physical data and information on the network, and present in the common format; include changes to be implemented within 2 years following publication of the Network Statement.

Step 4: Consider all items that are not in common, (hopefully, not so many differences will remain; it may be that the differences are sub-regional). Resolve the differences as much as possible (applying an independent expertise if needed); and

Step 5: Prepare the final draft statement for consultation – this is required to be sent to the Infrastructure Managers (IMs) of neighbouring railways including those in the EU. Finalise the Network Statement.

A target date for completion of the SEE railway network statement should be set, as ad hoc introduction of the regime would also be destabilising for the railway market. A suitable target date for the introduction of open access could be 1 January 2009.

3.2.5 Establishing Infrastructure Management

To determine the most appropriate way of administering the common network regime the following steps are proposed:

Step 1: Elaborate the internal and external processes required to administer Open Access; prepare a flow chart.

Step 2: Quantify the volume of work required for each function, taking into account existing and future demand.

Step 3: Carry out an assessment of the institutional capacity of each railway IM to implement the directives.

Step 4: Determine the functions of IMs that are best carried out nationally and regionally.

Step 5: Propose options for IMs to manage the open access regime – this may include, for example, a single IM for Corridor X, or outsourcing the IM administrative function to an existing neighbouring IM – at least initially.

3.2.6 Harmonising Infrastructure User Charging

As mentioned previously, railway accounts, being subject to restructuring and suboptimal performance, are not currently appropriate for estimating IUCs. Nor will such accounts provide a consistent and uniform basis for regionally harmonised IUCs. It is required to develop a common methodology, based on long-run marginal costs that will be acceptable to all railways of the region.

The following steps are proposed:

Step 1: Review policies, strategies or approach of governments on cost recovery of infrastructure from the users – (a common approach may be for the state to own infrastructure and cover capital costs, and for the users to cover traffic-related costs).

Step 2: Review accounts in each railway and comment on their sufficiency to estimate future user charges – preparing a comparative analysis.

Step 3: Determine a regionally consistent package of services that are to be included in the standard IUC, specifying those for which additional payment is required.

Step 4: Devise a regionally acceptable methodology for preparing IUCs based on marginal costs for the package of services, including the basis for discounting and enhancing the standard IUCs. (The IUC may be based on normalised costs – that is to say, costs based on norms needed to provide future sustainable levels of service.)

Step 5: Prepare a uniform tariff of IUCs that reflect genuine differences in the level of services rather than simply financial differences.

Step 6: Provide costing software, manuals and training.

3.3 RAILWAY BORDER CROSSING SOFT MEASURES PROGRAMME

3.3.1 Context

This programme comprises (a) through operations facilitation and action plan; (b) border controls on moving trains; and (c) preparation and implementation of EDI.

The preeminent source of railway inefficiency occurs at border crossings. The TTFSE Project Phase II focuses on railway borders – identifying weaknesses in information exchange and communication systems, amongst others. The Corfu Agreement (signed in June 2006) (http://edessa.topo.auth.gr/X/Docs/Protocol.pdf) (http://edessa.topo.auth.gr/x/News.html) set up the Working Group with the task to reduce delays at borders in Corridor X, and will need to be supported. Implementation of EU directives or investment in rolling stock will not be expedient without first solving the problem of border delays. The removal of all railway bottlenecks, especially those at borders, will reduce journey time of international trains by about 30% overall, probably about 50% for freight and 20% for passenger services. Obstacles to through operations, such as implementation of vehicle acceptance and driver accreditation, need also to be tackled if the common railway market is to extend to SEE. The priorities for action were agreed at a meeting of the CER in Sofia in February 2006.

3.3.2 Improving Through Operations

This process would involve the following steps:

Step 1. Gather data on volumes of through and cross-border railway passenger and freight traffic, including origins and destinations (SEETO);
Step 2. Establish a common basis for cataloguing border processing procedures and institute data collection (SEETO);
Step 3. Review bilateral agreements on through operations, and extend a similar model agreement to all countries (Panel of local experts);
Step 4. Review the procedure of technical acceptance of traction and rolling stock from one country to another - based on trust - and set out an agenda for all countries (RWG);
Step 5. Review driver training and route familiarisation accreditation, and propose steps for regional implementation (RWG);
Step 6. Identify a few examples of through working and monitor performance (SEETO).

3.3.3 Border Controls on Moving Trains (passengers)

Border checks on passengers will continue to be required for the foreseeable future. Presently the process is carried out whilst the train is stationary at each border crossing, taking between 45 minutes and three hours. The consequences include considerably reduced demand for international rail passenger transport, as well as increased costs through lower utilisation of rolling stock. Furthermore, the fruits of railways restructuring and market liberalisation for passenger and freight will fail to be fully realised, and private sector interest will be very limited, if border processing times are either high or unpredictable. The implementation of this simple process can be achieved in the very short term.

3.3.4 Electronic Data Interchange - EDI

Through the TTFSE I project of the World Bank and the Integrated Border Management Programme of the European Union, the need to facilitate the movement of trade across borders through the standardisation of documentation and the exchange of information has been recognised a long time ago. However, progress has yet to be made in the Western Balkans, and significant bottlenecks arise in the flow and processing of information. Generally, reciprocal borders are not connected, similar information is entered at each border crossing, border crossing administrations are not in receipt of transit information in advance of the arrival of the freight, and in some border crossing facilities information is still manually processed. EDI (electronic data interchange) is, however, now well advanced and needs extending to the region as a matter of priority.

3.3.5 Other Important Issues

It must be clearly stated that there is no precedent for either a multinational network statement or regulatory body, but neither do provisions in the directives appear to rule it out, thus advice from EC lawyers would be an expedient precursor to this extent.

Steps to be taken could include review of railway laws and regulations of the region's railways and assessment of their sufficiency with respect to organisational, open access and safety matters. This will lead to proposed amendments to enact EU Directives, which will then form a discussion platform with the National Governments.

The institutional capacity to administer such a regulatory framework will have to be evaluated and recommendations for alternative national or regional structures to administer the regulations will have to be made.

One option, at least in the medium term, may be to set up a regional agency or agencies to which functions can be outsourced from each national regulatory authority.

3.4 REGIONAL ROAD TRANSPORT SUB-SECTOR REFORM

3.4.1 Introduction

Two key needs for reform in the road sub-sector include a) measures to provide safer operations, and b) measures that improve financial sustainability. The SEETO has originally proposed establishment of an overall Road Working Group, but for the moment it has been instructed only to prepare a draft mandate for a group focusing on road safety. Therefore, an outline is given of the possible thrust of action in this important

area, followed by a simple statement of perceived needs regarding sustainability of roads.

3.4.2 Soft Measures to Provide Safer Operations

The road safety situation in the SEE countries gives the cause for concern. There are over 3,000 fatalities annually on the SEE roads, and accident rates are significantly above those of the EU average. Whilst there are national efforts to improve the situation, there is yet no regional initiative. Many factors relate to improving road safety, including driver behaviour and law enforcement as well as design, quality and maintenance of infrastructure. Safety audits are mandatory for road projects in some EU countries, although there are no similar requirements by IFIs. The implementation and sustainability of operational safety also depend significantly on the management and financing of the sector.

Safety is also an inextricable part of the level of service that covers speed, signing, junction layout, illumination, roadside access, parking, interval for roadside services etc. Devolution and commercialisation of road sector management in SEE is still in its infancy, as is consumer awareness, so that no common specifications for level of service on the Core Network roads actually yet exist. Ideally a road safety audit should be carried out against the level of service specified, and the lack of one makes a transparent audit more problematic.

The ad-hoc and often illegal roadside development, that typifies several Core Network roads, considerably adds to the problem of improving safety. Such ad-hoc development, with its high density of low quality access points, undermines the integrity of the road and consequently its contribution to the Core Network. The process of safety auditing will need also to incorporate measures that will lead to strict enforcement of planning and highway regulations.

Specific soft measures recommended to improve safety include (a) promoting and monitoring safety audits, and (b) monitoring planning controls on road-side development).

3.4.3 Promoting Road Safety Audits and Safety Inspections

The improvement of the quality of Core Network roads to common standards and embeding safety into their design and operation, road safety auditing and inspection should become mandatory. Whilst the overall objective of the activity is to reduce road accidents, its specific purpose is to establish road safety auditing and inspection procedures in SEE and apply them, as a minimum, to the core road network. In carrying out this project, beneficiaries will be required to think more seriously about the level of service intended for the road and the implications for development planning.

Definitions:
Road Safety Audit means a detailed systematic and technical safety check relating to the design characteristics of a road infrastructure project and covering all stages from planning to entry into operations.
Safety Inspection is the periodic review of safety of a road in operation.
The main tasks to be carried out may include, though not be limited to:

(A) Legal and Institutional Package

1. Review laws on traffic, highways and safety in each country, paying regard to articles with respect to road safety.
2. Analyse road accidents by cause and location; recommend improvements to information.
3. Review planning and design procedures with respect to levels of service and road safety.
4. Based on best practice, draft changes in laws and regulations to implement mandatory road safety audits.
5. Prepare procedures to implement the regulations, including allocation of responsibility through various levels of roads organisation.
6. Review information flow with respect to road safety, and propose changes to improve flow of accident data to road network managers.

(B) Manuals and Training

1. Prepare a road safety audit manual.
2. Provide examples of best practice.
3. Deliver seminars to apply the procedures and certify the auditors.
4. Arrange for one study tour to see safety auditing applied in practice.

(C) Monitoring Planning Controls on Roadside Development

1. Gather and review planning procedures and enforcement with respect to highway access.
2. Review land use plans in relation to the Core Network.
3. Carry out a field survey of all Core Network roads, and report on the level and character of road-side development.
4. Assess and evaluate the impact of ad hoc roadside development on traffic and the Core Network.
5. Recommend changes to procedures, including elements of safety audit.

(D) Implementation

1. Identify one pilot project in each territory for applying the manual and test procedures.
2. Carry out a safety audit of existing conditions with local engineers.
3. Carry out a safety audit of the design to rehabilitate or upgrade the link and propose changes.
4. Modify the draft law, procedures and the manual as a result.
5. Recommend other measures to improve road safety, especially driver behaviour.
6. Prepare a Safety Audit Agreement covering all Core Network roads.
7. Obtain commitment and timetable for carrying out safety audits.
8. Establish safety councils.
9. Discuss with IFIs the inclusion of safety audit as part of project appraisal.
10. SEETO to organise a Regional Road Safety Conference.

The initial commitment to safety auditing is included in the Resolution for AMM 2006.

Another soft measure adopted in the MAP 2006–2010 included preparation of the level of service agreements. Though not of highest priority itself, this soft measure, if included in the package, would require a clear statement to be made of the service level of each element of the Core Network – this, of course, should ideally be a collaborative exercise between neighbours sharing common routes. The soft measure also relates closely to financial sustainability issues.

3.4.4 Additional Soft Measures

Soft measures that improve the sustainability of road infrastructure have been and will continue to be of considerable importance to the major IFIs, since they will be directly related to the sustainability of investment projects. Maintenance is also linked directly to operations and safety.

