SEETO SOUTH-EAST EUROPE TRANSPORT OBSERVATORY

Developing strategic planning of critical railway infrastructure investment

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Content

- Investment needs
- Maintenance backlog
- Intelligent transport systems deployment

Investment needs

SEETO MAP 2018

- The estimated investment required for the implementation of these 65 priority projects is approximately €13.9 billion
- Rail projects are represented in the priority project list with 18 out of 65 nominated priority projects
- Investment needs in railways amount to ***€ 4.6 billion***

Comprehensive/Core	Length (km)	Length of sections under planned projects	Percentage of network covered by priority projects
Comprehensive network	3857	**1.241**	32%
Core network	2602	**1.044**	40%

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Investment needs

Mature projects-SEETO MAP 2018

	Corridor/ Route/ Node	Regional Participant	Project name	SEETO Network	Length (km)	Total cost (M€)
Mature Projects	**Railway projects**					
	Corridor Vc	BIH	Overhaul of the railway section Sarajevo-Podlugovi	Core	24	22,5
		BIH	Overhaul of railway double track section Doboj - Maglaj and single track section Jelina - Zenica	Core	32,1	75,5
	Corridor VIII	MKD	Constuction of the railway section Beljakovce-Kriva Palanka- Border with Bulgaria	Core	57,4	470
	Corridor X	SER	Reconstruction and modernization of the existing railway track and construction of a second track on the line Beograd – Nis, section Stalac – Djunis	Core	17,74	157
		SER	Construction of the by-pass railway line Beli Potok – Vinca – Pancevo with road-railway bridge over the Danube River near Vinca and highway By-pass of Belgrade section C	Core	31	430
	Total cost mature (M€)					**1155**
	Total length mature (km)				**162**	

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Investment needs

Preparatory projects-SEETO MAP 2018

	Corridor/ Route/ Node	Regional Participant	Project name	SEETO Network	Length (km)	Total cost (M€)
	Railway projects					
Preparatory	Corridor VIII	ALB	Development of the Corridor VIII - section Durres- Rrogozhine - Pogradec /MKD border	partly Core/Comprehensive	137	206
		ALB	Construction of the new railway Pogradec-Korca – border to Greece	Comprehensive	90	150
		ALB	The construction of railway line from Tirana Public Transport Terminal (PTT) to a new railway station in Tirana	Core	n/a	6
	Corridor X	SER	Reconstruction and modernization of sections on the railway line Nis - Preševo (section Brestovac - Vinarci, Djordjevo - Vranjska Banja, Ristovac -Bujanovac, Bukarevac - Presevo)	Core	88,14	160
		SER	Modernization for the contemporary double-track traffic of the single - track section of the railway line Resnik-Klenje-Mali Požarevac - Velika Plana,	Core	84	368
		SER	Modernization of section Velika Plana- Nis (without sections Gilje -Paracin and Stalac - Djunis)	Core	111	276
		SER	Construction and modernization of railway bypass around Niš	Core	22,4	90,7
	Corridor Xb	SER	Reconstruction and Modernization of the railway line Belgrade - Novi Sad - Subotica - border with Hungary(Kelebija)	Core	142	1.740
	Corridor Xc	SER	Modernization of the single-track railway line Nis – Dimitrovgrad – Bulgarian border, section Sicevo – Dimitrovgrad	Core	86	268
	Route 2	ALB	Improvement of the railway link Durres - Vora-Shkodra-Hani Hotit	Core	140	165
	Route 2	MNE	Reconstruction and modernization of railway section Podgorica - Tuzi	Core	24,7	35
	Route 4	MNE	Rail Route 4 (Bar-Vrbnica) - Reconstruction of railway line (sections: Trebješica - Lutovo - Bratonožići - Bioče - Podgorica)	Core	46,3	36
	Route 9a	SER	Reconstruction and modernization of the railway line Ruma-Šabac-Donja Borina - State Border with BIH	Comprehensive	107	24
	Total cost preparatory (M€)					**3.525**
	Total length preparatory (km)				**1.079**	

Maintenance needs

- The first result shows that without any prioritisation, the total volume of superstructure RIA (i.e. **BRSF**) renewal works (of any kind) that should be performed within the target period 2019-2023 amounts to **3468.76 km (out of 3857),** for which the data were obtained from WB6 RPs, 2,499 km of rails, 2389 km of sleepers, 2457 km of fasteners and 2732 km of ballast have either exceeded their service lives (RSL <= 0) or are having less than 20% RSL left (blue cumulative curve).

