Development of indicative TEN-T extensions of the Comprehensive and Core Network in Western Balkans

Report 2020 – Final version

Transport Community Treaty Permanent Secretariat

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GLOSSARY OF TERMS

AF	Alternative Fuels
EC	European Commission
ERTMS	European Railway Traffic Management System
ETCS	European Train Control System
EU	European Union
ITS	Intelligent Transport Systems
RSC	Regional Steering Committee
SEE	South East European
SEETO	South-East Europe Transport Observatory
TC	Transport Community
TCPS	Transport Community Permanent Secretariat
TEN-T	Trans-European Networks Transport
WB	Western Balkans
RP(s)	Regional Partner(s): Albania, Bosnia and Herzegovina, North Macedonia, Kosovo*, Montenegro, Serbia

(*) This designation is without prejudice to positions on status and is in line with UNSCR 1244 (1999) and the ICJ Opinion on the Kosovo declaration of independence.

1. FOREWORD

TEN-T is a Europe-wide network of roads, railways, inland waterways, maritime routes, ports, airports, and multimodal terminals. By closing gaps and removing bottlenecks and barriers on the network, TEN-T policy ultimately aims at strengthening the social, economic and territorial cohesion of the Union.

TEN-T policy in the Western Balkans is a key factor in driving economic growth and bringing the region closer to the EU. The extension of TEN-T in the Western Balkans has become an important instrument for external action by the EU, improving connections between regional markets and contributing to fostering peace, stability and prosperity. Infrastructure development, together with transport acquis transposition, isone of the two building blocks of the Transport Community.

Based on work undertaken under the SEETO framework and the establishment of the Transport Community, the indicative extension of TEN-T Comprehensive and Core network in the Western Balkans was made official through Commission Delegated Regulation (EU) 2016/758 of 4 February 2016 amending Regulation (EU) No 1315/2013 of the European Parliament and the Council for the Development of the Trans-European Transport Network. The indicative extension of TEN-T in Western Balkans includes:

- 5,287 km of TEN-T roads, out of which 3,540 km on the Core Network
- 3,857 km of TEN-T railways, of which 2,602 km on the Core Network
- 1,345 km of TEN-T Core Network Inland Waterways
- 3 seaports, 4 inland waterways ports, and 10 airports

The Core Network should be fully compliant by 2030, the Comprehensive Network by 2050. Current compliance rates, as highlighted in the relevant sections of the document,make the achievement of these targets a far from easy task. The EU has committed a substantial financial package for the region, but there is still a considerable gap between needs and resources.

Completing the TEN-T network requires firm political commitment and administrative effort. The infrastructure gap and limited funding call for more coherent and focused strategic planning. Apart from supporting mobility, TEN-T development is also a way to prepare for EU accession and ultimately improve citizens' lives.

For the Regional Steering Committee	***For the Transport Community Permanent Secretariat***
Zoran Andrić *President*	*Matej Zakonjšek* *Director*

2. BACKGROUND

2.1 Transport Community's role and mandate

The signing of the Treaty establishing the Transport Community by the six Regional Partners in the Western Balkans (*the South East European Parties*) and by the European Commission on behalf of all EU Member States has boosted the regional dimension of transport cooperation, accelerating reforms and strengthening the European perspectivefor the entire region. Building on previous work carried out under the Memorandum of Understanding on the Development of the South East Europe Core Regional Transport Network, the Transport Community Treaty is the ultimate expression of the signatories' determination and firm commitment toaunited andbetter-connected Europe.

The core obligation to which the parties have committed under the Treaty is the creation of a *Transport Community* in roads, railways, inland waterways and maritime transport based on progressive transposition by the Regional Partners of the relevant EU *acquis*. Such policy reforms targeting the opening of markets and removal of non-physical barriers to transport and trade are complemented by infrastructure development alongside the indicative extensions of TEN-T Comprehensive and Core networks in the Western Balkans.

The institutional framework set up under the Treaty has proved instrumental for the overall achievement of its broad political objectives. In pursuit of its mandate tohelp the parties in achieving their common connectivity goals, Transport Community Permanent Secretariat has rolled out dedicated action plans for roads, rail, road safety, waterborne transport and transport facilitation. The action plans contain concrete measures whose implementation will likely ensure the achievement of the general policy objectivesprovided for under the Treaty. Approval of such action plans by all six South East European Parties and the effective start of their implementation has helped policy reform to gain momentum, marking a new milestone on the region's European path.

The Regional Partners'commitment to developing the indicative TEN-T extensions on their territory (already closely followed through the Connectivity Agenda rolledout under the Berlin Process) is embedded in the Treaty, together with adequate planning, monitoring and follow-up institutional mechanisms. The recently adopted Economic and Investment Plan for the Western Balkans with its unprecedented financial stimulus confirms the European Union's commitment in this regard,in response to the region's well-documented need for a high-quality infrastructure and the closing of development gaps.

2.2 Legal basis and overall context

Infrastructure development is addressed under articles 8, 9 and 10 of the Treaty establishing the Transport Community. Such development is deemed to take place alongside indicative extension of the TEN-T Core and Comprehensive corridors in the Western Balkans, aimed at bringing them up to the standards set by Regulation 1315/2013 within the stated time limits.

Progress achieved by the South East European Parties in this regard is tracked through a monitoring system set up under art. 8 of the Treaty which requires the Regional Steering Committee to issue annual reports to the Ministerial Council: ([…] *"The Regional Steering Committee shall report every year to the Ministerial Council on the implementation of the TEN-T described in this Treaty. Technical Committees shall assist the Regional Steering Committee in drawing up the report."*).

In due consideration of the above provision, the Transport Community Permanent Secretariat has coordinated work on preparing the first edition of the TEN-T Annual Report to be drafted under the Treaty framework.

On 8 October2020, the Transport Community Regional Steering Committee endorsed the proposed outline, methodology and an indicative calendar for drafting the TEN-T Annual Report. Data collection began on 16 October 2020 and was concluded by the end of April 2021. The draft version of the report was shared by the Transport Community Permanent Secretariat with all Regional Partners on 26 April 2021 and endorsed by the Regional Steering Committee on 20 May 2021.

2.3 General methodological approach

The present document understands "*implementation of the TEN-T"*, on which the RSC is bound to report, as referring to *"the development of the indicative TEN-T extension of the Comprehensive and Core networks to the Western Balkans according to the Commission Delegated Regulation (EU) 2016/758 as set out in Annex I.1 of the Treaty"*, mentioned under art. 8.2 of the Transport Community Treaty. Regional Partners' commitments under art. 3 and 8 of the Treaty could be summarised as an engagement to develop the indicative extensions of the TEN-T Networks within their remit in full observance of the technical conditions and timeline set by Regulation No 1315/2013 of the European Parliament and the Council of 11 December 2013, namely:

- Bringing the TEN-T Comprehensive Network infrastructure to the standards provided by arts. 12, 15, 18, 22, 25 and 28 of Regulation No. 1315/2013 by 31 December 2050;

- Bringing the TEN-T Core Network infrastructure to the standards provided by art. 39 of Regulation No. 1315/2013 by 31 December 2030.

Acknowledging the strategic objective referred to above, the Annual Report provided under art. 8.1 of the Treaty aims at benchmarking SEE Parties' progress towards TEN-T compliance, while providing information on the following:

- The current status of the indicative extensions of the TEN-T Core and Comprehensive Networks as compared with the relevant standards set by Regulation no. 1315/2013 (*the compliance assessment*);

- An overview of projects on Core and Comprehensive networksin the Western Balkans, targeting compliance with TEN-T technical criteria and indicators;

- A 7-year forecast of Core and Comprehensive network compliance, based on the scheduled completion date of the TEN-T projects referred to above.

3. TEN-T NETWORK COMPLIANCE ASSESSMENT

3.1 Methodological aspects

3.1.1 TEN-T Compliance Indicators

As mentioned under point 2.3 above, TEN-T compliance standards are provided by Regulation 1315/2013, as follows:

- General transport infrastructure requirements for the Comprehensive Network under arts. 12, 15, 18, 22, 25 and 28;
- Additional requirements for the Core Network under art. 39.

All such requirements have been transposed in a list of *indicators*for each transport mode, the fulfilment of which is cumulatively required to ensure compliance of a given section with TEN-T standards.These indicators are aligned with those used by the European Commission for the biannual reporting provided under art. 49 of the TEN-T Regulation, but go one step furtherby tackling additional compliance elements beyond simple infrastructure requirements, thus reflecting the region's new level of ambition.

Details on individual compliance indicators for each transport mode are included in dedicated sections of the report.

3.1.2 TEN-T Network layout and granularity in Western Balkans

References to "TEN-T Network" in the present document should be read and understood as *the indicative Trans-European Transport network (TEN-T) extension of Comprehensive and Core networks to the Western Balkans*, as incorporated in Annex I. of the Treaty establishing a Transport Community (outlined below).

Comprehensive Network: Railways and airports
Core Network: Railways (passengers) and airports

Comprehensive and Core Networks: Roads, ports, rail-road terminals and airports

Comprehensive and Core Networks: Inland Waterways and Ports

Figure 1. Indicative trans-European transport network (TEN-T) extension of Comprehensive and Core Networks to the Western Balkans

For the purposes of compliance assessment, the TEN-TNetwork has been split into sections and nodes, based on the network granularity previously defined under the SEETO framework to facilitate performance monitoring, in due observance of the Regional Partners' organisational and administrative set-up. The Network's layout and sections have nevertheless been updated to reflect changes from the SEETO Indicative Network to the one included in the Transport Community Treaty.

3.1.3 Data collection

Information needed to assess TEN-T Network compliance was collected by questionnaires tackling the indicators referred to at point 3.1.1 and distributed among the Regional Partners. Throughout the survey, the Transport Community Permanent Secretariat ensured continuous feedback and ad-hoc support for the relevant stakeholders through meetings and individual consultations.

Data collection proved to be a lengthy and challenging process for all parties involved, with different response times, levels of engagement and quality of information submitted by Regional Partners.

In order to reflect the updated status ofTEN-T network compliance, the cut-off date for collecting information was set for **September 2020**.

3.2 Compliance assessment per transport mode

3.2.1 Railway transport

The legal framework for the development of the Indicative Extension of TEN-T Core and Comprehensive Rail Network to the Western Balkans is Regulation 1315/2013 (last revised in 2019).

This Regulation represents the long-term strategy for the development of a complete trans-European transport network (TEN-T) consisting of all modes of transport infrastructure, including rail. It covers technical standards, as well as the requirements for interoperability of infrastructures, and defines priorities for the development of the TEN-T.

The regulation introduces a dual-layer structure: Comprehensive Network and Core Network.

Regarding transport infrastructure requirements, the regulation defines freight terminals, ERTMS deployment, compatibility with TSI requirements, electrification of the network and access to freight terminals.

Therefore, the priorities for railway infrastructure development are:

- deploying ERTMS;
- migrating to 1.435 mm nominal track gauge;
- mitigating the impact of noise and vibration caused by rail transport, in particular through measures for rolling stock and infrastructure, including noise protection barriers;
- meeting infrastructure requirements and enhancing interoperability;
- improving the safety of level crossings;
- where appropriate, connecting railway transport infrastructure with inland waterway port infrastructure.

❖ *Railway Compliance indicators*

Based on the previously mentioned priorities, this report covers assessment of the specific requirements as follows:

a) Electrification - rail network to be electrified by 2030 (including sidings where necessary);
b) Axle load: Freight lines 22.5 t axle load by 2030.
c) Line speed: Freight lines must allow 100 km/h by 2030 (no speed requirement for passenger lines);
d) Train length: Freight lines to allow for 740 m trains by 2030;
e) Track gauge: Nominal track gauge for new railway lines 1.435 mm;

f) ERTMS / signalling system: Core network to be equipped with ERTMS by 2030.

❖ *Primary infrastructure characteristics and physical state*

The TEN-T rail network consists of two layers: Core and Comprehensive Network. The total length of the Comprehensive is 3,895 km but 3,684 km in operation. Length of the Core is 2,546 km with 2,474 km in operation. 211 km on the Comprehensive Network is a line temporarily closed for safety reasons (lack of maintenance) or missing links, and 72 km on the Core Network.

At the same time, the Rail Core & Comprehensive Network consists of three corridors (Vc, VIII and X) and seven routes.

Table 1. Description of TEN-T Comprehensive and Core Rail Network to the Western Balkans

Corridor/Routes	Comprehensive Rail Network		Core Rail Network	
	Nodes	Length (km)	Nodes	Length (km)
Corridor Vc	Bosanski Samac (Bosnia and Herzegovina) – Sarajevo– Capljina (Bosnia and Herzegovina)	428	Bosanski Samac (Bosnia and Herzegovina) – Sarajevo– Mostar - Capljina (Bosnia and Herzegovina)	428
Corridor VIII	Tirana/ Durres/ Vlore– Lin/Pogradec (Albania)-Kicevo– Skopje – Kumanovo – Beljakovci (North Macedonia)	426	Tirana/ Durres/ Vore (Albania)	73
Corridor X	Sid (Serbia) – Belgrade – Skopje (North Macedonia) – Gevgelija/EL border	730	Sid (Serbia) – Belgrade – Skopje (North Macedonia) – Gevgelija/EL border	730
Corridor Xb	HU border/Kelebija – Stara Pazova (Serbia)	151	HU border/Kelebija – Novi Sad (Serbia) - Stara Pazova (Serbia)	151
Corridor Xc	Nis (Serbia)-Dimitovgrad/BG border	104	Nis (Serbia)-Dimitovgrad/BG border	104
Corridor Xd	Veles (North Macedonia) – Kremenica/EL border	145	-	-
Route 2	Podgorica (Montenegro) — Vore (Albania)	144	Podgorica (Montenegro) — Vore (Albania)	144
Route 4	RO border / Vrsac — Belgrade (Serbia) — Bar (Montenegro)	580	RO border / Vrsac — Belgrade (Serbia) — Podgorica (Montenegro) - Bar (Montenegro)	580
Route 7	Nis (Serbia) – Doljevac (Serbia) - Pristina (Kosovo)	152	-	-

Route 9A	Novi Grad (Bosnia and Herzegovina) -Banja Luka– Doboj – Tuzla (Bosnia and Herzegovina) – Brcko /Zvornik (Bosnia and Herzegovina) – Loznica - Ruma (Serbia)	491	-	-
Route 10	Lapovo-Kraljevo (Serbia) — Pristina (Kosovo) — Gorce Petrov (North Macedonia)	340	Kraljevo (Serbia) — Pristina (Kosovo) — Gorce Petrov (North Macedonia)	254
Route 11	Pozega (Serbia) — Stalac (Serbia)	138	Pozega (Serbia) — Stalac (Serbia)	138
Route 13	HU border/ Horgos – Subotica (Serbia)	28	-	-

Figure 2. Indicative extension of theTEN-T Core and Comprehensive Rail Network to the Western Balkans

TEN-T Core and Comprehensive Network Compliance

Indicative extension of the TEN-T Core and Comprehensive Network to the Western Balkanswas carried out in 2016, during the latest revision of the Core Network.

In the previous 15 years, the region invested over 2 billion EUR in rail projects. However, conditions and quality of service were not increased. With an average operational speed of

around 50 km/h in passenger transport, rail cannot compete with road transport. The situation is the same in freight, where significant time is spent on the preparation of trains, loading/unloading, and waiting time on the border. For these reasons, rail has lost a significant number of passengers and other business over the past 10 years.

The two main reasons are: lack of proper maintenance and absence of reform.

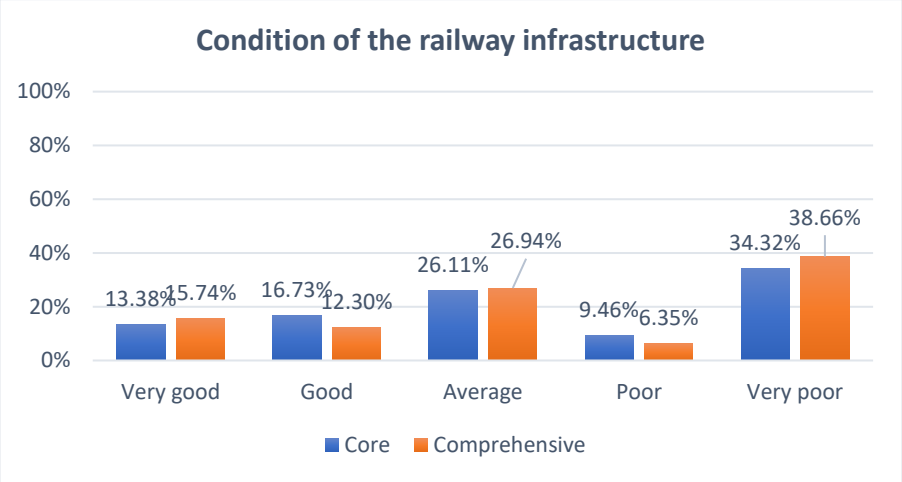


Figure 3. Condition of the railway infrastructure

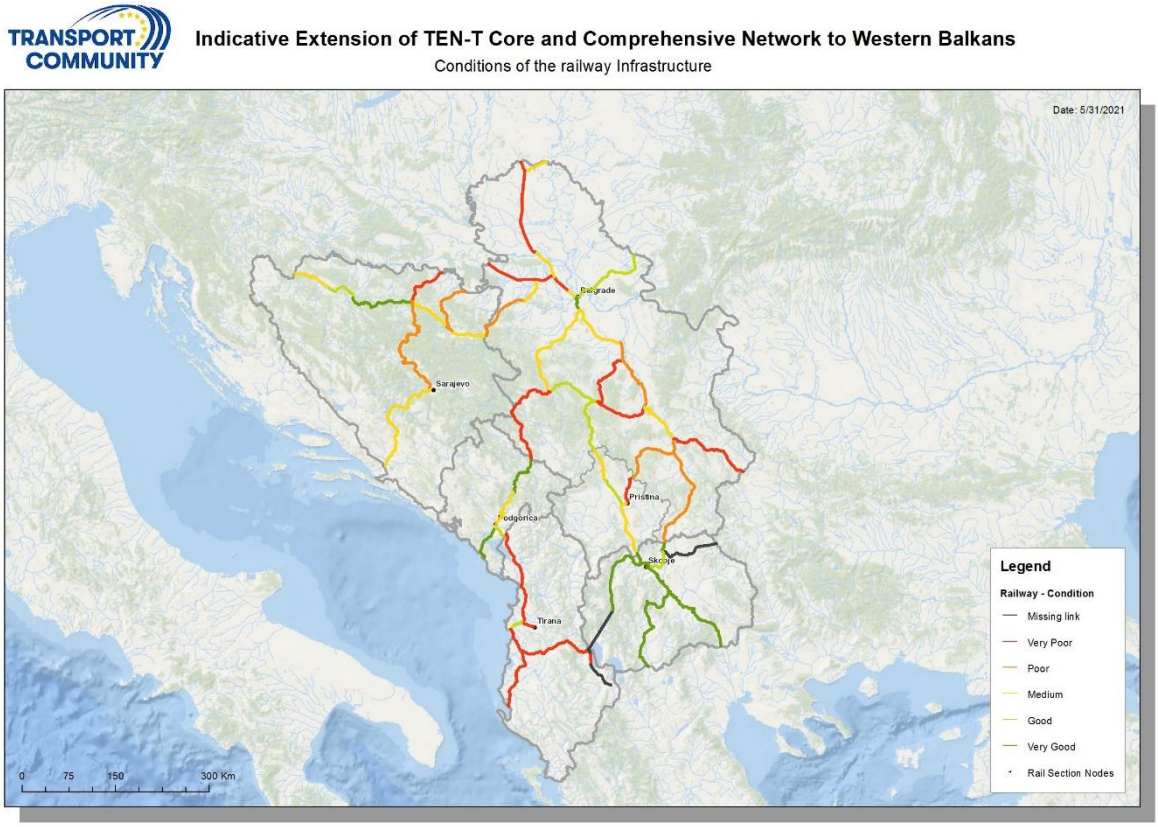


Figure 4. Railway infrastructure condition map

The TEN-T Comprehensive and Core Railway Network continues to suffer from insufficient investment (only 15% of overall investment), with existing investment directed towards isolated sections and not to overall network improvement. However, if necessary repairs and appropriate upgrades are not made, poor maintainance will increase costs and downgrade business productivity while leading to a further decrease in railway transport.

Furthermore, to achieve the full benefits of rail transport in the SEE region, railway reforms need to be accelerated. A common and integrated approach (infrastructure development in parallel with reforms) would help overcome the sector's fragmentation, while the establishment of an open market would enhance performance along multimodal transport corridors. Currently, the development of rail infrastructure and rail reform are progressing but require greater efforts in order to fully utilise potential.

As the deadline for completion of the Core Network is 2030, and 2050 for the Comprehensive Network, all Regional Partners will face many challenges in endeavouring to reach this target.

a) Electrification

Rail electrification compliance of the operational network is already 73% on the Core and 54% on the Comprehensive Network. Certain parts of the networks, mainly in Albania and North Macedonia (Corridor VIII), are still in the construction phase and are not part of this analysis.

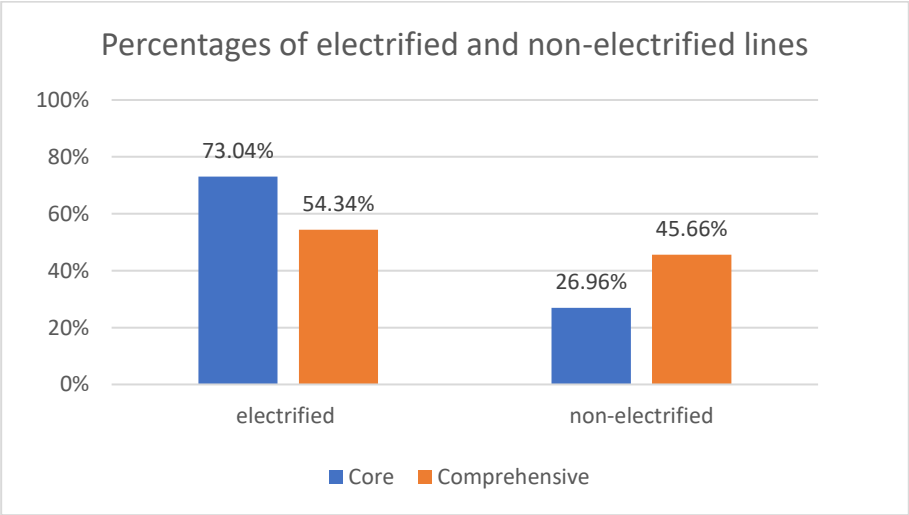


Figure 5. Percentages of electrified and non-electrified lines

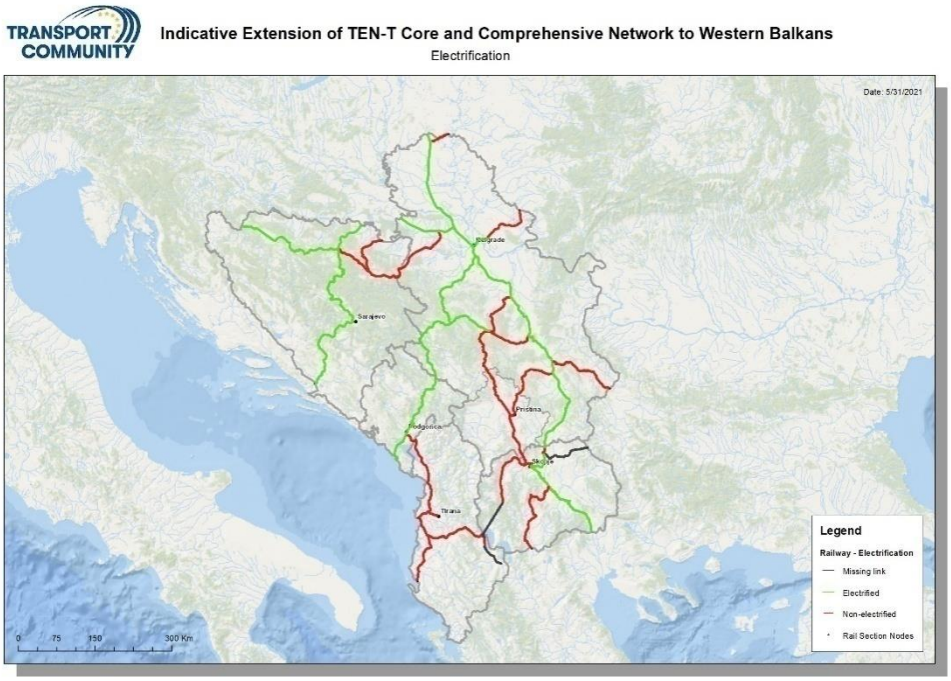


Figure 6. Map of electrified lines

b) Axle Load

For freight axle load, the compliance parameter of 22.5 t per axle is already at 87% on Core and 72% on Comprehensive Network as per 2021 data. The deficiencies are mainly in Albania, Kosovo and Bosnia and Herzegovina.

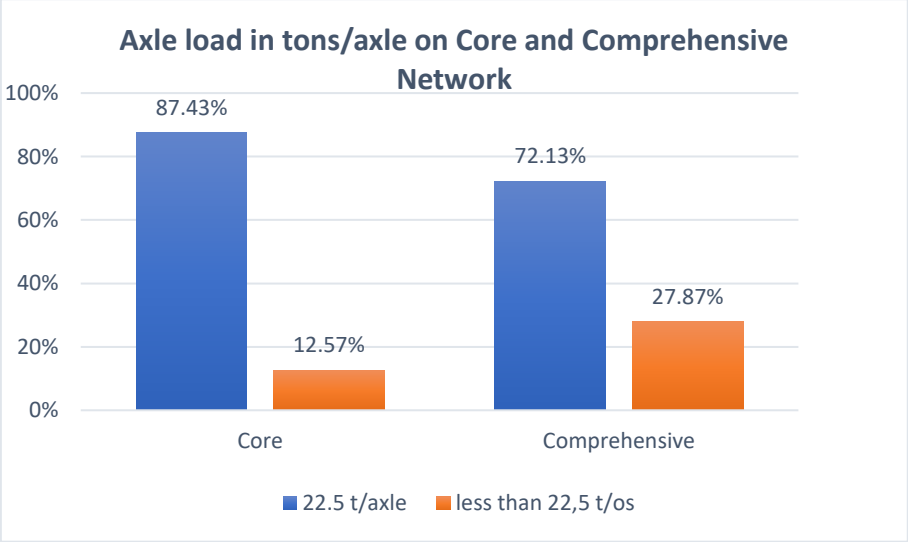


Figure 7. Axle load in tons/axle on Core and Comprehensive Network

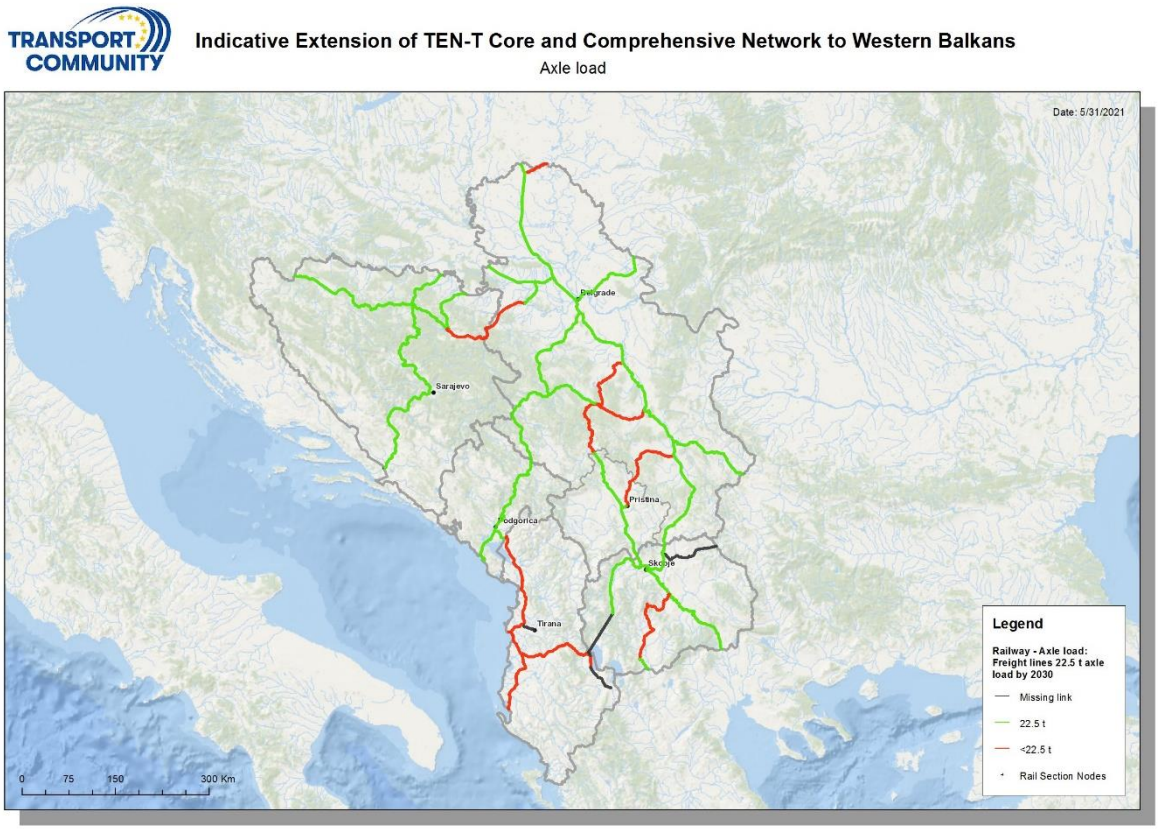


Figure 8. Map of axle load in tons/axle on Core and Comprehensive Network

c) Freight line speed

For freight line design speed, the 72% of the Core network is compliant with the parameter of 100 or more km/h as per 2021 data and 61% on the Comprehensive network. Related to the operational speed, only 15% of the operational Core network has an operational speed of more than 100 km/h and 13% of the Comprehensive Network. The deficiencies are mainly in Albania, Montenegro, Serbia, Kosovo and Bosnia and Herzegovina.