The rationale and objectives of these soft measures are described below, while the proposed tasks to be carried out are included in Annex C2.

3.4.5 Monitoring Budgeting for Routine Maintenance

The Core Network roads, being of regional importance, should be designed to provide a high quality level of service to predominantly longer distance traffic. Ensuring that routine and periodic maintenance is carried out is a matter of priority that should be obligatory for the signatories of the MoU. This measure is needed to ensure that appropriate budgeting procedures are in place and obligations are being met. Poor maintenance of pavements, lighting and road furniture also significantly contributes to the high level of accidents in the region, so that implementation of this soft measure relates very closely to the safety soft measure outlined above.

3.4.6 Harmonising the Recovery of Long Term Marginal Costs from Road Users

This priority measure aims at establishing a regionally uniform basis for the recovery of long term marginal costs from road users. This measure will require beneficiaries to review the financing of the sector and consider their general policy to user charging. It is also linked to the harmonisation of railway infrastructure user charges, as it is necessary for governments to promote an equitable basis for cost recovery through user charges for all modes of transport.

3.4.7 Road Operations Working Group

The SEE Working Group for Road Operations should be set up to coordinate all road soft measures, and should approve the terms of reference. Actually all road soft measures could be packaged together, should an overall soft project covering road operations and maintenance be considered expedient. If accepted, the SEETO can draft a mandate for the Road Working Group as well as the terms of reference for the road sector project.

Core Network Indicative Investment Programme

4.1 PROJECT DATA COLLECTION AND SELECTION PROCEDURE

4.1.1 Progress since REBIS

Investment projects needed for the development of the core regional transport network were initially identified in the Regional Balkans Infrastructure Study (REBIS), which proposed 130 projects for implementation between 2004 and 2009. Since completion of the REBIS, many projects have been changed and new projects have also been initiated and submitted to the SEETO. Approximately 30% of the REBIS short list of projects appears to have been progressed but, as can be seen from the Core Network performance analysis described in Section 2, a considerable backlog of rehabilitation is still required to restore the network to a reasonable condition, and upgrading is also needed in order to meet expected traffic growth.

4.1.2 SEETO Project Selection Procedure

The project selection procedure is explained in the SEETO Technical Note No. 1. The prime condition for projects to be considered by the SEETO for possible inclusion in the MAP is that they should be located on the Core Transport Network defined in the MoU; several submitted projects have been excluded for this reason (see Annex D 5). Several revisions have been indicated by participants, but have not yet been formally considered by the Steering Committee.

4.1.3 Collection of Project Information

The procedure for collection of project information was defined in the Planning Procedural Note No. 8 issued in June 2006. Project information is collected through the medium of questionnaires

issued by the SEETO to the National Coordinators (see: http://www.seetoint.org/Projects.html). Collected information is stored and managed in the SEETO project database. Participants will in future (when the planned upgrading implemented) have access to the data-base for direct updating, but currently this is done by the SEETO upon the receipt of revised information.

All SEETO participants have the possibility of viewing project information from all other participants. It is expected that participants will refer to related projects, in order to improve planning and preparation of their own projects and also raise the quality of project information provided.

4.1.4 Project Submissions

The total number of projects submitted to the SEETO for the MAP 2007-11 by the final closing date of 6 October 2006, was 276, including 220 which provided sufficient information to be placed in the project pool. A summarized list of these projects by modes and domain is presented in Table 4-1.

A full list of projects is contained in Annex D. It is to be noted that the minimum level of information required for inclusion in the SEETO project pool was initially set quite low, reflecting the importance of initiating procedures and regional cooperation, while also taking into account the capacity of participants and the low level of project preparation. However, now that submission procedures are established, the minimum information for new projects to be accepted by the SEETO for the project pool will be increased for the MAP 2008-12, for which at least a prefeasibility study will be required to have been completed. Moreover, since the projects are supposed to be of the highest priority for the participant, any projects already in the MAP which will not have advanced to at least prefeasibility stage by 2008 will then be dropped out.

4.2 PROJECT PRIORITISATION PROCEDURES

4.2.1 Regional Cooperation

A noteworthy milestone in regional cooperation was to achieve consensus as to how project of national importance should be regionally prioritised. The project prioritization procedures were agreed with the Steering Committee in February 2006. The project prioritisation procedures are described in the SEETO Technical Note No. 3 issued in March 2006 and have been applied to derive the list of priority projects formally presented in the Plan. This list is presented in Table 4-5.

4.2.2 Project Prioritisation Criteria

The SEETO selection process relates to the general strategy for the Core Network development. The strategy highlights five key considerations that have been applied to projects before they are considered for prioritisation:

- Projects preeminently have high regional interest.
- Projects have good economic performance whilst stimulating wider development.
- Projects are financially sustainable and able to attract private investment where possible.
- Projects contribute to the environment, provide modal balance and promote social cohesion.
- Technical solutions are appropriate, adopting international standards where feasible.

4.2.3 Prioritisation Methodology

In order to enable a single priority project list to be compiled from projects of different modes and types, multi-criteria analysis was applied. The procedure ranks projects by firstly ascribing a weighting to each of 16 criteria to reflect their relative importance in the region. This was carried out by the SC, EC and SEETO for the preparation of the MAP 2006-10, as reported in that document. The next step of evaluating each project against the criteria was carried out by the SEETO experts. This step will be transferred to the project promoter at some future date. The final ranking of projects is based on summing total weighted evaluation score for all criteria. The explanation of the steps taken and the analysis itself is contained in Annex E and also in the Technical Note No. 3.

Strategies for Core Network development may change in future, in response to changing needs. Criteria weighting will be subject to the regular reviews by the

Table 4-1: Summary of All Submitted Projects in Project Pool

Domain	Transport Mode					
	Airport	Inland Waterway	Railway	Road	Sea Port	Total
Albania				14		14 (6%)
Bosnia & Herzegovina	3		12	15		30 (14%)
Croatia	1		15		6	22 (10%)
*fYR Macedonia	2		8	12		22 (10%)
Serbia	7	7	42	28		84 (38%)
Montenegro	3		2	20	2	27 (12%)
UNMIK/Kosovo	2		16	3		21 (10%)
Total:	18	7	95	92	8	220 (100%)

*fYR Macedonia – the former Yugoslav Republic of Macedonia

Steering Committee.

Sensitivity analyses have been applied to give greater weight to economic viability of projects, as against regional considerations. In practice this has been found to make little difference to overall project ranking.

In cases where no calculations of economic rates of return were available, proxy measures (such as ratio of traffic to unit construction cost for roads) were used to assess economic rankings.

4.3 PROGRAMMING

4.3.1 Programming Factors

The overriding programming requirement asked for by the EC and endorsed by the AMM Skopje was that the programme should comprise of not more than 15 to 20 of the highest priority projects. Besides the financial constraint the following factors have been taken into account in formulating the indicative investment programme:

- Ensuring that the most strategically important individual project components are included;
- Obtaining a balanced network development programme;
- Ensuring a corridor/route approach;
- Providing modal balance;
- Achieving regional balance;
- Project preparatory status;
- Including a flagship project.

4.3.2 Indicative Priority List 2007- 2011

The 2007–2011 indicative priority list for the MAP 2007-11 comprises 22 project groups (a group being a number of projects related to the same route) with 35 individual projects, and is presented in Table 4-5.

The priority list takes account of programming requirements, covering the most strategically important sections for the Core Network with 18 projects on Corridors, 10 on routes, and 7 in terminals. The indicative programme thus provides a balance of corridor, route and terminal projects. The priority projects cover 8% of the road network, 20% of the rail network, and 30% of identified bottlenecks on the Danube, four out of eleven airports, and three out of seven seaports. The project summary is given in Table 4-2.

The programme has assembled projects so as to provide development continuity along particular sections of corridors or routes. Locations of the projects are charted in Figures 4-1 to 4-4.

All modes of transport are included in the indicative priority list creating the potential for multi-modal development, though few projects have a specifically multi-modal dimension. All participants have projects included in the indicative list of priority projects as shown in Table 4-5.

The indicative investment programme comprises 34% (by value) at an early preparatory stage requiring feasibility studies, 17% at a more advanced stage with prefeasibility studies already carried out, and 49% with feasibility studies or design documentation completed. In about 30% of the last group partial work has started, but financing has been curtailed. Projects included in the indicative programme omit those that are substantially advanced with financing agreements in place.

Table 4-2: Distribution of Projects on the Core Network

Sub-projects/ Project Group	Corridor	Route	Terminal	Total	
Road	11	8		19	(54%)
Railway	6	2		8	(23%)
Inland WW	1			1	(3%)
Seaport			3	3	(9%)
Airport			4	4	(11%)
Total	18	10	7	35	(100%)

The indicative investment programme also includes what can be termed ‘flagship’ projects that are of the highest national importance. These are all new road projects requiring relatively large investments financed by PPP.

Analysis of the individual project components shows there to be 18 new constructions, 8 upgrades and 9 rehabilitation projects, thus reflecting the need both to develop the Core Network as required in the MoU, and also to repair it.

Given the increase in knowledge regarding the condition and use of the Core Network, a more comprehensive analysis of the results expected is possible, as presented in Section 5.

4.3.3 Review and Updating of Future Plans

It must be emphasised that the MAP is not based on complete network data, though work will continue to widen the data base in the next plans. It is also important to state that the indicative investment

Table 4-3: Submitted NEW Projects from MAP 2006-10

	Albania	Bosnia and Herzegovina	Croatia	*fYR Macedonia	Montenegro	Serbia	UNMIK/ Kosovo	Total
Road						7		7
Railway						42	15	57
Seaport	0							0
Airport						3		3
	0	0	0	0	0	52	15	67

Table 4-4: Submitted Updates for Projects from MAP 2006-10

	Albania	Bosnia and Herzegovina	Croatia	*fYR Macedonia	Montenegro	Serbia	UNMIK/ Kosovo	Total
Road		3		2	4	28	1	38
Railway					2		1	3
Seaport	2				2			4
Airport								0
	2	3	0	2	8	28	2	45

*fYR Macedonia – the former Yugoslav Republic of Macedonia

programme is exposed to permanent review on an annual basis, and that feasibility studies and analyses will always be needed before projects progress to the implementation stage.

4.4 NEW AND UPDATED PROJECTS SINCE THE PREVIOUS PLAN

4.4.1 New Projects

Since the MAP 2006-10 was published in May 2006, 67 new projects have been submitted, 66 of which were added to the project pool and evaluated for prioritisation. Results of the prioritisation process enabled 6 of them to be included in the priority list of projects being evaluated as having significant regional importance. Table 4-3 classifies the new projects submitted by territory and mode.

4.4.2 Updated Projects

As the SEETO project data base and indicative investment programme become more widely used by participants, stakeholders, investors and other interested parties, updating project information becomes more relevant and important. Apart from the general use of the project data base, it is in the interest of participants to ensure that progress is made and the latest status is recorded. It is interesting to record that over 25% of the projects in the MAP 2006-10 project pool were updated. This is a positive reflection not only of advance in project preparation, but also of acceptance and use of the procedures that have been developed. Updated projects are classified by territory and mode in Table 4-4.

