



Polinac Company d.o.o.
Sarajevo, Bosna i Hercegovina

RAILWAYS OF BOSNIA AND HERZEGOVINA

Sarajevo, 2018



Polimac Company LTD
Bosnia & Hercegovina
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BOSNIA AND HERZEGOVINA RAILWAYS PUBLIC CORPORATION

With Annex 9. of the General Framework Agreement for Peace in Bosnia and Herzegovina, signed in Paris on 14. December 1995, since that within the transportation sector railways constitute a specific matter and need to have their own specific structure, Federation of BiH and the Republic of Srpska have established Bosnia and Herzegovina Railways Public Corporation, abbreviated name BHRPC.

In accordance with Art. 8. of Agreement the parties shall take whatever measures are necessary so that the railway companies of the Federation of Bosnia and Herzegovina and of Republica Srpska and particularly the infrastructure managers:

1. Act in conformity with the decisions taken by the BHRPC
2. Keep the responsibility of maintaining the railway infrastructure up to the standards required by the regulations issued by the Institutions of Bosnia and Herzegovina
3. Abstain from taking any action which may be detrimental to railway traffic between the Entities

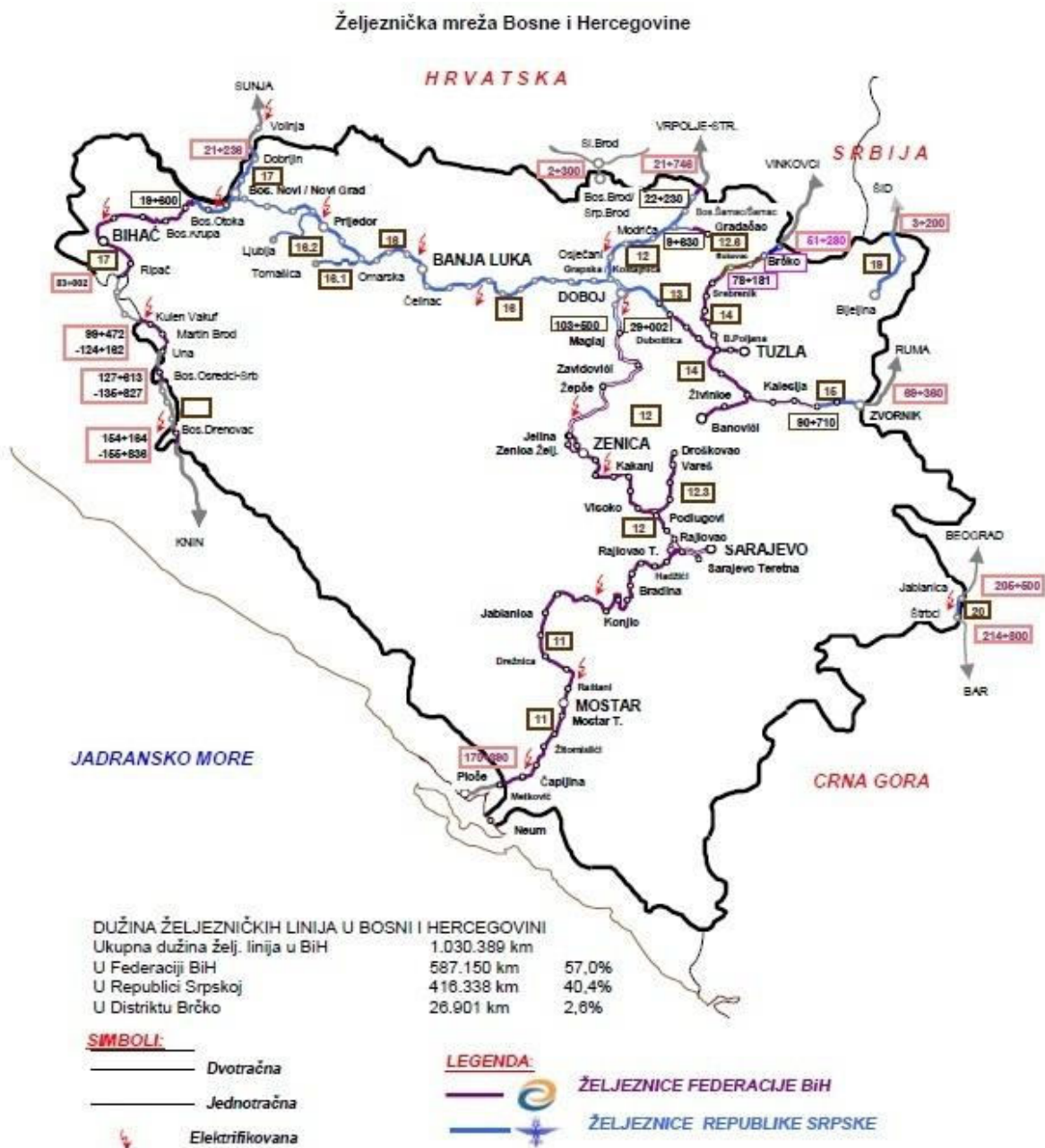
BHRPC is established for the mutual benefit of the Federation of BiH and the Republic of Srpska and its purpose is to establish an institutionalized cooperation between the Entities and to facilitate decision-making so that a smooth, safe and regular inter-Entity and international rail traffic takes place.

