

Development of indicative TEN-T extensions of the Comprehensive and Core Network in Western Balkans REPORT 2022

TRANSPORT COMMUNITY



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TRANSPORT COMMUNITY
PERMANENT SECRETARIAT

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GLOSSARY OF TERMS

AF	Alternative Fuels	
EC	European Commission	
EIP	Economic and Investment Plan	
ERTMS	European Railway Traffic Management System	
ETCS	European Train Control System	
EU	European Union	
IRI	International Roughness Index	
ITS	Intelligent Transport Systems	
TC	Transport Community	
TCT Secretariat	Transport Community Permanent Secretariat	
TEN-T	Trans-European Networks Transport	
TODIS	Transport Observatory Database/Information System	
WB	Western Balkans	
Regional Partners	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

The first Trans-European Networks Transport (TEN-T) Annual Report released in July 2021 laid the basis for TEN-T Network performance monitoring in the region, defining key indicators, baseline values and methodology. Publication of the second annual TEN-T monitoring report marks another milestone in the monitoring process, providing updated information on progress for the year and a consolidated forecast of developments likely to follow by 2027.

Progress achieved on the ground is visible, as some important projects have become operational, making their contribution to current TEN-T Network shape and performance. The pace of change is, however, far from sufficient to ensure that the entire network meets full standards by the dates set forth in Regulation no. 1315/2013¹. While the focus is, and should, remain on the Core Network upgrade, it is essential that infrastructure maintenance also improves in order not to undermine the progress achieved so far. Coordinated efforts are needed, therefore, from all regional partners, as clearly shown by the findings and conclusions of this year's TEN-T report.

The substantial financial package committed by the European Union (EU) for the Western Balkans within the framework of the Economic and Investment Plan (EIP) will definitely improve the rhythm of investments in the region's transport network. Around EUR 5 billion (of which EUR 2 billion in grants) will be channeled in the coming years towards the transport sector to help the region meet TEN-T standards and address the objectives of the Green Agenda in the Western Balkans. The gap between needs and resources will nevertheless remain or even increase, in view of the overall macro-economic context and perspectives. Focusing efforts and resources in a coherent strategic approach, securing the priority projects list, and improving implementation records are now, more than ever, essential if the deadlines stipulated under the TEN-T Regulation are to be met.

For the Regional Steering Committee

Emina Mujević Chair For the Transport Community
Permanent Secretariat

Matej Zakonjšek Director

Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network, and repealing Decision No 661/2010/EU



2. EXECUTIVE SUMMARY

- 1. There has been some noticeable progress on key TEN-T indicators from the 2021 report. The Core Road Network compliance rate has increased by 1.94%, from 44.86% (in 2021) to 46.80% (to date). Significant progress has also been achieved on the railway freight line design speed, which has risen by 7.58% from 71.99% (2021) to 79.57 (2022) on the Core Network. This year also marks the first railway sections in the region to meet the ERTMS criterion, the overall compliance rate rising from zero to 2.72% on the Core and 2.39% on the Comprehensive Network. No changes have been recorded in waterborne transport, where compliance has remained high, the sole notable exceptions being alternative fuel availability and VTMIS for ports. The same applies to the air sector, where there have been no changes as against last year's report.
- 2. However, progress remains uneven between transport modes and key indicators. As highlighted in last year's report, compliance rates vary significantly between various criteria. While this has remained unchanged in 2022, the captured trends also suggest that unbalanced development is likely to continue and might even increase if compliance indicators are not tackled in a coordinated manner. For instance, no ongoing project addressing compliance gaps in the waterborne and air sectors could be identified. This calls for more balance, coherency and pragmatism in the investment policies pursued by the regional partners.
- 3. Moreover, certain compliance indicators have deteriorated as compared with last year's report. This is specifically the case with the Comprehensive Road Network where compliance has decreased by nearly 3 percent, from 51.89% in 2020 to 48.95% at the moment. Operational speed on the Core Railway Network has also decreased by 1%, from 14.55% (2021) to 13.58% (2022). Currently, less than 14% of the Core Railway Network allows for speeds above 100 km/h.
- 4. Insufficient maintenance remains a key problem in the region, jeopardising not only TEN-T compliance rates but also the anticipated benefits of large ongoing projects. The decrease in compliance rates highlighted above is the result of the deteriorating condition of the infrastructure. The region has always had an appetite for large projects while systematically neglecting regular maintenance, despite the latter consuming significantly fewer resources for achieving comparable tangible benefits. While there has been some progress at institutional/policy level within the framework of the Transport Community's Action Plans, results are yet to become visible on the ground, as such plans need to be backed by sufficient funds allocation. This seems to remain a critical yet-to-achieve milestone for the region that will be closely monitored in the years to come.
- 5. The list of priority interventions has still not stabilised. Compared with last year's report, the list of ongoing TEN-T projects has undergone notable modification. While projects naturally enter or drop off the list once they mature or are finalised, there have been cases of projects that have regressed in terms of priority, as they no longer meet the criteria for "ongoing". This is especially the case in the road sector, where the degree of unpredictability remains highest. This calls for more