- Project aimed at sections in poor and very poor condition, hence sections with RSL <= 0 and 0 < RSL <= 20%, i.e. effectively RSL <= 20% were selected

- Therefore, only RIA with RSL <= 20% represent “candidates for replacement” in the period 2019-2023

Maintenance needs

- Volume of M&R is extremely large and therefore, a strategy had to be devised as to how to prioritise

- For the purposes of establishing M&R plans for the 5-year period 2019-2023 analysis was undertaken under 3 distinct scenarios:
  A. "Ideal/Maximum",
  B. Medium" (roughly 50% of the "Ideal") and
  C. "Minimum" (roughly about 20% of the "Ideal").
- Budget
  - Rail Infrastructure M&R Budget for "Ideal/Maximum" scenario – €2.914 billion
  - Rail Infrastructure M&R Budget for "Medium" scenario – €1.224 billion
  - Rail Infrastructure M&R Budget for "Minimum" scenario €566 million

ERTMS

Item	Cost (€/Km)	Source	Observations
Legacy systems generic maintenance costs	4,200	Study CBA EUAR 2004	
Legacy systems generic maintenance costs, age over 25	8,400	Study CBA EUAR 2004	Doubled costs for ageing systems; rough figure
L1 ERTMS maintenance costs	3,500	Study CBA EUAR 2004	
L2 ERTMS maintenance costs	2,100	This is deduced from a 40% costs reduction (compared to L1 ERTMS) inspired by the fact that parts of the trackside signalization is removed in L2 ERTMS	
L2 ERTMS maintenance costs	1,680	Further reduced 20% as expected in a five year period, breakthrough program	
Legacy systems implementation cost, double track	100,000	Estimates added to the L1 system if it is not overlaid over an existing legacy system	
Legacy systems implementation cost, single track	65,000	Estimates added to the L1 system if it is not overlaid over an existing legacy system	
L1 ERTMS implementation cost, double track	100,000	Study CBA EUAR 2004 UIC benchmark 2013	This value has been used by default: when a direct estimation of the track-side deployment costs was available, it was privileged
L1 ERTMS implementation cost, single track	65,000	Study CBA EUAR 2004 UIC benchmark 2013	See above
L2 ERTMS implementation cost, double track	350,000	Study CBA EUAR 2004 Validation by stakeholders	This value has been used by default: when a direct estimation of the track-side deployment costs was available, it was privileged
L2 ERTMS implementation cost, single track	192,500	Study CBA EUAR 2004 Validation by stakeholders	See above
L2 ERTMS implementation cost, double track	262,500	Further reduced 33% as expected in a five year period, breakthrough program	
L2 ERTMS implementation cost, single track	144,500	Further reduced 33% as expected in a five year period, breakthrough program	

ERTMS

- The costs at regional level have been estimated as follows:
  - Implementation costs approximately EUR 512 million
  - The annual maintenance costs for track-side are estimated at EUR 6 million
  - No provisional cost is estimated for on-board units, due to shortage of information about existing fleet (also unit costs substantially vary between EUR 100,000 – 375,000, depending on decisions to procure new equipment or adapt existing ones).

- Regarding benefits, only from time savings estimation, a gain of EUR 38.2 million on annual basis can be achieved after the ERTMS implementation, again – as for Roads ITS – without considering the anticipated traffic growth.

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Modernization of railway management and operations

Event
Date and venue

Nedim Begovic, Transport Planning Manager

Content

- Vienna Summit measures
  - Rail market opening on the pilot basis on the Orient/East Med Corridor
  - Establishment of functioning maintenance system ensuring no section in poor/very poor condition by 2020
  - Cooperation frameworks such as RFC
  - Border crossings
- Intermodal issues

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Vienna Summit CRM Mngmt Plan