BHRPC consider and make decisions on:

- The allocation of train paths for inter-entity and international traffic, in a non-discriminatory manner
- The harmonization of signaling, safety, telecommunications and other systems on the railway network of the two Entities
- The setting of accounts between railway companies
- Allocation and managing with donations that are donated or borrowed



THE RAILWAY NETWORK OF BOSNIA AND HERZEGOVINA





CHARACTERISTICS OF THE RAILWAY NETWORK OF B&H

- Network length in BiH: 1032, 76 km
 - Track gauge
 - Length Networks ŽFBiH, 608.45 km
 - Double track, 68.453 km
 - Electrified network 398 km
 - Voltage of 25 kV, 25Hz
 - Regulation of train movement is done in cell spacing
 - Systems for centralized management of traffic does not exist
 - Speeds are between 50 and 70 km/h
 - Most networks require renewal
 - Partially restored about 30 km
 - Rebuilding underway at 100 km
 - Funds for the reconstruction provided for another 40 km
-
- **Large slope Nival, to 25%**





- Small radius of curvature 25 and 30 m



- Large number of facilities, bridges 233 - length of 11.4km
- Tunnel 163 - length of 55.2 km





INTER-ENTITY AND INTERNATIONAL RAIL TRAFFIC

**MAP
OF NEW RAILWAY LINES**



- Legend:** — new railway lines in BiH
- Čapljina – Trebinje – Nikšić with branches to Neum and Dubrovnik,
 - Čapljina – Imotski – Split or Knin,
 - Koprivna – Brod,
 - Šamac – Brčko – Bijeljina- Lešnica,
 - Zvornik – Višegrad - Trebinje
 - Vareš - Banovići



The railway network comprises two main strategic lines, which are also the main railway lines for cargo. The two include: (i) The North-South Bos.Šamac-Doboj-Zenica; Sarajevo-Mostar-Čapljina line located on Corridor Vc (which connects Budapest in Hungary to Ploče in Croatia);

and (ii) the West-East Dobričlin–Bos.Novi-Banja Luka-Doboj-Tuzla-Zvornik line which is the railway line parallel to Corridor X.

The rehabilitation of the core railway network, in particular Pan-European Corridor Vc and the east-west line parallel to Corridor X are deemed to be critical first steps. In 2005, the EBRD approved euro 70 million (US\$102 million) for a program of track renewal on key sections of both corridors, together with rehabilitation of the station signaling system and purchase of track machinery.

The overall condition of the railway network in Bosnia and Herzegovina remains poor, with operational weaknesses reducing line capacity markedly.

Despite extensive rehabilitation, overall operational speeds remain low, due to the following:

(i) temporary speed restrictions arising from the condition of some tunnels (notably Tunnel Ivan south of Sarajevo where there is a speed restriction of 40 km/hour);