EXECUTIVE SUMMARY

focused long-term planning in the region to ensure coherence and consistency in investment policy. Such progress might be achieved in the framework of each regional partner's regional and European strategic documents, such as sectoral transport strategies, the 5-year rolling work plan, EUSAIR, EUSDR or Smart and Sustainable Mobility Strategy.

- 6. The progress rate of Economic and Investment Plan flagship projects needs to improve. As of last year, no flagship has actually made the transition from "mature" to "ongoing", though there has been progress in the preparation of technical documentation. Road Corridor Vc seems definitely on the right track, but delays in implementing other priority projects such as the Budva bypass, the Sarajevo–Podgorica road connection or the "Peace Highway" are causing concern. In the rail sector, there have been some new developments on Route 4 (Vrbnica–Bar) in Montenegro, but there are delalys in the implementation of other flagships also ongoing last year. The EIP's assumed objective to unlock a significant package of infrastructure investments in 2021-2022 while aiming significantly to advance or complete mature projects by 2024 already seems hard to achieve. More than ever, it is necessary to seal priorities and take decisive action to speed up implementation, as the window of opportunity is closing.
- 7. **Prospects for 2027 still look encouraging.** The progress forecast for TEN-T Network compliance rates has been refined and adjusted in accordance with updated information and data on its current status and ongoing projects. The Core Road Network may reach the 61.42% compliance rate within the given time, approximately 1 percent over a similar forecast in 2021. 56.06% of the Comprehensive Road Network should also become compliant, slightly less than estimated last year but still highly ambitious in comparison to the current declining rate. Progress on railways will likely be slower, which is a due reflection of the number and value of projects currently ongoing in the two sectors. Small improvements are expected in the axle load criterion (from 88.88% to only 89.36% for the Core Network) but no progress on train length. However, there should be significant upgrades in relation to the ERTMS (from 2.71% to 24.63% on the Core Network), operational speed (from 13.58% to 49.18% on the Core Network) and design speed (from 79.57% to 87.75%).
- 8. However, the reliability of such forecasts is severely limited by the adopted methodological approach, data quality, infrastructure maintenance and pace of project implementation. Forecasts are based on the assumption that a) all projects will be completed within the allotted time and b) there will be no decline in infrastructure condition over time. This year's report has already proved both assumptions wrong. While the maintenance issue has been dealt with under point 5 above, we should also mention that an update of the project lists has revealed that most of the dates forecast no longer apply. This has not yet affected the 2027 forecast, as most of the projects are still planned to be finalised within the given time, irrespective of accumulated delays. It casts doubt, however, on the overall reliability of such estimates if the trend continues.
- 9. Progress has been made in TEN-T compliance criteria requiring policy reform and horizontal action (ITS, tolling interoperability, road safety), but tangible results on the ground have yet to materialise. This has mainly been achieved within the framework of the dedicated Action Plans steered by the Transport Community. These once again proved to be essential tools for catalysing policy reforms in the region. However, much work remains to be done before such progress can be translated into quantifiable improvements on the TEN-T Network in the Western Balkans.
- 10. Regional cooperation grows apace, strengthening ties between regional partners and laying the foundation for coordinated implementation of the TEN-T Network. Regular high-level meetings have been complemented by increased cooperation at technical level through the committees established under the Transport Community Treaty framework. Road and railway infrastructure managers in the region have set up dedicated support networks, ensuring a framework for regular consultation, coordination, and sharing of experience. These are essential steps towards a gradual alignment of regional partner investment policies, propelling the implementation of projects with cross-boundary dimensions and effects.

3. SCOPE AND METHODOLOGY

ogether with the indicative extension of the TEN-T Core and Comprehensive corridors in the Western Balkans, infrastructure development is one of the two pillars of the Transport Community.

Progress achieved by the South-East European Parties in aligning their infrastructure to TEN-T standards is tracked through a monitoring system set up under Article 8 of the Treaty which requires the Regional Steering Committee to issue dedicated 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.").

The 2022 TEN-T Annual Report builds on the findings of last year's edition and basically follows the same methodology. It consequently includes an up-to-date analysis of TEN-T standards compliance based on the latest information and data from the region, the list of TEN-T projects currently ongoing and their anticipated impact on network development by 2027. There is also a comparative analysis with last year's conclusions, significant differences have been spotted and properly explained.