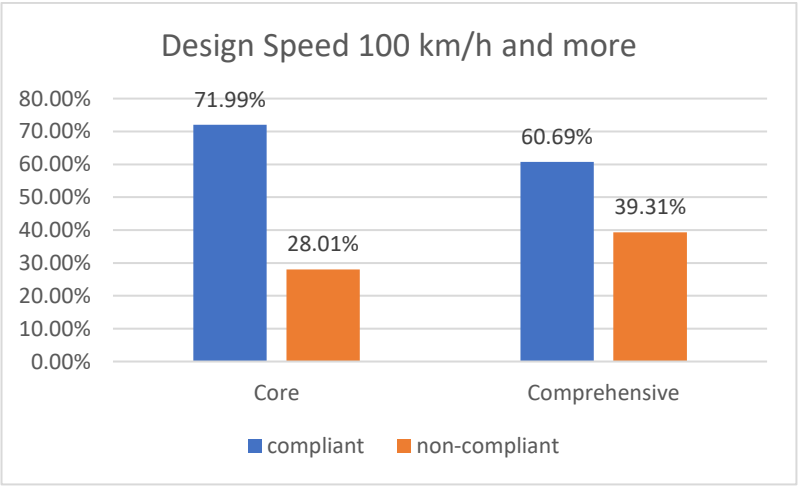


Figure 9. Design Speed 100 km/h and more

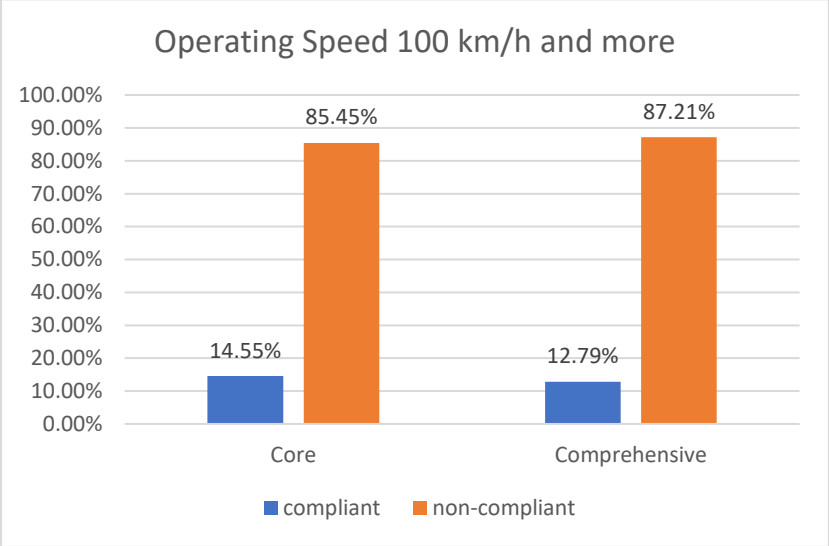


Figure 10. Operating Speed 100 km/h and more

d) Train length

For freight train length, none of the networks iscompliant with the parameter of **740 m** or longer sidings for trains. However, 79.5% of the Core Network and 73.4% of the Comprehensive can accommodate trains longer than 500 m. The region mainly meets the 500m parameter except in Albania. This, however, needs to be read with the above-mentioned caveats that the situation continues to improve and that there are differences here and there between nominal compliance and actual operational possibilities. For example, a line may be fit for 740 m trains but does not have enough sidings to turn that possibility into reality.

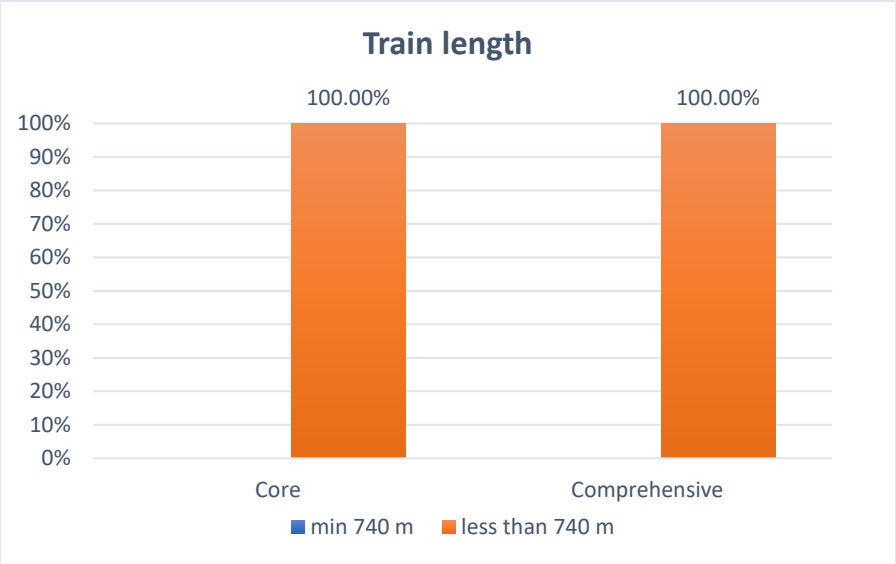


Figure 11. Train length

e) Track gauge

Rail track gauge is already compliant at a high 100% as per 2021 data. There is one notable exception in Serbia (the Mokra Gora narrow gauge rail line), but this is not part of the Core and Comprehensive Network and is only used for tourist purposes. The situation has been the same for many years and does not affect interoperability.

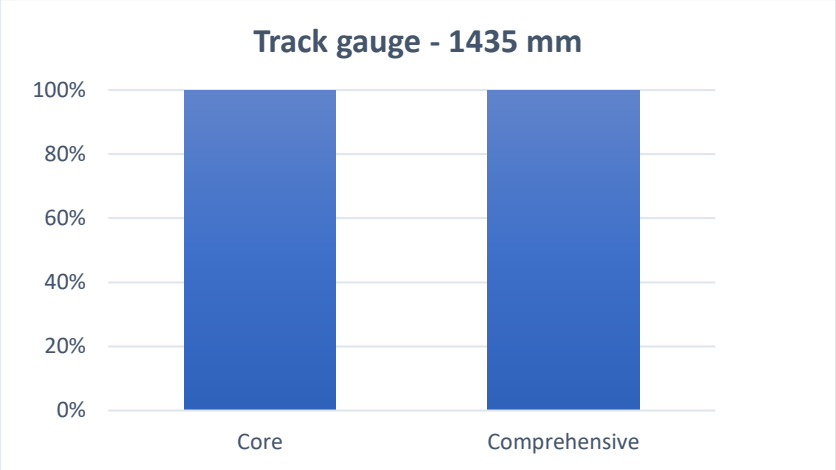


Figure 12. Track gauge

f) ERTMS

Currently, there are no ERTMS in operation throughout the entire network. Almost all Regional Partners partly transposed the interoperability directive (third or fourth rail package). Some published a certain number of TSIs but no one implemented them in practice. Looking at planned and ongoing projects, there are intentions to implement ETCS level 1 or even 2 in Albania, Serbia and North Macedonia.

ERTMS deployment (track-side) does not exist as per 2021 data. ERTMS deployment is the greatest challenge in terms of TEN-T parameters, and progress is slower than anticipated or wished. Plans are in place to address this situation.

However, all Regional Partners should make additional efforts in further transposition and implementation of the interoperability directive.

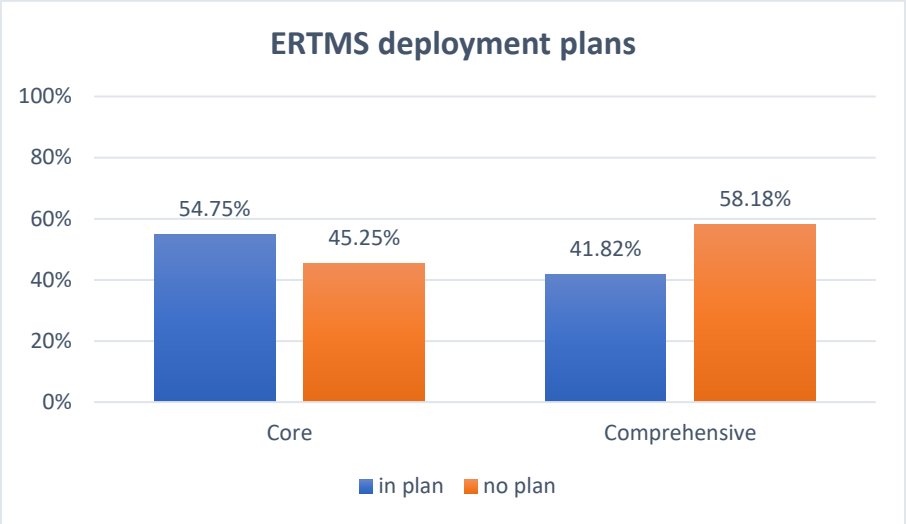


Figure 13. ERTMS deployment plans

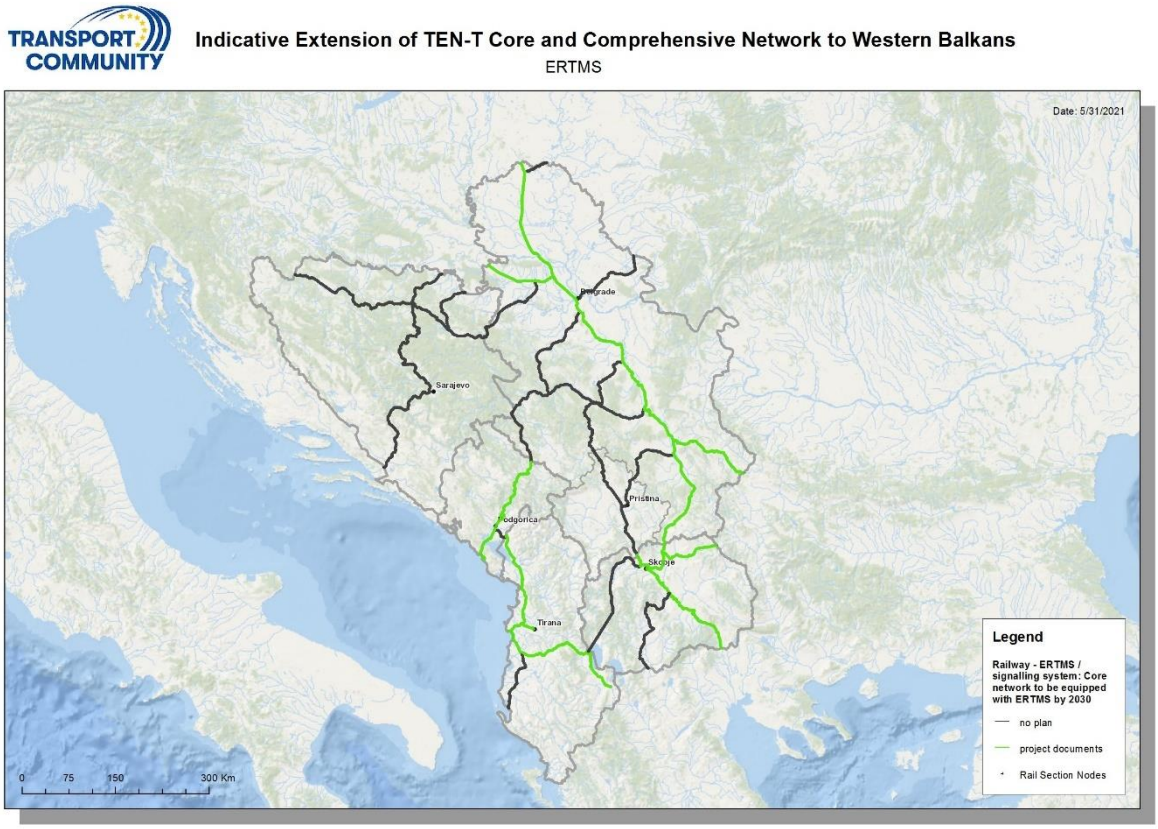


Figure 14. Map ERTMS deployment plans

❖ *Overall compliance assessment*

The current condition of the network was assessed based on data received from Regional Partners on the current state of their tracks. To this purpose, conditions have been divided into five parts based on the ratio between current maximum operational speed and

maximum designed speed on the network. This was done in order better to describe the current condition of the railways.

Table 2. Assessment Methodology Criteria

Condition of railways	Operational/Design speed
Very good	0.86 – 1
Good	0.71 - 0.85
Medium	0.61 - 0.70
Poor	0.51 - 0.60
Very Poor	0 - 0.50

In accordance with the criteria applied, an overview of the network is given in the table below.

Table 3. Current condition of the Rail Network

	Core	Comprehensive
Very good	13.38%	15.74%
Good	16.73%	12.30%
Average	26.11%	26.94%
Poor	9.46%	6.35%
Very poor	34.32%	38.66%

As for the condition, 30% of the Core Rail Network and 28% of the Comprehensive is reported to be in very good and good condition, where approximately 70-100% of designed speed can be achieved. Approximately 26% of the sections is reported to be in average condition, with wide variations in the maximum allowed speed.

The greater part of the Core (44%) and Comprehensive Network (45%) is in poor or very poor condition, where the designed speed achieved averages only 50%. An important issue that should be mentioned is the reliability of the system for assessing the condition. On several sections, there was a large discrepancy between the reported condition, designed, and maximum allowed speed. Furthermore, several different systems seem to be in use for assessing conditions in different Regional Partners.

The reason why the greater part of the network is in poor or very poor condition is because of a lack of regular network maintenance and of condition-based maintenance (CBM). This lack of maintenance is due to inappropriate maintenance planning and insufficientfunds to cover basic needs in the past. Instead of regular maintenance, therefore, the rail network needs morefunds for substantial reconstruction, which leads to even greater traffic disruption later.

A strong tool for overcoming the problem is regular condition-based maintenance based on multi-annual contracts between the Infrastructure Manager and the relevant authority,

followed by appropriate on-time funding. This solution is a part of the Transport Community Rail Action Plan, and is cheaper and more effective in the long term, since all the negative implications of irregular maintenance are avoided. Negative aspects such as:increased funding for reconstruction, indirect losses because of under-performance, traffic disruptions and safety issues, sometimes multiply the amount needed for regular condition-based maintenance. On top of regular maintenance, application of EU Technical Specifications for Interoperability and TEN-T standards is of key importance.

Since railway transport is one of the greenest transport modes,the future of transport will be on tracks. In the EU Sustainable and Smart Mobility Strategy and the Green Deal Plan, development of a railtransport system is the main focus. The South–East European Parties, therefore, should follow or even set the path for a state-of-the-art, interoperable, sustainable and green transport system by substantial rail system development.

3.2.2 Road transport

Road infrastructure components are laid down under art. 17 of the TEN-T Regulation. Art. 18 further defines compliance requirements and art. 19 deals with development priorities.

In short, the TEN-T road network envisages high-quality roads (motorways, expressways, or conventional strategic roads) specially designed and built for motor traffic with adequate levels of safety. Compliance with the provisions of EU Directives on road tunnels, tolling interoperability and ITS should be ensured also. Additional conditions are imposed for the Core network, namely:

- Stricter application of road profile requirements (except for some clearly defined situations, roads should be either motorways or expressways);
- Development of rest areas on motorways approximately every 100 km;
- Availability of alternative fuels.

❖ *Road Compliance indicators*

Road compliance indicators are given in table form and explained in more detail below.

Table 4. Road compliance indicators

Indicator	TEN-T Network	Details
Motorway/express road	Core&Comprehensive	As per the provisions of art. 17.3 (a) and (b) of Regulation 1315/2013. Core Networks roads should only be considered compliant if: a) Being motorway or express roads (unless and until specific exemption is granted by the EC, subject to art. 39.3 of Regulation 1315/2016). b) Being properly maintained (IRI < 2,84). c) Providing safe parking approx. each 100 km.
Conventional strategic high-quality roads	Comprehensive	For a TEN-T road that is neither motorway nor expressway to be considered compliant, it should: a) Be on the Comprehensive Network. b) Play an important role in long-distance freight and passenger traffic, integrate main urban and economic centres, interconnect with other transport modes and link mountainous, remote, landlocked and peripheral NUTS 2 regions to central regions. c) Be adequately maintained to allow safe and secure traffic. Ideally, for a TEN-T road that is neither motorway nor expressway to be considered compliant, it should have passed a feasibility assessment concluding that actual capacity is sufficient to accommodate demand and an upgrading process aimed at ensuring adequate safety-improvement measures and a proper pavement condition (IRI < 2,84).
Alternative fuels availability	Core	Alternative fuels availability has been measured against the provisions of Directive no. 2014/94/EU and indicators currently used by the EC for assessing EU Member States' compliance in this regard.
ITS compliance	Comprehensive	Under the provisions of art. 18.e of Regulation 1315/2016, any intelligent transport system deployed by a public authority on road transport infrastructure should comply with Directive 2010/40/EU and be deployed in a manner consistent with delegated acts adopted under that Directive.
Tolling interoperability	Comprehensive	Where applicable, the interoperability of toll collection systems should be ensured in accordance with Directive 2004/52/EC and Commission Decision no. 2009/750/EC.

Safety compliance	Comprehensive	The safety of TEN-T roads should be assured, monitored and, when necessary, improved in accordance with the procedure provided for by Directive 2008/96/EC.
Road tunnels compliance	Comprehensive	Road tunnels over 500 m in length should comply with the provisions of Directive 2004/54/EC.

❖ *Primary infrastructure characteristics and physical state*

As per the provisions of Regulation 1315/2013, TEN-T comprises a dual-layer structure consisting of the Comprehensive and Core Networks, the latter defined as being part of the Comprehensive Network.

Currently, the total length of TEN-T road network in the Western Balkans is 5,287.41 km, of which 3,540.55 km are on the Core Network.

The network's current layout is given below.

Figure 15. Map of the TEN-T Core and Comprehensive Road Network to Western Balkans

Table 5. Description of TEN-T Comprehensive and Core Road Network to Western Balkans

Corridor / Routes	Comprehensive Road Network		Core Road Network	
	Nodes	Length (km)	Nodes	Length (km)
Corridor Vc	HR border/**Bosanski Samac** - **Sarajevo** (Bosnia and Herzegovina) – **Doljani/**HR border	400	HR border/**Bosanski Samac** - **Doboj** -**Sarajevo** – **Mostar** (Bosnia and Herzegovina) – **Bijaca** (HR border)	400
Corridor VIII	**Tirane/ Durres/ Vlore** (Albania) – **Skopje** (North Macedonia) – **Deve Bair/**BG border	657	**Tirane/ Durres**– **Elbasan** (Albania) – **Struga**– **Tetovo** - **Skopje** (North Macedonia) – **Deve Bair/**BG border	546
Corridor X	HR border **/Batrovci** –**Belgrade** (Serbia) – **Skopje** (North Macedonia) – **Bogorodica/**EL border	726	HR border **/Batrovci** –**Belgrade**– **Nis** (Serbia) - **Skopje** (North Macedonia) – **Bogorodica/**EL border	726
Corridor Xb	HU border**/ Horgos— Novi Belgrade (Serbia)**	**185**	HU border**/ Horgos Subotica— Novi Sad - Belgrade (Serbia)**	**185**
Corridor Xc	**Nis** (Serbia) — **Gradina/**BG border	110	**Nis** (Serbia) —**Gradina/**BG border	110
Corridor Xd	Veles (North Macedonia) — **Medzitlija/**EL border	117	-	-
Route 1	HR border/**Neum Northwest** – **Neum** (Bosnia and Herzegovina – **Bar** (Montenegro)	126	**Neum Northwest**/HR border/**Debeli Brijeg** – **Bar** (Montenegro) - **Muriqan** (Albania)- **Lezhe** (Albania)	147
Route 2a	HR border/**Gradiska** - **Banja Luka** (Bosnia and Herzegovina) – **Lasva** (Bosnia and Herzegovina)	228	HR border/**Gradiska** - **Banja Luka** (Bosnia and Herzegovina) – **Lasva** (Bosnia and Herzegovina)	228
Route 2b	**Sarajevo** (Bosnia and Herzegovina) – **Podgorica** (Montenegro) – **Vore** (Albania)	395	**Lezhe** (Albania) – **Vore** (Albania)	53

Route 2c	**Fier** (Albania) — **Kakavija**/EL border	125	**Fier** (Albania) —**Kakavija**/EL border	125
Route 3	**Sarajevo** (Bosnia and Herzegovina) —**Uzice** (Serbia)	185	-	-
Route 4	Romanian border/**Vatin** – **Belgrade** (Serbia) – **Podgorica** (Montenegro) – **Bar** (Montenegro)	601	RO border/**Vatin** – **Belgrade** (Serbia) – **Podgorica** (Montenegro) – **Bar** (Montenegro)	601
Route 5	**Cacak** (Serbia) – **Krusevac** (Serbia) – **Paracin** (Serbia) – **Vrska Cuka**/BG border	213	-	-
Route 6a	**Ribarevina** (Montenegro) – **Ribarice** (Serbia) – **Pristina** (Kosovo) – **Skopje** (North Macedonia)	259	**Pristina** (Kosovo) – **Skopje** (North Macedonia)	84
Route 6b	**Pristina** (Kosovo) – **Peje/Pec** (Kosovo) – **Kolasin** (Montenegro)	205	-	-
Route 7	**Lezhe** (Albania) – **Pristina** (Kosovo) – **Doljevac** (Serbia)	314	**Lezhe** (Albania) – **Pristina** (Kosovo) – **Doljevac/Nis** (Serbia)	314
Route 8	**Podmolje** (North Macedonia) – **Bitola (**North Macedonia)	78	-	-
Route 9a	**Novi Sad – Ruma** (Serbia) **Banja Luka– Novi Grad/Banja Luka - Doboj – Tuzla– Orasje** (Bosnia and Herzegovina)	228		

❖ *TEN-T Core Network Compliance*

TEN-T Core Network incorporates those parts of the highest strategic importance of the Comprehensive Network. Its current length is **3,540.55 km**, of which:

- **1,564.14 km** of Motorways;
- **239.74 km** of Expressways;
- **1,736.67 km** of conventional roads.

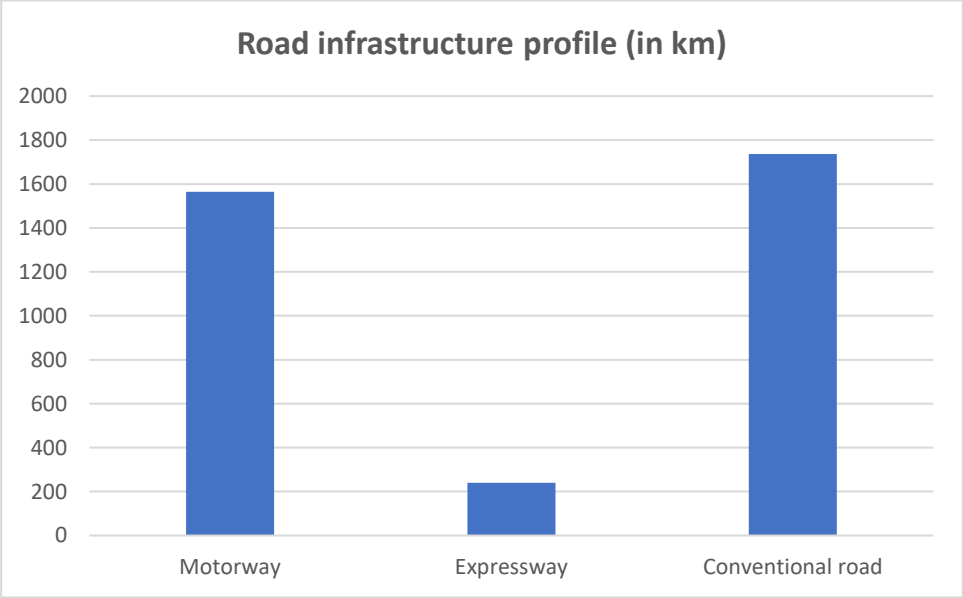


Figure 16. TEN-T Core Road Network (infrastructure profile)

Assessment of the TEN-T Core Network compliance was based on relevant criteria enumerated at point 3.2.2.1 above, namely:

a) Infrastructure profile and condition;
b) Alternative fuel availability.

Overall compliance with ITS, tolling and safety directives is dealt with separately, as it also implies structural/institutional reforms mainly addressed under the dedicated Action Plans rolled out by the Transport Community Permanent Secretariat and falls outside the scope of the present document.

Details of network compliance against each of the criteria listed above are provided below.

a) Infrastructure profile and condition

Under the provisions of art. 39.2.c of Regulation 1315/2013, TEN-T Core Road infrastructure should:

- Be either motorway or expressway;
- Includerest areas on motorways approximately every 100 km providing safe and secure parking place for commercial road users.

Under certain conditions provided under art. 39.3 and subject to a specific request, the European Commission may grant exceptions from the motorway/expressway criterion, as long as the conventional road ensures an appropriate level of safety. However, as no such exemption has been requested in the region, compliance shall therefore be assessed against the motorway/expressway criterion (**conventional roads on TEN-T Core shall be considered non-compliant**).

Based on the information available, for the purposes of the present report it is assumed that safe and secure parking places are available on all road sections of motorway/expressway standard. In-depth analysis of the region's compliance with this particular criterion will be done separately, with due consideration being given to EU standards.[1]

In conclusion, under the framework of the current analysis, Core Network road sectionsshould be considered compliant with the infrastructure profile and condition criterion provided they cumulatively meet the following conditions:

- Motorway/expressway profile;
- Are properly maintained (very good or good road surface condition), so that traffic fluency and safety are ensured.

Road condition has been rated under 5 distinct categories, using the International Roughness Index, as follows:

- Very good (IRI < 1.24);
- Good (IRI 1.24 – 2.84);
- Medium (IRI 2.84 - 5.09);
- Poor (IRI 5.09 - 8.94);
- Very Poor (IRI > 8.94).

The results are given below in table and graph form.