Vienna Summit Soft Measures Management Plan

Medium-term Regional Actions (2020 Goals)	*Short-term Regional Actions (2016 Goals)*
1. Opening of the transport market	
1.1 Implementation of rail reform strategy	• Rail market opening on the pilot basis on the Orient/East Med corridor • Definition of a framework for implementation of EU Freight corridors extended to the Western Balkans
2. Establishment of competitive, reliable and safe transport system	
2.1 Improvement of road safety Targeting the reduction of fatalities by 20% compared to reference year 2014	• Adoption of Road Safety inspection (RSI) guidelines and curriculum and delivering of training
2.2 Trade and Transport Facilitation	• Development and implementation of System of Exchange Excise Data (SEED) Plus to support the CEFTA Framework Agreement on exchange of data and simplification of inspections o Signature of a legally binding document-protocol on an exchange of transport data in cooperation with CEFTA
2.3 Intelligent Transport System (ITS) deployment on the Core Network	• Definition of strategic framework for implementation of ITS on the Core Network
2.4 Establishment of functioning maintenance system ensuring no section in poor/very poor condition	• Adoption of Maintenance Plan for 2016-2020 for the entire Core Network
3. Increasing effectiveness of Border Crossing Procedures	
3.1 Effective Border Crossing Agreements	• Implementation of the BCA between Serbia and the former Yugoslav Republic of Macedonia • Conclusion of negotiations between Bosnia and Herzegovina and Croatia for all BCPs • Implementation of BCA between Montenegro and Albania as a part of Adriatic-Ionian highway project
3.2 Implementation of Integrated Border Management (IBM) strategy	• Implementation of IBM at Common Crossing Points (CCPs) between Serbia and Kosov o Provide one parking lane on each side of the CCP of Merdare

Rail market opening on the pilot basis on the Orient/East Med Corridor

- SA. 1 Legislative changes to allow market opening to domestic carriers
- SA. 2 Regular consultation platforms with forwarders and shippers established
- SA. 3 Mutual recognition of train driver license
- SA. 4: Review of national technical rules and safety rules for elimination or later reporting to ERA
- SA. 5 Network statement for the main infrastructure manager published
- SA. 6 Networks statements for rail freight terminals, including in sea ports and river ports published

Establishment of functioning maintenance system

- SA 3 - Change budgetary planning practice to introduce 5 year contracts
- SA 4 – Introduce asset management system
- SA 5- Rail Maintenance Plan for Core/Comprehensive Network for period from 2018, ensuring no section in poor/very poor condition by 2020
- SA 6- Coordination between the regional IM (neighbouring IMs between themselves), consultation with interested parties before preparation of maintenance plans and the schedule for works and publication in the network statement

Rail Freight Corridors

- Coordination of planned temporary capacity restrictions
  - Coordination on traffic management
  - Coordination on works and possessions
    - Timeline for coordination
    - Management of conflicts between TCRs
- Corridor OSS
- Capacity Allocation
- Quality Evaluation-Performance monitoring

BC agreements and joint stations establishment

- Implementation of the rail border crossing agreement between Serbia and the former Yugoslav Republic of Macedonia
- Conclusion of negotiations between Bosnia and Herzegovina and Croatia for all border-crossing points (BCPs)
- Implementation of the border crossing agreement between Montenegro and Albania as a part of Adriatic – Ionian Initiative project
- Revisiting the rail border crossing agreement between Serbia and Bulgaria
- Implementation of the border crossing agreement between Kosovo and the former Yugoslav Republic of Macedonia
- Conclusion of negotiations and signing of rail border crossing agreement between the former Yugoslav Republic of Macedonia and Greece for border-crossing point (BCPs) on Corridor X

Intermodal issues

- The favourable transit position of the region and existing SEETO Network offer great potential for the development of intermodal transport, both internally among the countries and internationally
- However, intermodality in the region is underdeveloped
- The main problems that the development of the intermodal transport in SEE region is facing refer to the following issues:

  - *Institutional issues* - weak institutions, inadequate organization, non-existence of relevant associations, limited strategic foresight.
  - *Planning process* - insufficient support to the comprehensive and wide-ranging planning process in the logistic transport chains.
  - *Operational issues*, which comprises weak coordination and cooperation among stakeholders in the transport chain, as well as a lack of policy initiatives by governments for intermodal transport organization.
  - *Lack of infrastructure facilities* - inadequate and weakly developed suitable infrastructure or superstructure, old mechanization and equipment.
  - *Economic constrains* – lack of the concentration of considerable transport volumes at a reduced number of terminals to enhance intermodality in the region.
  - *Tariff policy issues*, which do not stimulate the use of intermodal transport.
  - *Awareness issues* - underdeveloped awareness of the benefits which an intermodal transport system provides and inadequate marketing of the benefits.

Thank you for your attention !

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