Most of the data in the present report has been collected thanks to the initiation of the Transport Observatory Database/Information System (TODIS) and confirmed by the regional partners in September 2022. It is expected that the 2023 version of the report will rely entirely on TODIS logistics and data, thus gaining in coherence and completeness.

Compliance with TEN-T standards has been assessed on a number of indicators provided under Arts. 12, 15, 18, 22, 25 and 28 (for the Comprehensive Network) and Art. 39 (for the Core Network) of Regulation 1315/2013. The list of indicators is the same as last year (thus facilitating progress tracking) and aligned with the EC's TEN-T biannual reporting.

The indicative extension of the TEN-T Core and Comprehensive Networks in the Western Balkans as provided for by the Commission Delegated Regulation (EU) 2016/7581 and included in Annex I.1 to the Treaty establishing the Transport Community is given below.

SCOPE AND METHODOLOGY

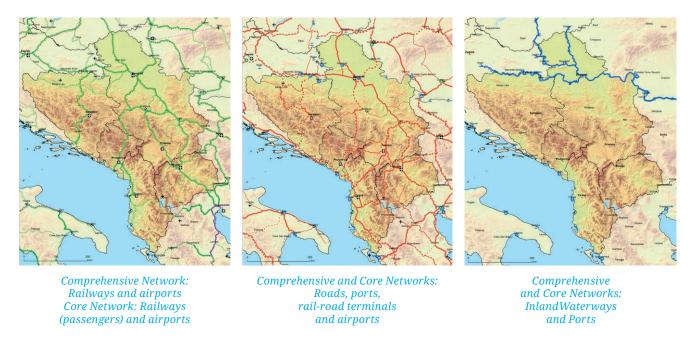


Figure 1. Indicative trans-European transport network (TEN-T) extension of Comprehensive and Core Networks to the Western Balkans

Based on the latest developments and adjustments, the indicative extension of TEN-T in the Western Balkans currently includes:

- 5,336 km of TEN-T roads, of which 3,573 km on the Core Network:
- · 3,898 km of TEN-T railways, of which 2,546 km on the Core Network;
- · 1,345 km of TEN-T Core Network Inland Waterways;
- · 3 seaports, 4 inland waterways ports, and 10 airports.

To facilitate performance monitoring, the network has been split into sections and nodes. Compared with last year's reporting, limited adjustments have been made in network granularity and layout, reflecting updated information and data from the regional partners and the progress of projects on the ground.

Changes in layout included limited alignment corrections for the road network. These are meant to facilitate tracking of progress in network implementation (opening of new road sections). Such updates have not been subject to a formal decision from the EC but were nevertheless made in agreement with the regional partners, mirroring similar procedure used within the EU for regular network management and monitoring.

TEN-T policy is currently under revision in order to increase focus on network quality and align it with the major strategic orientations laid out in the European Green Deal and further transposed in the Sustainable and Smart Mobility Strategy. Such changes will be reflected in TEN-T annual reporting within the Transport Community framework, probably starting with next year's release. On adoption of the revised TEN-T Regulation, it is likely that future progress will also be fueled by the proposed Western Balkans Corridor, enhancing cooperation between Member States and Western Balkans Transport Community partners.

4. TEN-T NETWORK COMPLIANCE ASSESSMENT

4.1.1 RAILWAY TRANSPORT

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

This Regulation represents a 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 infrastructure interoperability requirements, and defines priorities for development of the TEN-T.

With reference to transport infrastructure requirements, the Regulation defines freight terminals, ERTMS deployment, compatibility with TSI requirements, network electrification and access to freight terminals.

Conditions that should be met by the railway infrastructure are as follows:

- 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 above requirements, this report covers compliance with the specific indicators 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;
- 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 / signaling system: Core network to be equipped with ERTMS by 2030.

Apart from assessing compliance with TEN-T requirements, this report also presents an overview of railway infrastructure conditions based on the ratio between operational and design speed.

Taking into account the data from 2021 and 2022, a comparison has been made of infrastructure conditions in the last two years.

Primary infrastructure characteristics and physical state

The TEN-T rail network consists of two layers: the Core and the Comprehensive Networks respectively. The total length of the Comprehensive Network is 3,898 km of which 3,572 km are in operation. The length of the Core Network is 2,546 km with 2,437 km in operation. 326 km on the Comprehensive Network and 109 km on the Core Network have been temporarily closed for safety reasons (lack of maintenance) or ongoing construction works.

The Rail Core and Comprehensive Network in the Western Balkans consists of three corridors, namely Vc, VIII and X, and seven routes.