[1] Final-Report-SSTPA-28022019 ISBN 978-92-76-00675-6 (004).doc (europa.eu)

Table 6. TEN-T Core Road Network Compliance (infrastructure profile)

Road profile	Kilometres (km)	%
Motorway	1,564.14	44.18%
Expressway	239.74	6.77%
Conventional road	1,736.67	49.05%

Table 7. TEN-T Core Road Network (infrastructure condition)

Road condition	Kilometres (Km)	%
Very Good	845.22	23.87%
Good	1,614.88	45.61%
Medium	940.45	26.56%
Poor	140	3.95%
Very Poor	0	0.00%

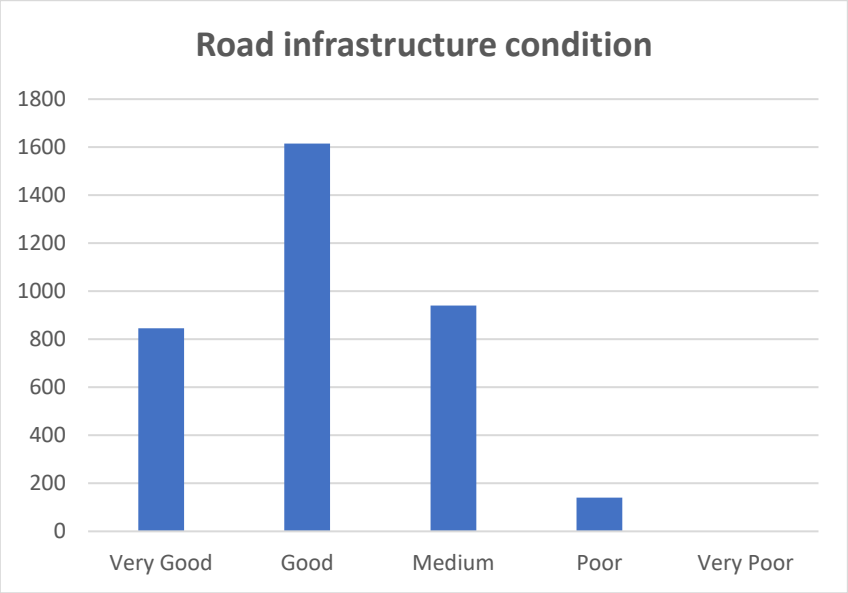


Figure17.TEN-T Core Road Network (road infrastructure condition)

Table 8. TEN-T Core Road Network Compliance (infrastructure profile and condition)

Road profile	Road condition	Km	%
Motorway	Very Good	750.02	21.18%
	Good	670.12	18.93%
	Medium/Poor/Very Poor	144	4.07%

Expressway	Very Good	28.3	0.80%
	Good	140	3.95%
	Medium/Poor/Very Poor	71.44	2.02%
Conventional road	Very Good	66.9	1.89%
	Good	804.76	22.73%
	Medium/Poor/Very Poor	865.01	24.43%

Table 9. TEN-T Core Road Network Compliance (infrastructure profile and condition)

	Compliant	Non-compliant
Km	1,588.44	1,952.11
%	44.86%	55.14%

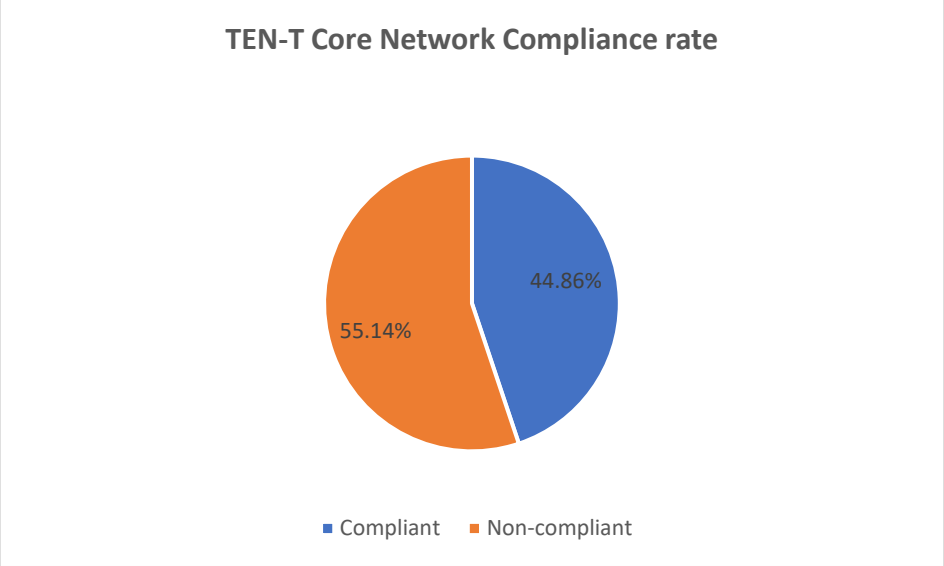


Figure 18. TEN-T Core Road Network Compliance (infrastructure profile and condition)

b) Alternative fuels availability

Availability of alternative fuels is explicitly required under art. 39.2.c of Regulation 1315/2013 as a condition for TEN-T Road Core Network compliance. Art. 3(w) further defines *"alternative clean fuels"* as *" electricity, hydrogen, biofuels (liquids), synthetic fuels, methane (natural gas (CNG and LNG) and biomethane) and liquefied petroleum gas (LPG) which serve, at least partly, as a substitute for fossil oil sources in the supply of energy to transport, contribute to its decarbonisation and enhance the environmental performance of the transport sector."*

Availability has been assessed against the provisions of Directive 2014/94/EU on the deployment of alternative fuels infrastructure and the monitoring tools further developed by the EU in this regard.

The infrastructure sufficiency criteria for the fuels referred to under the above Directive are given below.

Table 10. Alternative fuels sufficiency requirements

Mandatory	Fuels	Objectives/distance requirements
Yes	Electricity for vehicles	One recharging point per estimated ten electric vehicles (and for information purposes: **at least every 60 km on TEN-T Core Network**)[2]
Yes	CNG	At least every **150 km on TEN-T Core Network** and one CNG re-fuelling point per estimated 600 CNG vehicles
Yes	LNG for vehicles	**At least every 400 km on TEN-T Core Network**
Yes	LNG for maritime vessels	Coverage of maritime ports with mobile or fixed installations to enable circulation on TEN-T Core Network
Yes	LNG for inland waterway vessels	Coverage of inland ports with mobile or fixed installations to enable circulation on the TEN-T Core Network
No	Hydrogen	**At least every 300 km on TEN-T Core Network**

The alternative fuels networkin the Western Balkans is largely undeveloped, with most of the existing stations being set upby private investors with a bottom-up approach.Following market demand, refuelling stations are mostly located in the region's largest cities while deployment on the TEN-T Network is close to zero (given the low penetration rate of alternative fuel vehicles in the region).

[2] Individual mobility: From conventional to electric cars | EU Science Hub (europa.eu)

Table 11. A brief overview of the total number of stations available for each Regional Partner

Regional Partner	No. of Alternative Fuel stations[3]			
	Electricity	CNG	LNG	Hydrogen
Albania	4	-	-	-
Bosnia and Herzegovina	22	2	-	-
North Macedonia	11	5	-	-
Kosovo	3	-	-	-
Montenegro	15	-	-	-
Serbia	46	26	-	-

Only a few of the above listed alternative fuel stations are actually located on TEN-T and only 5 electrical re-charging stations are deployed on Corridor X in Serbia in 2017 as part of a pilot project, the details of which are given below.

Installation of EV chargers on TEN-T Network in Serbia

These chargers are installed at key points on the highways, at the toll stations "Presevo", "Sid", "Dimitrovgrad", "Subotica" and at the former toll station "Belgrade" near Bubanj Potok. The service provided for electric cars is currently free, while legal regulations introducing a payment system for all users are being prepared. At the time of installation, these chargers were the most up-to-date solution for charging vehicles of all world manufacturers. They have three connectors - two for fast DC and one for fast AC charging. These stations enable fast power supply of electric cars, including next-generation vehicles. Maximum output power is 50 kW for DC and 22 kW for AC charging.

The road infrastructure manager in Serbia is currently implementing a project to install three additional ultra-fast electric chargers. These chargers, with a power of 175 kW, will be located at the former toll station "Nis" (one in the direction of Belgrade, the other in the direction of Nis). Once installed, the chargers will be networked through a billing, monitoring and management system/platform.

[3]Home | EAFO, Open Charge Map - The global public registry of electric vehicle charging locations, NGVA Europe | Stations map - NGVA Europe, HRS Availability Map (h2-map.eu)

Progress achieved by Serbia in deploying AF stations on the TEN-T Network should be saluted as resulting in approx. 300 km of the TEN-T Core Network becoming compliant with the sufficiency requirements for electric vehicle charging points mentioned in Table 11 above.

However, cumulatively applying the requirements for all mandatory alternative fuels under Directive 2014/94/EU, **the overall compliance rate for the TEN-T Core Network in Western Balkans would be zero.**

❖ *TEN-T Comprehensive Network Compliance*

The total length of the TEN-T Road Comprehensive network (outside the TEN-T Core) is **1,746.85 km**, of which:

- **126 km** motorways;
- **69 km** expressways;
- **1,551.85 km** conventional roads.

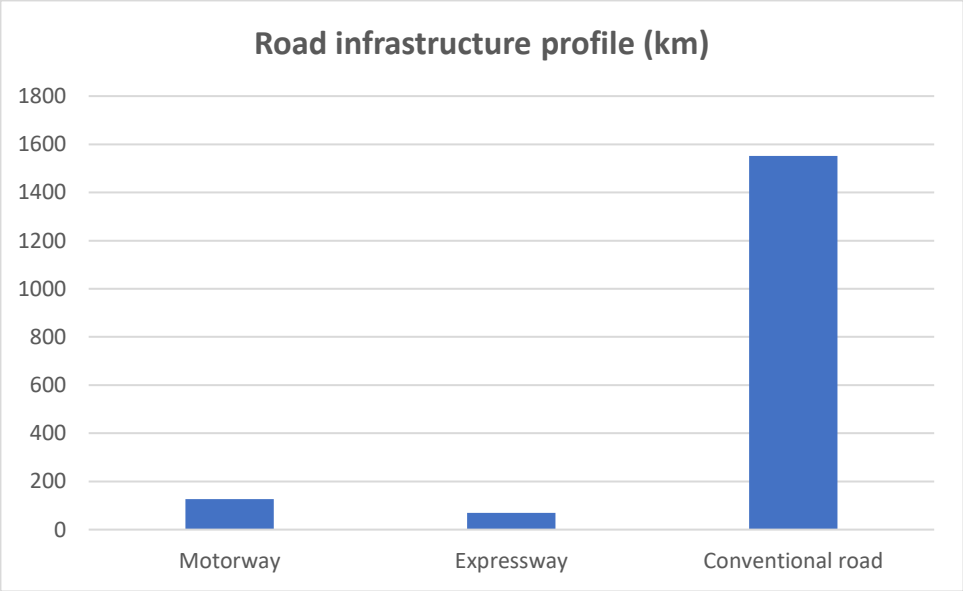


Figure 19. TEN-T Comprehensive Road Network (infrastructure profile)

Figure 20. Road Infrastructure Profile Map

Assessment of the TEN-T Comprehensive Network compliance was mainly based on the infrastructure profile and condition criterion.

Overall compliance with ITS, tolling and safety Directives (also under Regulation 1315/2013) have been separately dealt with, in view of structural/institutional reforms currently being addressed under the dedicated Action Plans of the Transport Community Permanent Secretariat and fall outside the scope of the present document.

Details on compliance with the above criterion are given below.

a) Infrastructure Profile and conditions

Article 18 of Regulation1315/2013 states that TEN-T roads are either motorways, expressway or conventional strategic roads. Conventional strategic roads are further defined under art. 17.3.c as roads that are neither motorways nor expressways but that still meet the other criteria referred to in paragraphs 1 and 2, i.e., that they:

a) play an important role in long-distance freight and passenger traffic;
b) integrate the main urban and economic centres;
c) interconnect with other transport modes;
d) link mountainous, remote, landlocked and peripheral NUTS 2 regions to central regions of the Union.

Such roads should be *„adequately maintained to allow safe and secure traffic”*.

TEN-T standards compliance for motorways and expressways should be assessed against the current condition of the infrastructure, similarly to the approach taken to the Core Network. With regard to conventional roads, they would be considered „high-quality” and therefore TEN-T compliant with the same criterion for road surfacecondition, whereas:

- criteria under art. 17.3.c of Regulation 1315/2016 listed at points a) to d) above are considered to have been met by the mere inclusion of a particular road section in the TEN-T Network;
- Safety level (certainly an issue when it comes to conventional 2-lane roads) should be assessed under the institutional framework provided by Directive 2008/96/EC. As long as there is no systematic safety ranking or management of the current road network with three-yearly reviews, it is impossible to conclude on a systematic basis whether a given road section meets safety related criteria or not.

The results of this analysis are given below in table and graph form.

Table 12. TEN-T Comprehensive Road Network (infrastructure profile)

Road profile	Km	%
Motorway	126	3.56%
Expressway	69	1.95%
Conventional road	1,551.85	43.83%

Table 13. TEN-T Comprehensive Road Network (infrastructure condition)

Road condition	Km	%
Very Good	196	11.22%
Good	710.51	40.67%
Medium	766.33	43.87%
Poor	53	3.03%
Very Poor	21	1.20%

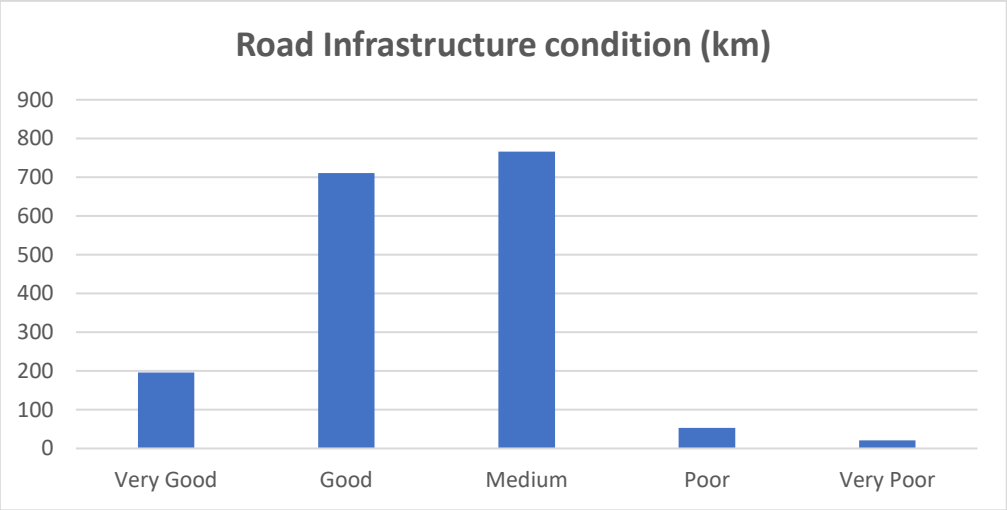


Figure 21. TEN-T Core Road Network (infrastructure condition)

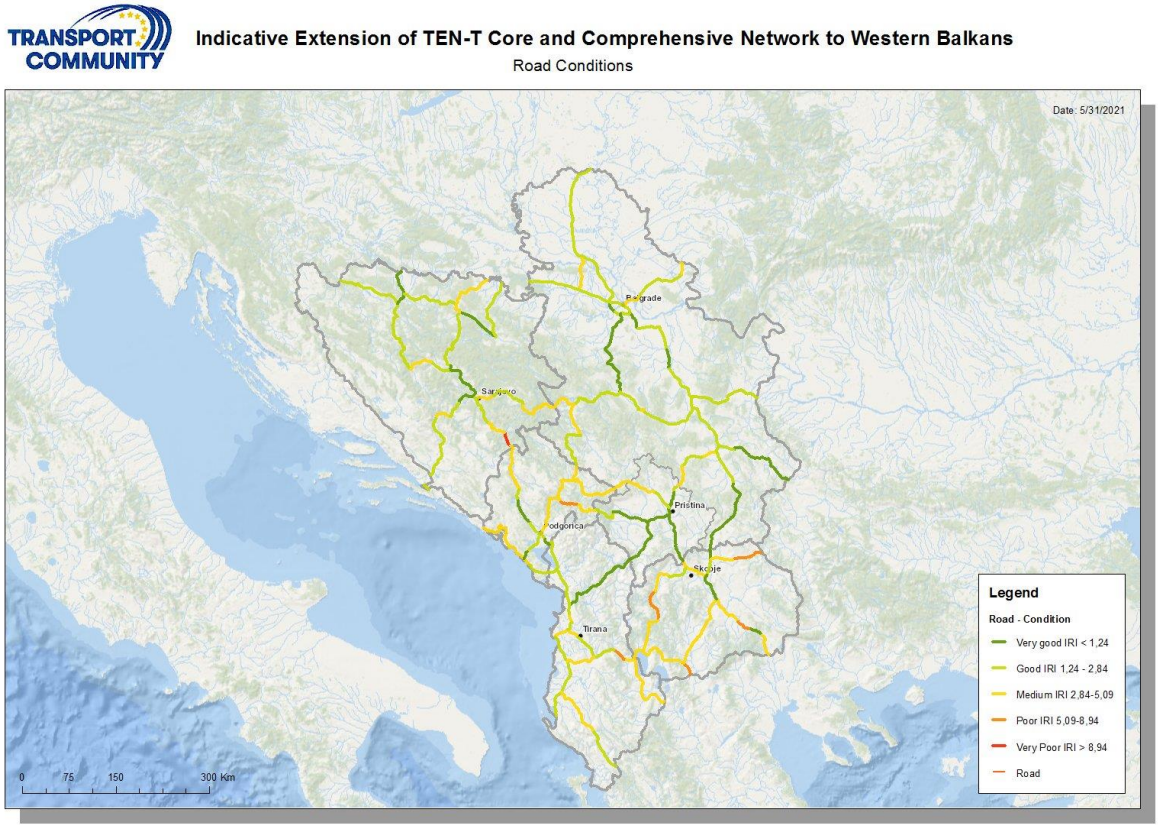


Figure 22. Road Conditions Map

Table 14. TEN-T Comprehensive Road Network Compliance (infrastructure profile and condition)

Road profile	Road condition	Km	%
Motorway	Very Good	102	5.84%
	Good	24	1.37%
	Medium/Poor/Very Poor	0	0.00%
Expressway	Very Good	0	0.00%
	Good	69	3.95%
	Medium/Poor/Very Poor	0	0.00%
Conventional road	Very Good	94	5.38%
	Good	617.517	35.35%
	Medium/Poor/Very Poor	840.334	48.11%

Table 15. TEN-T Comprehensive Road Network Compliance Rate (infrastructure profile and condition)

	Compliant	Non-compliant
Km	906.51	840.33
%	51.89%	48.11%

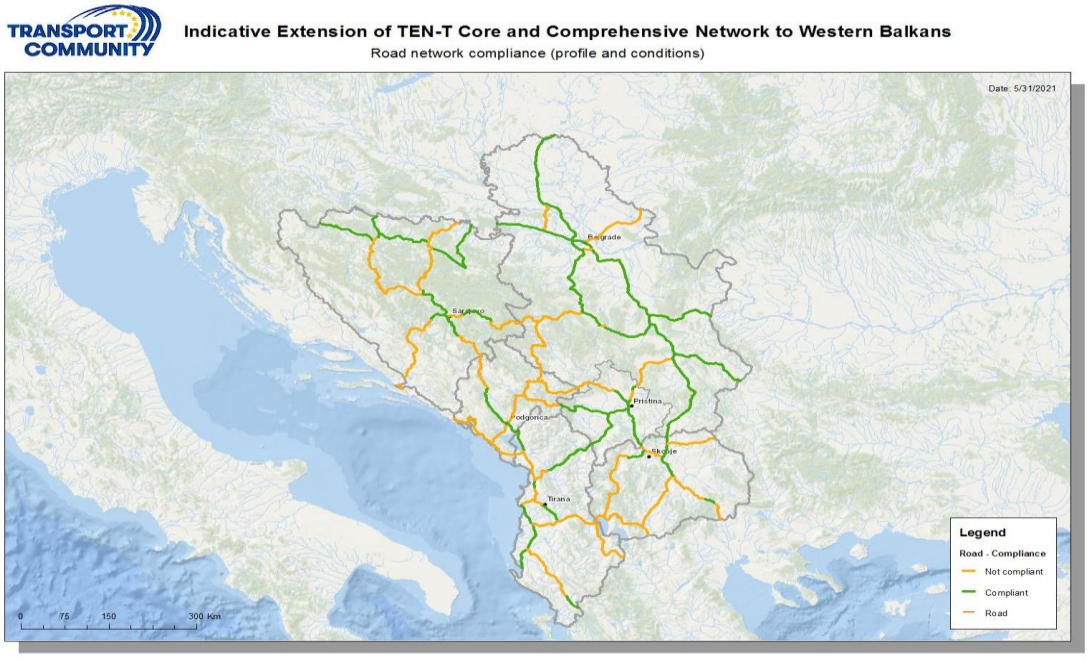


Figure 23. Road Network Compliance Map

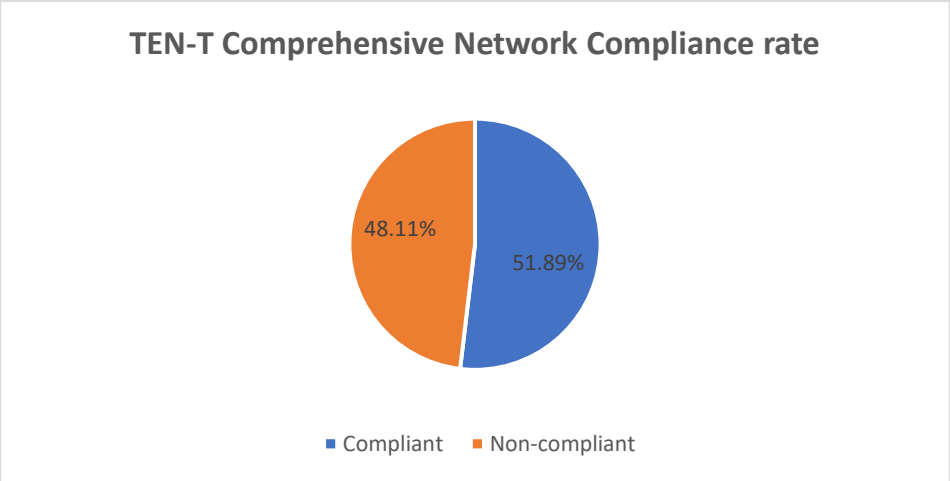


Figure 24. TEN-T Comprehensive Road Network Compliance Rate (infrastructure profile and condition)

b) ITS Deployment

ITS deployment in the region's road network is still patchy, project-based and lacking a strategic approach. Overall, ITS deployment is included to some extent within the Regional Partners' Transport Strategies but insufficiently to be considered as implementing Directive 2010/40/EU *"On the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport"* or any of its parts. **Directive 2010/40/EU is not fully transposed in any of the Regional Partners**, nor has an institutional framework been completed for the creation of ITS architecture. An overview of the current status in establishing the legal framework needed for ITS deployment is provided in Table 16.

Table 16. Overview of adoption of ITS legal framework in Regional Partners[4]

Regional Partners	Transposition of		ITS Strategy/Action Plan
	ITS Directive 2010/40/EU	2004/54/EC – on road tunnel over 500m in length	
Albania	Partially transposed	Project specific	Road only, completed in 2020
Bosnia and Herzegovina	Project specific	Project specific	No
North Macedonia	Project specific	Project specific	Planned during 2022

[4]Connecta consortium (2018), Strategic Framework for implementation of ITS on TEN-T Core/Comprehensive Network on the WB6, Final report

Kosovo	Drafted, planned to be adopted during 2021	Project specific	No
Montenegro	Planned during 2021	Project specific	Planned during 2021
Serbia	Partially transposed	Project specific	Planned during 2021

Deployment of ITS on indicative extension of the Comprehensive Road Network to the Western Balkans, is as per the table below:

Table 17. Deployment of ITS in Regional Partners

Regional Partners	ITS Deployed on	
	Length (km)	**Traffic Control Center**
Albania	-	No, planned during 2021
Bosnia and Herzegovina	153	Yes, 3 centres
North Macedonia	-	No
Kosovo	-	No
Montenegro	-	No
Serbia	946.79	No

c) Tolling interoperability

Albania, Bosnia and Herzegovina, North Macedonia and Serbia have started introducing tolls on their roads, Montenegro has a tolled tunnel and Kosovo is assessing toll introduction on its road network.

The Transport Community Treaty signed by the South East European Parties contains the following obligations related to Road User Charging on the Road Infrastructure:

- Directive 2004/52/EC of the European Parliament and of the Council of 29 April 2004 on the interoperability of electronic road toll systems in the Community (OJ EU L 166, 30.4.2004, p. 124)
- Commission Decision 2009/750/EC of 6 October 2009 on the definition of the European Electronic Toll Service and its technical elements (OJ EU L 268, 13.10.2009, p. 11)

- Directive 2019/520/EC of the European Parliament and of the Council of 19 March 2019 on the interoperability of electronic toll systems and facilitating the cross-border exchange of toll non-payment information in the Union (OJ EU L91, 29.3.2019, p. 45)

There is **partial transposition of Directive 2004/52/EC** on the interoperability of electronic road toll systems in the Community **in Bosnia and Herzegovina and Serbia**.

The toll systems already in place, while different, are **all distance-based, potentially interoperable**. Electronic distance-based tolling has already been introduced in four Regional Partners, as per Table 18 below.

Table 18. Overview of tolling system in Regional Partners

Regional Partners	Tolling System characteristics		
	Length (km)	**Tolling system in place**	**Managing Authority**
Albania	100	Distance based/DSRC 5.8 GHz Toll plazas, cash, card	Private 30 years concession contract
Bosnia and Herzegovina	187.5[5]	Distance based/DSRC 5.8 GHz Toll plazas, cash, card and e-tolling (ACC tag)	Autoceste BiH/Autoputevi RS
North Macedonia	Corridor X[6] 195	Distance based/DSRC 5.8 GHz Toll plazas, cash, card and e-tolling (ACC tag)	Public Enterprise for State Roads (PESR)
Kosovo	-	-	-
Montenegro	Sozina tunnel (6 km)	Tunnel toll Toll gate, cash, card, e-tolling (smart card system)	Monteput d.o.o (state owned)
Serbia	819.6[7]	Distance based/DSRC 5.8 GHz Toll plazas, cash, card and e-tolling (ACC tag)	Public Enterprise Roads of Serbia (PESR)

[5]EBRD, Study on Predictability and Sustainability of Road Funding in Bosnia and Herzegovina, 2020
[6]https://etc.roads.org.mk/AMC
[7]https://www.putevi-srbije.rs/index.php/en/organisation/sector-for-toll-collection/department-for-electonic-toll-collection

❖ ***Overall compliance assessment***

Conclusions on each relevant compliance criterion are given below.

a) Infrastructure profile and condition

Overall information on TEN-T Road Network infrastructure profile and condition is contained in the table below:

Table 19. TEN-T Road Network Infrastructure profile and condition

Road profile	Road condition	km	%
Motorway	Very Good	852.02	16.11%
	Good	694.12	13.13%
	Medium	127	2.40%
	Poor	17	0.32%
	Very Poor	0	0.00%
Expressway	Very Good	28.3	0.54%
	Good	209	3.95%
	Medium	71.44	1.35%
	Poor	0	0.00%
	Very Poor	0	0.00%
Conventional road	Very Good	160.9	3.04%
	Good	1,422.28	26.90%
	Medium	1,508.34	28.53%
	Poor	176	3.33%
	Very Poor	21	0.40%

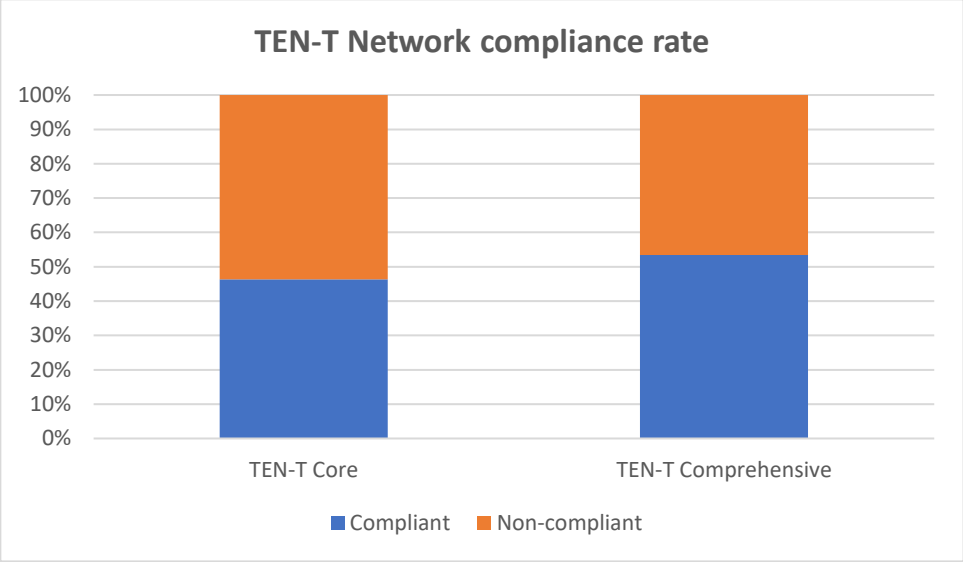


Figure 25. TEN-T Road Network (Core + Comprehensive) compliance rate (infrastructure profile and condition)

With almost 45% of the Core Network and more than 51% of the Comprehensive Network currently compliant with this criterion, the Western Balkans region seems on track to achieve the ambitious targets set by Regulation 1315/2013. However, **road maintenance needs to be more systematic and performance-oriented** in order to ensure assets preservationand proper road surface condition.

Considering that:

- the funds allocated in this regard usually fall far short of what is needed, and
- projects to be commissioned in the years to come will increase expenditure on maintenance in the mid- to long term,

proper maintenance policiesbacked by adequate funding will be instrumental for ensuring long-term compliancewith TEN-T standards in the region.

b) Alternative fuels

As the overall compliance rate is practically zero, much effort will be required in the coming period to ensure adequate deployment of alternative fuel infrastructure in the region. As consistently proved by the EU's relevant experience, market-driven approaches might not solely bridge this gap. AF demand is driven by AF vehicles ownership rates, while AF vehicles ownership is itself limited by the low supply of fuelling stations.