Submitted projects and project updates have been analysed by the SEETO, evaluated by using the MCA, and included in the data base, with 6 being placed on the new priority list of projects.

4.5 PRIORITY PROJECTS

The indicative list of priority projects for the Core Regional Transport Network is presented in Table 4-5. The Table presenting indicative investment programme describes project sequence (group) number, Core Network element, project title, SEETO code, current preparatory status (i.e. feasibility study or design completed), section length, project cost and EIRR (if available).

4.6 PROJECT DESCRIPTIONS

The locations of all the project components in Figure 4-1 to 4-4 are produced from the developing the SEETO Geographic Information System – SEETIS.

Project fiches for each project included in the Indicative Priority Programme are contained in Annex E. Data on all projects submitted to the SEETO are available also from the web site http://www.seetoint.org/Projects.html.

Details of each project, or group of associated projects, are here briefly outlined, along with a short description of expected economic and social benefits and related soft measures. Project reference numbers are those of the original project fiches, as also listed in Column 6 of Table 4.5

4.6.1 Corridor X - Road Project Group 1

Completion of Belgrade bypass, Sector 1-3: Dobanovci – Ostruznica
Completion of Belgrade bypass, Sector 4: Ostruznica – Orlovaca
Completion of Belgrade bypass, Sector 5-6: Orlovaca – Bubanj Potok

The Belgrade bypass (SERRD017.2-17.4) has been the highest ranked of all projects. Corridor X is the most important element of the core transport network, linking countries together, from Turkey and Greece through

Table 4-5: South East Region Core Regional Network - Priority List of Projects

Project group	Core Network element	Title of project or project component	DB Reference Number	Project status	Length (km)	Estimated cost in million euro	EIRR
ROADS							
	Corridor X	Completion of Belgrade bypass, Sector 1-3: Dobanovci -Ostruznica;	SERRD017.2	FS / CD	17	7.5	20.4
1	Corridor X	Completion of Belgrade bypass, Sector 4: Ostruznica – Orlovaca	SERRD017.3	FS / CD	8	24	20.4
	Corridor X	Completion of Belgrade bypass, Sector 5-6: Orlovaca-Bubanj Potok	SERRD017.4	FS / CD	14	136	20.4
2	Corridor X	Upgrading of road section Demir Kapija-Udovo-Smokvice	MACRD008	CD	33	150	7
	Corridor Vc	Completion of motorway, Section Kakanj - Vlakovo (Sarajevo bypass)	BIHRD049 a	CD	30	30	15.2
3	Corridor Vc	Completion of motorway, Section Zenica/Donja Gracanica – Kakanj	BIHRD049	PS/FS	24.16	230	20.96
	Corridor Vc	Construction of Mostar bypass, connected to Corridor Vc	BIHRD010	TR/PS	13	20	n/a
	Corridor Vc	Reconstruction of Seslije - Samac	BIHRD006	TR	48	18.1	n/a
4	Corridor VIII	Construction of Rogozhine bypass on Corridor VIII	ALBRD004	CD	4.3	6.62	n/a
5	Corridor VIII	Construction of motorway, Section Deve Bair - Kriva Palanka	MACRD29	CD	13.5	67.35	8.5
	Corridor VIII	Construction of motorway, Section Gostivar – Bukojcani	MACRD28	CD	30	102.8	8
6	Route No. 1	Road rehabilitation (section: Debeli brijeg-Bar)	MONRD030	TR	19	8	n/a
7	Route No. 2b	Niksic bypass	MONRD028	TR	11	20	n/a
	Route No. 2b	Road rehabilitation (section: Scepan polje-Pluzine)	MONRD038	TR	28	42	n/a
8	Route No. 2b	Construction of Brod na Drini (Foca)-Hum (Scepan Polje)	BIHRD021	TR	21	80	n/a
9	Route No. 2b	Upgrading Hani Hotit-Shkoder road	ALBRD007	PS/FS	34	26.64	n/a
10	Route No. 4	Eastern mini-bypass Podgorica	MONRD029	FS	6.5	20	20
11	Route No. 7	Upgrading Milot - Morine road	ALBRD013	CD, FS	88	144.3	20.7
12	Route No. 7	UNMIK/Kosovo Section (Pristina Region) of Route No. 7 Br. Morina-Merdare to Corr.X and Duress	KOSRD011a	CD, FS	14.74	104.1	8.8
RAILWAYS							
13	Corridor X	Rehabilitation of the rail line Tabanovci - Gevgelija (Corridor X) Sections: Veles-Zgropolci and Zgropolci-Demir Kapija	MACRW025	TR/PS	69	150	9.82
	Corridor X	Upgrading rail signalling and telecommunications along Corridor X	MACRW022	TR/PS	37	6	n/a
14	Corridor X	Reconstruction of south exit Belgrade/ upgrading to double track of railway line Beograd-Nis/Belgrade-Resnik-Klenje-M.Ivanca-M.Krsna-V.Plana	SERRW022.6	TR	76	150	n/a
	Corridor X	Reconstruction of line Nis-Presevo-Macedonian border	SERRW022.9	TR	156	77.3	n/a
15	Corridor X	Remote rail control traffic system Savski Marof-Zagreb-Tovarnik	HRVRW027	PS	329	23.4	n/a
	Corridor X	Rail track overhaul Savski Marof-Zagreb section	HRVRW028.1	TR	27	23.3	n/a
16	Route No. 4	Rehabilitation of Vrbnica - Podgorica - Bar railway line	MONRW013	TR	167	25	n/a
	Route No. 4	Rehabilitation of Vrbnica - Podgorica – Bar / additional works	MONRW012	TR	167	7	n/a
INLAND WATERWAYS							
17	Corridor VII	Danube riverbed restoration, 5 Sections: Apatin, Vernelj-Petres, Staklar, Mohovo, Beska	SERIW032-36	TR	14	11.4	26
AIRPORTS							
18	Airport	Functional improvements of airside at Belgrade Airport	SERAP003	CD	0	7.2	n/a
	Airport	Modernisation of Nis Airport	SERAP066	CD	0	4.2	n/a
19	Airport	Split Airport: New Aircraft Platform i.e. apron	HRVAP002	TR	0	15	n/a
20	Airport	Rehabilitation of Pristina Airport	KOSAP001	FS	0	31.4	n/a
SEAPORTS							
21	Sea Port	Port of Dubrovnik: Construction of international passenger terminal	HRVSP011	PS	0	20	n/a
	Sea Port	Transport and Trade Integration (TTI), Port Ploce	HRVSP010	PS	0	86	n/a
22	Sea Port	Reconstruction of Volujica Quay, Port of Bar	MONSP011	TR	0	10.5	n/a

KEY:
Project status:TR = Terms of Reference; PS =Pre-feasibility study; FS =Feasibility study; CD =Completed design

Bulgaria, the former Yugoslav Republic of Macedonia, Serbia, Croatia and Slovenia to Austria. Most of the Core Transport network feeds to it. Present average annual daily traffic (AADT) of 15,000 is set to increase at 6 per cent per annum to over 20,000 in 2010 and to 35,000 by 2020. The road is mostly 4-lane motorway, tolled in Croatia, Serbia and the former Yugoslav Republic of Macedonia. The most densely trafficked section of over 130,000 AADT is through Belgrade. A high proportion (25%) of the traffic is regional or international. Congestion in Belgrade slows through traffic, damages city infrastructure, is energy inefficient, emits more CO2 and other emissions, pollutes water, and causes accidents. The proposed bypass will save 20 minutes of journey time for through traffic and permit the city to develop. The bypass will also facilitate good intermodal links between road, rail and inland waterway.

The combined length of the projects is 39 km, the investment requirements are € 167.5 million and the EIRR is high at 20.4%. The financial rate of return depends on the tolling / pricing regime.

Soft projects that should be linked to this project should relate to creating good conditions for PPP, tolling and market studies, spatial planning of the route and modal split analysis with and without a dedicated multimodal interchange; also a safety audit should be carried out as a mandatory requirement in accordance with the EU best practice.

4.6.2 Corridor X Road (Project Group 2)

- Upgrading of road section Demir Kapija – Udovo – Smokvica

A modern and reliable link will be obtained on Pan-European Corridor X in the former Yugoslav Republic of Macedonia (MACRD008), especially in respect of progressing of the Tabanovce-Kumanovo section (where negotiation with the World Bank is ongoing), stimulating the country's economic development and international transport. Further south, construction of the first phase (as semiprofile motorway) of the Demir Kapija-Udovo-Smokvica section, along with the study and design documentation, was supported by the PHARE Cross-Border Cooperation Programme. This road link is of the extreme strategic importance for the region and wider, especially for this part of the Balkans where it presents irreplaceable native connection with the countries of the European Union. With the construction of the sections Demir Kapija-Udovo-Smokvica and Tabanovce-Kumanovo, European transport Corridor will be completed to the motorway standards. A modern and fast road link with high level of services will be obtained for both local and international traffic.

The current condition of the road is classed as good; AADT is 2,671 vehicles of which 25% are trucks. It is expected that the provision of twolane motorway will increase capacity as much as 180% and it will reduce vehicle operating costs for all categories of road users (the annual savings in vehicle operating costs in the opening year are estimated to be approximately € 6 million). It is foreseen that the cost savings for all passengers will be about 35%

- reducing the quantity of fuel consumption
- reducing the time of travelling
- increased safety

The total length of the project is 33 km and the investment requirements are € 150 million. The Government of the former Yugoslav Republic of Macedonia express its strong commitment to the implementation of this project. EIB/EBRD and Hellenic Plan for Economic Reconstruction of the Balkan (HiPERB) expressed firm interest for financing; also funds from the Instrument for Pre-Accession Assistance, Component III would be used for this project. Furthermore, grant for revision of existing documentation is offered to be carried out by the Greek government. The Government of the former Yugoslav Republic of Macedonia also considers the possibility for PPP and concession.

The overall effect on the performance of Corridor X of these projects (project groups 1 and 2) is to improve 72 km (6%) of E75 on the core network, reduce journey time by about 30 minutes, to reduce accidents and COs emissions due to sub-optimal vehicle performance.

4.6.3 Corridor V C (Project Group 3)

- Completion of motorway, Section Kakanj – Vlakovo (Sarajevo bypass)
- Completion of motorway, Section Zenica/ Donja Gracanica – Kakanj
- Construction of Mostar bypass, connected to Corridor Vc
- Reconstruction of Seslije – Samac

Corridor Vc comprises important through road and rail routes from the port of Ploce via Mostar, Sarajevo and Osijek to Budapest in Hungary. The condition of the current E73 route is an average of medium to good, the average AADT over all of the sections is 11,000 but there are wide seasonal and local variations that create congestion. The route contains several signed black spots. In the longer term it is planned to upgrade the whole Bosnian section to the motorway standard. The presently selected project components will create 67 km of motorway near Mostar and north of Sarajevo, and upgrade 48 km of existing road south of the Croatian border, thus contributing to economic development within Bosnia and Herzegovina while also facilitating the movement of through international traffic.