(ii) poor track alignment (due to topography and gradient) and condition; and

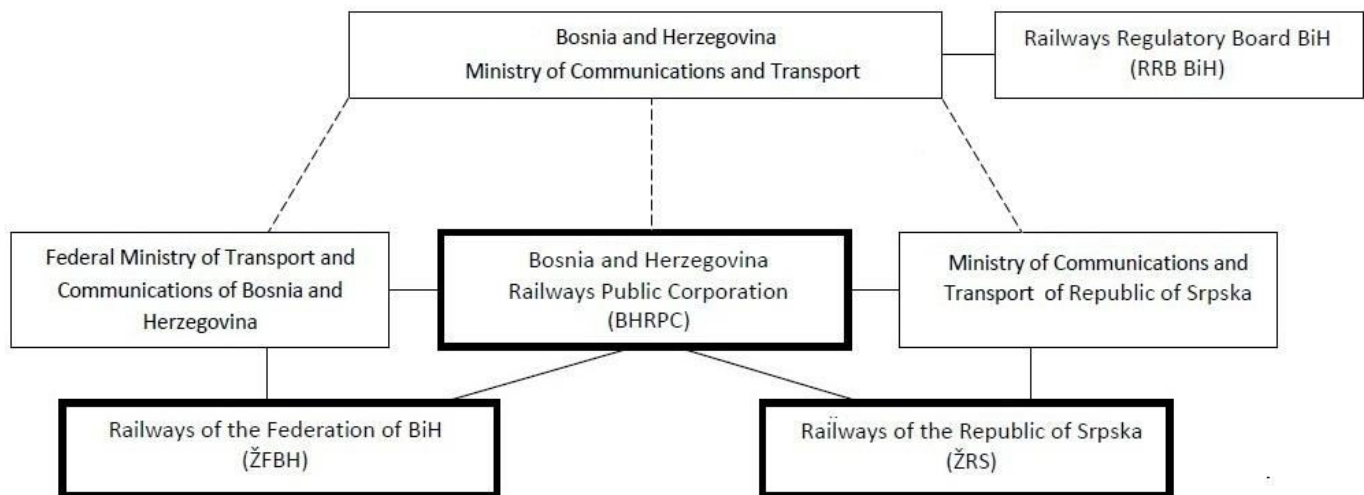
(iii) the number and functioning of crossings. On around 80 percent of the railway lines on Corridor Vc, train speed is limited to a range of between 30 km/hour and 70 km/hour, depending upon the conditions of the track.

In addition, there are limitations in ballast in the curves, weak sleepers, and inadequate fastenings. Another significant problem is the length of the crossing sidings in stations (with a usable length of 570 meters), leading to restrictions on train length (550 meters) and train weight (1,500 tons).



THE STRUCTURE OF THE RAILWAYS IN BIH

The basic structure of the railway sector in Bosnia and Herzegovina



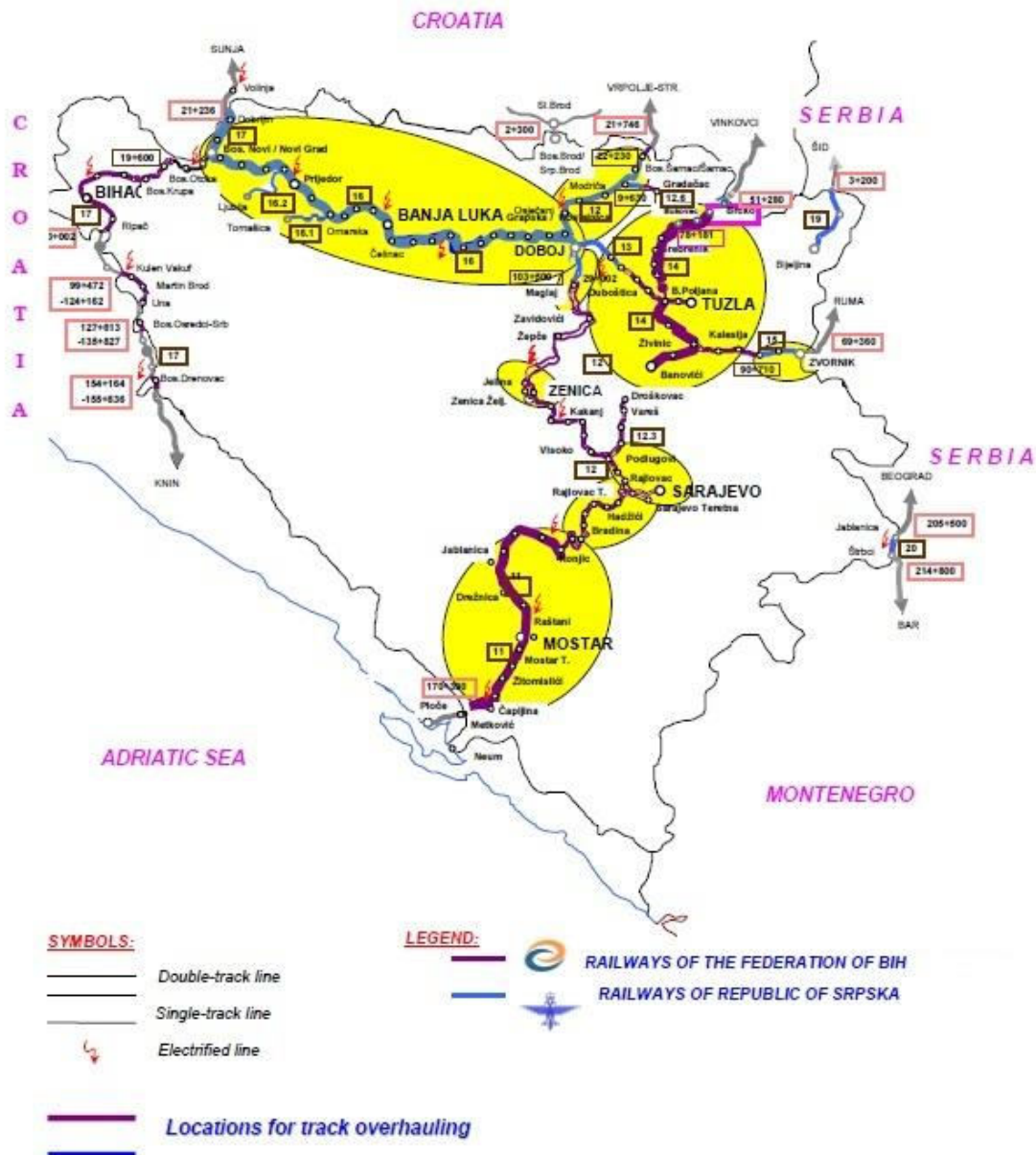
The sector now includes two vertically integrated railway companies (Željeznice Federacije Bosne i Hercegovine (ŽFBH) and Željeznice Republike Srpske (ŽRS)), and a state level coordinating body, Bosanskohercegovačka Željeznička