Reaching TEN-T compliance standards will therefore require **systematic and target-oriented public intervention**, to be undertaken within the framework provided by Directive

2014/94/EU (currently under revision to adjust it to the more ambitious targets set out by the European Green Deal).

c) ITS, tolling, safety and tunnels compliance

Regulation 1315/2013 does not impose specific targets in respect to ITS and tolling deployment on TEN-T, only requiring such systems, where available, to be interoperable and compatible with each other, under the general framework provided by Directives 2010/40/EU and 2004/52/EC.

ITS is deployed in the region on a project basis, and compliance with the specifications imposed by Directive 2010/40/EU is dealt with at that level (for details see section 3.2.2.3 above). However, adoption of ITS Strategies/Action Plans and full transposition of the relevant EUDirective would put the process on a more systematic track and ensure long-term compliance with TEN-T standards.

Overall compliance with Directive 2008/96/EC on road safety is required under Article 18.b of Regulation 1315/2013. This is a target yet to be achieved for the region, requiring full transposition of the Directive and implementation ofthe institutional set-up it provides. This is a long-term process currently being implemented within the framework of the Road Safety Action Plan steered by the Transport Community Permanent Secretariat.

Compliance with Directive no. 2004/54/EC is required by article 18.c of Regulation 1315/2013 for tunnels over 500 m in length.For tunnels in various stages of design or preparation, this is achieved on a project basis. In case of tunnels now in operation, adoption of risk-reduction measures has been accepted as an alternative to applying Directive requirements, where structural solutions could not be implemented at reasonable cost. Hazard reduction measures should be taken under an institutional framework that the region has yet to adopt. Full compliance with TEN-T standards, therefore, will require long-term legislative and institutional measures under a different framework.

3.2.3 Inland waterway and maritime transport

Similarly to the other transport modes, the legal framework for developing the Indicative Extension of TEN-T Core and Comprehensive Network regardinginland waterways and ports, is contained in Regulation (EU) 1315/2013 together with Commission Regulation (EU) 2016/758 amending Regulation (EU) No 1315/2013.

Regarding Inland waterways, according to the Indicative Extension to the Western Balkans Region, the Core Network includes parts of the rivers Danube and Sava in Serbia as well as parts of the Sava in Bosnia and Herzegovina. A section of the Tisa river in Serbia is also part of the Core network.

The total length of the Danube in Serbia is 589 km and covers the section from Bezdan to the Timok river. Regarding the Sava, the sections are from Ustica to Raca in Bosnia and Herzegovina (332 km) and from Jamena to Belgrade in Serbia (287 km). The total length of the Sava as part of the Core Network is 619 km. Total length of the Tisa is 164 km from the Hungarian border to the Danube in Serbia.

The Core inland waterway ports in the Western Balkans are at Novi Sad and Belgrade in Serbia and at Brcko and Bosanski Samac in Bosnia and Herzegovina.

Regarding maritime transport, the indicatively extended TEN-T Network relates to the ports of Bar in Montenegro and Durres in Albania, both defined as Core Network ports. The only comprehensive maritime port of the extended TEN-T Network is Vlore in southern Albania.

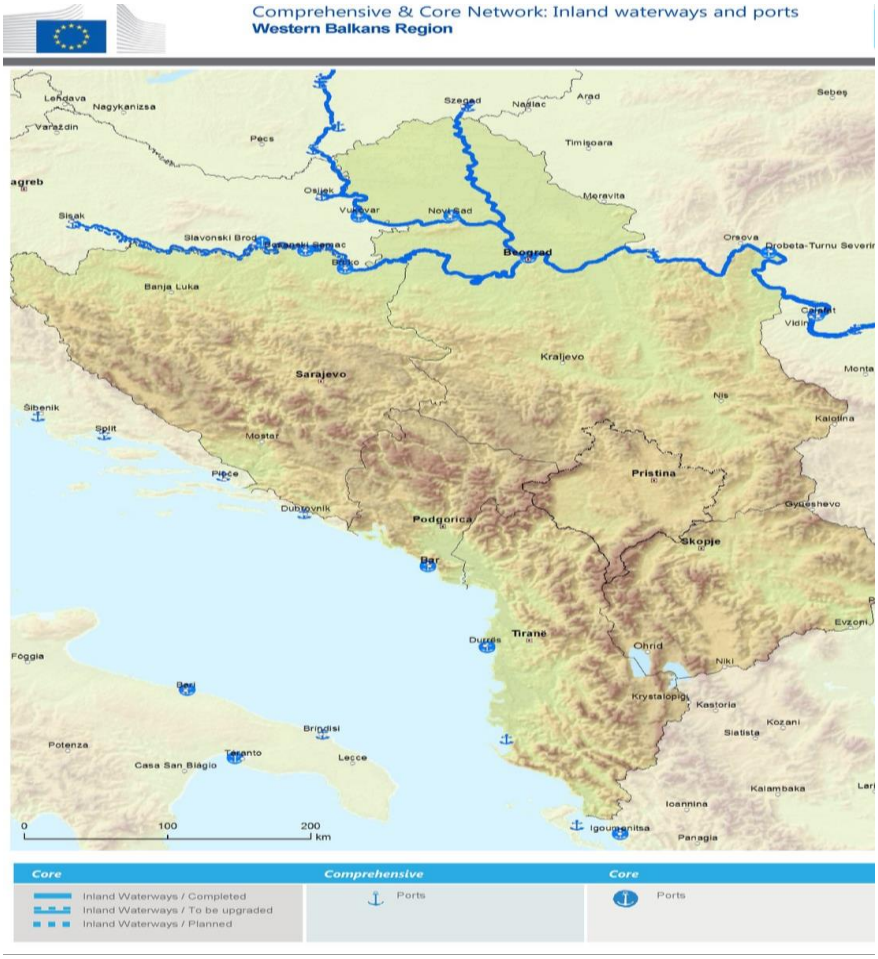


Figure 26. Indicative extension of the TEN-T Comprehensive and Core Inland waterways and ports to the Western Balkan Region[8]

[8]COMMISSION DELEGATED REGULATION (EU) 2016/758 of 4 February 2016 amending Regulation (EU) No 1315/2013 of the European Parliament and of the Council as regards adapting Annex III thereto

❖ *IWW and MaritimeCompliance indicators*

The compliance indicators for Inland waterways, inland and maritime ports are derived from the TEN-T Regulation 1315/2013 where they are mentioned as infrastructure requirements.

In this report, the following compliance indicators for inland waterways in the Western Balkans will be assessed:

- CEMT requirements for class IV;
- Permissible Draught (min 2.5 m);
- Height under bridges (min. 5.25 m);
- RIS availability/implementation.

Compliance indicators assessed for Core inland ports in the Western Balkans are the following:

- CEMT connection (Class IV waterway connection);
- Connection to rail;
- Connection to road;
- Availability of clean fuels;
- Availability of at least one freight terminal open to all operators in a non-discriminatory way and application of transparent charges.

For Core and Comprehensive maritime ports, compliance indicators assessed are the following:

- CEMT connection (Class IV waterway connection - where possible);
- Connection to rail;
- Connection to road;
- Availability of clean fuels;
- Availability of at least one freight terminal open to all operators in a non-discriminatory way and application of transparent charges;
- Facilities for ship generated waste.

❖ *Primary infrastructure characteristics of ports*

Core inland ports in Serbia

Port of Novi Sad

The position, existing infrastructure and superstructure of the Port of Novi Sad secures it a significant role in port industry of the Republic of Serbia. The port is located at km 1,254 on the left bank of the Danube, at the entrance to the Danube-Tisa-Danube Canal. The port disposes of a water area of 6 ha, with a depth of 4 - 10 m. Total quay length is 800 m, with five mooring places for simultaneous accommodation of vessels. Railway tracks 6,000 m in

length are connected to the national railway network. The port operator is Port Novi Sad a.d., of which the major shareholder is the government with 99.38% of shares, the remaining 0.62% distributed among small shareholders.

Port operations include cargo handling and storage of bulk cargo, general cargo, container and liquid cargo. The handling equipment of Port Novi Sad a.d. consists of six portal cranes with a capacity of 5 t to 27.5 t, 14 forklifts with a capacity of 3 t to 12.5 t, one forklift with a capacity of 28 t, 5 loaders, two weigh bridges – one for road and rail with a measuring range of 100 t, three telescopic funnels for bulk cargo handling with a capacity of up to 250 t/h, two packaging machines for 50 kg and 1,000 kg bags, a belt conveyor, pneumatic equipment, pumps for oil products etc. Port Novi Sad a.d. disposes of 4,000 m^2 closed and 100,000 m^2 of open storage areas used as public and customs warehouses. The capacity of the oil products storehouse is 270,000 m^3.

The main cargoes handled are grains, fertilizer components, scrap iron, ferrous metal products etc. Identified bottlenecks occur due to low productivity of the cranes on the sloping quay at low water. The basic concerns of port development plans in Novi Sad are: a larger capacity system for handling grains, fertilizer components and fertilizers, extension of the operating vertical quay, redesigning of the existing and acquisition of new higher-capacity cranes and equipment, modernisation of the information system and development of an automatic data processing system.

The private siding and the road network should be redesigned in accordance with the law. The following facilities should be built: a 20,000 t grain silo, a Ro-Ro terminal, a container terminal and a multimodal rail (Huckepack) terminal; storage facilities should be expanded and logistic subsystems and additional services developed. The estimated value of the funds to be invested in the port infrastructure is 4.9 million EUR, and the estimate for the superstructure is 9.8 million EUR. [9]

Port of Belgrade

The existing Belgrade port is located at km 1,168, at the right bank of the Danube River. It is a basin-type port with a water area of 11 ha and a depth of 4 m at low water. The port can process eight vessels at a time. The total length of the quay is 940 m. The private siding (industrial railway track), over 12 km long, is connected to the national main lines. The port operator is the shareholding company Port Belgrade a.d., owned by Worldfine, Luxembourg.

The port offers handling services for bulk cargo and containers. The handling equipment of Port Belgrade a.d. includes nine portal cranes with a carrying capacity of 36 t, three overhead cranes with a capacity of 3t, 20 t and 50 t, two truck-mounted cranes with a capacity of 16 t and 40 t, 30 forklifts with capacities of up to 12.5 t, container manipulator with a capacity of 27 t, a multi-purpose vehicle (Unimog), several trucks, semi-trailers and other equipment. Port Belgrade a. d. disposes of 200,000 m2 of indoor and 600,000 m^2 of outdoor storage facilities. The container terminal can store 10,000 TEUs on an annual basis.

[9]STRATEGY ON WATERBORNE TRANSPORT DEVELOPMENT OF THE REPUBLIC OF SERBIA, 2015 - 2025

The most important goods traded in the port include: salt, scrap iron, ferrous metal products, coal, paper, phosphate etc.

Though it is the largest port with the best infrastructure, Port Belgrade a.d. only handles between 200,000 and 400,000 t of various goods. In cargo structure, general cargo dominates over bulk cargo, chiefly because of traffic limitations due to the port's location in the immediate vicinity of the city centre. The current location of the port is a factor of short-term port industry development within the existing area that serves the city logistics. Namely, some quantities of goods, especially consumer goods, are shipped by road to warehouse users in the port area for further distribution to end users. A significant portion of these goods is not statistically recorded. The fact that the city has expanded over time towards the port, and that the port is now in the urban environment, is the greatest obstacle to further development of Belgrade port at its current location. Ways and means are being considered to ensure the gradual re-location of the port.

To this effect, appropriate documentation for establishing the port area, construction and development of a new Belgrade port needs to be elaborated and adopted, in accordance with the Belgrade General Plan up to 2021. The site for a new port needs to be identified, and particular attention paid to the development model of the future port area. Here it is important to establish whether it is more acceptable to have an integrated port area or to decentralise it, building several possible sites (terminals) around Belgrade. The new port in Belgrade should have terminals for general cargo, containers, bulk cargo, liquid cargo, Ro-Ro, a multimodal rail (Huckepack) and other terminals.[10]

Core Inland ports in Bosna and Herzegovina

Port of Brcko

The Port of Brcko covers an area of about 14 ha with spatial capacities. Most of the area consists of an operational shore with auxiliary and accompanying facilities, open and closed warehouses, and workshop space. In the immediate vicinity of the operational shore, there are three anchorages, formed in accordance with technological operations and types of goods. The length of the operational shore built along the sloping quay is 104 m and 76 m along the vertical quay. Along the operational shore there are four shunting tracks with a total length of 2,586 m. The port is connected with the main railway station at Brcko by a single track.

The main transshipment machinery, with an annual capacity of about 915,000 tons, enables the transshipment of general and bulk goods: coast-land, land-coast. The mechanisation consists of two portal cranes of the Ganz type (5t, l = 30m). Background warehouses are serviced by forklifts and loaders. For the regulation of transport flows of goods, changes in the type of transport, as well as production requirements, the Port has 61,000 m^2 of open and 11,000 m^2 of closed storage space. Closed warehouses are typical, classic floor.

[10]Ibidem

Warehouses are regulated by a storage space agreement and rented to third parties. The Port also has a 5,000 m^2 customs terminal.[11]

Port of Bosanski Samac

The port of Bosanski Samac is a fully privately owned, managed and operated port and, as such, serves only the needs of the private operator. According to its disposition in relation to the waterway, the port is classified as an open shore harbour. The area of the Port of Samac covers 588,342 m^2. The distance between Samac and the Danube is 304 km. The Port is connected to a highway and the Samac-Ploce railroad running to the Adriatic Sea. In coastal capacity, the port has an operational shore 311 m in length and 14.5 m wide for heavy loads. The operational coast 105 m in length. An open warehouse – harbour plateau covers an area of 30,000 m^2, while the closed warehouse is 3,600 m^2. The industrial rail line is 1,630 m in length and is connected to Samac railroad station. Capacities also include a 1,462 m^2 Type A custom warehouse, a container overload terminal and a water-wagon truck. All warehouses are regulated by a storage space agreement. A customs terminal also forms part of the harbour.

The overload capacity of the Port is 966,650 t per year. The mechanisation allows for the transport of both general bulk and goods: water-shore, shore-water, wagon-truck, container overload.[12]

Core Maritime Port in Albania

Port of Durres

The Port of Durres is located approximately 38 km from Tirana. The largest Albanian port and the busiest Western Balkans seaport in cargo traffic volume (3.5 million t) it is government-owned, with private companies managing port terminals and pilotage services. Its traffic mainly consists of feeder services, processing passenger ferries, Ro-Ro vessels, container vessels and ships transporting general goods, bulk goods and fuel. In 2015 Durres Port managed about 3.5 million t of freight and 775,000 in passenger traffic. Available draught ranges from 7.35 m to 11.5 m. Durres warehouse space consists of: a container terminal (berth 6) which will need to be expanded in order to accommodate anticipated traffic flows; a ferry terminal (berth 9) recently renewed; the Western Terminal used for general cargo and cereals (berths 1-5), and the Eastern Terminal used for bulk goods (berths 7, 8, 10, 11). The latter is the only warehouse space directly linked by a single diesel track to the national railway network and has been recently upgraded. All port terminals are managed by private operators, except the general cargo terminal which is managed by the Port Authority. Regarding last mile linkages, Durres port is well connected by road but

[11]https://www.lukabrcko.ba/kapaciteti/
[12]Data obtained from Port of Samac publication

suffers from insufficient connections with the railway network. In this respect, although the port is supplied with railway lines, they are not linked to the national network. [13]

Comprehensive Maritime Port in Albania

Port of Vlore

The Port of Vlore, Albania's second most important port, is located in the south-west of the country, 137 km from Tirana. It is about 5 km from the centre of Vlora and ca. 120 km from Sarande. Its main activities are processing cargo and ferry (passengers). The total area of the Port is 5.3 ha with a depth of 4.6 m. It has two terminals: one for cargo and anotherl for passengers. It also has 7 berths: 3 for passengers and 4 for goods. Land access to the port is possible only by road. These is no direct rail access as the rail terminal isat least 5 km from the port area. Road connection to the port passes through an urban residential area and there is no direct access to a highway. Terminal roads are not adequately marked with traffic signalisation and are not satisfactorily illuminated at night. Road maintenance is also unsatisfactory. [14]

Core maritime Port in Montenegro

Port of Bar

The Port of Bar is Montenegro's main sea port, capable of handling ca. 5 million t of cargo. Situated on the Adriatic Sea, its location greatly helps to shorten transit times and lower transportation costs. The port is integrated with the Belgrade - Bar railway line and with the road network, and is thus an important factor in intermodal transport. The Port of Bar is treated as a free trade zone. Total area of the free trade zone is around 130 ha. The main cargo groups handled at the Port of Bar are: liquid bulk, dry bulk, general Lo-Lo, container LoLo and General Ro-Ro cargoes. Within the port area the main terminal operators are: the Port of Bar H.Co which mainly manages the dry bulk terminal, the liquid cargo terminal, the grain terminal and the Ro-Ro and passenger terminal. Port of Adria (where 62% of shares are owned by the Turkish company Global Ports) manages the general cargo terminal, the container terminal and the timber terminal. The port's nautical access cannot be considered as critical, since the port has sufficient available draughts, varying between 6 m and 14 m, depending on the berth.

[13]Study on Mediterranean TEN-T Core Network Corridor 2nd Phase Final Report on the related Core Network in the Western Balkan countries Mobility and Transport, JANUARY 2018

[14]Port Hinterland Connections and customs procedures: The case of the European Union programme MEDNET, Albanian main Ports hinderland connections and characteristics, UNECE, Geneva, 2014.

❖ TEN-T Core Network Compliance

Compliance assessment for each indicator:

Table 20. Compliance assessment for Core inland ports – status in 2020

Port name	Rail connection	Road connection	CEMT Connection	Clean fuels availability	Terminal availability
Belgrade	YES	YES	YES	NO	YES
Novi Sad	YES	YES	YES	NO	YES
Brcko	YES	YES	YES	NO	YES
Bosanski Samac	YES	YES	YES	NO	YES

Source: Transport Community Permanent Secretariat, based on direct inquiry to Regional Partners and ports

As shown in the table and according to data received from the Regional Partners, it is clear that Core inland ports of the extended TEN-T to the Western Balkans are compliant with all requirements apart from clean fuels availability. Regarding the Port of Samac, though fully privately owned, according to data obtained from port representatives, it does comply with the required availability of at least one freigh t terminal open to all operators in a non-discriminatory way and application of transparent charges. All ports comply with the requirements rail connection, road connection, CEMT connection and terminal availability.

Table 21. Compliance assessment for Inland waterways - status in 2020

River	Network section	Western Balkans Regional partner code	TEN-T (Core/Com-prehensive) Network	Section length	CEMT Class IV	Draught > 2.5m	Bridge height	RIS
Danube	km 1433.1-1295.0	Serbia - Croatia	Core	138.1 km	VIc	2.5 m	8.63 m - > 9.15	Y
Danube	km 1295.0-1075.0	Serbia	Core	220 km	VIc-VII	2.5-3.5 m	8.44 - > 9.15	Y
Danube	km 1075.0-845.5	Serbia-Romania	Core	229.5 km	VII	3.5 m	> 9.15	Y
Sava	km 210.8-178.0	Serbia-Bosnia and Herzegovina	Core	32.8 km	IV	< 2.5 m	6.46 - > 7.0	Y
Sava	km	Serbia	Core	178 km	IV	2.5 m	6.46 - > 7.0	Y

	178.0-0.0							
Tisa	km 164.0-0.0	Serbia	Comprehensive	164.0 km	IV	2.5 m	> 7.60	N

Source: Transport Community Permanent Secretariat, based on direct inquiry to Regional Partners

As shown in the table, the inland ports of the extended TEN-T Network comply with most of the indicators in 2020, which is positive in terms of long-term compliance and the 2030 deadline for completing the core network. Indicators which remain unfulfilled are the draught on the Sava on network section km 210.8 - 178.0 on the Serbia - Bosnia and Herzegovina border, which is less than 2.5 m, and compliance with RIS on the Tisa river, where RIS has not yet been deployed.

Table 22. Compliance assessment for Core Maritime Ports – status in 2020

Port name	Rail connection	Road connection	CEMT Connection	Facilities for ship generated waste	Clean fuels availability	Terminal availability	VTMIS
Durres	Partially	YES	N/A	YES	NO	YES	NO
Bar	YES	YES	N/A	YES	NO	YES	Partially

Source: Transport Community Permanent Secretariat, based on direct inquiry to Regional Partners

As shown in the table, the Core maritime ports of Bar and Durres have a high degree of compliance for most of the indicators.

Non-compliance for the port of Durres relates to the partial rail connection, due to the fact that currently only the eastern portterminal is linked to the national railway network, therefore its multimodal dimension at the moment is very limited. As for compliance with VTMIS, according to the available data, VTMIS has not yet been implemented in Albania. Regarding compliance with clean fuel availability, the Port of Durres is non-compliant and at the moment there are no planned projects to address this. The Port of Durres is compliant in road connection, facilities for ship-generated waste and terminal availability. CEMT connection to inland waterways is not applicable for the Port of Durres.

The Port of Bar is compliant with the indicators for rail connection, road connection, facilities for ship-generated waste and terminal availability. Non-compliance for this port concerns clean fuel availability, while VTMIS is partially compliant as it has been partially implemented in Montenegro. Currently, the Port of Bar is also non-compliant with availability of clean fuels, and no planned projects have been reported to address the failure to comply with this indicator.

❖ TEN-T Comprehensive Network Compliance

In terms of the comprehensive network, regarding inland waterway and maritime transport, this relates only to the Port of Vlore in Albania, while there are no comprehensive inland waterway ports identified in the extended TEN-T. The table below shows the status of compliance of the Port of Vlore in 2020 according to the key performance indicators for ports.

Table 23. Compliance for the port of Vlore in 2020

Port name	Core/ Comprehensive Network	Rail connection	Road connection	CEMT Connection	Clean fuels availability	Facilities for ship generated waste	Terminal availability	VTMIS
Vlore	Comprehensive	No	Yes	N/A	N/A	Yes	Yes	No

Source: Transport Community Permanent Secretariat, based on direct inquiry to Regional Partners

As shown in the table and according to the data received from the Regional Partner, the Port of Vlore is compliant with the indicators: facilities for ship-generated waste, road connection and terminal availability, while for rail connection and VTMIS, it is not compliant, as Albania has not yet implemented VTMIS at national level. The indicators CEMT connection and clean fuels availability are not applicable, as no inland waterways connection exists at the port and the Port of Vlore is a comprehensive port (clean fuels availability is applicable only to Core Network ports).

❖ *Overall compliance assessment*

Albania

Regarding VTMIS in Albania, efforts are still needed to complete the institutional and legislative framework. The required interventions concern institutional/legal, organisational and technical aspects that would lead to proper implementation of VTMIS. Government agencies in Albania are committed to continuing their efforts for VTMIS implementation, and progress is expected in the coming years. There are plans to relocate the Port of Durres to Porto Romano. The new port masterplan will need to address the TEN-T requirements of road and rail connection, planned to be compliant in the new port. Availability of clean fuels might be considered through developing the green ports concept which would improve environmental sustainability. This will be done through the implementation of the Action Plan for Waterborne Transport and Multimodality. Regarding the Port of Vlore, there are currently no projects planned to address the problem of rail connection.

Bosnia and Herzegovina

Regarding non-compliance with the indicator for minimum draught on a critical section of the Sava river in Bosnia and Herzegovina, a prior condition for initiating the Sava River Integrated Development Programme while addressing the draught problem is completion of demining the right bank of the Sava. The project is in its preparatory phase and will start in 2021.

Regarding the Ports of Brcko and Bosanski Samac, according to data received in a meeting with port representatives, no plans have been made so far to address non-compliance with the alternative fuel availability indicator at the ports.

Developing ideas and studies for an alternative clean fuel supply facility will be considered through the implementation of the Transport Community Action Plan for Waterborne Transport and Multimodality. Any potential future decision on the location of LNG refuelling points at ports should be based on a cost-benefit analysis including an examination of the environmental benefits and a realistic assessment of the demand and prospects for utilisation of LNG-powered vessels.

Montenegro

Regarding VTMIS in Montenegro, as mentioned above, this has been partially implemented. Required interventions concern institutional/legal, organisational and technical aspects that would lead to proper implementation of VTMIS and of other systems in the future. The process of deploying VTMIS is divided into two phases.

During the first phase, VTMIS sensor equipment was installed (radar, VHF transceivers, radio goniometers, AIS equipment, meteorological radio links, diesel generators) at locations in Mavrijan (Ulcinj), Crni Rt (Bar) and Obosnik (Herceg Novi), while server equipment was installed at the coastal station of Dobre vode.

The second phase of the VTMIS will include the missing sensors (cameras) at locations where VTMIS equipment from Phase I project has been installed (Mavrijan, Crni Rt and Obosnik), as well as new equipment to be installed at Boka Kotorska locations (radars, cameras and radio links) and Skadar Lake (radar, cameras, VHF transmitters and radio links).

Similarly to the Port of Durres, addressing non-compliance with availability of clean fuels at the Port of Bar might be considered through developing the concept of green ports to improve environmental sustainability. This will be done through implementation of the Action Plan for Waterborne Transport and Multimodality.

Serbia

The Serbian ports of Novi Sad and Belgrade arealready compliant with all indicators apart from cean fuels availability. This might be addressed by developing ideas and studies for an alternative clean fuel supply facility through implementation of the Transport Community Action plan for Waterborne Transport and Multimodality. Any future decision on the location and the number of LNG refuelling points at ports should be based on a cost benefit analysis including an examination of the environmental benefits and a realistic assessment of demand and prospects for utilisation of LNG-powered vessels.

Regarding non-compliance with RIS onthe Tisa river, according to the Republic of Serbia's Strategy on Waterborne Transport Development 2015 – 2025, it has been mentioned that in view of the favourable configuration of the terrain and the relatively small financial resources necessary for expanding the existing RIS system, RIS should be fully implemented along the entire length of the water course, especially in light of the fact that it has become a river of international importance.

3.2.4 Air transport

As with the other transport modes, the legal framework for the development of the Indicative Extension of TEN-T Core and Comprehensive Network regarding airports,is contained in Regulation (EU) 1315/2013 together and Commission Regulation (EU) 2016/758 amending Regulation (EU) No 1315/2013.

Currently ten airports (Tirana, Sarajevo, Banja Luka, Pristina, Podgorica, Skopje, Ohrid, Belgrade, Kraljevo, Nis) are part of TEN-T Comprehensive in the Western Balkans, of which six are located on the Core Network (Tirana, Sarajevo, Podgorica, Skopje, Belgrade).

Figure 27. Indicative extension of TEN-T Comprehensive and Core Airports to the Western Balkans Region[15]

❖ *Airport Compliance indicators*

The compliance indicators for airports derive from TEN-T Regulation 1315/2013 where they are mentioned as infrastructure requirements.

In this report, the following compliance indicators for airports in the Western Balkans will be assessed:

a) Rail connection;
b) Clean fuels - applicable only to Core Network Airports;
c) Terminal availability - at least one terminal is open to all operators in a non-discriminatory way and applies transparent, relevant and fair charges.

[15]Source: COMMISSION DELEGATED REGULATION (EU) 2016/758 of 4 February 2016 amending Regulation (EU) No 1315/2013 of the European Parliament and of the Council as regards adapting Annex III thereto

❖ *Primary infrastructure characteristics and equipment*

TEN-T Core Network

Airport Belgrade

Belgrade Airport occupies a relatively favourable position, as there are only three major airports within a range of 450 km (Budapest, Sofia and Zagreb), and only 4 small ones (Timisoara, Tuzla, Osijek and Nis), as opposed to Zagreb (and Ljubljana) which have to contend with 7 large airports (Venice, Vienna, Budapest, Bratislava, Belgrade, Split, Ljubljana), and 12 minor ones (Trieste, Treviso, Verona, Graz, Salzburg, Linz, Klagenfurt, Rijeka, Pula, Zadar, Tuzla and Osijek). This enables Belgrade to take in passengers from a wider region, while potential passengers to Zagreb can be dispersed to the other large or small airports. The airport's capacity of 5.5 million passengers has not yet been realised.. Belgrade is 87th airport in Europe in passenger numbers. Prior to the COVID-19 pandemic, Belgrade already had 51 non-stop air routes. In addition, it has the advantage of being almost the only major airport in Serbia. Nis and Kraljevo airports are still at the development stage. That is why the vast majority of air traffic in Serbia goes through Belgrade[16]. The Vinci Airports international company took over the management of Nikola Tesla Airport on 21 December 2018 by concession.[17]

Table 24. Airlines and direct pax operations at Belgrade Airport 2020

Total Airlines	**28**
Airlines operating direct scheduled flights	27
Airlines operating charter flights*	1
Total non-stop passenger destinations	**65**
Western Balkans	8
EU member states	37
Other destinations	20

- Airlines operating both scheduled and charter flights show only direct scheduled flights

[16]SEETO/RCC, "Cost-benefit study for enhancing Air Transport Connectivity in SEE, 2016 Transport Connectivity in SEE"
[17]https://www.ekapija.com/news/2347477/francuski-vinci-zvanicno-preuzima-aerodrom-nikola-tesla

Airport Podgorica

In 2006 Podgorica Airport opened a modern terminal building that meets the needs of current passenger numbers and anticipated increase in the near future. Oscillation in passenger traffic has been considerable, but over the past five years numbers have continued to grow almost to the level of Sarajevo airport. For a small country, Montenegro has a huge number of tourists[18]. In December 2020, Montenegro Airlines went into liquidation, leaving the airport without a home carrier.[19]

Pristina International Airport

Pristina International Airport is managed and operated by Limak and Aeroports de Lyon. The consortium took over following a public private partnership agreement signed in 2010. Since then, Limak has built a new 42.000 m^2 terminal with adjoining buildings capable of handling 4 million passengers[20]. The consortium will continue to manage and operate Pristina International Airport for 20 years from the date of the agreement, transferring its assets in toto to the Government of Kosovo after this period. Airport traffic is purely international. In terms of infrastructural limitations, the current runway (2.501m) is too short for most code E aircraft. Furthermore, the number of parking stands seems on the low side and may limit potential for further growth[21].