The project should be complemented with a) a detailed planning, development and financing study for the whole of the proposed motorway, building on the prefeasibility work completed in 2005 and 2006, b) intermodal analysis and strategy including environmental aspects, c) spatial and macro-economic planning since a project of this magnitude has far wider influence than the transport sector, and d) technical assistance to the Ministry of Transport to increase its planning capacity and also to negotiate and manage concessions. Both the existing

highway and the new project should be subject to safety audit procedures in line with the best EU practice.
The combined length of the project group is 125 km, covers 23% of the E73 in the Core Network.
Savings in journey time of over an hour are expected.

The investment requirements are just under € 300 million. The EIRR of 15% for Section Kakanj – Vlakovo (Sarajevo bypass) and of 20 for section Zenica / Donja Gracanica is good thus place the projects well for funding and construction; however the financial return is understood to be less positive so giving weight to the soft recommendations made above.

4.6.4 Corridor VIII (Project Groups 4, 5)

- Construction of Rogozhine bypass on Corridor VIII
- Construction of motorway, Section Deve Bair – Kriva Palanka
- Construction of motorway, Section Gostivar – Bukojcani

Albania suffers from poor accessibility and is poorly connected to neighbouring countries. Completion of the Rogozhine bypass will relieve congestion at a key point on the route from Durres Port to Greece and the former Yugoslav Republic of Macedonia. The new motorway sections (MACRD028/O29) in the former Yugoslav Republic of Macedonia will give substantial benefits to traffic and boost economic development along this important through route between the Adriatic in Albania and the Black Sea in Bulgaria. The current condition of the sections on the project group is poor through Albania to medium and good. Current average traffic flow of AADT 6,000 include Albania and UNMIK/Kosovo traffic which will be diverted to Route 7 in the future. Therefore the traffic projections for E65 in Corridor VIII require to be revised. The road suffers a high accident of 90 per billion vehicle km which is of concern.

This project requires private investment and conditions that will add value and raise potential investor interest, such as spatial planning identifying land development to package with that of the highway, and inclusion of the Albania and Bulgaria sections of the same route. The designs for the new sections would certainly benefit from safety audit to add to the level of service provided and project proponents are urged to take the appropriate steps.

The length of the projects in the group is 48 km (7% of the corridor in the former Yugoslav Republic of Macedonia and Albania), total cost is € 177 million, and despite the high priority, the EIRR has not been included in the project data submitted to the SEETO.

4.6.5 Road Route 1 (Project Group 6)

- Road rehabilitation, Section Debeli brijeg – Bar

Route 1 is 616 km in length passing through Bosiljevo (Croatia) – Split (Croatia) – Ploce (Croatia) – Neum (Bosnia and Herzegovina) – Dubrovnik (Croatia) – Bar (Montenegro); thus it passes through three countries. The overall condition of the road is medium to good. Average AADT for the route is 9,500 but there are very wide seasonal variations due to tourism. The condition of the project section is poor with AADT of 6,000. This is set to grow by 7% per annum due to the development in tourism sector. The fatality rate of 85 per billion vehicle km is more than twice the EU average. The hilly coastal alignment makes this road difficult and dangerous for operations. The project aims to rehabilitate the pavement, increase capacity through climbing and improve signing.

The project length of 19 km accounts for 3% of the route. The investment requirement is € 8 million. The EIRR is not given, but the traffic / unit construction cost ratio of 14.3 is indicative of a good rate of return.

The project should be supported with soft measures that ensure the financial sustainability of roads including a road user charges study. The route as a whole would benefit from a coordinated road safety audit covering the three countries, which would require harmonisation of the level of service of this most important tourist route along the Adriatic Coast. Having prepared the level of service, the performance standards would emerge and the maintenance of the route could be outsourced using a performance based contract.

4.6.6 Road Route 2b (Project Groups 7 to 9)

- Upgrading Hani Hotit – Shkoder road (Albania)
- Niksic bypass (Montenegro)
- Road rehabilitation, Section Scepan polje – Pluzine (Montenegro)
- Construction of Brod na Drini (Foca) – Hum (Scepan Polje) (Montenegro)

The Road Route 2b is 396 km passing through Sarajevo (Bosnia and Herzegovina) – Podgorica (Montenegro) – Vlore (Albania) so covering three countries. The route also passes through several ethnically different and socially diverse areas. Poor connectivity and social fragmentation characterise the remoter areas of SEE. Development of the Route 2b work will help improve social integration and access to markets and provide better infrastructure for the development of tourism. The route passes through National Parks thus the environmental impact of rehabilitation and upgrading some sections of the route will need very close attention. City of Niksic in Montenegro requires the intervention of a bypass. The condition of the road is very poor to medium and AADT on route is 7,000 but seasonally peaks due to tourism.

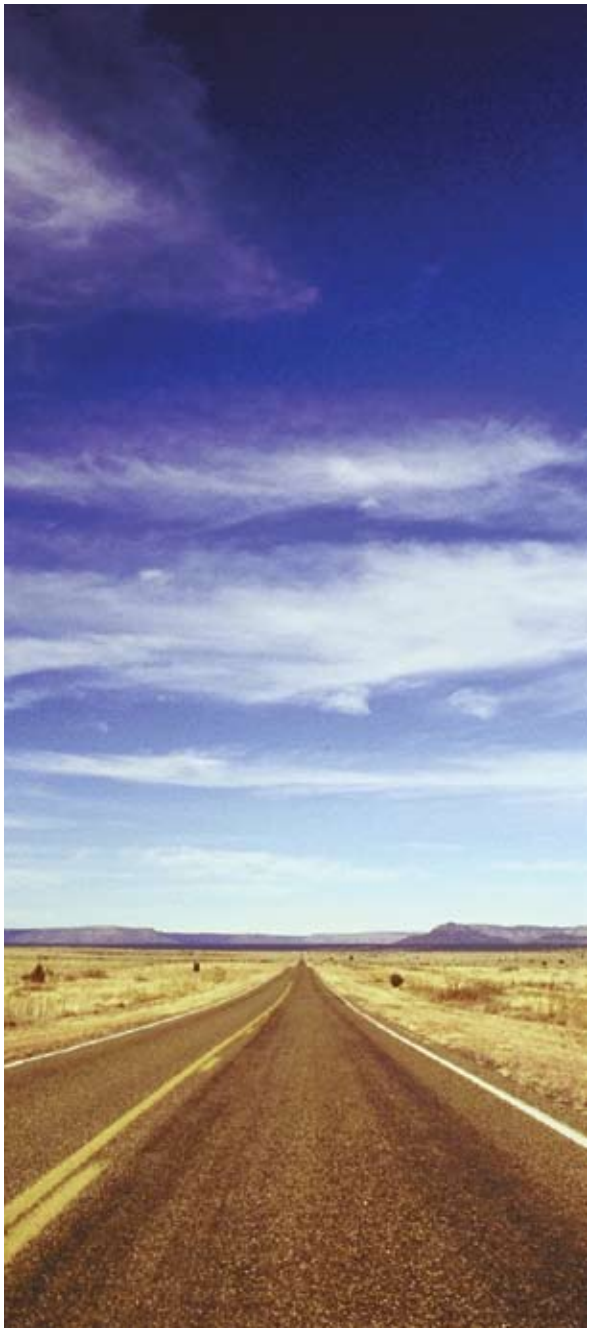
The length of the project sections accumulate to 74 km or 19% of the route 2b. The investment required is € 168 million, the EIRR information has not been made available but traffic unit cost ratios of 2 to 3 make it like that the EIRR will be just acceptable.

The projects would benefit from a detailed social and environmental assessment covering the route, and also a safety audit should be carried out.

4.6.7 Road Route 4 (Project Group 10)

- Eastern mini-bypass Podgorica

Route 4 is 581 km in length passing from Vatin (Romanian border) through Beograd (Serbia) via Misici to Bar (Montenegro). It passes through Podgorica, capital of Montenegro. Montenegro, not being located on any Pan TEN depends on Route 4 for access to the main corridors and the EU. The Route 4 is of considerable economic importance to Montenegro as well as providing a de facto corridor from Bar to Southern Romania. Bar, being on the motorway of the sea, also connects with Naples. The development of the route is of interest to Italy, as well. The condition of the route varies widely, as the route in mountainous areas suffers frequently with landslides. Accident rates on the route are considered to be extremely high at 160 fatalities per billion vehicle km, four times the EU average. The capital city requires relief from congestion through the diversion of considerable volumes of through summer traffic. Generally, the level of service requires significant improvement throughout the route and locally around Podgorica itself through improvement of travel times. The bypass is set to reduce travel time at peak by up to 30 minutes.



The length of the project is 6.5 km, cost is € 20 million, a feasibility study has been carried out which gives a good value of the EIRR of 20%. The mini bypass project should be safety audited.

4.6.8 Road Route 7 (Project Group 11 and 12)

- Upgrading Milot – Morine road
- UNMIK/Kosovo, Section (Pristina Region) of Route No.7 Br. Morina – Merdare to Corridor X and Duress

Regional Route 7 is 338 km in length passing through Lezhe (Albania) – Pristina (UNMIK/Kosovo) – Doljevac (Serbia) linking the Corridor X with the Adriatic. The Route 7 complements the corridors X and VIII and has a vital role in economic and social enhancement of substantial parts of the landlocked and underdeveloped region. Like the other routes it extends through territory of three SEETO partners.

The current AADT in the Pristina region mounts to 16.800 over section North (forecast for 2012 is 23.500), 27.200 in Central section (forecast 38.900), and 14.700 (forecast 21.800) in section South. Daily flow at the border crossings to Albania and Serbia are 3,100 and 2,100 respectively. Traffic growth forecast in low, moderate and high scenarios are very considerable all along the UNMIK/Kosovo section of the Route 7. A recent independent international feasibility study shows an Internal Rate of Return for the UNMIK/Kosovo Central section (approx. 35 km in length) of the Route 7 that varies between 7% and 8.8% and recommends an investment package of € 179.4 million.

The priority section of the Route 7 in Albania (ALBRD013) requires an investment of € 144 million to complete the upgrading and rehabilitation of strategically important link between the port of Durres and UNMIK/Kosovo. Although some sections already being under construction (Milot – Rreshen 28km and Kalimash – Morine 30km, financed by WB and GoA), the existing condition of this part of the Route 7 is very poor, passing through mountainous area, with average AADT of 2000 (traffic using alternative but more distant Corridors VIII and X) and forecast annual traffic growth of 8%. The project would provide road upgrade/ rehabilitation to improve road standard and overall level of service. The feasibility study has been carried out indicating the high EIRR of 20.7%, to mark the project suitable for implementation.

Substantial soft measures are required in re-categorisation, road safety and controlled roadside development and road access. A road safety audit and an environmental assessment are highly recommended. Further soft measures relate to (administrative) integrated border management, strengthening the financial sustainability of road investments and the use of performance based contracting for maintenance.