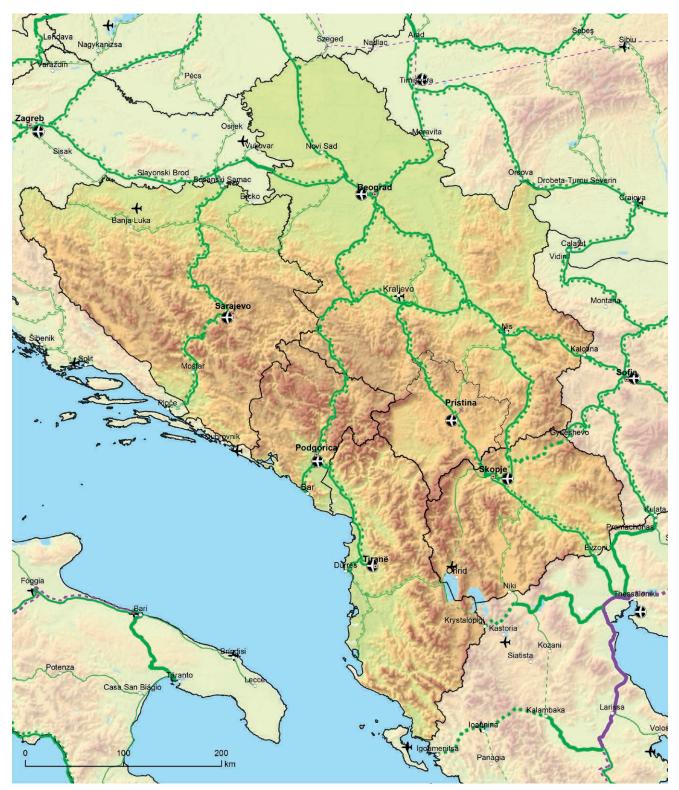


Figure 2. Indicative extension of the TEN-T Core and Comprehensive Rail Network to the Western Balkans

TEN-T CORE AND COMPREHENSIVE NETWORK COMPLIANCE

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

In the previous 15 years, the region invested more than 3 billion EUR in rail projects. However, conditions and the quality of service have 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 at borders. For these reasons, rail has lost a significant number of passengers and other business over the past 10 years. At the same time, total freight volume is at the same level or even lower. The total annual freight volume is 20 million tonnes per year for the entire region.

This can be attributed to two main reasons: lack of proper infrastructure maintenance and absence of policy reform.

Regarding maintenance, the latest study carried out by CONNECTA, an instrument financed by the European Commission in 2018, explained that the cost of regular maintenance would amount to EUR 50,000 per km per year. However, none of the regional partners can afford more than EUR 18,000 per km per year from their budgets.

An additional reason for poor conditions in railway infrastructure is the sluggish reaction to market challenges. This is due to a lack of human resources in all segments, from operational to managerial.

The TEN-T Comprehensive and Core Railway Network continues to suffer from insufficient investment (only 15% of overall investment goes to the transport infrastructure), with existing investments directed at isolated sections and not at overall network improvement. However, if essential repairs and appropriate upgrades are not made, poor maintenance will increase costs and downgrade business productivity, which will lead to a further decrease in railway transport.

In order to achieve the full benefits of rail transport in the Western Balkans, 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 establishing an open market would enhance performance along multimodal transport corridors. Currently, the development of rail infrastructure and rail reform are progressing; however, greater efforts are needed in order to fully utilise potential.

As the deadline for completing the Core Network is 2030, and 2050 for the Comprehensive Network, all regional partners will face numerous challenges in endeavoring to reach this target.

a) Electrification

Rail electrification compliance of the operational network is already 74% on the Core and 55.5% on the Comprehensive Network, based on 2022 data. Certain segments, mainly in Albania and North Macedonia (Corridor VIII), are still under construction and are not part of this analysis. There are no significant differences between electrification compliance rates in 2021 and 2022.