Javna Korporacija (BHŽJK).



LOCATIONS PROVIDED FOR OVERHAUL

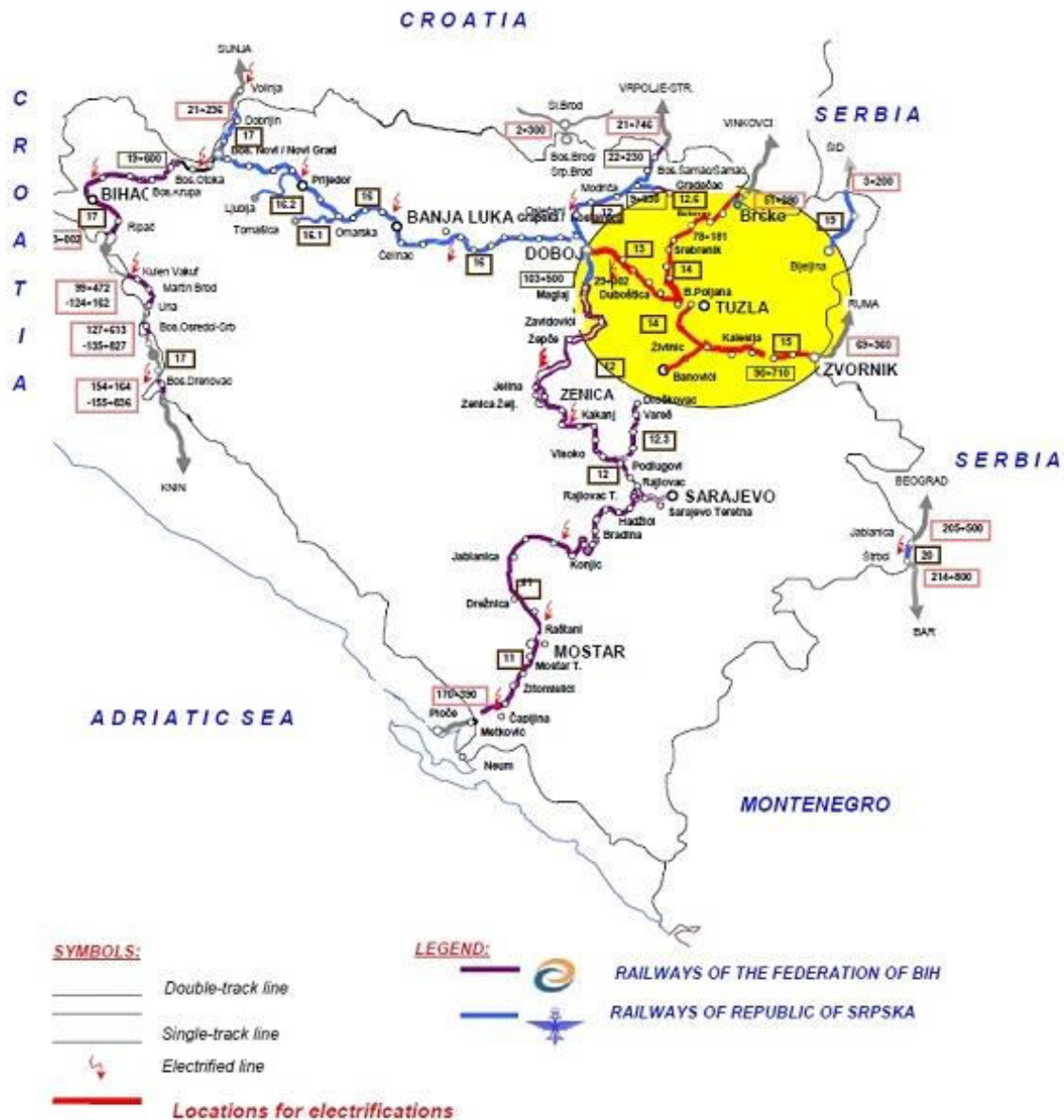
**MAP
OF RAILWAY SECTIONS TO BE TRACK OVERHAULED**