Figure 4-1: Location of Priority Road Projects

4.6.9 Corridor X – Railway (Project Groups 13, 14, 15)

(13) Upgrading rail signalling and telecommunications along Corridor X
(13) Rehabilitation of the rail line Tabanovci – Gevgelija (Corridor X), Sections Veles –Zgropolci and Zgropolci – Demir Kapija
(14) Reconstruction of south exit Belgrade / upgrading to double track of railway line Beograd – Nis / Belgrade – Resnik – Klenje – M.Ivanca – M.Krsna – V.Plana
(14) Reconstruction of line Nis – Presevo – Macedonian border
(15) Rail track overhaul Savski Marof – Zagreb section
(15) Remote rail control traffic system Savski Marof – Zagreb – Tovarnik

The Pan TEN Corridor X passes from Austria through to Greece and to Turkey. On the SEE Core Network it is 1,058 km in length and accounts for about 50% of the overall length of the corridor. On the SEE Core Network it passes from Savski Marof (Slovenian border) through Zagreb (Croatia), Belgrade (Serbia) – it branches at Nis with one branch going to Skopje (the former Yugoslav Republic of Macedonia) and to Gevgelija (Greek border), the other branch going to Dimitrovgrad (Serbia / Bulgaria border) then to Sofia and Istanbul. The Corridor X is on the SE Axis.

Permanent speed restrictions of about 50 per cent of the design speed exist over much of the route refer to figure 2.11. The travel time from Thessaloniki to Ljubljana (1,200 km) is 22 hours, of which border waiting time accounts for 15% of the travel time. The projects aim to rehabilitate track, signalling and communications. It will reduce journey time by several hours and is expected to regenerate demand for this vital railway route. The project sections included in the 2007 to 2011 Indicative Programme will complete the double-track route and improve technical standards through Croatia (HRVRW027/028.1), Serbia (SERRW022.6/22.9) and the former Yugoslav Republic of Macedonia (MACRW022/025). Such significant time savings will generate radical changes to the timetable and in the utilization of assets. Current daily traffic of about 70 trains is expected to increase to 100 trains daily after the project is completed and to 140 trains per day by 2020. Revenue generated from this route accounts for a significant portion of total revenue for each railway. The project depends on soft measures that will lead to successful restructuring and close collaboration of all railway administrations, together with open access, outsourcing, intermodal development and private sector involvement. With completion of the project, the city of Nis has the potential to become a major regional logistics centre. Rail (and road) development require to be embedded into land use and development plans that can mobilize investment and create new jobs. A product plan prepared by all interested railways is a necessary precursor of this project.

The lengths of the projects accumulate to 346 km of track improvements and 667 km of signalling improvements covering 62% of the Corridor X sections of the Core Network. The total cost of all projects on rail corridor X is € 433 million. The EIRR has been presented for only the rehabilitation of the rail line Tabanovci - Gevgelija (Corridor X) of 9.82%. Feasibility studies are required for most of them. Soft measures advocated include support with restructuring, preparation of a common railway network statement, common access charges and services. Also improvement at the borders will be essential if the full benefits of the investment are to be realised.

4.6.10 Route 4 Project (Group 16)

Rehabilitation of Vrbnica – Podgorica – Bar railway line

Rehabilitation of Vrbnica – Podgorica – Bar / additional works

The Route 4 is 601 km in length and extends from Vrsac on the Romanian border passing through Belgrade (Serbia) to the Port of Bar in Montenegro. The route provides the most direct access (601 Km) from Vrsac (Romanian border)-Belgrade to the Adriatic Sea. The Rail route No. 4 from Belgrade to Bar is a single electrified line of 25kv 50 MHz. The condition of the line is medium, although speed is reduced to 50 kph.

The length of the project is 167 km with an estimated cost of € 36 million. No EIRR information has been supplied, the project requires a full feasibility study. Related soft measures must include technical assistance to the Ministry to prepare new laws and regulations in line with contemporary requirements and to Montenegrin Railways for restructuring and creating conditions for open access. No information has been supplied by Serbian Railways nor has a project been submitted to ensure continuity.

Figure 4-2: Location of Priority Railway Projects

4.6.11 Corridor VII - Inland Waterway (Project Group 17)

Danube riverbed restoration, 5 Sections: Apatin, Vernelj-Petres, Staklar, Mohovo, Beska

The Danube has 588 km in the Core Network but has several channels that are too narrow for vessels to pass due to silting. The project aims to widen channels, and remove sand-banks and shoals, so as to provide unrestricted passage for an increasing number of vessels. River traffic at around 10 million tonnes per annum is expected to rise significantly. The project fully complies with the EU Transport Policy, promoting sustainable mobility by optimizing the use of lowcost and environmentally friendly modes. The project is a part of the Danube Master Plan, much of which is currently being implemented. Maintenance of the waterway is currently under state control, and restructuring and outsourcing of management and maintenance of the waterway should be included as a part of the financing of this project.

The length of the project is 14 km, the cost is € 11 million and has the EIRR of 26%.

4.6.12 Airports (Project Group 18, 19, 20)

(18) Functional improvements of airside at Belgrade Airport
(18) Modernisation of Nis Airport
(19) Split Airport: New Aircraft Platform i.e. apron
(20) Rehabilitation of Pristina Airport

Aviation demand continues to increase, and with open skies the market in SEE is set to expand at 10 per cent annually. The Core Network contains eleven airports with a total throughput of 250 flights daily and 6 million passengers. The aviation sector is now reorganising, with management of one airport – Tirana – already privately managed and others set to follow. The four projects prioritised in the indicative programme are in Belgrade, Nis, Split and Pristina. The priority airport projects handle about 60 % of passenger on the Core Network.

Belgrade handles over 2 million passengers and 103 flights per day - taxiways are needed to improve safety and increase runway capacity. The investment requirements are € 7.2 million, there is no EIRR information.

Nis Airport needs modernization of navigational equipment, it handles just 400 tonnes of cargo a year and the investment required is € 4.2 million, there is no EIRR information.

Split Airport handles 14 flights per day and 900,000 passengers, so the airport requires the apron expanding to meet rising demand. The investment required is € 15 million.

Pristina Airport handles 14 flights daily and 930,000 passengers per year. Reconstruction and modernisation is needed to provide better service to the land-locked territory. The investment required is € 31 million.

Generally airport projects should be linked to proposals for restructuring airport management, with outsourcing and private sector involvement where possible.

Figure 4-3: Location of Priority Airport Projects

4.6.13 Seaports (Project Groups 21, 22)

(21) Transport and Trade integration (TTI), Port Ploce
(21) Port of Dubrovnik: Construction of international passenger terminal
(22) Reconstruction of Volujica Quay, Port of Bar

There are 7 sea ports on the Core Network, which together handle about 20 million tonnes of cargo per year and about 100,000 TEU. The three seaport projects are very different, but of equal importance.

Dubrovnik passenger terminal handles 827,000 passengers and nearly 33,000 ro-ro vehicles from the ferry services. The numbers of international passengers are increasing rapidly and a new terminal building is needed. The investment needed is € 20 million, there

is no IRR information. Ploce port is the gateway to Corridor Vc and serves Bosnia and Herzegovina. The Port handles 2.8 million tonnes and 18,000 TEU. The port masterplan has been prepared and investment in landlord infrastructure and other facilities will be funded. There is also funding for the connecting railway and of course, a new motorway is planned in Corridor Vc which part is being constructed in Croatia. Ploce is not a motorway of the sea port because it is in Croatia where the Split is the selected national port. However, it is recognised that Ploce is the gateway for BiH. An increase in cargo and IMT is expected. The investment required is € 86 million - no IRR information has been provided.

Bar is the gateway port of the Route 4 and the national port of Montenegro; it handles 2.1 million tones and 12,200 TEU. The quays are in a very poor condition and require urgent repairs to avoid failure. The investment required is € 10 million.

All the seven ports of the Core Network have the potential to link to the motorways of the sea. However, in comparison to the main EU ports, demand is insufficient to create the density of flow needed to truly support the multimodal logistic chain that is envisaged. A regional port strategy should be packaged with funding of those projects, so as to help create an optimal port transport system for SEE.

Moreover ports are publicly owned and private interests are relatively underdeveloped.

Figure 4-4: Location of Priority Seaport and Waterway Projects

4.7 IMPLEMENTATION REQUIREMENTS

4.7.1 Priority list of projects - Indicative Action Plan
The MoU requires the preparation of an Action Plan to set out the implementation schedule for priority projects that will be used by the SEETO for monitoring. Table 4-6.

The action plan in Table 4.8 shows in its different columns the programme group number, MCA ranking, sub-project title and the SEETO code, territory, project type, length of route section, expected cost and project status. The bar chart gives indicative timings for the different activities necessary to bring the sub-project to realization over the 2007 to 2011 period. A key to the actions is provided. The plan is based both on information received and on expert opinion in the SEETO.

Project status, using information submitted by participants, shows that 16 sub-projects are prepared with designs or with feasibility studies completed. However, 19 are at the early stage of preparation, with 6 having pre-feasibility studies available, and 13 having terms of reference giving the project description only. For progress to be made on these 19 projects, assistance in project preparation would be highly desirable.