Sarajevo International Airport

Sarajevo International Airport is the main international airport in Bosnia and Herzegovina, serving the capital, Sarajevo, and the rest of the country. The Airport is located close to the city, only 6.1 km southwest of Sarajevo railway station. Traffic levels are stable, as is the structure of air carriers operating into and out of the airport[22]. Sarajevo Airport has an annual capacity of 1,000,000 passengers. In 2020, numbers reached 1,143,680,, thereby exceeding terminal capacity[23]. In view of this, the airport is looking at the reconstruction of the terminal building B with a projected capacity of 1 million passengers per year, doubling current capacity of the airport to 2 million passengers per year. The last reconstruction took place in 1998. The runway is 2,600 m long and 45 m wide. There are 7 parking slots for aircraft types A320, 321, 319, B727, B737, and B757. The terminal building has 12 counters and five gates[24]. Sarajevo has major operational problems inwinter when traffic is blocked for days, sometimes weeks. This is the only capital airport in the region which cannot provide 24-hour landing and take-off, due to ICAO rules of noise restriction[25].

[18]SEETO/RCC, "Cost-benefit study for enhancing the Air Transport Connectivity in SEE, 2016 Transport Connectivity in SEE"
[19]https://emerging-europe.com/business/montenegro-airlines-ends-operations/
[20]SEETO/RCC, "Cost-benefit study for enhancing the Air Transport Connectivity in SEE, 2016 Transport Connectivity in SEE"
[21]Study on Orient / East-Med TEN-T Core Network Corridor 2nd Phase Final Report on the related Core Network in the Western Balkan countries, December 2017
[22]Study on Mediterranean TEN-T Core Network Corridor 2nd Phase Final Report on the related Core Network in the Western Balkan countries Mobility and Transport, January 2018
[23]https://www.sarajevo-airport.ba/
[24]Study on Mediterranean TEN-T Core Network Corridor 2nd Phase Final Report on the related Core Network in the Western Balkan countries Mobility and Transport, January 2018
[25]SEETO/RCC, "Cost-benefit study for enhancing the Air Transport Connectivity in SEE, 2016

Skopje International Airport

In 2008, the Macedonian Government granted TAV Airport holding company-the concession for two Macedonian airports - Skopje and Ohrid. TAV's key investments at Skopje have been a new terminal, new administration building, new cargo terminal, an extended runway. In 2011, TAV a modern terminal opened for up to 6 million passengers, a capacity that may not be achieved in the near future. However, the airport recorded a rapid increase in passenger numbers which rose by 20% annuallybetween 2013 and 2015[26]. Since 1990, passenger traffic has grown from 312,492 to 2,358,548 in 2019.[27]

Tirana International Airport

In 2005, Tirana International Airport took over Rinas Airport which was handling about 600,000 passengers at the time[28]. In December 2016, the airport announced that it had served 2 million passengers in 2016. By 2019, this had increased to 3.3 million passengers, showing significant growth. The airport has a runway length of 2,750 m and a width of 45 m. Over 70 million EUR has been invested since 2005 in development and expansion.[29]

TEN-T Comprehensive Network

Banja Luka International Airport

Banja Luka Airport is located at Mahovljani, 23 km from Banja Luka near the exit to the Banja Luka - Gradiska highway. AirSerbia and budget airline Ryanair operate frequent flights, Ryanair to Brussels, Berlin, Memmingen and Stockholm, AirSerbia the short route from Banja Luka toBelgrade. From June to September, charter operators run flights to Greece and Turkey. Runway length is 2,500 m, width 45 m. There are 4 parking slots for aircraft types DC-9 and A320[30]. Passenger transport grew from 22,793 in 2015 to 149.968 in 2019. With 2,086 take-offs in 2015 and 2,464 in 2019, utilisation has greatly improved[31]. Due to the COVID-19 pandemic, as in most other airports, the number of passengers declined to 43,904 in 2020.[32]

Ohrid St. Paul the Apostle Airport

In 2008, the Macedonian Government granted TAV Airport holding company the concession for two Macedonian airports - Skopje and Ohrid. The runway at Ohrid Airport is 2,550 m long and 45 m wide. There are 13 parking spaces for various types of aircraft, from general

Transport Connectivity in SEE"
[26]SEETO/RCC, "Cost-benefit study for enhancing the Air Transport Connectivity in SEE, 2016 Transport Connectivity in SEE"
[27]http://www.airportsbase.com/new/index.php?ItemIndex=10508
[28]SEETO/RCC, "Cost-benefit study for enhancing the Air Transport Connectivity in SEE, 2016 Transport Connectivity in SEE"
[29]https://www.tirana-airport.com/
[30]https://www.bnx.aero/
[31]Republika Srpska Institute of statistics, transport and communications, 2020
[32]http://www.bhdca.gov.ba/english/dokumenti/Statistic/2020_eng.pdf

aviation to TU 154. The last reconstruction of Ohrid Airport was in 2004, when an up-to-date lighting system was installed, together with a new system of access lights. Other features of the airport enable take-off, landing, manoeuvring and acceptance of aircraft of the smallest category, up to the reference TU 154 type.[33]

Nis Constantine the Great Airport

On 12 October 2003, Nis Airport was reopened for air traffic with the landing of a JAT aircraft type B737-300 on the route from Belgrade. Thanks to a donation from Norway, the runway was reconstructed and expanded, a new control tower was built and damage to other facilities was repaired. A passenger terminal was also added[34]. However, the airport still has not managed to ensure stable passenger flow and this varies significantly throughout years as seen in table below.

Table 25. Passenger flow at Nis Airport

Year	2013	2014	2015	2016	2017	2018	2019	2020
Number of passengers	21700	1335	36258	124917	331582	351581	422255	154233
Aircrafts	497	271	526	722	1417	1417	1967	1011

Morava Airport (Kraljevo)

Morava airport was primarily used for military purposes. In 2011, airport started with modernisation for civil transport which encompassed: construction of a new control tower and airport terminal for the Morava civil airport in Tavnik. Addtionally, in 2019, terminal building was further equipped and runway expaneded.[35]

Construction of a new control tower, a thermal power block and a port building for the Morava civil airport in Tavnik, separate from the military, as well as works on arranging the runway, which lasted until 2016. In 2019, the equipment of the port building was arranged, the runway was expanded and upholstered, and the vehicle fleet was formed for the needs of all services necessary for functioning.[36]

[33]https://www.caa.gov.mk/%d0%b0%d0%b2%d0%b8%d0%be-%d0%b8%d0%bd%d0%b4%d1%83%d1%81%d1%82%d1%80%d0%b8%d1%98%d0%b0/
[34]http://nis-airport.com/en/history/
[35]https://kvo.aerodromisrbije.rs/istorija-aerodroma-morava/
[36]https://kvo.aerodromisrbije.rs/istorija-aerodroma-morava/

❖ *Overall compliance assessment*

Conclusion for each compliance standard is provided below.

a) Connection to other modes

A key condition to ensure interoperability of the airports of the TEN-T Network is their connection to the railway network. Currently, no airports have direct railway connection.

Table 26. Lists the examined airports with related road and rail connections

Road and rail connection status of Airports		Connection to Rail	Connection to Motorway/Expressway
Albania	Tirana	No	Yes
Bosnia and Herzegovina	Sarajevo	No	Yes
	Banja Luka	No	Yes
North Macedonia	Skopje	No	Yes
	Ohrid	No	Yes
Kosovo	Pristina	No	Yes
Montenegro	Podgorica	No	Yes
Serbia	Beograd	No	Yes
	Nis	No	Yes
	Kraljevo	No	Yes

Source: Transport Community Permanent Secretariat own assessment

b) Availability of alternative fuels

Currently, no fixed storage tank facilities for aviation biofuel are reported to be in use at Podgorica, Belgrade, Skopje or Pristina.[37] It should be pointed out that this criterion is to be applied according to market requirements and that airports need to beprepared to make alternative clean fuels available when the need arises, as cited in the regulation, 'for air transport infrastructure: capacity to make available alternative clean fuels'.

Regarding availability of alternative clean fuels for airport ground services (e-mobility, hydrogen, CNG, LPG), Bosnia and Herzegovina and Serbia reported some usage of alternative fuels for running the airports and ground services at Sarajevo, Belgrade, Nis and Kraljevo. Data is not available for other Regional Partners.

[37]Study on Orient / East-Med TEN-T Core Network Corridor 2nd Phase Final Report on the related Core Network in the Western Balkan countries, December 2017

c) **Terminal availability**

All airports are open to international traffic with foreign air carriers operating in and out. Some airports such as Sarajevo reached or came close to reaching their capacity limit before the COVID-19 pandemic. However, since the pandemic severely affected air transport, it will be easier to assess actual capacity limits and utilisation following the recovery of the air market.

3.3 Overall conclusions of the TEN-T compliance assessment exercise

The main purpose of this report is to provide a baseline for future monitoring of the development of the Core and Comprehensive Network in the Western Balkans region.

In accordance with data on network compliance and projects provided by the Regional Partners and analysis by the Transport Community Permanent Secretariat, the following general conclusions may be drawn:

a) TEN-T compliance rate is generally good in terms of infrastructure profile and design parameters, with wide variations in transport modes;

b) However, gaps are still significant, requiring well-targeted and calibrated investment over the next few years in order to achieve full compliance by the time limits set by Regulation 1315/2013;

c) There is still much work to be done on all compliance standards requiring the systematic implementation of soft measures under the general framework provided by the relevant Directives (alternative fuels, safety, tunnels, ERTMS).

4. TEN-T RELATED PROJECTS

4.1 Methodological aspects

The reason for collecting project-related data under the current exercise was two-pronged. Firstly, such data is meantto provide an overview of the overall efforts currently undertaken by the Regional Partners to upgrade the indicative extensions of the TEN-T Core and Comprehensive Corridors in the Western Balkans. Secondly, it is aimed at delivering the basic information which would enable a projection of TEN-T compliance for the entire network in the years to come.

In due observance of the above, "TEN-T projects" were defined under the current exercise as any greenfield/brownfield investment or soft/policy measure cumulatively fulfilling the following conditions:

- Referring to certain section(s) of the TEN-T Network;
- Tackling at least one of the relevant TEN-T compliance indicators.

In order to keep compliance forecasting on the right track, only ongoing projects were considered (i.e., projects with full financing secured).

The data collection process was organised accordingly and the following information requested for each individual project:

- **General project data** (physical object, cost, length – if lineal);
- **Project implementation status** (in order to provide a forecast of TEN-T compliance rates, only projects with secure financing have been considered);
- **Targeted TEN-T section** (information intended to enable updating of the TEN-T compliance status after project implementation);
- **Targeted TEN-T compliance indicators before and after project implementation** (thus enabling updating of TEN-T compliance status on the corresponding TEN-T section after commissioning the project);
- **Estimated completion date** (information intended to enable forecasting of the TEN-T compliance status for the years to come).

4.2 Infrastructure projects

4.2.1 Railway projects

Rail has been overshadowed by the road sector in overall investment for the past 15 years. While ca. 80% went on roads, the railway sector only received ca. 12% of total investment.

The situation has undergone a change, and the priority of railway transport has become a given. Nowadays, rail system improvement is an integral part of recently published strategic documents of the European Commission where priority is given to greener and more efficient transport modes such as the railway. It is anticipated that the principle will be mirrored by the Transport Community's new strategies and concepts.

The EU has been funding the construction and upgrade of transport corridors across its member states and neighbouring countries in order to remove bottlenecks and promote sustainable and seamless transport. Promoted under the Trans-European Transport Network (TEN-T) policy, the projects contribute to the completion of the Core Network that will connect the EU and the region.

Overall, the Transport Community Permanent Secretariat has identified ten finance-secured or ongoing rail projects. The length of rail sections currently under various forms of upgrading is **877.8 km** (all on the Core Network). Priority is been given to the Core Network. The projects' overall value is **3,687 billion EUR**.

All 10 identified rail transport projects in the region should be completed by 2027, based on data provided by Regional Partners.

An overview of TEN-T projects currently ongoing for each Regional Partner is given in **Error! Reference source not found.**.

A detailed overview of railway projects in all Regional Partners will be given independently in Annex I of this document.

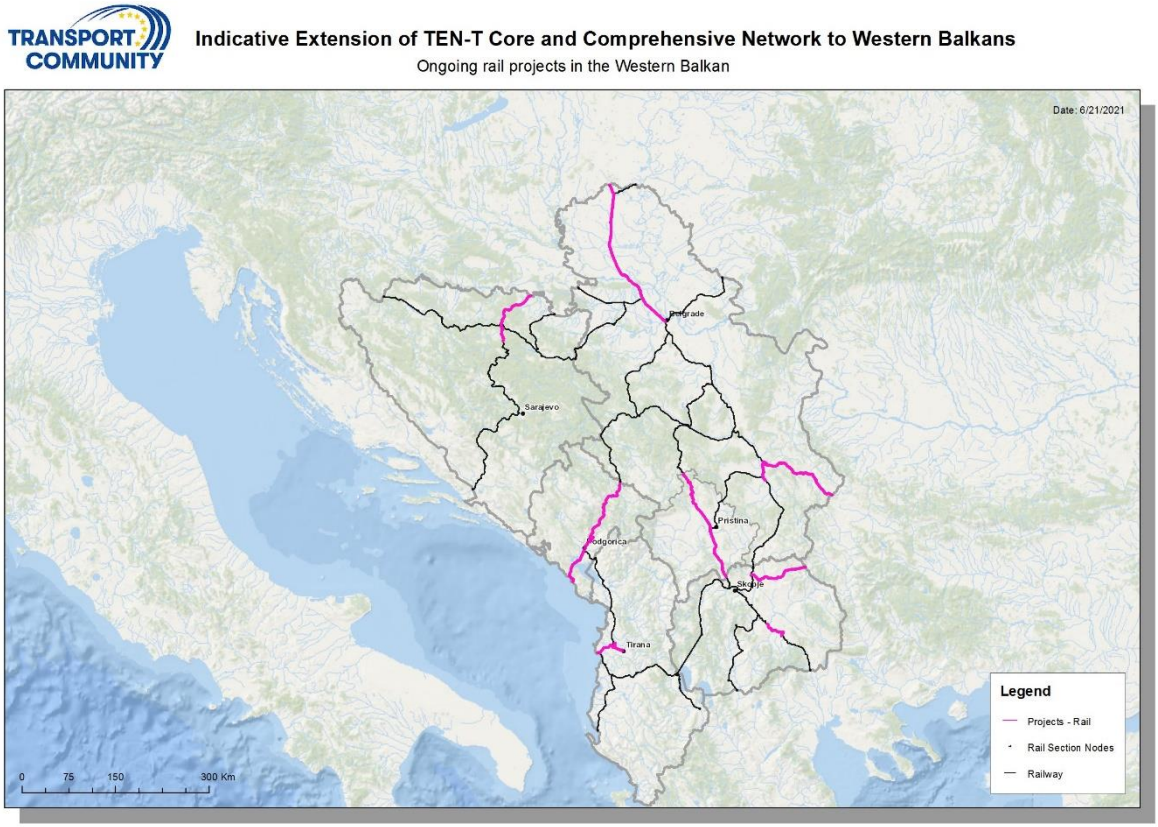


Figure 28. Ongoing Rail Projects Map

4.2.2 Road projects

The road sector has traditionally been the beneficiary of the bulk of overall investment directed towards transport infrastructure upgrading.

While the situation may change in the future in view of the increased priority now given to competing “greener” transport modes, the infrastructure gap still to be closed in the road sector remains significant. This is reflected in the total number of projects currently ongoing in the region.

Overall, the Transport Community Permanent Secretariat has identified 47 road projects (37 on the Core Network and 10 on the Comprehensive Network). The combined length of road sections currently under various forms of upgrading is 915,66 km (621,66 km on the Core and 294 km on the Comprehensive Network). The priority given to the Core Network is also reflected in the projects’ overall value (8,000.21 million EUR for the entire network, of which 6,086.81 million EUR on the Core and 1,913.4 million EUR on the Comprehensive Network).

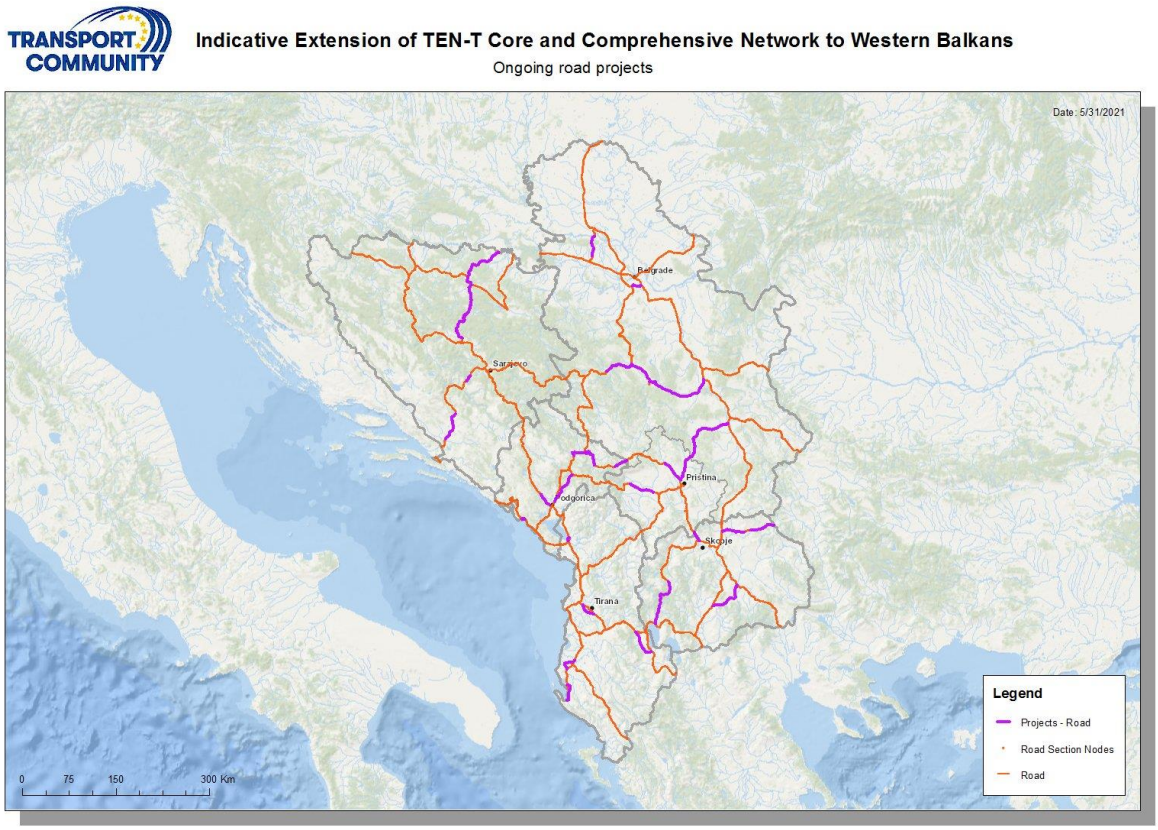


Figure 29. Ongoing Road Projects Map

4.2.3 IWW and Maritime projects

IWW projects

Although many projects are ongoing in the inland waterway sector, especially in Serbia, only a few address the TEN-T key indicators for compliance. One that does address compliance of the permissible draught is *River Training and dredging works on critical sectors on the Danube river between Backa Palanka and Belgrade.* This project will have a positive impact on compliance with the permissible draught following implementation. Total cost of the project is 9.0 million EUR and it is expected to be finished in 2021. There are also several projects in Bosnia and Herzegovina at the Port of Brcko. These are important; however, they do not address any TEN-T indicators.

Maritime projects

There are several planned and ongoing projects in the maritime sector, but not all of them tackle the TEN-T indicators. One which is important to mention is the ongoing project at the Port of Durres (*Rehabilitation of Quays 1 and 2 on the Western Terminal of the Port of*

Durres) which is financed by WBIF. Estimated total investment is 62.4 million EUR, with an EU contribution of 27.05 million EUR, an EBRD loan of 25 million EUR and a Beneficiary contribution of 9.3 million EUR. Regarding the future outlook of Port of Durres as well as its TEN-T compliance, the overall plan of the Albanian government to relocate the existing port to the Port of Romano has to be taken into account. The relocation and its impact on TEN-T compliance will be closely monitored in the years to come.

4.2.4 Airport projects

Currently, three ongoing projects address the TEN-T compliance indicators for airports: Sarajevo airport Terminal B Extension and Modernisation, Pristina airport - Extension of the 500 m apron, and connection of the airport to the railway network in Tirana, Albania. The Sarajevo project aims to provide more capacity for the airport. Estimated project cost is 26.7 million EUR and the deadline for completion is December 2021. The purpose of the Pristina airport project is to extend the runway by 500 m and upgrade the ILS system in oder to enable landing by larger aircraft. Estimated project costs are approximately 30 million EUR and the project should be completed in 2021. Rehabilitation and construction of the 41 km Durres - Tirana line on the Core network includes connecting Tirana airport to the railway line. The cost of the project is estimated at 90.45 million EUR[38].

[38]Data on projects missing for Montenegro

Table 27. Projects overview

Corridor/ Route/Node	Regional Participant	Name of the project	Core/Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
Road projects							
Corridor Vc	Bosnia and Herzegovina	Construction of the Svilaj - Odzak Motorway	Core	New infrastructure	10	109.5	2021
Corridor Vc	Bosnia and Herzegovina	Construction of the Johovac - Vukoslavije Motorway	Core	New infrastructure	36	336.6	2025
Corridor Vc	Bosnia and Herzegovina	Construction of the Johovac - Rudanka Motorway	Core	New infrastructure	5.5	78.4	2021
Corridor Vc	Bosnia and Herzegovina	Construction of the Rudanka - Putnikovo Brdo Motorway	Core	New infrastructure	5.2	164.1	2023
Corridor Vc	Bosnia and Herzegovina	Construction of the Putnikovo Brdo - Medakovo Motorway	Core	New infrastructure	8.5	60	2023
Corridor Vc	Bosnia and Herzegovina	Construction of the Medakovo - Ozimica Motorway	Core	New infrastructure	22	160.23	2023
Corridor Vc	Bosnia and Herzegovina	Construction of the Ozimica - Poprikuse Motorway	Core	New infrastructure	12.9	172.7	2023
Corridor Vc	Bosnia and Herzegovina	Construction of the Poprikuse - Nemila Motorway	Core	New infrastructure	5.5	164.8	2023
Corridor Vc	Bosnia and Herzegovina	Construction of the Nemila - Vranduk Motorway	Core	New infrastructure	5.7	34.6	2022
Corridor Vc	Bosnia and Herzegovina	Construction of the Vranduk - Ponirak Motorway	Core	New infrastructure	5.3	65.5	2021
Corridor Vc	Bosnia and Herzegovina	Construction of the Ponirak - Vraca Motorway	Core	New infrastructure	3.4	60	2022
Corridor Vc	Bosnia and Herzegovina	Construction of the Vraca - Donja Gracanica Motorway	Core	New infrastructure	3.9	57.6	2021
Corridor Vc	Bosnia and Herzegovina	Construction of the Donja Gracanica - Klopce Motorway	Core	New infrastructure	5.8	92	2020
Corridor Vc	Bosnia and Herzegovina	Construction of the Klopce - Drivusa Motorway	Core	New infrastructure	2.2	31	2020
Corridor Vc	Bosnia and Herzegovina	Construction of the Tarcin - Ivan Motorway	Core	New infrastructure	6.9	124.2	2022
Corridor Vc	Bosnia and Herzegovina	Construction of the Mostar North - Mostar South Motorway	Core	New infrastructure	15.4	190	2023

Corridor Vc	Bosnia and Herzegovina	Construction of the Mostar South - Tunnel Kvanj Motorway	Core	New infrastructure	9.2	63	2023
Corridor Vc	Bosnia and Herzegovina	Construction of the Tunnel Kvanj - Buna Motorway	Core	New infrastructure	5.2	98	2023
Corridor Vc	Bosnia and Herzegovina	Construction of the Buna - Pocitelj Motorway	Core	New infrastructure	7.2	22	2021
Corridor Vc	Bosnia and Herzegovina	Construction of the Pocitelj - Zvirovici Motorway	Core	New infrastructure	11.1	84.6	2022
Corridor VIII	Albania	Construction of Tirana bypass (Kashar - Vaqarr - Mullet)	Core	New infrastructure	21.5	150.88	2025
Corridor VIII	Albania	Construction of Qukes - Qafe Plloce Expressway	Comprehensive	New infrastructure	40	211.8	2021
Corridor VIII	Albania	Construction of Vlore bypass	Comprehensive	New infrastructure	29	38	2021
Corridor VIII	North Macedonia	Construction of Rankovce – Kriva Palanka Expressway	Core	New infrastructure	23	85.5	2022
Corridor VIII	North Macedonia	Rehabilitation and upgrade of Kriva Palanka - Deve Bair road section	Core	Reconstruction/rehabilitation	13.2	13.67	2021
Corridor VIII	North Macedonia	Construction of the Bukojcani – Kicevo Motorway section	Core	New infrastructure	10.7	120	2024
Corridor VIII	North Macedonia	Construction of the Kicevo - Ohrid Motorway	Core	New infrastructure	57	598	2021
Corridor X	North Macedonia	Construction of express road Raec bridge-Drenovo	Comprehensive	New infrastructure	10	33.6	2023
Corridor X	Serbia	Construction of Belgrade bypass (sector B)	Core	New infrastructure	19.5	207	2021
Corridor Xd	North Macedonia	Construction of the road section Drenovo-Interchange Gradsko	Comprehensive	New infrastructure	15.5	23	2023
Route 2b	Albania	Construction of Shkodra Bypass	Comprehensive	New infrastructure	4.8	14	2021
Route 2b	Montenegro	Construction of Budva bypass	Core	New infrastructure	13	187.39	2024
Route 2b	Montenegro	Reconstruction and widening of road section M-3 Danilovgrad – Podgorica; length: 15 km (2+2 traffic lanes), including works on 5 bridges and 5 roundabouts.	Comprehensive	Reconstruction/rehabilitation	15	23	2022
Route 2c	Albania	Construction of Fier bypass	Core	New infrastructure	19.5	64	2021
Route 4	Montenegro	Construction of motorway Bar - Boljare (Matesevo - Smokovac section)	Core	New infrastructure	40.8	868	2021
Route 4	Serbia	Construction of Preljina - Pozega motorway	Core	New infrastructure	30.96	450	2022
Route 5	Serbia	Construction of Pojate - Preljina	Comprehensive	New infrastructure	112.3	745	2023

		Motorway					
Route 6	North Macedonia	Construction of Blace – Skopje (Stenkovec Interchange) Motorway Section	Core	New infrastructure	12.5	120.8	2025
Route 6	Kosovo	Construction of Pristina - Mitrovica Highway	Core	New infrastructure	20	60	2025
Route 6	Montenegro	Reconstruction and widening of road section M-2 Rozaje - Spiljani, including works on 5 bridges and 10 tunnels	Comprehensive	Reconstruction/rehabilitation	20	19	2022
Route 6	Montenegro	Reconstruction and widening of road section M-2 Berane - Bijelo polje - Mojkovac, lenght: 43 km	Core/Comprehensive	Reconstruction/rehabilitation	42	36	2023
Route 6b	Kosovo	Construction of the Kijevë- Zahaq highway	Comprehensive	New infrastructure	31	200	2025
Route 7	Kosovo	Construction of Pristina - Merdare Motorway	Core	New infrastructure	26	260	2025
Route 7	Serbia	Construction of Nis (Merosina) - Merdare Highway (Beloljin - Plocnik)	Core	New infrastructure	33	255	2026
Route 7	Serbia	Construction of Nis (Merosina) - Merdare Highway (Plocnik - Merdare)	Core	New infrastructure	36.9	437	2027
Route 9a	Serbia	Construction of Novi Sad - Ruma Expressway	Comprehensive	New infrastructure	16.4	606	2025
Railway projects							
Corridor Vc	Bosnia and Herzegovina	Corridor Vc-Overhaul and modernisation of the railway section Šamac – Doboj – Rječica	Core	Reconstruction/rehabiitation	85	162.5	2025
Corridor VIII	Albania	Rehabilitation of the railway Durres-Tirana Public transport terminal PTT and construction of the new Tirana-Rinas branch line	Core Network	New infrastructure, Reconstruction/rehabilitation	41	90.45	2023
Corridor VIII	North Macedonia	Rehabilitaton of Eastern Part of Rail Corridor VIII-PHASE I-Section Kumanovo-Beljakovce	Core Network	Reconstruction/rehabiitation	30.8	48.9	2022
Corridor VIII	North Macedonia	Rail Corridor VIII-PHASE 2-Section Beljakovce-Kriva Palanka	Core Network	New infrastructure, Reconstruction/rehabilitation	34	145	2024
Corridor VIII	North Macedonia	Rail Corridor VIII-PHASE 3-Section Kriva Palanka -Deve Bair, border with RB	Core Network	New infrastructure	34	420	2026

Corridor X	Serbia	Reconstruction and modernisation of rail line (Nis) Brestovac - Presevo - state border with North Macedonia	Core Network	Reconstruction/rehabiitation	23	60	2023
Corridor X	North Macedonia	Project for track renewal works on the section Nogaevci-Negotino	Core Network	Reconstruction/rehabiitation	31	9.6	2022
Corridor Xb	Serbia	Reconstruction and modernisation of rail line Belgrade - Novi Sad - Subotica - state border with Hungary	Core Network	New infrastructure, Reconstruction/rehabilitation	183	1994	2024
Corridor Xc	Serbia	Reconstruction and modernisation of Nis - Dimitrovgrad railway line	Core Network	New infrastructure, Reconstruction/rehabilitation	108	268	2024
Route 4	Montenegro	Rehabilitation railway line "Vrbnica-Bar" (rail Route 4)	Core Network	Reconstruction/rehabiitation	159	244	2024
Route 10	Kosovo	Railway rehabilitation and modernisation Route 10	Core	Reconstruction/rehabiitation	148	245	2025
Airport projects							
Tirana	Albania	Rail connection to airport (construction of new Tirana-Rinas branch line and rehabilitation Durres-Tirana)	Core	Reconstruction/rehabilitation	41	90.45	2023
Sarajevo	Bosnia and Herzegovina	Sarajevo airport Terminal B extension and modernisation	Core	Reconstruction/rehabilitation	/	26.7	2021
Prishtina	Kosovo	Pristina airport - extension of the 500 m airfield apron	Core	Construction/reconstruction	/	30	2021
Inland waterway projects							
Danube	Serbia	River Training and dredging works of critical sectors on the Danube between Backa Palanka and Belgrade	Core	Reconstruction/rehabilitation	125	9	2021
Maritime projects							
Durres	Albania	Rehabilitation of Quay 1 and Quay on the Western Terminal of Port of Durres	Core	Reconstruction/rehabilitation	N/A	62.4	2023

5. TEN-T KEY PERFORMANCE INDICATORS PROGRESS FORECAST

foreseen

5.1. Railway indicators

As most mature and ongoing projects are expected to be completed by 2027, the following forecast for each TEN-T performance indicator will refer to this period. It takes into consideration that other parts of the rail network not undergoing improvement will remain at least at their present level. Additionally, the network has been extended as a result of the projects, which limits the improvement of some TEN-T criteria.