LOCATIONS PROVIDED FOR ELECTRIFICATION

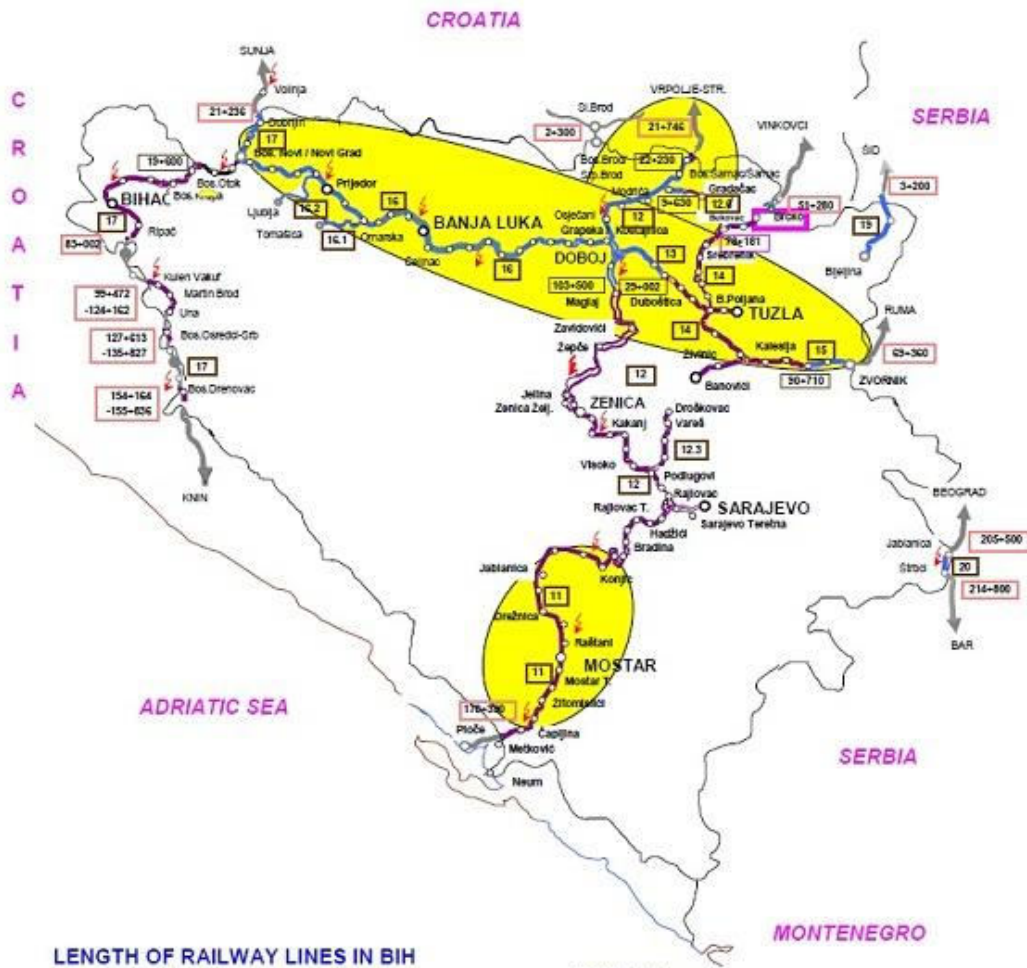
MAP
OF RAILWAY SECTIONS TO BE ELECTRIFIED