Figure 3. Percentages of electrified and non-electrified lines 2021/2022

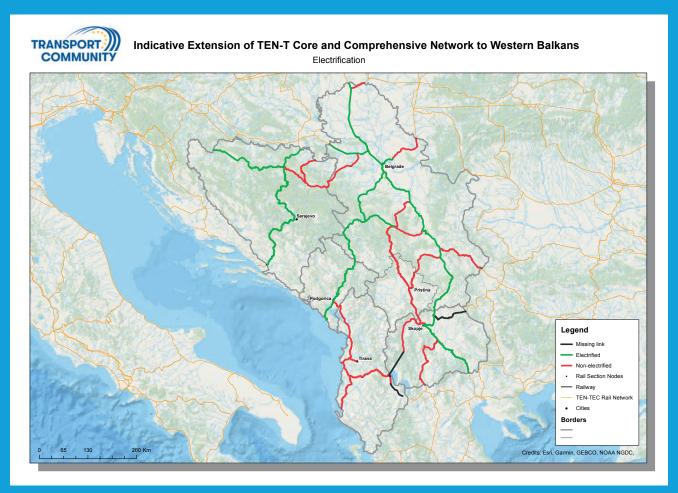


Figure 4. Map of electrified lines

b) Axle Load

For freight axle load, the compliance parameter of 22.5 t per axle is already at 89% on the Core and 75% on the Comprehensive Network as per 2022 data. Deficiencies are mainly in Albania,

Kosovo and Bosnia and Herzegovina. There are no significant differences between axle load compliance rates in 2021 and 2022.



Figure 5. Axle load in tonnes/axle on Core and Comprehensive Network 2021/2022

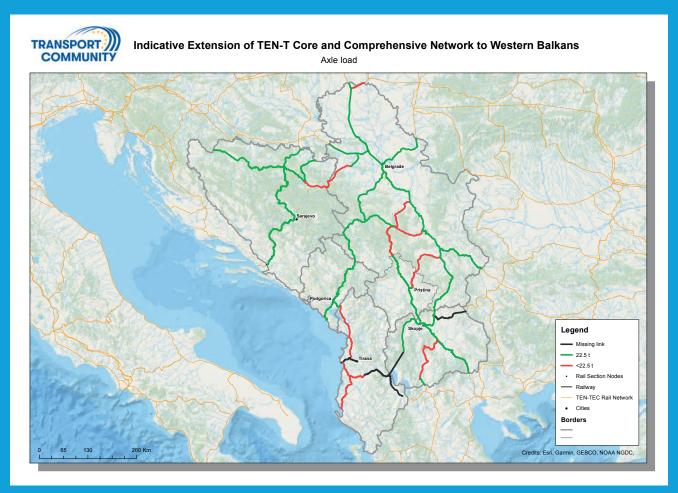


Figure 6. Map of axle load in tonnes/axle on Core and Comprehensive Network

c) Freight line speed

In freight line design speed, almost 80% of the Core Network is compliant with the parameter of 100 or more km/h and 68% of the Comprehensive Network, as per the data for 2022. This represents an 8% increase for the Core and 7% for the Comprehensive Network compared to 2021. In operational speed, there is a small decrease of 1% (from 14.55% in 2021 to 13.58% in 2022) with

only 14% of the operational Core network and 12.4% of the Comprehensive Network having an operational speed of over 100 km/h. The chief reason for the slight increase in design speed is a paucity of newly designed projects, while the small decrease in operational speed is mainly due to lack of maintenance.

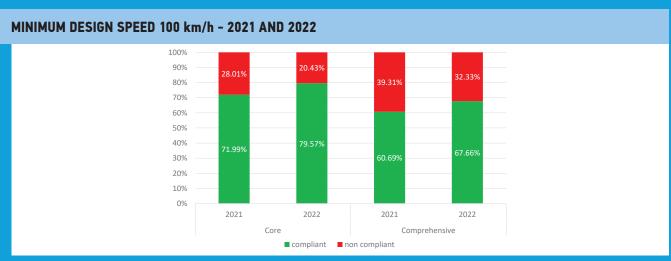


Figure 7. Design Speed 100 km/h and over 2021/2022



Figure 8. Operating Speed 100 km/h and over for 2021/2022

d) Train length

In freight train length, none of the networks is compliant with the parameter of 740 m or longer sidings for trains and there has been no change since the previous year. However, 79.5% of the Core and 73.4% of the Comprehensive Network can accommodate trains longer than 500 m. The region mainly meets the 500m parameter except for Albania. This, however, needs to be read with the above 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 9. Train length 2021/2022

e) Track gauge

Rail track gauge is already compliant at 100% as per the data for 2021 and 2022. There is one notable exception in Serbia on the Mokra Gora narrow gauge rail line, but this is not part of the Core and Comprehensive Network and is only used for tourism. The situation has been the same for many years and does not affect interoperability.



Figure 10. Track gauge 2021/2022

f) ERTMS

Finally, ERTMS system operations have been initiated in the Western Balkans. For the first time in history, 2.72% of the Core and 2.39% of the Comprehensive Network is equipped with an ERTMS system due to the inauguration of the newly reconstructed Belgrade – Novi Sad line. Almost all regional partners have partly transposed the interoperability directive (third or fourth rail package). Considering planned and ongoing projects, there are intentions to implement ETCS level 1 or even 2 in Albania, Kosovo, Serbia and North Macedonia, which will make up to 52% of the ERTMS system on the Core network.