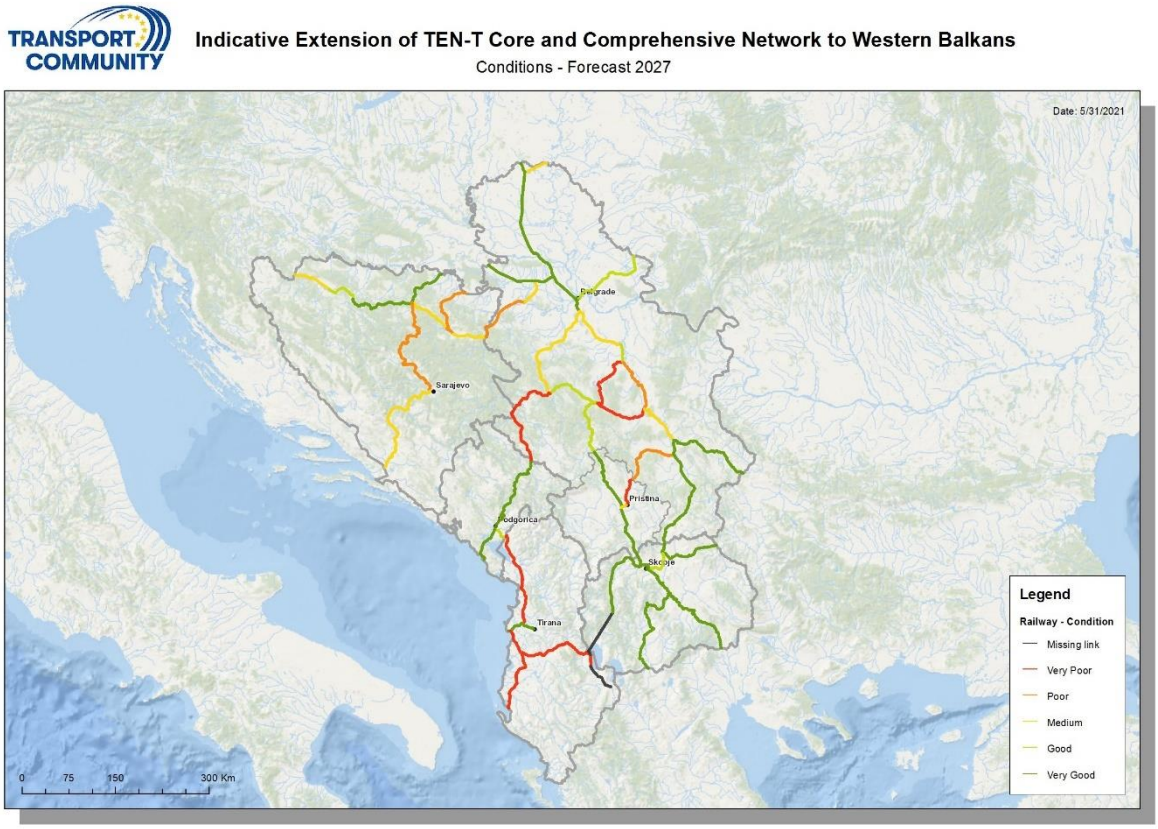


Figure 30. Rail Infrastructure Conditions Forecast 2027 Map

a) Electrification

One of the most critical railway TEN-T performance indicators is railway network electrification. Enhanced efficiency, lower green gas emissions and low operation and maintenance costs are railway main ”green” charateristics deriving from the electrification of the railway network.

If we considerthe progress forecast for electrification, it is obvious that the electrified Core network will grow by slightly more than 10% and will reach 83.31%. It is therefore necessary to boost plans for total Core network electrification in the region.

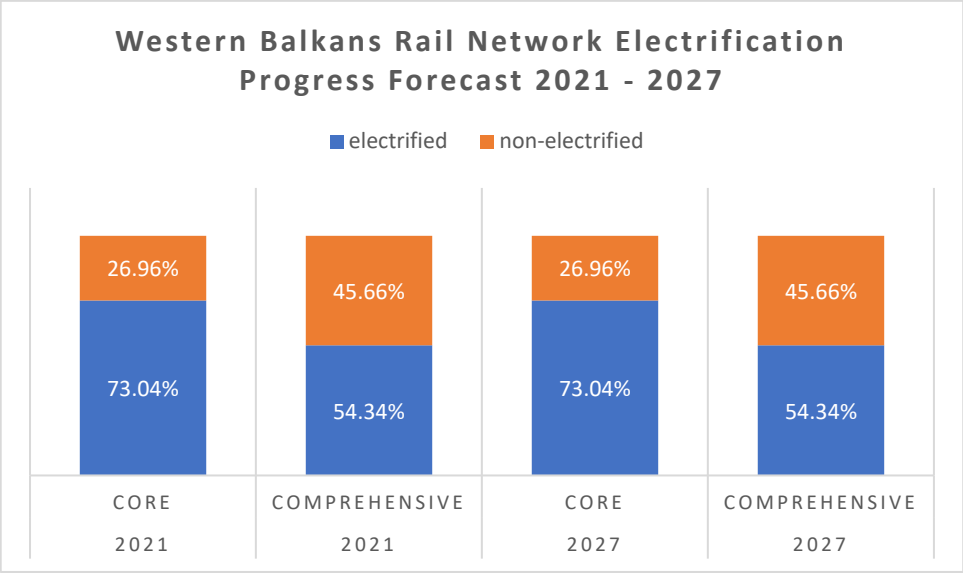


Figure 31. Western Balkans Rail network electrification progress forecast for 2027

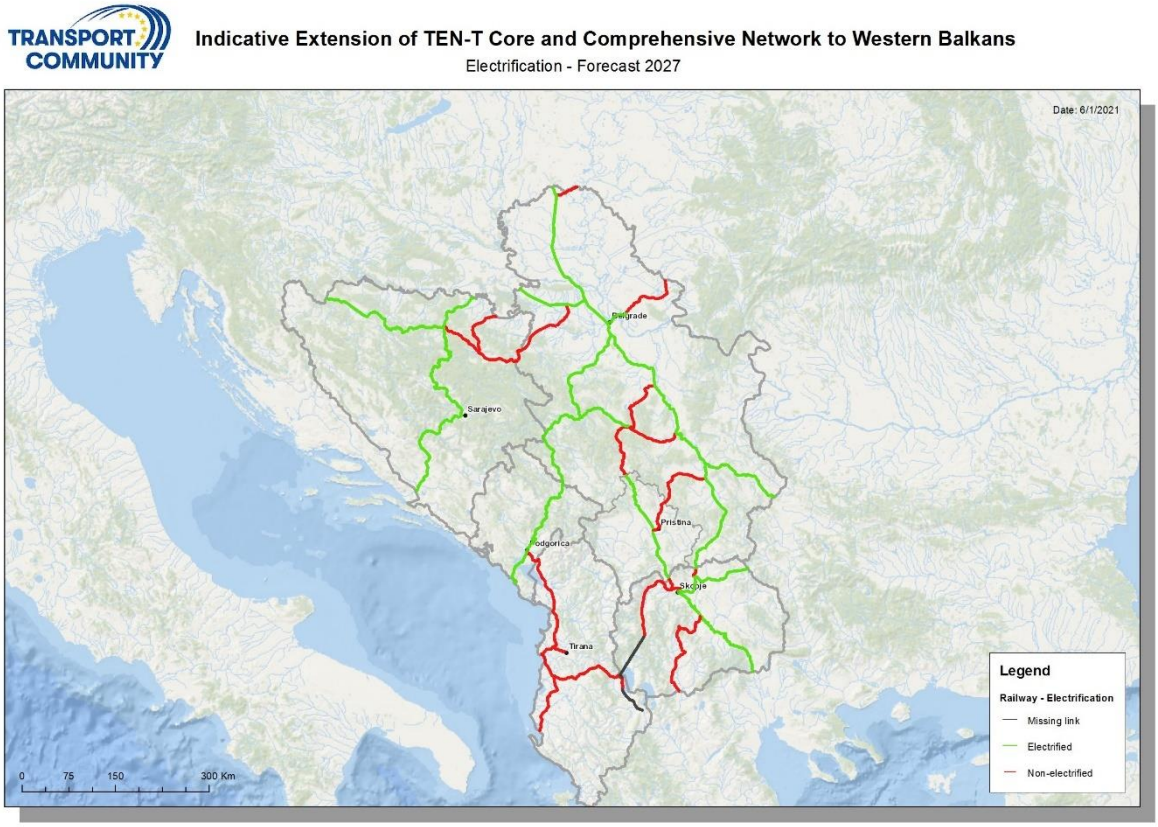


Figure 32. Electrification Forecast 2027 Map

b) Axle Load

Regarding axle load performance on the rail network in 2027, it is evident that 89.24% of the Core and 71.03% of the Comprehensive will be compliant with TEN-T criteria. This will represent significant progress in terms of track performance, but will only be perfect if the criterion is met by 100% throughout the entire Core and Comprehensive network.

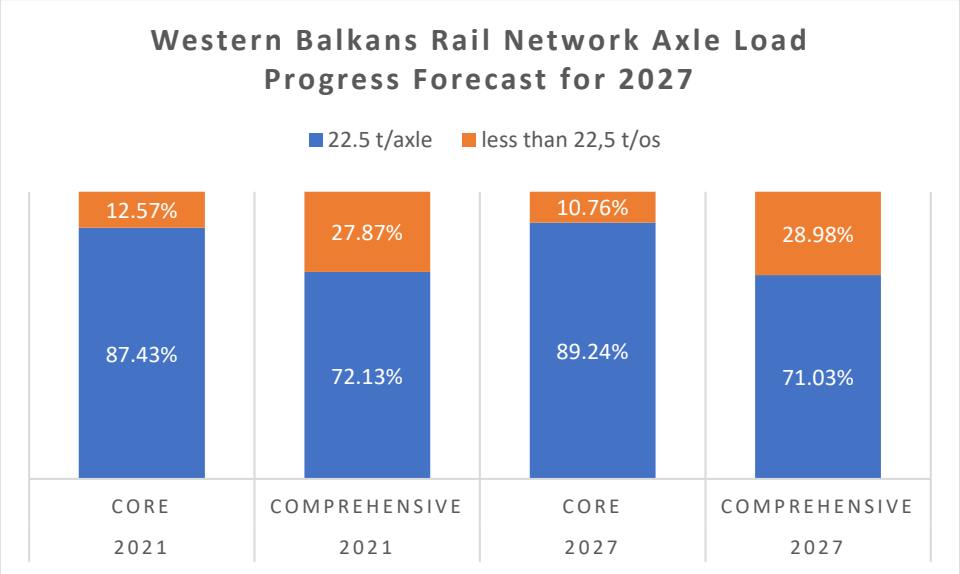


Figure 33. Western Balkans Rail network axle load progress forecast for 2027

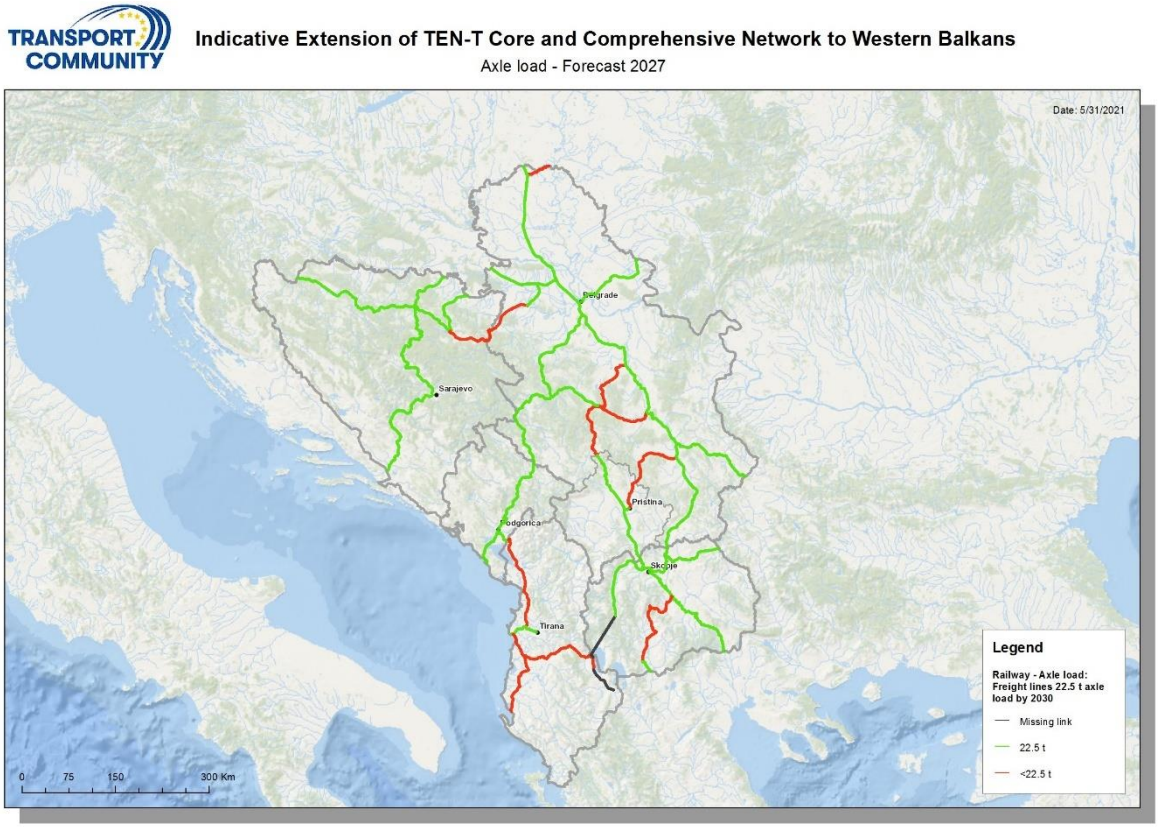


Figure 34. Axle Load Forecast 2027 Map

c) Train length

Train length as a key TEN-T performance indicator is one of the latest performance characteristics requiring adjustment on European and Western Balkans rail networks. At present, the Western Balkans region is not compliant with this indicator but it is encouraging that most of the planned projects take account of train length and plan for it whereever possible. In five years it should be possible to operate with higher traction efficiency on 30% of the Core and almost 20% of the Comprehensive Network.

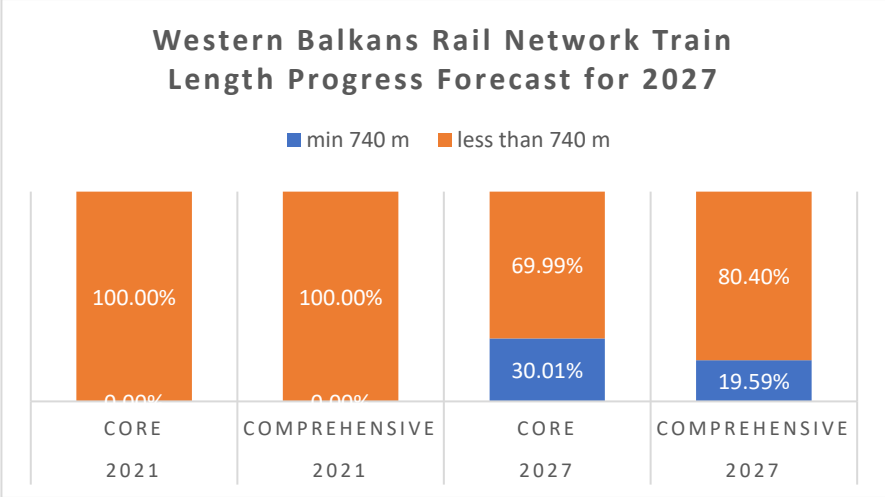


Figure 35. Western Balkans Rail network train length progress forecast for 2027

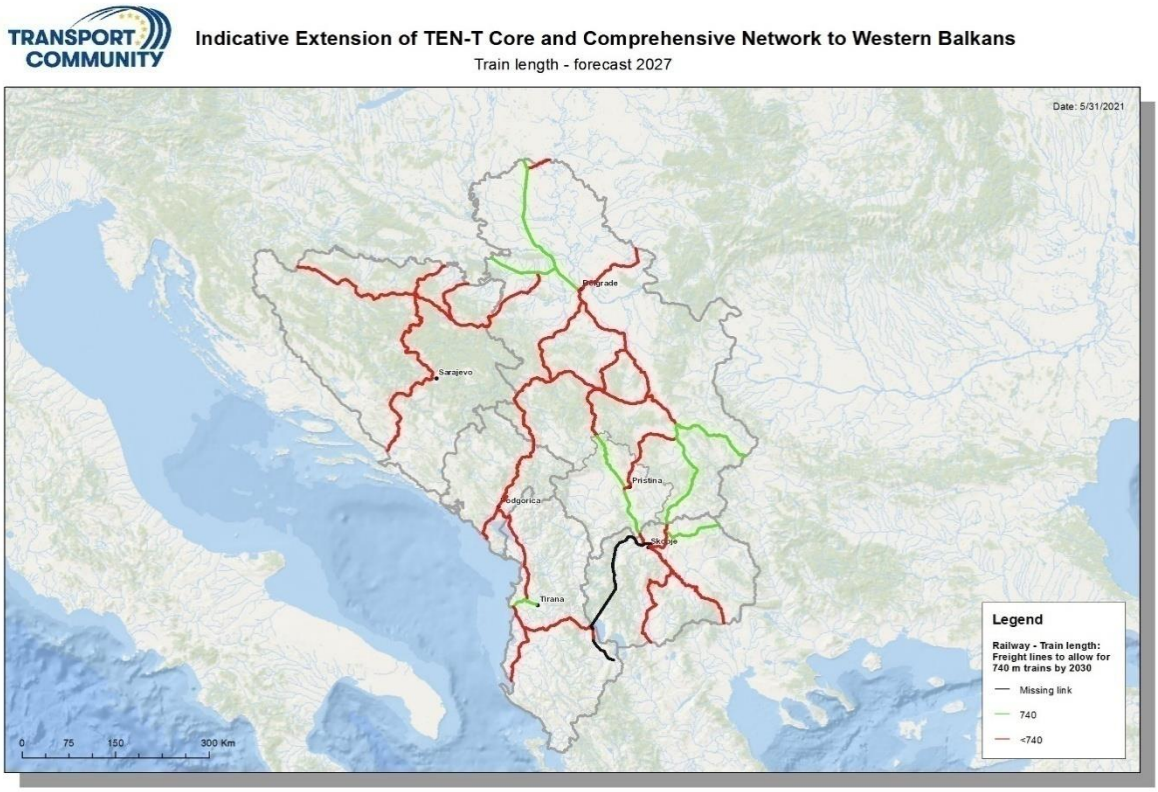


Figure 36. Train Length Forecast 2027 Map

d) Design Speed

Figure 37 and Figure 38 showing design and operational speed improvement, it is immediately clear that when the projects are fully implemented, design speed will not improve significantly until 2027.

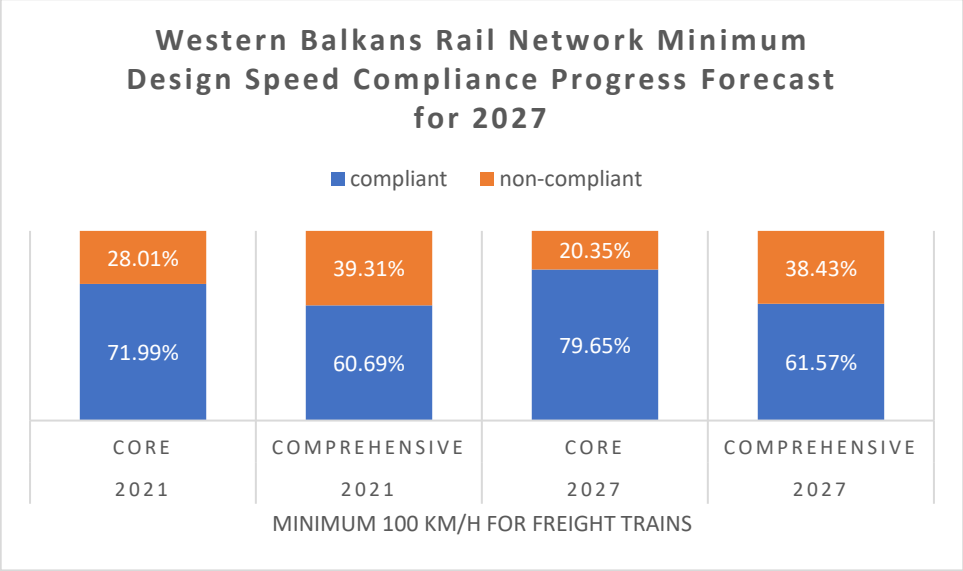


Figure 37. Western Balkans Rail network minimum design speed compliance progress forecast for 2027

e) Operational Speed

On the other hand, significant progress is expected on the operational speed compliance indicator. From 14.55% on the Core and 12.79% on the Comprehensive Network, in 2027 compliance is expected to rise to 43.60% and 31.27% respectively. This situation indicates the unsatisfactory state of railways in the Western Balkans and how the maintenance gap impacts on rail competitiveness.

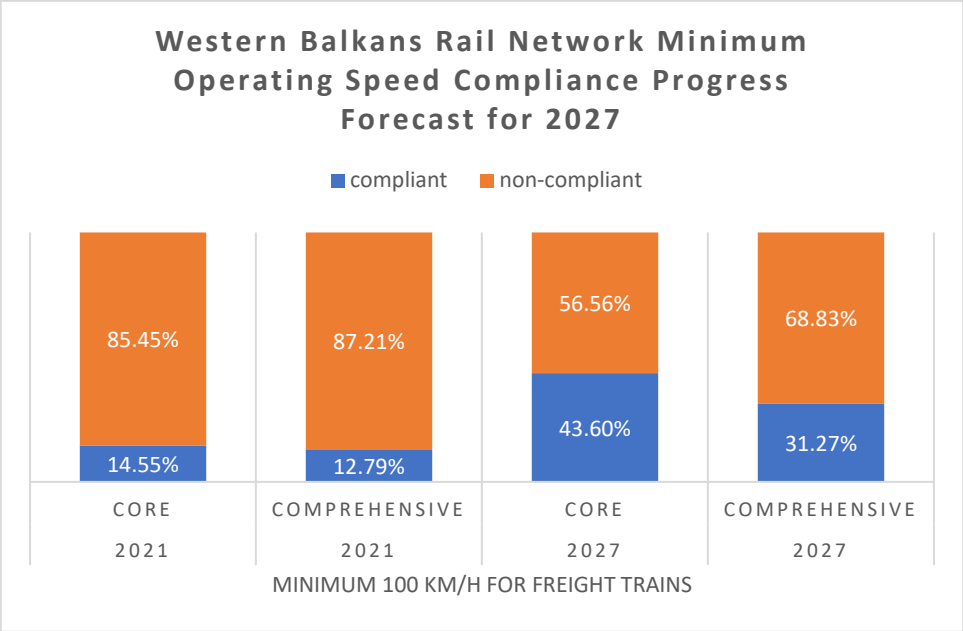


Figure 38. Western Balkans Rail network minimum operating speed compliance progress forecast for 2027

ERTMS deployment (track-side) is included in some of the projects, but improvement is insufficient to address the current situation of zero implementation of this indicator. Therefore, significant efforts will be needed in the future.

5.2 Road indicators

The TEN-T compliance forecast isbased on the estimated completion date for ongoing TEN-T projects (those with financing ensured for the works execution stage).

The compliance indicators previously assessed under chapter 3.2.2 were updated under the following premises:

- Projects will be completed as per the current implementation deadline;
- Compliance with TEN-T indicators will be achieved as planned;
- There will be no compliance downgrading on any of the networks' sections (adequate maintenance of assets to be ensured).

The results of this exercise are given below. As no information on alternative fuel-related projects has been received by the Transport Community Permanent Secretariat, the compliance forecasting exercise will refer **solely to the infrastructure profile and condition criterion**.