Table 4-6

SEE CORE REGIONAL TRANSPORT NETWORK ACTION PLAN

Sequnce	Mode	Ranked (MCA)	Corr/ Route	Project Name	Pr.-Code	Location	Interv Type	Km	Cost Meur	Current Status
1	RD	1	Corridor X	Completion of Belgrade by pass, Sector 1-3: Dobanovci -Ostruznica;	SERRD017.2	SER	N	17,00	7,50	CD/FS
	RD	3	Corridor X	Completion of Belgrade by pass, Sector 4: Ostružnica - Orlovača	SERRD017.3	SER	N	8,00	24,00	CD/FS
	RD	6	Corridor X	Completion of Belgrade by pass, Sector 5-6: Orlovača-Bubanj Potok	SERRD017.4	SER	N	14,00	136,00	CD/FS
NEW 2	RD	13	Corridor X	Upgrading of road section Demir Kapija-Udovo-Smokvice	MACRD008	MAC	U	33,00	150,00	CD
3	RD	28	Corridor Vc	Reconstruction of Šešlije - Šamac	BIHRD006	BIH	U	48,00	18,10	TR
	RD	37	Corridor Vc	Completion of motorway, Section Zenica/Donja Gracanica - Kakanj	BIHRD049	BIH	N	24,16	230,00	(PS) FS
	RD	30	Corridor Vc	Completion of motorway, Section Kakanj - Vlakovo (Sarajevo by-pass)	BIHRD049 a	BIH	N	(45)30	30,00	CD
	RD	27	Corridor Vc	Construction of Mostar By-pass, connected to Corridor Vc	BIHRD010	BIH	N	13,00	20,00	(TR) PS
4	RD	21	Corridor VIII	Construction of Rogozhine Bypass on Corridor VIII	ALBRD004	ALB	N	4,30	6,62	CD
5	RD	23	Corridor VIII	Construction of motorway, Section Deve Bair - Kriva Palanka	MACRD29	MAC	U	13,50	67,35	CD
	RD	35	Corridor VIII	Construction of motorway, Section Gostivar - Bukojcani	MACRD28	MAC	R	30,00	102,80	CD
6	RD	18	Route No. 1	Road rehabilitation (section: Debeli brijeg-Bar)	MONRD030	MON	U	19,00	8,00	TR
7	RD	4	Route No. 2b	Bypass Niksic	MONRD028	MON	N	11,00	20,00	TR
	RD	11	Route No. 2b	Road rehabilitation (section: Scepan polje-Pluzine)	MONRD038	MON	R	28,00	42,00	TR
8	RD	29	Route No. 2b	Construction of Brod na Drini (Foča)-Hum (Šćepan Polje)	BIHRD021	BIH	N	21,00	80,00	TR
9	RD	31	Route No. 2b	Upgrading Hani Hotit - Shkoder road	ALBRD007	ALB	U	34,00	26,64	(PS) FS
10	RD	24	Route No. 4	Eastern mini-bypass Podgorica	MONRD029	MON	N	6,50	20,00	FS
11	RD	36	Route No. 7	Upgrading Milot - Morine road	ALBRD013	ALB	U/N	(116)88	144,30	CD, FS
NEW 12	RD	34	Route No. 7	Kosovo Section (Pristina Region) of Route No. 7 Br. Morina-Merdare to Corr.X and Duress	KOSRD011	KOS	N	14,74	104,10	CD, FS
13	RW	9	Corridor X	Upgarding rail signaling and telecommunications along Corridor X	MACRW022	MAC	U	37,00	6,00	(TR) PS
	RW	10	Corridor X	Rehabilitation of the rail line Tabanovci - Gevgelija (Corridor X) Sections: Veles-Zgropolci and Zgropolci-Demir Kapija	MACRW025	MAC	R	69,00	150,00	(TR) PS
NEW 14	RW	16	Corridor X	Reconstr./ upgr. to double track line Beograd-Niš/ Belgrade-Resnik-Klenje-M.Ivanca--M.Krsna-V.Plana	SERRW022.6	SER	N	76,00	150,00	TR
	RW	15	Corridor X	Reconstruction and modernization of the line Nis-Presevo-Macedonian border	SERRW022.9	SER	U	156,00	77,30	TR
15	RW	17	Corridor X	Rail track overhaul Savski Marof-Zagreb section	HRVRW028.1	HRV	R	27,00	23,30	TR
	RW	25	Corridor X	Remote rail control traffic system Savski Marof-Zagreb-Tovarnik	HRVRW027	HRV	N	329,00	23,40	PS
	RW	19	Route No. 4	Rehabilitation of Vrbnica - Podgorica - Bar railway line	MONRW013	MON	R	167,00	25,00	TR
NEW 16	RW	8	Route No. 4	Rehabilitation of Vrbnica - Podgorica - Bar railway line/ additional works on tunnels and landside	MONRW012	MON	R	167,00	7,00	TR
17	IW	5	Corridor VII	Danube Riverbed Restoration, 5 Sections: Apatin, Vernelj-Petres, Staklar, Mohovo, Beska	SERIW032-36	SER	R	14,00	11,40	TR
	AP	14	Airport	Functional improvements of airside at Belgrade airport	SERAP003	SER	N	0,00	7,20	CD
NEW 18	AP	12	Airport	Modernization of Nis Airport	SERAP0066	SER	U	0,00	4,20	CD
19	AP	20	Airport	Split Airport: New Aircraft Platform i.e. apron	HRVAP002	HRV	N	0,00	15,00	TR
20	AP	26	Airport	Rehabilitation of Pristina Airport	KOSAP001	KOS	R	0,00	31,40	FS
	SP	22	Sea Port	Transport and trade integration (TTI), Port Ploče	HRVSP010	HRV	N	0,00	86,00	PS
21	SP	32	Sea Port	Port of Dubrovnik: Construction of international passenger terminal	HRVSP011	HRV	N	0,00	20,00	PS
22	SP	33	Sea Port	Reconstruction of Volujica Quay, Port of Bar	MONSP011	MON	R	0,00	10,50	TR

Core Network Indicative Investment Programme

Compile initial project description/ToR	TR	TR
Prepare preparatory pre-feasibility level	PS	PS
Carry out Feasibility Study	FS	FS
Complete design	CD	CD
Prepare budget plan/financing plan	BP	BP
Prepare for and work through tender process	TP	TP
Carry out implementation works	IW	IW

2005					2006				2007		2008		2009		2010		2011	2012
11	12	3	6	8	9	12	3	6	9	12								
CD	CD	CD CD CD	CD BP BP	BP	BP BP	TP TP TP	TP TP TP	IW IW IW	IW IW IW	IW IW								
		FS FS FS	FS BP BP	BP	BP BP	BP BP BP	CD CD CD	CD CD CD	CD TP TP	TP TP TP	TP IW IW	IW IW IW	IW IW IW	IW IW IW	IW			
		FS FS FS	FS BP BP	BP	BP BP	BP BP BP	BP CD CD	CD CD CD	CD CD TP	TP TP TP	TP IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW	
		CD CD CD	CD CD CD	CD	CD CD	BP BP BP	BP BP BP	TP TP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW			
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS FS CD	CD CD CD	CD CD BP	BP BP BP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW		
		PS PS PS	PS PS PS	PS	PS PS	FS FS FS	CD CD CD	CD CD CD	BP BP BP	BP BP TP	TP TP IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	
		CD CD CD	CD CD CD	CD	CD CD	BP BP BP	BP BP TP	TP TP TP	TP TP IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW		
		TR TR TR	TR TR PS	PS	PS PS	FS FS FS	FS FS CD	CD CD CD	CD CD BP	BP BP BP	BP TP TP	TP TP IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW		
		CD CD CD	CD CD CD	CD	CD CD	BP BP BP	BP BP BP	TP TP TP	TP IW IW	IW IW IW	IW IW IW	IW IW IW						
		CD CD CD	CD CD CD	CD	CD CD	BP BP BP	BP BP BP	TP TP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW					
		CD CD CD	CD CD CD	CD	CD CD	BP BP BP	BP BP BP	TP TP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW				
		TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS CD CD	CD CD CD	TP TP TP	TP TP IW	IW IW IW	IW IW IW	IW					
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS FS FS	CD CD CD	CD CD CD	BP BP BP	BP TP TP	TP IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW	
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS FS FS	CD CD CD	CD CD CD	BP BP BP	BP BP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS FS FS	FS FS CD	CD CD CD	CD CD BP	BP BP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	
	PS	PS PS PS	PS PS PS	FS	FS FS	CD CD CD	CD CD BP	BP BP TP	TP TP TP	TP TP IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW			
FS	FS	FS FS FS	FS FS FS	FS	FS FS	CD CD CD	CD CD CD	BP BP BP	BP BP BP	TP TP TP	TP TP IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW		
			FS FS	CD	CD CD	BP BP BP	BP BP TP	TP TP TP	TP TP IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW		
			FS FS	CD	CD CD	BP BP BP	BP BP BP	BP TP TP	TP TP TP	TP IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW			
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS CD CD	CD BP BP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW					
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS FS FS	FS FS CD	CD CD CD	CD CD CD	TP TP TP	TP IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW
TR	TR	TR TR TR	TR TR TR	TR	TR TR	TR TR FS	FS FS FS	FS FS FS	CD CD CD	CD CD CD	BP BP BP	TP TP TP	TP TP IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW
TR	TR	TR TR TR	TR TR TR	TR	TR TR	TR TR FS	FS FS CD	CD CD CD	BP BP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW	
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS FS FS	FS FS CD	CD CD CD	CD CD BP	BP BP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW	
PS	PS	PS PS PS	PS PS PS	PS	PS PS	FS FS FS	FS FS FS	FS FS CD	CD CD CD	CD CD BP	BP BP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW	
		TR TR	TR	TR TR	FS FS FS	FS FS FS	CD CD CD	CD CD CD	BP BP BP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW IW			
				TR	TR	FS FS FS	CD CD CD	BP BP BP	TP TP TP	IW IW IW	IW IW IW	IW IW IW						
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS FS CD	CD CD BP	BP BP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW				
		CD CD CD	CD CD CD	CD	CD CD	BP BP BP	TP TP TP	TP TP IW	IW IW IW	IW IW IW	IW IW IW	IW						
				CD	CD BP BP	BP TP TP	TP TP TP	IW IW IW	IW IW IW	IW IW IW								
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS FS CD	CD CD CD	CD BP BP	BP TP TP	TP TP IW	IW IW IW	IW IW IW	IW IW				
FS	FS	FS FS FS	FS FS FS	FS	FS FS	CD CD CD	CD CD CD	CD BP BP	BP TP TP	TP TP IW	IW IW IW	IW IW IW	IW IW					
PS	PS	PS PS PS	PS PS PS	PS	PS PS	FS FS FS	FS FS CD	CD CD CD	CD CD CD	CD CD BP	BP BP BP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW	IW IW	
PS	PS	PS PS PS	PS PS PS	PS	PS PS	FS FS FS	FS FS CD	CD CD CD	CD CD CD	BP BP BP	TP TP TP	IW IW IW	IW IW IW	IW IW IW	IW IW IW			
TR	TR	TR TR TR	TR TR TR	TR	TR TR	FS FS FS	FS FS FS	CD CD CD	CD CD CD	BP BP BP	TP TP TP	IW IW IW	IW IW IW	IW IW				

4.7.2 Expected Investment Needs

Indicative investment requirements for the prioritised 2007-2011 projects amount to approximately € 1.9 billion over the five years. This total is classified by country and year in the table below. The total represents some 21 per cent of the total estimated cost of € 9.1 billion for all regional projects originally submitted to the SEETO. In addition, a further € 0.07 billion will be required for associated soft projects, giving a total planned expenditure of almost € 2 billion.

It is important to ensure that costs used in the plan are consistent and current. In this plan, prepared only a few months after the previous one, investment costs have not generally been updated from those used in the MAP 2006-10; however, for future Plans the SEETO will provide an updating index and use current investment costs in the Plan.

4.7.3 Investment Cost Base Year

Table 4-9 gives a fiveyear summary of indicative investment requirements and expected yearly expenditures, in line with the schedule of the indicative Action Plan. The values and timelines could vary, however, depending on actual implementation dynamics and project preparation progress.

4.7.4 Project Phasing and Implementation

In order to present a general overview of the phasing of investment expenditure, preliminary estimates have been made through a combined approach, taking account of actual construction methods, available equipment, capacity of the contracting industry, market conditions, and past experience. Expected costs and phasing have been related to recent project developments according to their type, size and location.

The intention has been to introduce a reference frame for expenditures, taking account of alternative financing options. On the basis of estimated construction costs and timings, allowances were also included for professional services such as construction and design development (comprising about 8 to 10% of construction costs), research and development (1.5 to 3% of construction costs), and additional direct and indirect costs (investigation, testing, administration etc.). Details are given in Table 4.8.

Project phasing has been developed based on the preparatory status of the projects:

Advanced – where feasibility studies are completed and / or designs prepared

Intermediate - where the project is well defined and pre-feasibility study completed

Preliminary – where the project has been identified and terms of reference and general description prepared

Projects sorted by preparatory status are contained in Annex E.