ERTMS deployment is the greatest challenge in terms of TEN-T parameters, and progress is slower than anticipated. Plans are in place to address this.

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

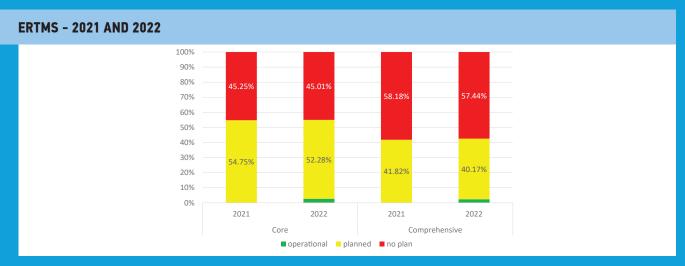


Figure 11. ERTMS deployment plans 2021/2022

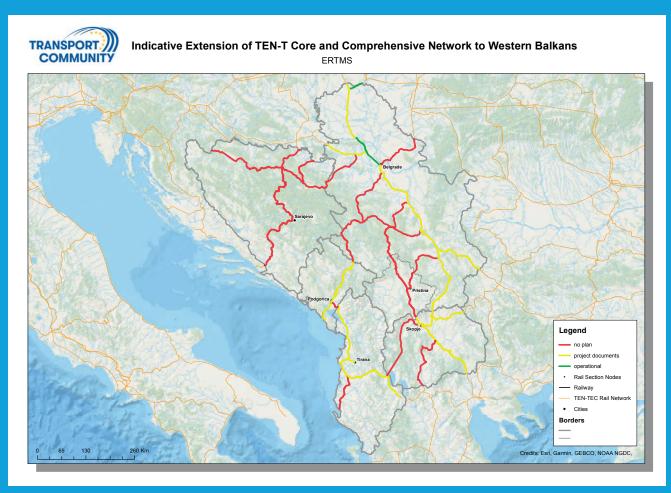


Figure 12. Map ERTMS deployment plans

• Overall compliance assessment

The current condition of the network was assessed based on data received from regional partners on the state of play on their tracks. Track condition has been divided into five parts based on the ratio between the current maximum operational speed and maximum designed speed on the network. This was done in order to provide a better description of current railway conditions.

TEN-T NETWORK COMPLIANCE ASSESSMENT

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	

Figure 13. Assessment Methodology Criteria

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



Figure 14. Current condition of the Rail Network 2021/2022

In 2022, 43% of the Core and 42% of the Comprehensive Rail Network were reported to be in very good or good condition, where approximately 70-100% of designed speed can be achieved. It is noticeable, however, that there is a small decrease of around 4% in very good condition and a relatively high increase in good condition, mainly due to improvement of the average condition by investment. Approximately 13% of the sections are reported to be in average condition, with wide variations in maximum allowed speed.

The greater part of the Core (44%) and Comprehensive Network (45%) is in poor or very poor condition, where designed speed averages only 50% and shows not change since 2021. An important issue that should be mentioned is the

reliability of the system for assessing condition. Several sections showed a wide 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 condition-based maintenance (CBM). This lack of maintenance is due to inappropriate planning and insufficient funds to cover basic needs in the past. Thus, instead of regular maintenance, the rail network needs more funds for substantial reconstruction, which will lead to even greater traffic disruption later on.

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 run, since all the adverse implications of irregular maintenance are avoided. Negative aspects such as increased funding for reconstruction, indirect losses because of under-performance, traffic disruption and safety issues sometimes multiply the amount needed for regular condition-based maintenance. On top of regular maintenance,

the application of EU Technical Specifications for Interoperability and TEN-T standards is crucial.

Since railway transport is one of the greenest transport modes, the future of transport will be on tracks. The main focus of the EU Sustainable and Smart Mobility Strategy and the European Green Deal is the development of the rail transport system. 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 development of the rail system.