LOCATIONS PROVIDED FOR SS

MAP OF RAILWAY SECTIONS TO BE COVERED WITH MODERNISATION OF SIGNALLING AND INTERLOCKING SYSTEM



LENGTH OF RAILWAY LINES IN BIH

Total in BiH	1030,389 km	
In the Federation of BiH	587,150 km	57,0%
In the Republic of Srpska	416,338 km	40,4%
In the District of Brčko	26,901 km	2,6%

SYMBOLS:

- Double-track line
- Single-track line
- Electrified line

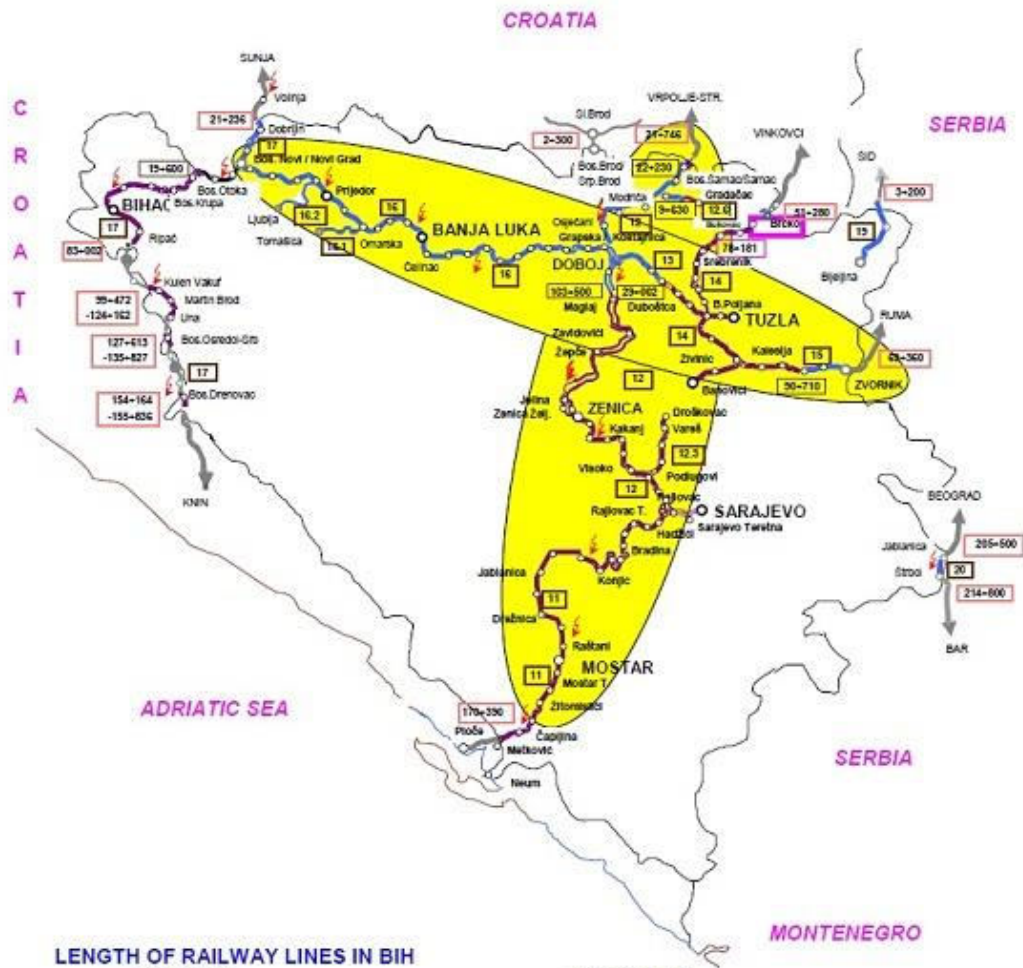
LEGEND:

- RAILWAYS OF THE FEDERATION OF BIH
- RAILWAYS OF REPUBLIC OF SRPSKA



LOCATIONS PROVIDED FOR TT

MAP OF RAILWAY SECTIONS TO BE COVERED WITH MODERNISATION OF TELECOMMUNICATIONS SYSTEM, FIBBER – OPTICAL, TRANSMISSION AND TELECOMMUNICATIONS KNOTS



LENGTH OF RAILWAY LINES IN BIH

Total in BiH	1030,389 km	
In the Federation of BiH	587,150 km	57,0%
In the Republic of Srpska	416,338 km	40,4%
In the District of Brčko	26,901 km	2,6%

SYMBOLS:

- Double-track line
- Single-track line
- Electrified line

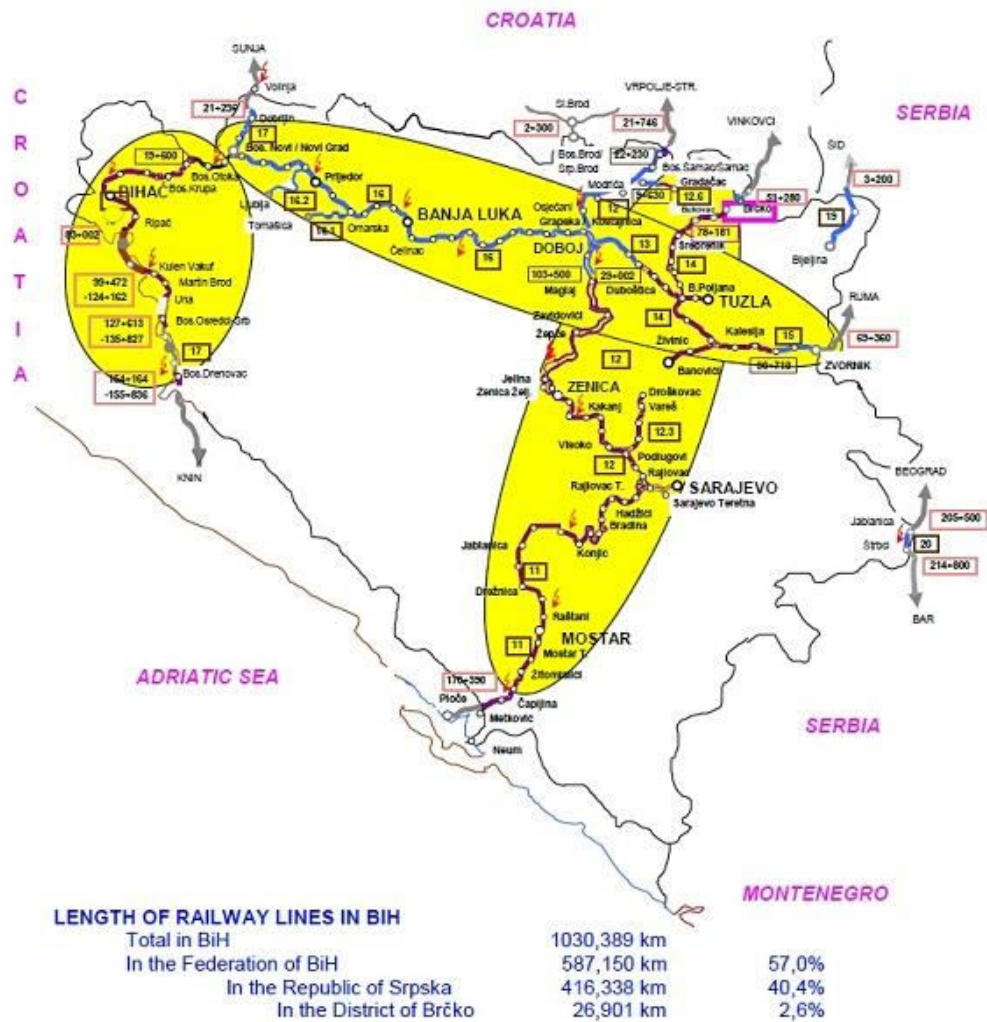
LEGEND:

- RAILWAYS OF THE FEDERATION OF BIH
- RAILWAYS OF REPUBLIC OF SRPSKA



LOCATIONS PROVIDED FOR EE

**M A P
OF RAILWAY SECTIONS TO BE COVERED WITH RECONSTRUCTION OF
ELECTRO-ENERGETIC FACILITIES**



SYMBOLS:

- Double-track line
- Single-track line
- Electrified line

LEGEND:

- RAILWAYS OF THE FEDERATION OF BIH
- RAILWAYS OF REPUBLIC OF SRPSKA



PLANNED INVESTMENTS

NO.	PROJECT	PROJECT VALUE (in mil KM)	YEAR OF BEGINNING
1.	Regional project of reconstruction of railways in Bosnia and Herzegovina (FBiH): The main railway repair Podlugovi - Sarajevo	44,01	2018
2.	Regional Rehabilitation Project of BiH Railway (FBiH): Main line of Doboj railway, km 103 + 500 Maglaj I Jelina - Zenica	31,29	2020
3.	Regional Project of reconstruction of railways in Bosnia and Herzegovina (FBiH): Preparation of a feasibility study and project documentation for the construction of the railway Vareš - Banovići	19,50	2018
4.	Regional Railway Reconstruction Project in BiH (FBiH): Preparation of the main project of repair of railway Zenica - Podlugovi I Maglaj - Jelina	19,56	2018
5.	Regional project for reconstruction of railways in BiH (FBiH): Preparation of the main project of repair of railroads Tuzla-Doboj, Brčko-Banovići, S.Kostajnica-Doboj	19,56	2018
6.	Regional Railway Project in BiH (FBiH): the elaboration of the main project for removing the "bottleneck" by railway traffic at the tunnel Ivan - st. Bradina	19,56	2018