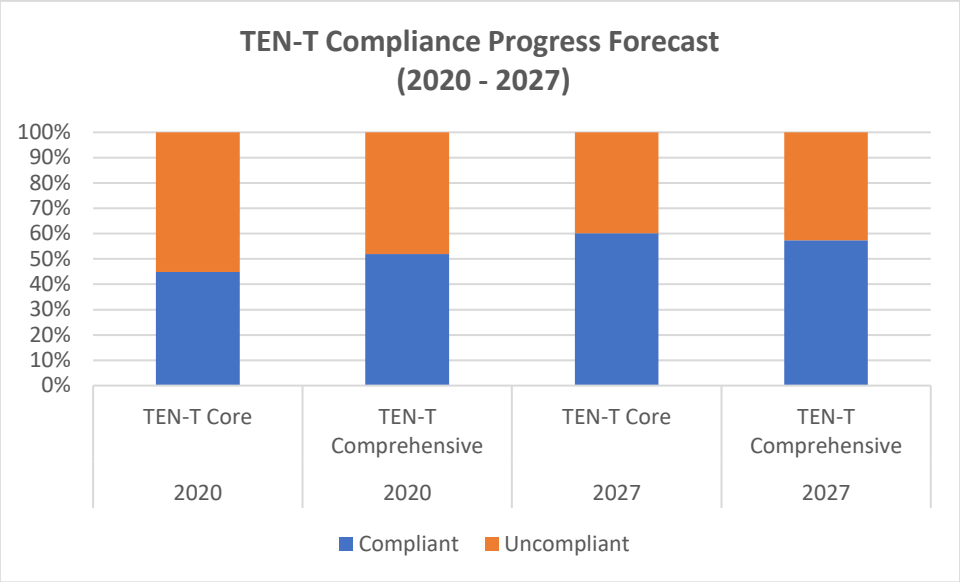
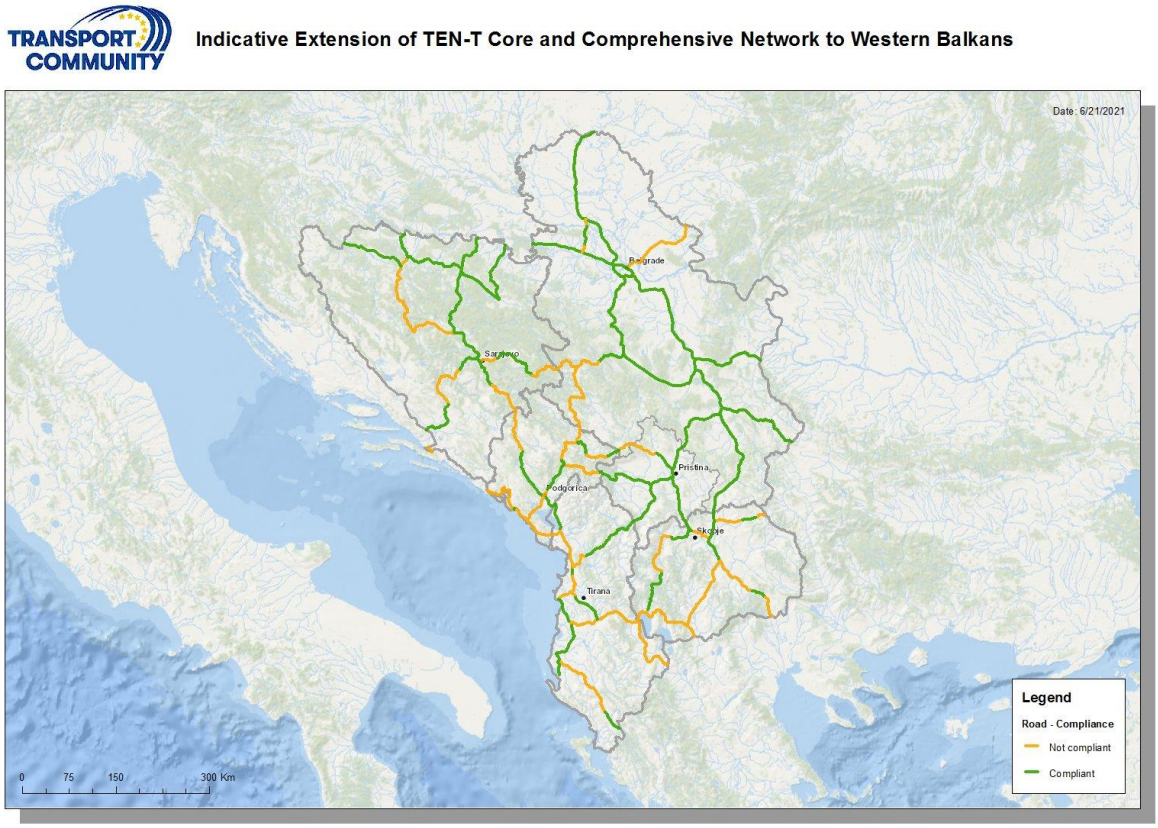


Figure 39. TEN-T Compliance progress forecast (infrastructure profile and condition)



5.3 IWW and Maritime transport indicators

IWW indicators

As mentioned earlier, the only currently non-compliant indicator for IWW ports is the availability of alternative fuels, which has not been planned for in the near future. The Transport Community Permanent Secretariat will try to encourage the relevant Regional Partners to develop concepts and studies to address this indicator with proper analysis and approach. This will be done through implementing the Action plan for Waterborne Transport and Multimodality. However, it is to be expected that none of the core inland ports will be compliant withthis indicator before 2030. As for non-compliance in achieving permissible draught on some sections of Sava, this may be expected to be resolved in the coming years through projects that include dredging.

Maritime indicators

In Albania VTMIS compliance is expected to be achieved in the medium term, as it is one of the foremost priorities of the Albanian government. In Montenegro, once phase II of VTMIS deployment has been completed, full compliance can be expected in the next few years. As for non-compliance with clean fuel availability, the Transport Community Permanent Secretariat will try to encourage the Core Maritime ports of Bar in Montenegro and Durres in Albania to develop concepts and studies which can begin to address this indicator. Adequate analysis and a proper approach could result in investments that would ensure the availability of alternative fuels for ships. This will be done by implementing the Action plan for Waterborne Transport and Multimodality between 2021 and 2025. In view of data presently available, however, it is unlikely that either ports will be compliant with this indicator before 2030.

5.4 Airport indicators

For three ongoing projects, in terms of compliance with TEN-T criteria, Tirana Airport will become the first airport with a railway connection.

On completion of projects in Sarajevo and Pristina (by end 2021), capacity will be improved and the airports will continue to have terminal availability in the future.

6. OVERALL CONCLUSIONS

Meeting TEN-T standards within the timeframe imposed by Regulation 1315/2013 remains a challenging goal requiring systematic and coordinated effort on the part of all Regional Partners, backed by substantial financial resources, which would need to be mobilised.

The compliance forecast in Chapter 4 highlights the strengths and weaknesses of the *business-as-usual* scenario, namely:

- Significant resource allocation for major projects that are likely to bring about a dramatic improvement in the infrastructure profile and operating conditions together with the TEN-T Network;
- However, such improvement is largely dependent on adequate maintenance of the network (newly built assets included) which appears to remain a challenge, given the current situation in the region;
- Far less attention is paid to soft policy measures which might bring quick wins in terms of TEN-T compliance standards with only limited financial effort;
- Discrepancies in compliance between different modes: while with Inland waterways and Maritime ports compliance is high, apart from availability of clean fuels, in sectors such as road and rail it remains unsatisfactory.
- Closer and more structured and cooperation is called for with the European CoordinatorsforMediterranean, Rhine-Danube and Orient – East Med Core Network Corridors and Motorways of the Sea. Participation of the Western Balkans in future calls and projects under CEF II could be explored along withpromotion of Corridor extension in the Western Balkans.

The 5 years rolling plan to be developed by the Transport Community Permanent Secretariat in the near future will therefore buildon the conclusions of the present exercise by maximising strengths and giving adequate priority to identified weaknesses, in order to ensure that the region addresses TEN-T standards compliance in a more systematic and coordinated manner.

ANNEX I – Road projects overview

Albania

Albania is currently implementing a total of 5TEN-T Projects, with a combined value of 479 million EUR (264 million EUR on the Core Network and 215 million EUR on the Comprehensive Network).

The combined length of road sections currently undergoing various forms of upgrading is 114.8 km (41 million EUR on the Core Network and 73.8 million EUR on the Comprehensive Network).

An overview of the TEN-T projects currently under implementation in Albania is presented in table format below:

Table 28. List of TEN-T projects in Albania

Name of the project	Core/Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
Construction of Tirana bypass (Kashar - Vaqarr - Mullet)	Core	New infrastructure	21.5	150.88	2025
Construction of Shkodra Bypass	Comprehensive	New infrastructure	4.8	14	2021
Construction of Qukes - Qafe Plloce Expressway	Comprehensive	New infrastructure	40	211.8	2021
Construction of Fier bypass	Core	New infrastructure	19.5	64	2021
Construction of Vlore bypass	Comprehensive	New infrastructure	29	38	2021

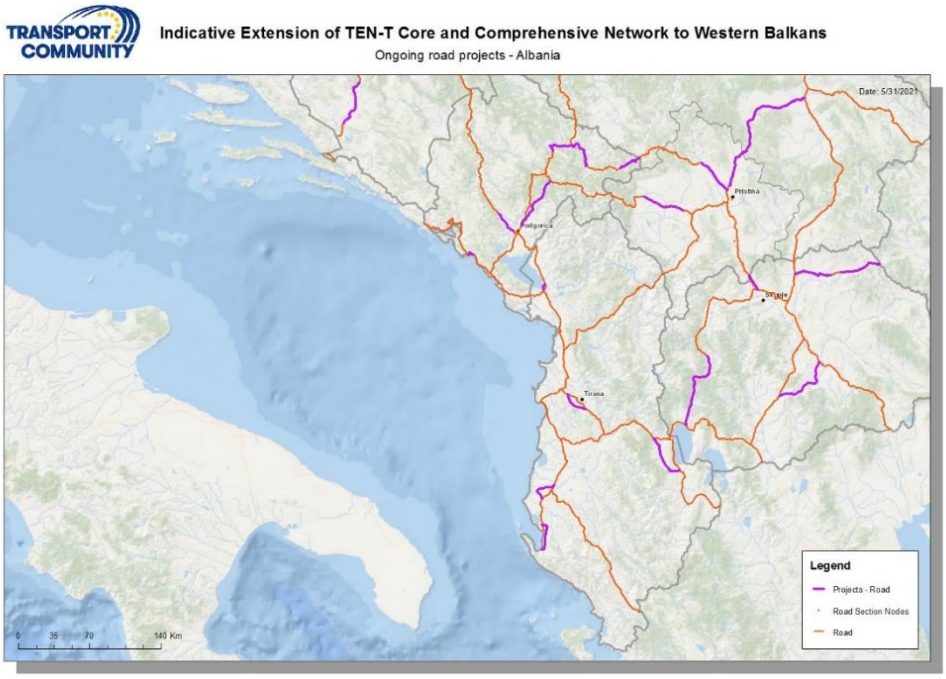


Figure 40. Map of TEN-T Projects in Albania

Bosnia and Herzegovina

Bosnia and Herzegovina is currently implementing a totalr of 20 TEN-T projects, with a combined value of 2.277 billion EUR.

The combined length of road sections currently under various forms of upgrading is 186.9 km, all on the Core Network.

An overview of the TEN-T projects currently under implementation in Bosnia and Herzegovina is presented in table format below:

Table 29. List of TEN-T projects in Bosnia and Herzegovina

Name of the project	Core/Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
Construction of the Svilaj - Odzak Motorway	Core Network	New infrastructure	10	109.5	2021
Construction of the Johovac - Vukoslavije Motorway	Core Network	New infrastructure	36	336.6	2025
Construction of the Johovac - Rudanka Motorway	Core Network	New infrastructure	5.5	78.4	2021
Construction of the Rudanka - Putnikovo Brdo Motorway	Core Network	New infrastructure	5.2	164.1	2023
Construction of the Putnikovo Brdo - Medakovo Motorway	Core Network	New infrastructure	8.5	60	2023
Construction of the Medakovo - Ozimica Motorway	Core Network	New infrastructure	22	160.23	2023

Name of the project	Core/Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
Construction of the Ozimica - Poprikuse Motorway	Core Network	New infrastructure	12.9	172.7	2023
Construction of the Poprikuse - Nemila Motorway	Core Network	New infrastructure	5.5	164.8	2023
Construction of the Nemila - Vranduk Motorway	Core Network	New infrastructure	5.7	34.6	2022
Construction of the Vranduk - Ponirak Motorway	Core Network	New infrastructure	5.3	65.5	2021
Construction of the Ponirak - Vraca Motorway	Core Network	New infrastructure	3.4	60	2022
Construction of the Vraca - Donja Gracanica Motorway	Core Network	New infrastructure	3.9	57.6	2021
Construction of the Donja Gracanica - Klopce Motorway	Core Network	New infrastructure	5.8	92	2020
Construction of the Klopce - Drivusa Motorway	Core Network	New infrastructure	2.2	31	2020
Construction of the Tarcin - Ivan Motorway	Core Network	New infrastructure	6.9	124.2	2022
Construction of the Mostar North - Mostar South Motorway	Core Network	New infrastructure	15.4	190	2023
Construction of the Mostar South - Tunnel Kvanj Motorway	Core Network	New infrastructure	9.2	63	2023
Construction of the Tunnel Kvanj - Buna Motorway	Core Network	New infrastructure	5.2	98	2023
Construction of the Buna - Pocitelj Motorway	Core Network	New infrastructure	7.2	22	2021
Construction of the Pocitelj - Zvirovici Motorway	Core Network	New infrastructure	11.1	84.6	2022

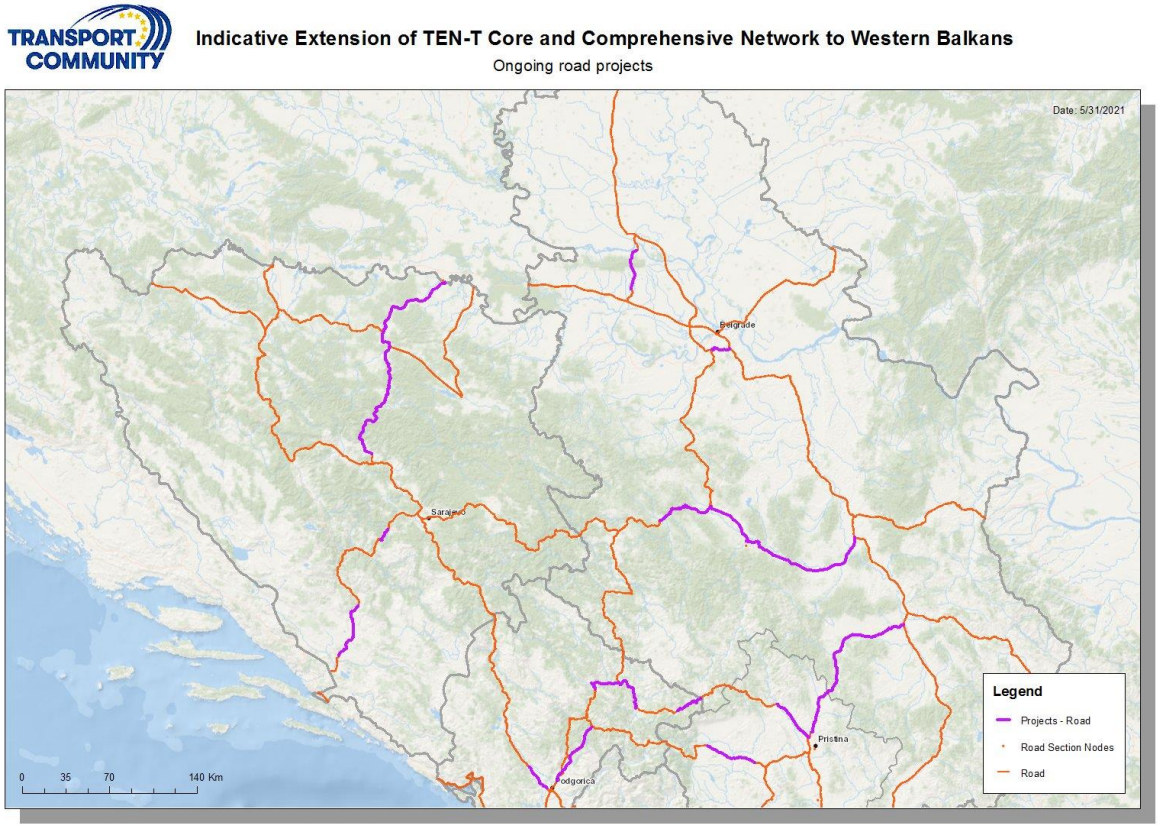


Figure 41. Map of TEN-T Projects in Bosnia and Herzegovina

North Macedonia

North Macedonia is currently implementing a total of 8 TEN-T projects with a combined value of 999.31 million EUR (942.71 million EUR on the Core Network and 56.6 million EUR on the Comprehensive Network).

The combined length of road sections currently under various forms of upgrading is 157.1 km (131.6 km on the Core Network and 25.5 km on the Comprehensive Network).

An overview of the TEN-T projects currently under implementation in North Macedonia is presented in table format below:

Table 30. List of TEN-T projects in North Macedonia

Name of the project	Core/Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
Construction of the road section Drenovo-Interchange Gradsko	Comprehensive network	New infrastructure	15.5	23	2023
Construction of express road Raec bridge-Drenovo	Comprehensive network	New infrastructure	10	33.6	2023
Rehabilitation of State road A2 Kumanovo - Stracin	Core Network	Reconstruction/ rehabilitation	15.2	4.74	2024
Construction of Rankovce – Kriva Palanka Expressway	Core Network	New infrastructure	23	85.5	2022
Rehabilitation and upgrade of Kriva Palanka - Deve Bair road section	Core Network	Reconstruction /rehabilitation	13.2	13.67	2021
Construction of Blace – Skopje (Stenkovec Interchange) Motorway Section	Core Network	New infrastructure	12.5	120.8	2025
Construction of the Bukojcani – Kicevo Motorway section	Core Network	New infrastructure	10.7	120	2024
Construction of the Kicevo - Ohrid Motorway	Core Network	New infrastructure	57	598	2021

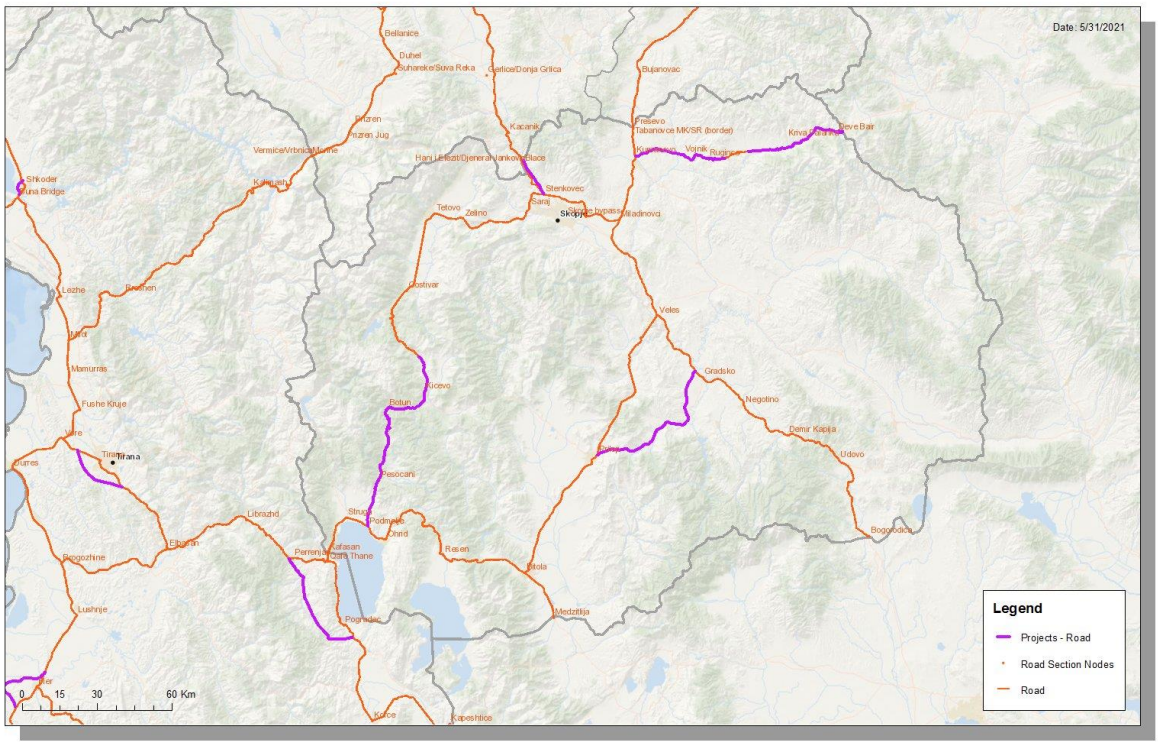


Figure 42. Map of TEN-T Projects in North Macedonia

Kosovo

Kosovo is currently implementing a total of 3 TEN-T projects, with a combined value of 520 million EUR (320 million EUR on the Core Network and 200 million EUR on the Comprehensive Network).

The combined length of road sections currently under various forms of upgrading is 72 km (46 on the Core Network and 31 on the Comprehensive Network).

An overview of the TEN-T projects currently under implementation in Kosovo is presented in table format below:

Table 31. List of TEN-T projects in Kosovo

Name of the project	Core/ Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
Construction of the Kijevë-Zahaq highway	Comprehensive network	New infrastructure	31	200	2025
Construction of Pristina - Merdare Motorway	Core Network	New infrastructure	26	260	2025
Construction of Pristina - Mitrovica Highway	Core Network	New infrastructure	20	60	2025

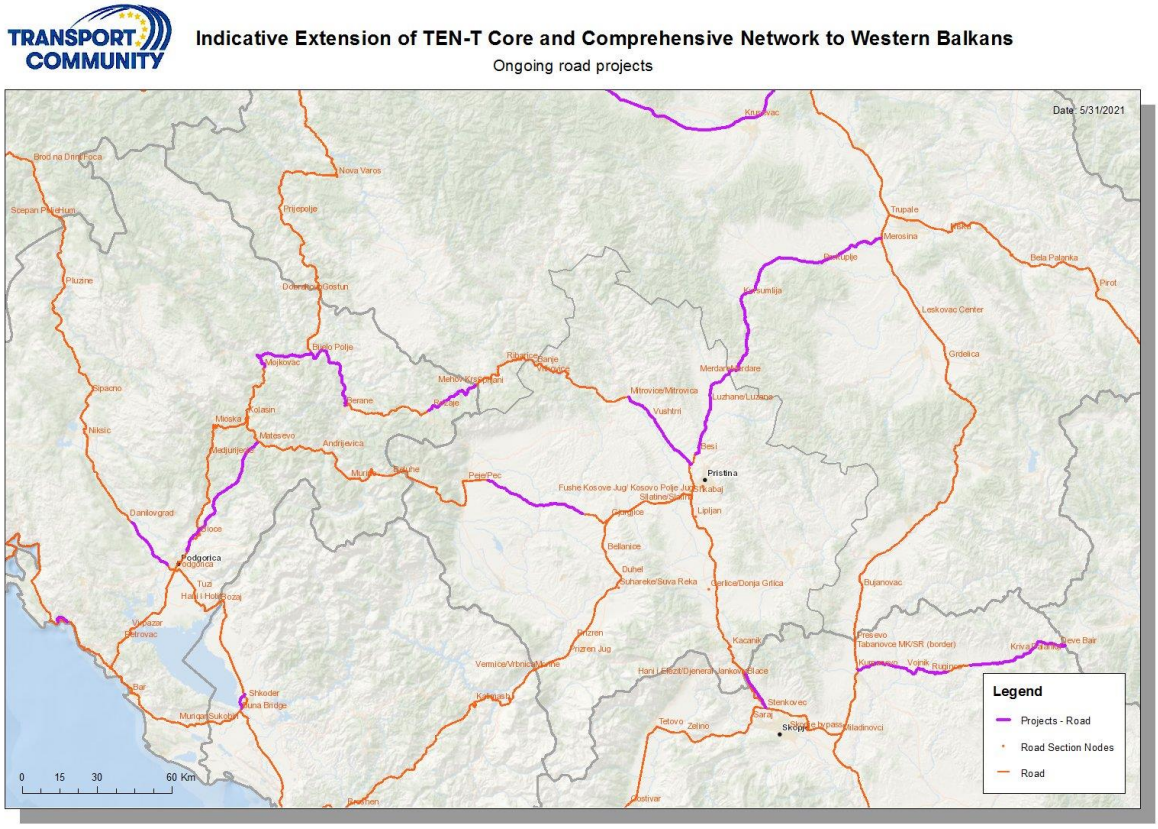


Figure 43. Map of TEN-T Projects in Kosovo

Montenegro

Montenegro is currently implementing a total of 5 TEN-T projects, with a combined value of 1,133.39 million EUR.

The combined length of road sections currently under various forms of upgrading is 130.8 km, as shown in the table below:

Table 32. List of TEN-T projects in Montenegro

Name of the project	Core/Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
Construction of motorway Bar - Boljare (Matesevo - Smokovac section)	Core Network	New infrastructure	40.8	868	2021
Construction of Budva bypass	Core Network	New infrastructure	13	187.39	2024
Reconstruction and widening of road section M-2 Rozaje - Spiljani, including works on 5 bridges and 10 tunnels.	Comprehensive network	Reconstruction/ rehabilitation	20	19	2022
Reconstruction and widening of road section M-3 Danilovgrad - Podgorica in the length of 15 km (2+2 traffic lanes), including works on 5 bridges and 5 roundabouts .	Comprehensive network	Reconstruction/ rehabilitation	15	23	2022
Reconstruction and widening of road section M-2 Berane - Bijelo polje - Mojkovac, in the leght of 43 km	Core/Comprehensive network	Reconstruction/ rehabilitation	42	36	2023

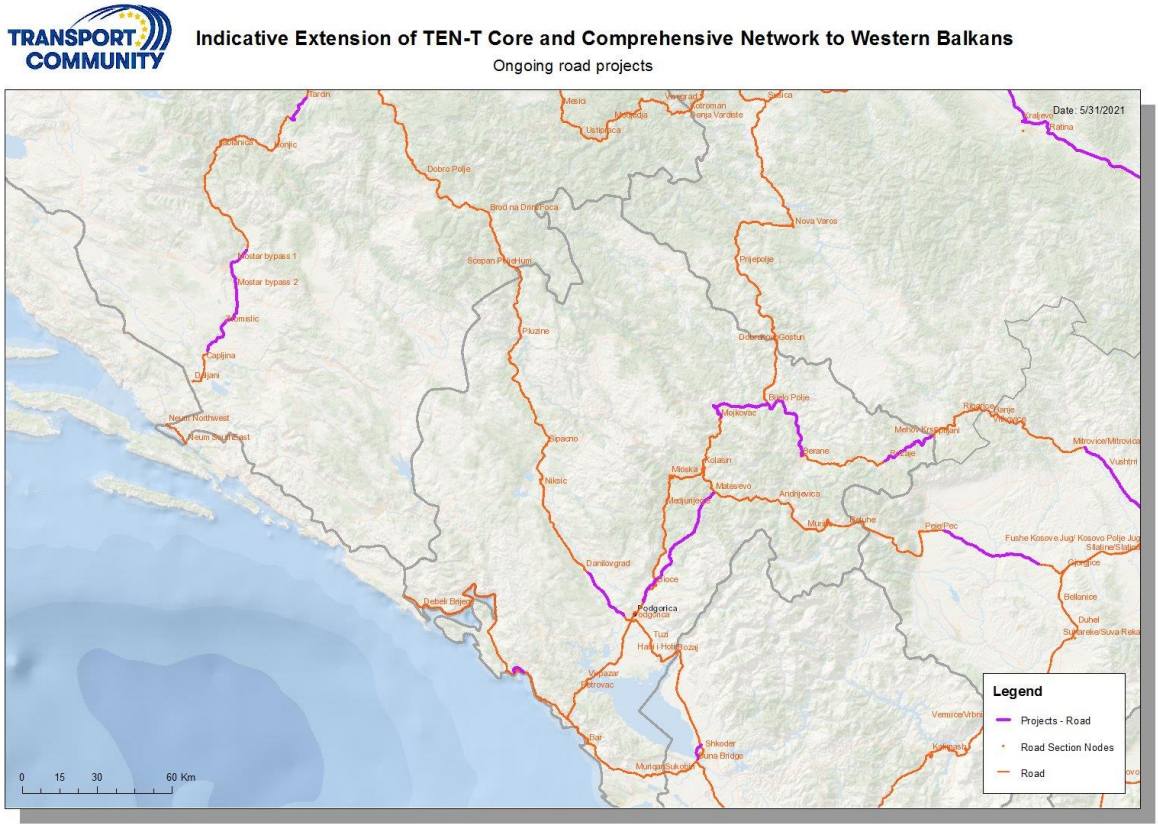


Figure 44. Map of TEN-T Projects in Montenegro

Serbia

Serbia is currently implementing a total of 6 TEN-T projects, with a combined value of 2.7 billion EUR (1.349 billion EUR on the Core Network and 1.351 billion EUR on the Comprehensive Network).

The combined length of road sections currently under various forms of upgrading is 249.06 km (120.36 km on the Core Network and 128.7 km on the Comprehensive Network).