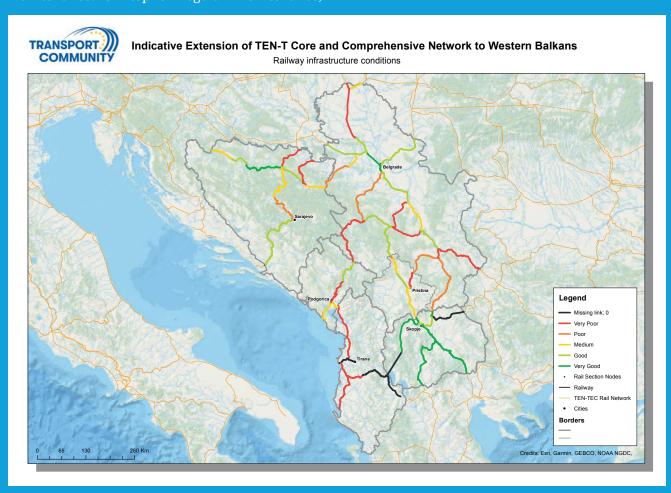


Figure 15. Railway infrastructure condition map

4.1.2 ROAD TRANSPORT

Road infrastructure components are laid down under Art. 17 of the TEN-T Regulation while compliance requirements are dealt with under Art. 18.

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 safety levels. Compliance with the provisions of EU Directives on road tunnels, tolling interoperability and ITS should also be ensured. 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 the table and explained in more detail below.

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 Network roads should only be considered compliant if they are a) motorway or express roads (unless and until specific exemption is granted by the EC, subject to art. 39.3 of Regulation 1315/2016). b) in a proper condition (IRI < 2,84). c) Provide 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 confirming that actual capacity is sufficient to accommodate demand and through 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	Core & 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	Core & 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	Core & Comprehensive	The safety of TEN-T roads should be assured, monitored and, when necessary, improved in accordance with the procedure provided by Directive 2008/96/EC.
Road tunnels compliance	Core & Comprehensive	Road tunnels over 500 m in length should comply with the provisions of Directive 2004/54/EC.

Table 1. Road compliance indicators

• Primary infrastructure characteristics and physical state

As per the provisions of Regulation 1315/2013, the 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 the TEN-T road network in the Western Balkans is 5,336.47 km,

of which 3,573.31 km are on the Core Network. Differences from last year's report stem mainly from small alignment adjustments carried out further to the commissioning of certain TEN-T projects.

The network's current general layout is depicted below.



Figure 16. Map of the TEN-T Extension of Core and Comprehensive Road Network to Western Balkans

• TEN-T Core Network Compliance

The TEN-T Core Network incorporates those parts of the Comprehensive Network having the highest strategic importance. Its current length is **3,573.31 km**, of which:

- 1,622.96 km are motorways;
- 231.4 km are expressways;
- **1,718.95 km** are conventional roads.

Assessment of the TEN-T Core Network compliance is based on the above-listed criteria, namely the infrastructure profile and condition and the availability of alternative fuels.

Overall compliance with ITS, e-tolling and safety directives has not been expressed in figures, a precondition in this regard being the implementation of structural/institutional reforms that are mainly addressed under the dedicated Action Plans rolled out by the Transport Community Permanent Secretariat.

Details of Core network compliance against each of the relevant criteria are provided below.

a) Infrastructure profile and condition

Under the provisions of Art. 39.2.c of Regulation 1315/2013, roads on the TEN-T Core Network should be either a motorway or an expressway and include safe and secure parking areas approximately every 100 km.

Under certain conditions provided under Art. 39.3 and subject to a specific request from the interested party, the European Commission may grant exceptions from the motorway/expressway criterion if the conventional road is deemed as ensuring an appropriate level of safety. However, as no such exemption has been requested in the region, the degree of Core Network compliance only considers the motorway/expressway criterion (conventional road sections on TEN-T Core are labeled non-compliant).

A thorough assessment of safe and secure parking places on the TEN-T Network in the region still remains to be done. The importance of this topic goes beyond a simple infrastructure compliance criterion, being also raised by the industry during the second Transport Community's Social Forum that took place in Sarajevo in May 2022.

While acknowledging that the region is lacking in sufficient EU standard safe and secure parking areas, for the purpose of the present report it was assumed that all road sections built to motorway/ expressway profile meet this criterion. This assumption will be corrected in future, subject to more data and a consistent ranking methodology becoming available.

In brief, under the framework of the current analysis, Core Network roads have been 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 (IRI), 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 same methodology was used in the 2021 edition of the report, thus the results are fully comparable.

The outcomes of the compliance assessment exercise are given in the charts below, highlighting progress achieved since last 's report.