For projects with an advanced preparatory status the estimated funds of € 1,092.11 million are required for works completion. This amount covers the costs for design documentation, still missing for about 25% of listed projects and estimated at € 20 million, and for construction and supervision. In view of their higher level of preparation, these projects could advance faster

Table 4-7: Indicative Investment Requirements by Country and Year (€ million)

	y2007	y2008	y2009	y2010	y2011	y2012	Total (€ million)	
Albania	45.05	45.05	42.74	42.74	0.00	0.00	177.56	9.42%
BiH	7.50	77.70	104.37	104.37	84.17	0.00	378.10	20.06%
Croatia	0.00	14.17	58.40	50.90	44.23	0.00	167.70	8.90%
*fYR Macedonia	87.65	117.65	117.65	93.20	30.00	30.00	476.15	25.26%
Montenegro	5.17	31.42	41.92	34.00	19.00	0.00	132.50	7.03%
Serbia	13.20	102.73	97.03	91.33	83.33	30.00	417.60	22.15%
UNMIK/Kosovo	35.49	35.49	35.49	25.03	0.00	0.00	135.50	7.19%
Total (€ million)	187.06	426.20	498.59	482.56	274.60	55.60	1,885.11	100.00%

Table 4-8: Preliminary Estimated Allocations of Resources by Project Phase

Preparatory Status	Construction, Bidding, Supervision Cost	Development, Construction and Design Documentation	Research, Studies and Other Preparatory Documents	Total Cost € million
Advanced	1,072.35	19.66	----	1,092.11
Intermediate	276.39	22.11	6.90	305.40
Preliminary	441.28	35.34	10.98	487.60
Total (€ million)	1,790.02	78.11	17.88	1,885.11

*fYR Macedonia – the former Yugoslav Republic of Macedonia

in terms of allocation of resources and funding from both local budgets and IFI's.

The group of projects classified as intermediate, with total costs of € 305.4 million, would require initial financing for feasibility studies so as to enable projects to progress towards the design and budgeting phase. Estimated funds needed for studies and design completion is about € 29 million.

Projects classified as being at a preliminary stage lacking basic documentation have total estimated costs of € 487 million, and would also require approximately € 11 million for studies.

4.8 OVERVIEW OF PROGRESS FROM PREVIOUS MAP

4.8.1 Introduction

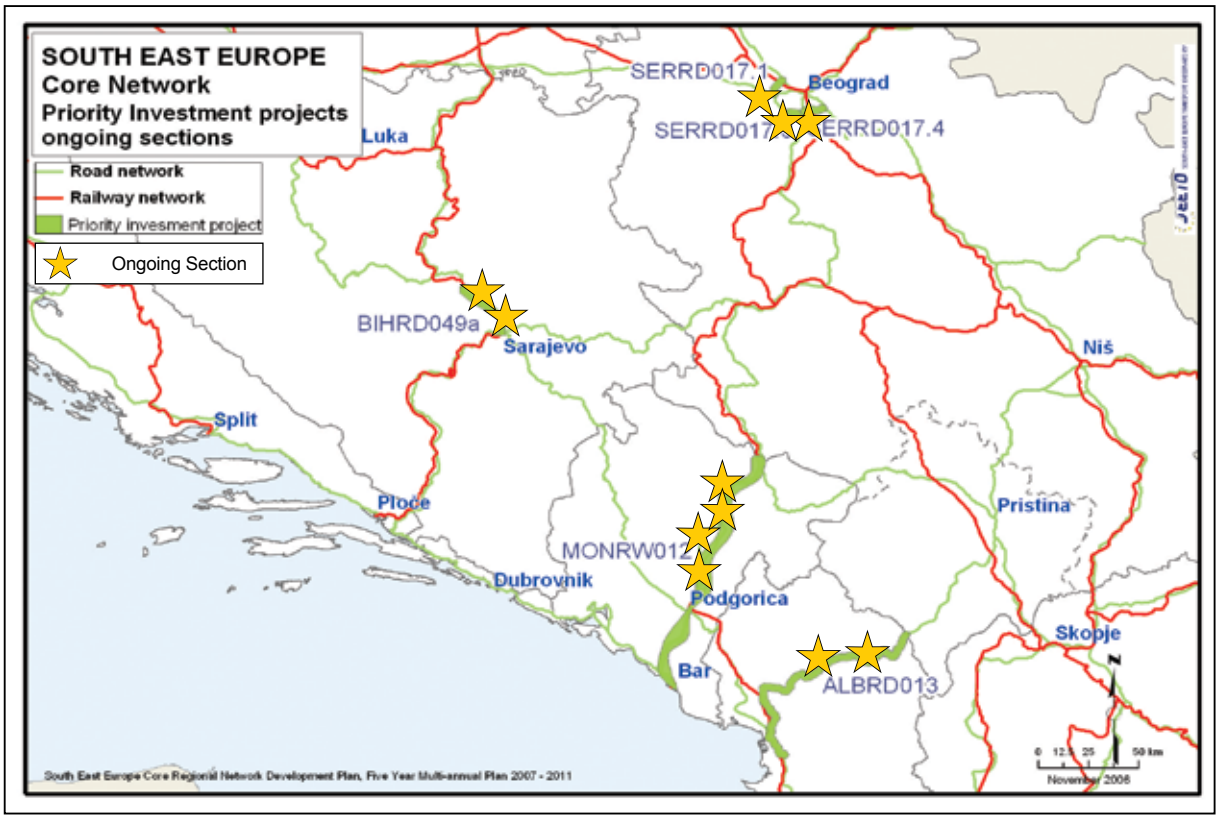
One of the SEETO roles is to carefully monitor the progress made in implementing the MAP. The criteria for monitoring progress emanates from the changes in project status. An index of change will be prepared for future years.

4.8.2 Physical Progress

Some of the investment projects have advanced since the previous MAP in terms of acquired levels of documentation completed, budget preparation or execution of works. On the basis of data received by the SEETO, details about status and scope of these projects have been updated and revised (in terms of total cost, length, time schedule). These details are shown in Tables 4-5 and 4-6, while the present status of projects is illustrated in Figure 4-5.

In Albania, project ALBRD013 for upgrading the Route 7 between Milot and Morine has moved forward on two sections, namely Kalimash – Kukes (11 km, € 23.45 mn) and Kukes – Morine (17 km, € 34.24 mn). Progress has been made in design completion and in securing

Figure 4-5: Priority Investment Projects - Ongoing Sections



funds for construction and supervision (for construction of the new section Reshen – Kalimash 55 km four lane road and 6 km tunnel, tender financed from local budget sources for design provision is underway; and commercial loans are under negotiation), resulting in reduced overall alignment and cost of the project.

In Bosnia and Herzegovina, Corridor Vc project BIH049a has advanced on the sections Kakanj – Visoko (20 km, with tender preparation procedure started), Visoko – Podlugovi (11 km, with works completed) and the Josanica – Vlakovo/Sarajevo bypass section, where financing has been secured (EIB/ EBRD/ OPEC).

The Montenegro railway rehabilitation project MONRW012, added into the priority list for the MAP 2006-10, is covered by an ongoing € 15 million loan, but an additional € 7 million is needed for completion (tunnels and landslide reconstruction) of this important

section of Route No. 4 and its link to Corridor X. Serbia is actively engaged in advancing construction of the Belgrade bypass, with some works already started (tunnels, viaducts on Sections 017.3 and 017.4), announced financing from domestic budget sources (€ 30 million for Section 017.3 in 2006-07), and IFI loans under negotiation (Section 017.4).

From the prioritized projects list there are a number of investments on the Core Network whose status may be described as ongoing (construction works in progress or tendering procedures under way). These are listed in Annex D 2.

With more and better information now being available for the Core Network, especially on network condition and traffic flow, it will now also be possible to undertake more qualified and reliable analyses.

4.8.3 Project Information and Data

Another important indicator of progress concerns the extent and comprehensiveness of information available in the project data base. Some project data have been upgraded, and some new data received and evaluated, allowing projects to progress towards the implementation stage. This has made possible greater detail in sub-prioritisation of projects, and in promoting the progress of projects in the pipeline.

4.9 FUNDING

4.9.1 Cross-Border Issues

A major issue in funding projects on a common but trans-national network is that of cross-border financing – a fact reported also by the High Level Group. This is especially important if private funding is expected. Investors with little interest in one national section of an international route may well have greater interest in the whole route, provided the necessary political and legal conditions exist.

Strengthening and improving of cross-border cooperation is possible in many areas, such as

- Cooperation between the former Yugoslav Republic of Macedonia, Serbia and Croatia along the Corridor X on motorway completion, railway rehabilitation and upgrade;
- Joint planning between Bosnia and Herzegovina, Montenegro and Albania on the Route 2b upgrading projects;
- Cooperation between Croatia, Montenegro and Albania regarding sustainable development of ports;
- Cooperation in solving problems on the Corridor VIII or Route 7 between Albania, UNMIK/Kosovo, and the former Yugoslav Republic of Macedonia.

Such cooperation would result in more quality network operation, improved service levels, and transport cost savings, and would open space for new investment projects, thus enhancing economic and social development of the region.

4.9.2 Public Private Partnership (PPP)

There is increasing reliance on the private sector to fund investments, particularly new construction projects. The SC is aware of the need to ensure that the right legal conditions exist, and proposes to share experiences to ensure that PPP may develop in a more homogeneous and mutually beneficial way. A series of PPP workshops will therefore be held during 2007 and 2008.

4.9.3 Soft Measures

There is now increasing understanding that investment in infrastructure alone is no guarantee of improved operational efficiency. There is also a need for investment in soft measures (as described in Chapter 3), to be implemented in parallel with the indicative investment plan outlined in this chapter.

Expected Results, Monitoring and Evaluation

5.1 EXPECTED RESULTS

Major improvements in the Core Network infrastructure and in the organisation and operation of transport services are expected as a result of the Plan. Infrastructure will be improved by the rehabilitation and upgrading projects set out in Chapter 4, while organisation and operation of services will be enhanced by the soft measures listed in Chapter 3.

Currently around 40 per cent of the Core Road Network, but less than 10 per cent of the Core Rail Network, can be described as being in good condition (see Chapter 2). By 2011 the investment projects listed in Chapter 4 will have raised these proportions to around 50 per cent for roads and 30 per cent for railways. Attention to navigability bottlenecks on 14 km of the River Danube will also substantially improve throughput capacity of the whole 588 km waterway (Corridor VII). Port and airport investments will have increased passenger and cargo capacities, thus providing capacity to meet rapidly rising demand for sea and air transport, and improved special facilities for containerised and other unit cargoes will also be in place.

Soft measures proposed in the Plan, together with other sector reforms already being implemented, will bring major improvements in management of the transport sector as a whole and of individual sub-sectors. By 2011 there will have been widespread legal and regulatory reform, with substantial harmonisation between the different signatories, and substantial progress will have been made in all states and entities on implementation of the EU acquis communautaire. Management of roads will have been devolved, and a proportion of operational and maintenance work outsourced, so that roads will be better maintained and prospects for funding new roads through public/private partnerships (PPP) will be much increased. Railways will have restructured and become more financially sustainable, while a common network statement will have been agreed so as to help attract through freight services on the Corridor X and other main routes through the region. All countries in the region will be the part of the European Common Aviation Area (ECAA), and air traffic growth will have been boosted by increased competition and lower fares. Attractive inter-modal services will have started to develop between the road, rail, sea, river and air modes.