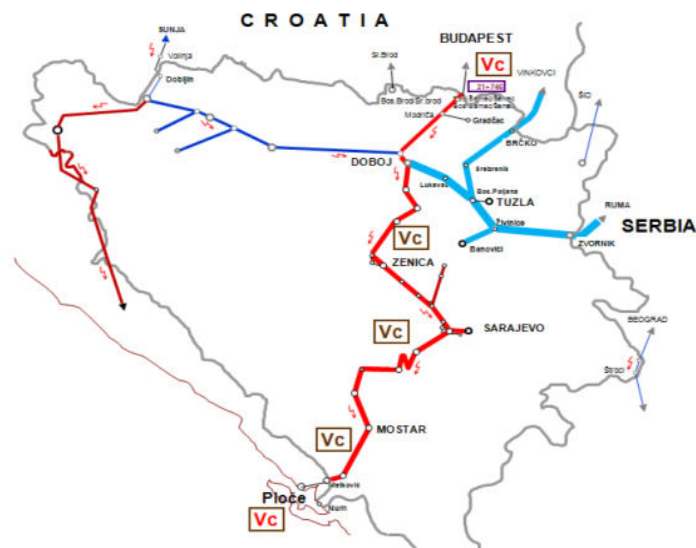
Priority projects:

- Laying fiber optic cable along the network of railway of B&H



- Electrification

Doboj –Tuzla –Zvornik
Brčko - Banovići





- **Continued repair line on Corridor Vc parameters to improve existing route**
- **Procurement track mechanization with high performance**



Priority should be given to improving the quality of service and increasing capacity, rather than introducing higher line speeds.

The proposed investments prioritize projects to rehabilitate track on the key lines to meet the 22.5 ton axle load, as required by the TER standards—improving signaling, and upgrading line speeds to 120 km/hour.

A recent study noted that if this rehabilitation were implemented and current bottlenecks were addressed, together with other necessary operational improvements (level crossings, signaling, and operational practices), then the capacity of the railway network would be sufficient to meet projected demand until 2030.

It is important to place emphasis on the capacity of the current network, primarily on the key lines on Corridor Vc, and the quality of service for existing customers, before ambitious and probably unviable projects to introduce even higher line speeds, or high speed passenger services. The latter seem difficult to defend given the current traffic mix on the railways.



Project	Cost (BAM Mill)	Period	Description
Completing rehabilitation of southern section of Corridor Vc between Sarajevo and Gabela (Croatian border) Total length covered by the project is 73 km (100 km of the 173 km long line is covered by the EBRD- EIB loan).	76.2	Short - Medium term.	The line is completely electrified and connects to the line Metković - Ploče in Croatia. The rehabilitation of the section Čelebić – Mostar – Čapljina – Croatian border is part of the EIB-EBRD plan. The section Bradina – Konjic, part of this proposal, has a very complex set of tunnels and turns over a 25 km distance.
Completing rehabilitation of northern section of Corridor Vc between Samac and Sarajevo. Total length covered by the project is 235 km.	245.6	Medium – Long term.	The medium term requirements to implement the project includes completing the feasibility and technical studies and determining the further funding needs on the basis of the available EBRD- EIB loans. The project focuses the sections not covered prior by EBRD-EIB or other investments.
Completing Rehabilitation of Sections Novi Grad – Doboj and Doboj – Tuzla (Line parallel to Corridor X). Total length covered by the project is 190 km: 125 km (section 1) + 65 km (section 2).	198.6	Medium – Long term.	The medium term requirements to implement the project includes completing the feasibility and technical studies and determine further funding arrangements on the basis of the available EBRD-EIB loans. The project focuses the sections not covered by the EBRD-EIB investment.
Rehabilitation and electrification of the railway line Brčko – Tuzla. Total length covered by the project is 75 km.	78.4	Long term.	With the expected growth of river transport via Brčko port, improved railway interconnectivity linking the port with the BiH railway network and Corridor Vc will create opportunities for intermodal transport linking river and railway.