An overview of the TEN-T projects currently under implementation in Serbia is presented in table format below:

Table 33. List of TEN-T projects in Serbia

Name of the project	Core/Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
Construction of Novi Sad - Ruma Expressway	Comprehensive network	New infrastructure	16.4	606	2025
Construction of Pojate - Preljina Motorway	Comprehensive network	New infrastructure	112.3	745	2023
Construction of Belgrade bypass (sector B)	Core Network	New infrastructure	19.5	207	2021
Construction of Niš (Merošina) - Merdare Highway (Beloljin - Plocnik)	Core Network	New infrastructure	33	255	2026
Construction of Niš (Merošina) - Merdare Highway (Plocnik - Merdare)	Core Network	New infrastructure	36.9	437	2027
Construction of Preljina - Pozega motorway	Core Network	New infrastructure	30.96	450	2022

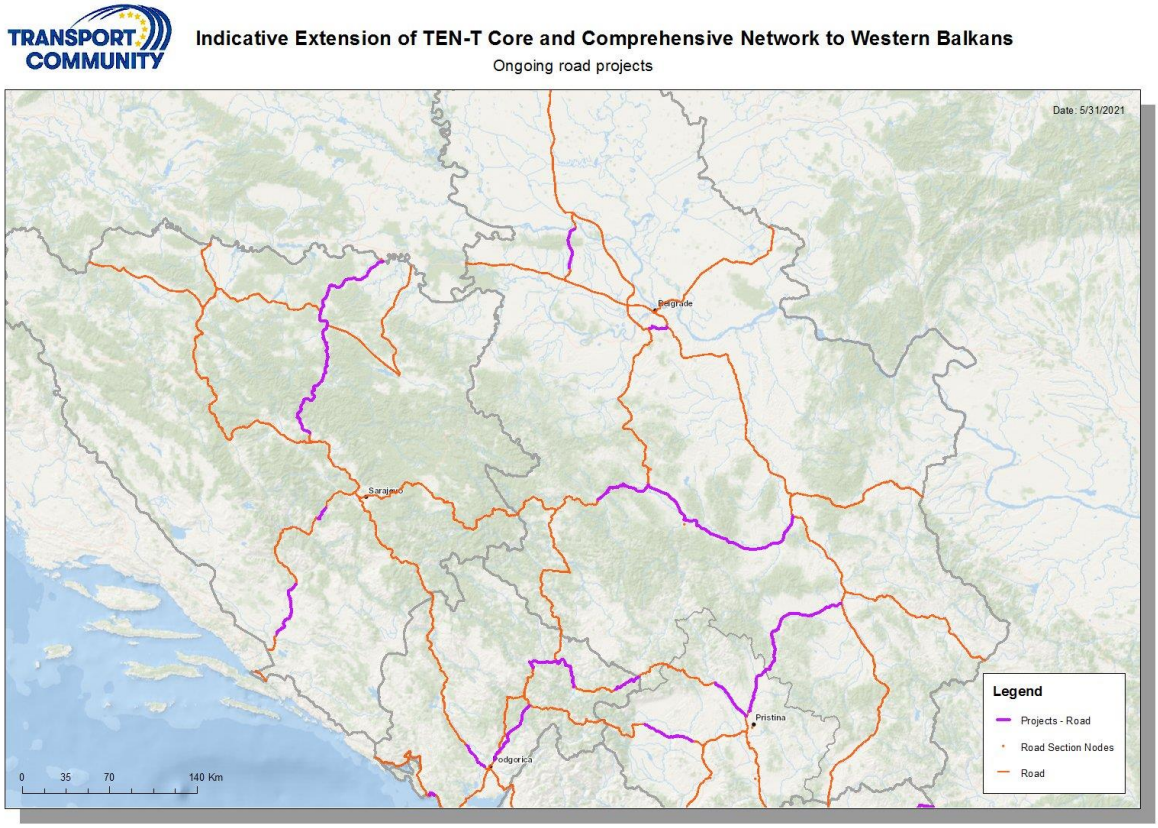


Figure 45. Map of TEN-T Projects in Serbia

ANNEX II – Rail projects overview

Albania

Rehabilitation of the Durres - Tirana railway public transport terminal PTT and construction of the new Tirana - Rinas branch line

The project is finance-secured. Tender procedure is completed and the contract has been signed between Albanian Railways and the winning bidder. Preparations for implementation of this design and build project are in hand. The detailed design is in progress and work will commence as soon as it is completed. The project is supported by the European Union with an investment grant of 35.5 million EUR under the Connectivity Agenda for the Western Balkans, and by the European Bank for Reconstruction and Development (EBRD) with a 36.9 million EUR loan.

Under the contract more than 34 km of the existing track between Tirana and the Port of Durres will be rehabilitated. Additionally, a new 7.4 km-long track connecting the city of Tirana to Tirana International Airport will be constructed. The project has been identified as a flagshipproject of the Economic and Investment Plan for the Western Balkans, published by the European Commission in October 2020.

This project for rehabilitation and construction of 41 km railway line on the Core network should be finished by 2023 and is compliant with all TEN-T compliance indicators with exception of electrification. The cost of the new line is estimated at 90.45 million EUR.

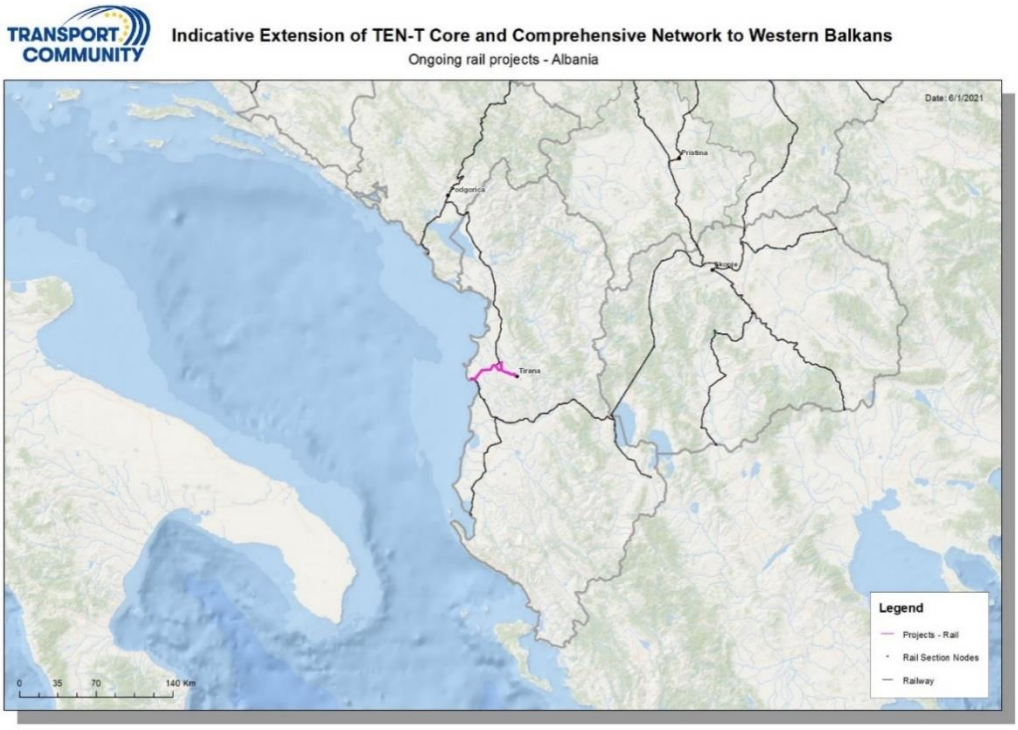


Figure 46. Ongoing Project in Albania

Corridor Vc-Overhaul and modernisation of the railway section Samac – Doboj – Rjecica

This project is part of the initiative to complete Corridor Vc connecting the port of Ploce on the Croatian Adriatic with Budapest. Over 325 km of Corridor Vc runs through Bosnia and Herzegovina.

Once completed, the railway line will have been raised to a standard corresponding to the importance of this Corridor, improving connectivity not only in Bosnia and Herzegovina and with its neighbours, but also between South-East Europe and the EU.

The 85 km Samac – Doboj - Rjecica section is being evaluated by the WBIF mechanism. Estimated amount is 162.5 million EUR. Construction works are expected to be completed by 2025.

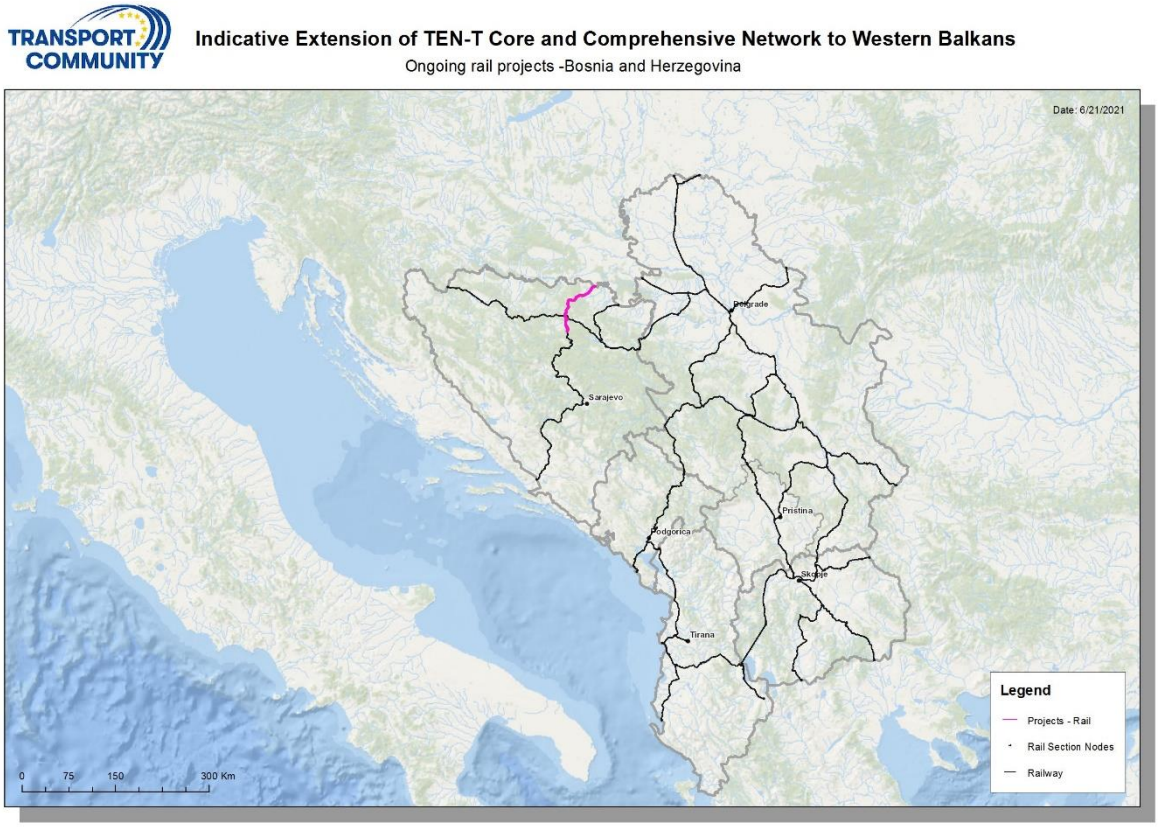


Figure 47. Ongoing Project in Bosnia and Herzegovina

North Macedonia

The Macedonian railway network will be improved by implementation of a project on sections of the eastern part of Corridor VIII, and one rehabilitation project on Corridor X.

The project on the eastern part of Rail Corridor VIII involves three phases:

a) PHASE I (Rehabilitation of the Kumanovo – Beljakovce section) covers 30.8 km, will cost 48.9 million EUR and is due for completion by 2022. Construction works are ongoing.
b) PHASE II (New Construction of the Beljakovce – Kriva Palanka section) covers 34 km, will cost 145 million EUR and is due for completion by 2024. Tender procedure has been launched. Expected date for start of works is the second half of 2021.
c) PHASE III (New Construction of the Kriva Palanka – Bulgarian Border section) covers 34km, will cost 420 million EUR and is due for completionby 2026. This phase is partly finance secured. Only 60.7 million EUR have been secured by the EU from IPA, while the remaining funds will be obtained through loans from the EBRD and the EIB.

Implementation of the eastern part of Rail Corridor VIII will render the corridor compliant with Directive 2008/57/EC on the interoperability of the rail system. Additionally, electrification, a line speed of 100 km/h (freight), axle load of 22.5 t, a track gauge 1435 mm and implementation of ETCS are foreseen. The only TEN-T non-compliant segment of project planning is a train length of 740 m. In regards the GSM-R implementation, Macedonian government plans to perform it as a separate project.

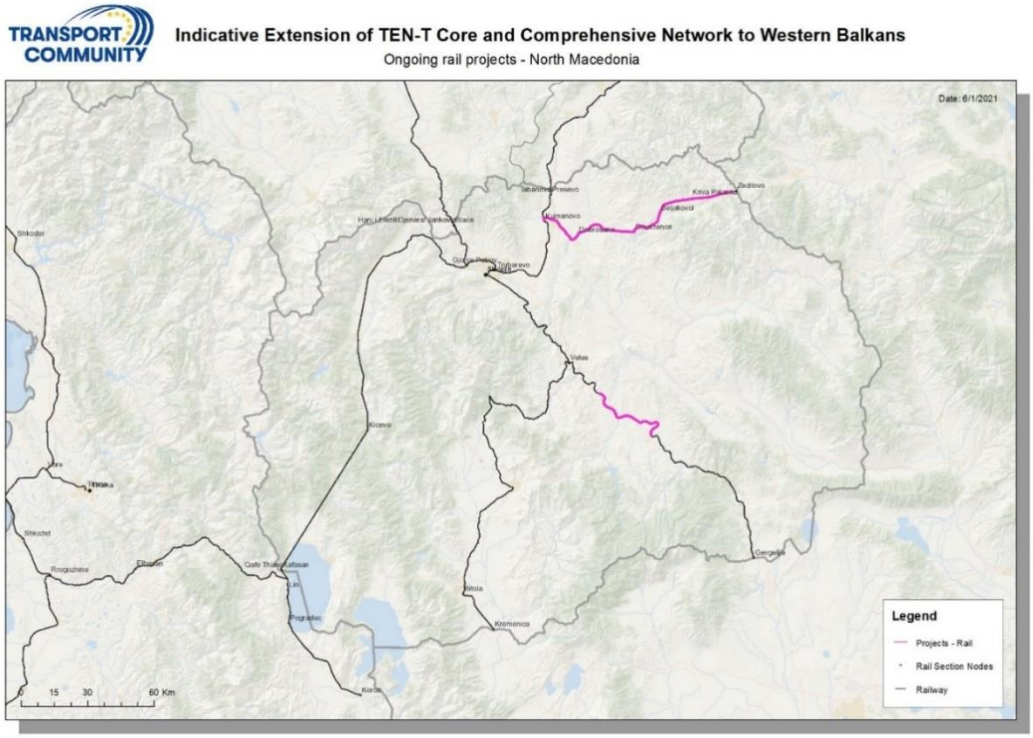


Figure 48. Ongoing Projects in North Macedonia

In the 9.6 million EUR project for track renewal on the Nogaevci – Negotino section, only basic activities are planned for 2021 and there is no other improvement in terms of TEN-T compliance. The only improvement on this 31 km long electrified rail section with permitted axle load of 22.5 t, is maintaining operating speed on the same level as the design speed of 100 km/h.

Kosovo

Rehabilitation and modernisation of Route 10

Railway Route 10 in Kosovo is 148 km long, extending from the common crossing point with Serbia in the north of Kosovo (near Leshak station) to the border with North Macedonia (Hani i Elezit station). Rail Route 10 branches from Corridor X in Lapovo (Serbia) and forms an alternative route to Skopje: Belgrade – Lapovo – Kraljevo - Fushe Kosove – Skopje.

The project has a strong regional dimension, and it does general rehabilitation and modernisation in order to meet EU standards, repecting the technical specifications on interoperability. Implementation of this project will increase regional connectivity and facilitate both import and export and passenger traffic across the region. This project also contributes to regional cohesion and will assist in the development of seamless connections for passengers and freight in the Western Balkans. This is the main direct railway connection between Serbia, Kosovo and North Macedonia.

Activities so far implemented for the general rehabilitation of railway Route 10 are presented below:

a) The general rehabilitation and modernisation of Phase One began in August 2019 and should be completed in 2021,
b) Evaluation procedure for appointment of a contractor for Phase Two is ongoing and the works are expected to start in Q3 2021,
c) There is ongoing procedure for drafting of Terms of Rerefence for Project Design for Phase three which shall be implemented through IPF 9.

The total estimated cost of the project is 245 million EUR and the estimated implementation deadline is 2025. This project will level up the performances and compliance of the whole Route 10 in terms of all TEN-T compliance indicators without exemption.

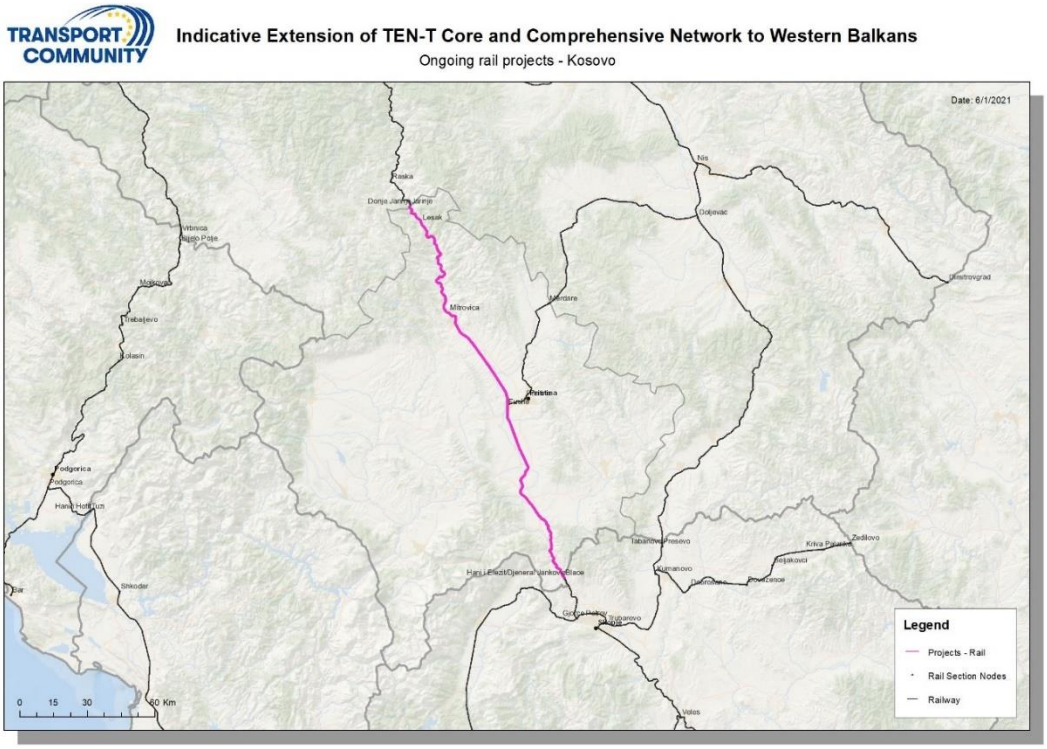


Figure 49. Ongoing Projects in Kosovo

Montenegro

Orient/East-Med Corridor: Rail Interconnection, Bar – Vrbnica, Section Route 4

The project concerns reconstruction works along the Vrbnica (Serbian border) - Podgorica - Bar railway line, forming part of the Orient/East Mediterranean TEN-T Core Network Corridor, an indicative extension TEN-T network to the Western Balkans.

The proposed bridges for reconstruction and modernisation were refurbished almost 40 years ago. **Reconstruction of ten bridges** is urgent, particularly in view of a high risk of corrosion to steel structures. Anti-corrosion measures would increase the safety and security of railway transport of passengers and freight.

Estimated cost is 38 million EUR. The Feasibility study, EIA as well as the detail design are done. Construction works are ongoing and are planned to be completed by 2022.

Montenegro plans to carry out construction works to rehabilitate all remaining sections of the Vrbnica – Bar line (Rail Route 4), a total length of 159 km. Estimated cost is 244 million EUR.

After the completion of these projects, railway lines will be able to be operated by trains at a design speed of 80km/h instead of the present 50 km/h and by 500m long trains. The Route

4 railway line will remain electrified but no ETCS, GSM-R or rail – road terminals are planned to be built.

This means that there will still be need for improvement of this main Montenegrin railway route in terms of TEN-T compliance.

Figure 50. Ongoing Projects in Montenegro

Serbia

Serbia has quite an extensive planned railway project pipeline. It includes a few sections of the Core and Comprehensive Networks. All sections are analysed below.

Reconstruction and modernisation of double-track line Belgrade - Stara Pazova - Sid - Croatian Border

The Beograd - Novi Beograd - Stara Pazova section is currently under construction (length 34.5 km, total amount 307.5 million EUR). Works are financed through a Chinese loan.

Preparation of technical documentation for the Stara Pazova – Sid section (Preliminary Design with FS and ESIA) from WBIF funds is ongoing (length: 92.2 km, estimated value: 250 million EUR). Total amount of this Technical Assistance is 3 million EUR. Preparation of technical documentation should be completed by early 2022.

When finished (end of 2026), this project will have carried out reconstruction of 126.7 km of railway line for 557.5 million EUR. All TEN-T compliance indicators will be met in the same period.

Reconstruction and modernisation of railway line Belgrade - Novi Sad - Subotica - Hungarian border

The Beograd - Novi Beograd - Stara Pazova section is currently under construction (34.5 km, value 307.5 million EUR).

Works on the Stara Pazova - Novi Sad section are currently ongoing (40.4 km, value 615.7 million EUR). The works are financed through a Russian loan.

Technical documentation has been prepared for the Novi Sad - Subotica – Kelebija section and work is expected to begin in the first half of 2021 (108 km, value 1.021 billion EUR). These works are financed through a Chinese loan.

On completion of all sections of the line, total length: 183 km, value: 1.994 billion EUR, this line on the Core network will become a high speed railway line and will fulfil all TEN-T compliance indicators by 2024 at the latest.

Reconstruction and modernisation of the railway line Nis - Brestovac - Presevo - North Macedonian Border

Technical documentation for the Nis - Brestovac section (23.4 km) has been prepared, and works are expected to begin in the second half of 2021. The value of this part of the project is 59.9 million EUR.

Some critical sections (Vinarce-Djordjevo, Vranjska Banja-Ristovac, Bujanovac - Bukarevac) on this part of Corridor, 46.6 km in length, have been renewed in the previous period. Value: 32.6 million EUR.

Preparation of technical documentation for the Brestovac - Presevo - North Macedonian Border section (Preliminary Design with FS and ESIA) from WBIF funds is ongoing. Total amount of this Technical Assistance is 3.5 million EUR.

When finished (mid-2023) this project will have carried out reconstruction of 159 km of railway line for 219.9 million EUR. All TEN-T compliance indicators will be met in the same period.

Reconstruction and modernisation of Nis - Dimitrovgrad railway line

Technical documentation for reconstruction and modernisation of the Sicevo - Dimitrovgrad railway line (Preliminary Design with FS and ESIA) has been prepared. Preparation of tender documentation for selection of contractor is currently ongoing. Works are expected to begin in Q3 2021.

Preparation of the Design for Building Permit for work on electrotechnical infrastructure for the railway bypass and Sicevo - Dimitrovgrad is currently underway. Works are expected to begin in Q4 2021. Tender procedure for selection of a supervisor is currently ongoing.

Sources of financing are a WBIF grant, an EIB loan and the Serbian budget.

By 2024, the project will have improved this 108 km railway line on the Core network in terms of all TEN-T compliance indicators except ETCS and GSM-R. The cost of the improvements is estimated at 268 million EUR.

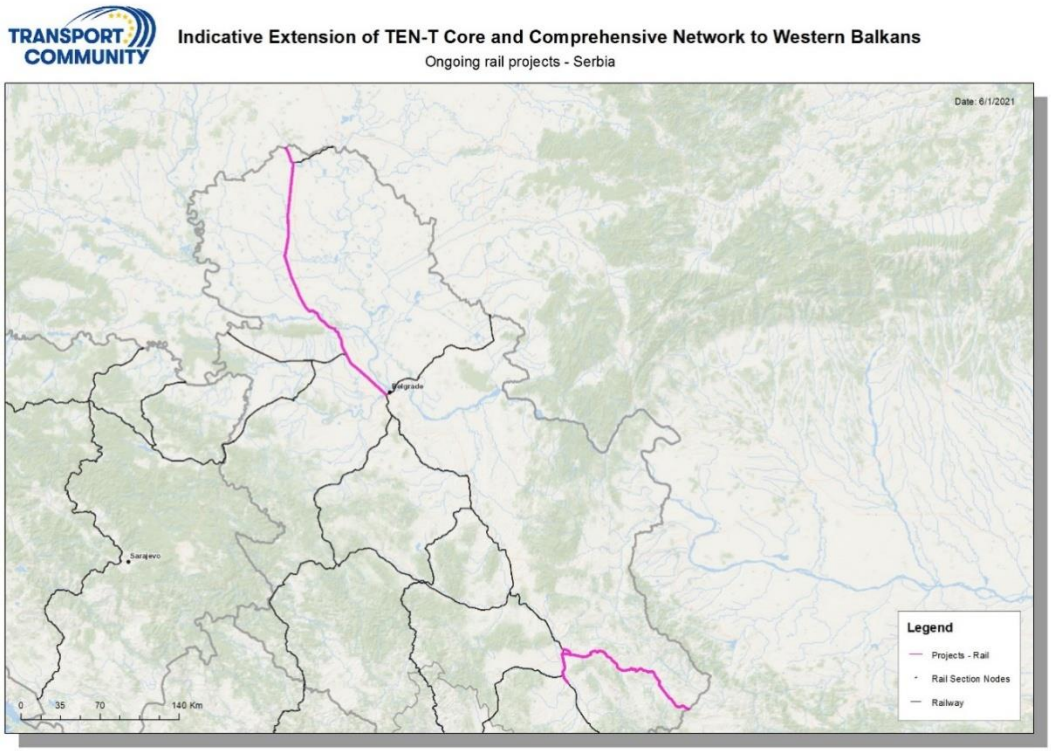


Figure 51. Ongoing Projects in Serbia

ANNEX III – Inland waterways and maritime projects overview

Serbia

River training and dredging works on critical sectors on the Danube river between Backa Palanka and Belgrade

The project will, after its implementation, have a positive impact on compliance with the permissible draught. Total cost of the project is 9 million EUR and it is expected to be finished in 2021. The purpose is to put in place river training structures and dredging works at six critical locations along the Serbian sector of the Danube between Backa Palanka and Belgrade (rkm 1,287 to rkm 1,195) in order to improve the navigation conditions during low water periods. The project is being implemented through the realisation of two contracts:

1. Hydro-technical and dredging works on the critical sectors on the Danube River

- Dredging and the construction of one detached groyne;
- Construction of three bottom sills;
- Construction of three chevrons.

2. Supervision and environmental monitoring of hydro-technical and dredging works on critical sectors of the Danube

- supervision of river training and dredging works, potential implementation of compensation measures;
- environmental monitoring before, during and after execution of works: monitoring and evaluation of the effects of river training and dredging works on the environment and proposal of compensation measures.

Albania

Rehabilitation of Quays 1 and 2 at the Western Terminal of the Port of Durres

The project is currently ongoing and financed by WBIF. Estimated total investment is 62.4 million EUR, with an EU contribution of 27.05 million EUR, an EBRD loan of 25 million EUR and a Beneficiary contribution of 9.3 million EUR. The project involves the reconstruction of Quays 1 & 2 and dredging activities in the basin of the Port of Durres to achieve a water depth of up to 11.5 m. Quays 1 and 2 are part of the Western Terminal (one of four existing terminals).

On completion of the project, the new quays will be approximately 500 m long, while width has been extended by 30 m to a total 42 m. The total area of the wharf will be 15,000 m^2. In

addition, dredging of the port basin and entrance channel will provide a depth levelof 11.5 m. Following reconstruction works on these two quays, the project is expected toensure handling of multipurpose operations by cranes with a maximum capacity of 45 tons and a boom length of approx. 40 m. The project will increase cargo capacity from 850,000 tons per year to 1,300,000 tons per year and increase traffic from 400,000 users per year to 1,300,000 users per year.

ANNEX IV – Airport projects overview

Albania

Rehabilitation of the Durres - Tirana Railway Public transport terminal PTT and construction of the new Tirana - Rinas branch line

This has been contracted as a design and build project. Detail design is in progress and work will begin as soon as it is finished. Rehabilitation and construction of a 41 km railway line on the Core Network should be completed by 2023, connecting Tirana airport with the railway line. The cost of the project is estimated at 90.45 million EUR.

Bosnia and Herzegovina

Sarajevo airport Terminal B Extension and Modernisation

This project includes extension of the passenger terminal and construction of a business-administration building for the Operations Centre. It is part of a larger programme of strategic projects at Sarajevo International Airport that should provide additional capacity and improve quality of service.

Kosovo

Pristina airport - Extension of the 500 m runway

Pristina International Airport has a single runway for landing and taking off. The runway is 2,500 m long and 45 m wide and accommodates aircraft up to Code E. For normal operation of Code E aircraft carrying passengers, cargo and fuel with maximum take-off weight, the optimal runway length must be 3,000 m. As for the runway lighting system or landing navigation systems, the airport is equipped with a CAT II system which creates a problem for the landing of many flights and leads to financial losses in foggy weather.

The purpose of the project is to extend the runway by 500 m and upgrade the ILS system from the existing ILS CAT II to ILS CAT IIIb, in order to meet ICAO/EASA requirements for operation in this category and enablechanging the airport reference code from 4C to 4E. Estimated costs are approx. 30 million EUR and the project should be completed in 2021.