5.2 MONITORING AND EVALUATION

5.2.1 Context and Definitions

According to the MoU, the implementation of the multi-annual plans are to be monitored on a regular (annual) basis and the results evaluated using practicable outcome indicators.

Monitoring

Monitoring applies to the implementation of the priority projects and measures which relates to status within the project management cycle. That is to say the implementation of the Action Plan in Table 4.6 Suitable monitoring indicators will be developed to demonstrate the implementation status of the MAP.

Evaluation

Evaluation reveals the extent to which the results expected from the MAP in terms of improvements in condition, reduction in travel time, accidents and so on,

have been achieved. This sub-section describes the development of evaluation performance indicators for the Core Network.

Background
Sets of performance indicators were initially proposed in the MAP 2006-10 (see Annexes B6 and I), but could not be developed at that time, due to lack of data. However, useful comments were received from interested parties, including the Steering Committee, EC and ISG, and have been taken into account in revisions now made for the present Plan. Data have now also been received through the Infrastructure and Traffic Questionnaires, thus enabling a start to be made on evaluating present performance of the Core Network, and hence on evaluating performance improvements over time as reflected by changing values of those indicators.

The process must, however, be a gradual one, and several data gaps still remain to be addressed in the coming year before production of the MAP 2008-12.

The two following sub-sections consider performance indicators firstly for physical performance and secondly for the impact of soft measures.

5.3 EVALUATING INFRASTRUCTURE AND OPERATIONAL PERFORMANCE

5.3.1 Information Requirements

Network performance indicators should seek firstly to relate the supply of infrastructure to the demand for transport, and secondly to evaluate the quality of infrastructure and services. Thus, for instance, on roads it will be desirable to have the following types of information:

- Available infrastructure (number of lanes, type of terrain etc),
- Quality of infrastructure (good/medium/poor condition, surface roughness indicator if available),
- Traffic demand (in vehicles or pcu per day, if possible with details on traffic mix, sea-sonal and daily fluctuations etc),
- Speed of traffic flow (enabling assessment to be made of delays due to overall conges-tion, specific obstacles such as junctions or towns, etc).

For seaports it will likewise be desirable to have the following types of information:

- Available infrastructure (numbers and lengths of berths for principal traffic handling groups),
- Quality of infrastructure (good/medium/poor, quay loading and alongside depth restric-tions etc),
- Traffic demand (volumes by principal traffic handling group),
- Speed of handling (throughput time, container dwell time, customs delays etc),

Similar performance data should ideally be available for road, rail and waterway links, and for seaports, river ports, airports, intermodal centres, and border crossings.

From the infrastructure and traffic questionnaires it was possible to derive satisfactory basic indicators by corridor, route, section and country for infrastructure descriptions, link condition, and traffic flow over the road and rail networks. Rather less detailed information on infrastructure and condition was also available for the single Core Network waterway. Basic infrastructure and traffic data were also available for most of the Network seaports, river ports and airports. Results have been summarised in Chapter 2.

Few data have yet been gathered on border crossings, where there is particular concern that delays to both road and rail transport should be minimised in order to attract through traffic flows to routes through the region. This matter will be addressed as a matter of urgency in the next planning period.

Before production of the MAP 2008-12 it will also be made a priority to develop traffic forecasts, so that the potential impact of future capacity bottlenecks can be more readily placed in time. If possible, progress will also be made on the compilation and analysis of accident data on the regional road network.

A revised list of target indicators is shown in Annex B 6.

5.3.2 Network Condition Indicators (NCI - Road)

Method
On the basis of results reported in Table 2-3, some basic indicators can be derived for the Core Road Network. The indicators can be recalculated in future years to indicate year-to-year changes. The procedure is outlined as follows:

(1) Exclude sections for which condition data were not available through NCs (17.6 % of Corridors and 7.0 % of Routes);
(2) Apply a condition scale of 1 to 5 for the five defined conditions Very Poor through to Very Good respectively;
(3) Weight these indicators by the percentages of road in each of the five categories;
(4) Calculate a single condition index, with a lowest possible value of 1.0 and a highest possible value of 5.0.

For the 2,500 km of Corridors where condition was defined, this index may be computed as:
(0.2688 x 5) + (0.2656 x 4) + (0.3908 x 3) + (0.0624 x 2) + (0.0124) = 3.72.

In other words, 'average' NCI for parts of the Corridor network where data are available is found to fall short of being Good, but to be significantly better than Medium.

A similar calculation for the 2,635 km of Routes with classified condition gives a lower NCI of 2.91, indicating that average condition is slightly short of Medium.

The current NCI for Roads is 3.30, or rather better than Medium.

Change in Condition
With the implementation of the MAP 2007-11 a further 506 km of roads will be improved to Very Good standard from the other condition categories. The change in the NCI Roads in 2011 will rise from 3.30 to 3.59. Note that 731 km or 12% of the Core Network remains outside the NCI through lack of data.
Refer to Table 5 1

5.3.3 Network Condition Indicators (NCI - Rail)
A similar method is applied to the Core Railway Network. The source of information on rail condition is Table 2-8. Rail condition is assumed to apply to the condition of the track, rather than other components like signalling. Therefore although improved signalling should apply to 329 km of Corridor X in Croatia and 37 km in the former Yugoslav Republic of Macedonia due to the priority projects, only track improvements of 511 km have been taken into account in the NCI Rail. Refer to Table 5 2 where it can be seen that the condition of the Rail Core Network should improve from NCI 2.27 (2006 data) to NCI 2.56 in 2011. Note should be taken that 17% of the Core Railway Network is excluded from the NCI through lack of information. It is suspected that the missing information may relate to the poorest parts of the Core Network.

A target for the future should be to improve the overall Core Network condition index to at least 4.00. This aim can be assisted both by the indicative investment programme proposed in Chapter 4, and by the application of soft measures relating to road maintenance as set out in Chapter 3.

5.3.4 Further Evaluation Indicators
The NCI approach will be extended to traffic, travel times and other performance parameters in the future. For this MAP, a more general description is provided as follows:

Corridors	**9,586**
Routes	**6,266**
Core Network	**7.759**

Table 5-1: Change in NCI Roads by 2011

Road Condition	Year 2006		weight	NCI	Year 2011		weight	NCI
	km	%			km	%		
Very Good	952	19%	5	0.93	1,458	28%	5	1.42
Good	1,189	23%	4	0.93	1,189	23%	4	0.93
Medium	1,959	38%	3	1.14	1,771	34%	3	1.03
Poor	532	10%	2	0.21	367	7%	2	0.14
Very Poor	503	10%	1	0.10	350	7%	1	0.07
Total in Index	5,135	100%		3.30	5,135	100%		3.59
Not Specified	731	12%	0	0.00	731	12%	0	0.00

Source: SEETO

Table 5-2: Change in NCI Rail by 2011

Road Condition	Year 2006		weight	NCI	Year 2011		weight	NCI
	km	%			km	%		
Very Good	0	0%	5	0.00	511	15%	5	0.73
Good	351	10%	4	0.40	351	10%	4	0.40
Medium	2001	57%	3	1.71	1705	48%	3	1.45
Poor	1118	32%	2	0.64	903	26%	2	0.51
Very Poor	50	1%	1	0.01	50	1%	1	0.01
Total	3520	100%		2.27	3520	100%		2.56
Not Specified	744	17%	0	0.00	744	17%	0	0.00

Source: SEETO

Road Traffic
As shown in Table 2 4 mean 2005 road traffic flow or AADT (that is, average sectional traffic flow weighted by length of section expressed in equivalent passenger car units - pcu) were as follows: Overall traffic levels may be expected to increase steadily in future, and the important question of traffic forecasting will be addressed in 2008.

Potential Bottlenecks
As indicated in Section 2.3.4, there is a number of heavily-trafficked sections on the Core Network. It is

considered prudent to identify as potential bottlenecks road sections carrying more than 10,000 vehicles per day on two lanes, or more than 40,000 vpd on four lanes. Though these threshold traffic levels will not cause immediate congestion, they may be regarded as indicators that, given time lags in implementation, planning should soon be initiated for possible increases in road capacity.

The length of Corridor roads for which these thresholds are currently exceeded is seen from Table 2-4 and accompanying text to be (152 + 20) = 172 km, while the corresponding length of Routes is 314 km. Hence 5.7 % of Corridor roads may be classified as having potential future congestion, along with 11.1 % of Routes.

5.3.5 Institutional and Regulatory Framework
It is increasingly recognised that institutional and regulatory reforms can have considerable impact on the efficiency of transport systems. Hence much emphasis is now placed by funding agencies on reform packages which may typically contain the following types of measures:

- Creation of specialised agencies or operating bodies for many of the basic modal operating and maintenance activities,
- Creation of institutions to provide assured sources of funding for construction and maintenance of infrastructure;
- Introduction of the private sector into areas traditionally reserved for governments.

Such soft measures can often give returns in terms of system performance comparable to those resulting from major infrastructure investments at a fraction of the initial costs. In addition, they can also enhance the likely benefits to be achieved from those infrastructure investments which are made. Several reform packages have been initiated in South-East Europe by the various signatory governments, often with donor assistance, and the SEETO has also proposed a wideranging reform programme, as set out in Chapter 3. The nature of institutional reforms makes it much more difficult than for infrastructure investments to devise suitable system performance indicators. The goals of soft measures may be wide-ranging, may not be easily or directly quantified, and may be assisted or hindered by a variety of extraneous factors. Nevertheless an attempt has been made to set out some suitable indicators in Annex C.

5.4 IMPLEMENTATION

An important area of support in implementation of the Plan will come from the activities of the Steering Committee and the SEETO in fostering continuing regional cooperation. In this regard funding by the signatories, in accordance with Article 16 of the SEETO Agreement, is a real indicator of such support.

The indicative action plan contains commitments to large infrastructure investments which by their nature have financial implications for the administrations or institutions involved in the project cycle. It is therefore expected that the plan will be used as a tool to disseminate information on these commitments.

Implementation of the Plan will be subject to both institutional and technical risks. Institutional capacity is a major concern in much of the region, and the Plan assumes that deficiencies will be duly addressed, through technical assistance projects already under way, and through others, including those proposed in Chapter 3. Much is already being achieved in the institutional field through movement by all signatories to implement the EU acquis communautaire, and by the general wish to stimulate private sector participation in transport sector development. The need to ensure that transport users receive the service they require remains an overriding imperative to reform.

Other risks for timely project implementation are those inherent to any major infrastructure project (for instance, possible technical problems and administrative delays). Such problems will be followed up in the monitoring process for individual projects.

5.5 MULTI-ANNUAL PLAN 2008–2012

The next Plan will cover the period 2008 to 2012. Its main features will include projects geodetically located, traffic forecasts, accident data and analysis, and border crossing performance. The next Plan will again contain projects prioritised in accordance with the agreed methodology. The progress and status of projects from the previous Plans will be monitored.