CORE NETWORK: ROAD INFRASTRUCTURE PROFILE

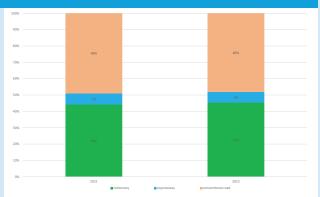


Figure 17. Core Network Road Profile 2021 vs 2022

CORE NETWORK: ROAD INFRASTRUCTURE CONDITION



Figure 18. Core Network Road Condition Compliance 2021 vs 2022

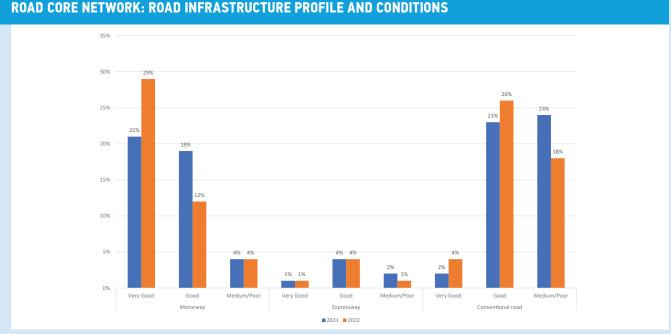


Figure 19. Core Network Road conditions per each road category 2021 vs 2022



Figure 20. Core Network Compliance rate 2021 vs 2022

Compared to last year's report, there is overall progress on all key indicators. The following differences are particularly worth highlighting:

 The share of motorways/expressways in the Core Network has increased from 50.95% to 51.89%;

This means that over 50 km of new highspeed roads went into operation in one year (the first section of the Bar–Boljare highway in Montenegro and sections of Corridor Vc in Bosnia and Herzegovina), enabling smoother traffic flow and safer conditions in the region.

• The percentage of roads in very good and good condition has reached 77.04% over 69.48% in last year's report;

2,753 km of Core Network roads are now reported to be in satisfactory condition, compared to 2,460 km a year ago. Such an increase is the result of finalisation of the projects listed below, but also reflects improvements in regular maintenance (apparently focused on the main corridors) and adjustments/corrections to data reported by the regional partners;

The overall compliance rate has increased from 44.86% in 2020 to 46.80% in 2022.

The natural outcome of these improvements is that approx. 85 km of Core Network roads in the region have been brought up to TEN-T standards, the total length of compliant sections now reaching 1,672.37. It should be noted that

TEN-T NETWORK COMPLIANCE ASSESSMENT

most of the progress comes from new projects which have been finalised since the previous report was published. The gap between roads meeting the infrastructure profile criterion (1,854 km of motorways and expressways) and the currently compliant network (1,672.37, as mentioned above) suggests that almost 200 km of Core Network roads could be upgraded to standard by simply improving the quality of pavement condition, involving less effort than is required by greenfield infrastructure.

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 an alternative fuels infrastructure and the monitoring tools further developed by the EU in this regard.

It is worth pointing out that none of the regional partners have adopted Directive 2014/94/EU and compliance, if any, is based mainly on projects financed by IFIs.

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

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 the 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	
I INIT TOT MORTHMA VACCAIC I		Coverage of maritime ports with mobile or fixed installations to enable circulation on TEN-T Core Network	
Yes LNG for inland 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 the TEN-T Core Network	

Table 2. Alternative fuels sufficiency requirements

The alternative fuels network in the Western Balkans is largely undeveloped, with most of the existing stations having been set up by private initiative. Following market demand, refueling stations are mainly 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.

REGIONAL PARTNER	NO. OF ALTERNATIVE FUEL STATIONS ³				
REGIONAL PARTNER	ELECTRICITY	CNG	LNG	HYDROGEN	
Albania	3	-	-	-	
Bosnia and Herzegovina	42	3	-	-	
North Macedonia	17	6	-	-	
Kosovo	3	-	-	-	
Montenegro	18	-	-	-	
Serbia	55	30	1	-	

Table 3. Overview of the total number of stations available for each regional partner

https://publications.jrc.ec.europa.eu/repository/bitstream/JRC97690/eur_27468_en_online_v3.pdf
 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)

Only a few of the alternative fuel stations listed are actually located on TEN-T. All are in Serbia where 8 electrical charging points have been deployed on Corridor X (of which 3 are ultra-fast), an increase on the 5 previously reported. Ten additional ultra-fast chargers are to follow, tender for which was launched in July 2022.

Despite Serbia's progress in this regard, if we cumulatively apply the sufficiency requirements for all mandatory alternative fuels under Directive 2014/94/EU, overall compliance in the region remains very low. Once TODIS data is fully available, it will be possible to quantify it in future reports.

TEN-T Comprehensive Network Compliance

The total length of the TEN-T Road Comprehensive network (outside the TEN-T Core) is **1,763.16 km**, of which:

- · 111 km motorways;
- · **61.88 km** expressways;
- **1,590.28 km** conventional roads.

Assessment of TEN-T Comprehensive Network conformity was mainly based on the infrastructure profile and condition criterion, compliance with ITS, tolling and safety directives being assessed horizontally. Details are given below.

a) Infrastructure profile and conditions

As provided under Article 18 of Regulation 1315/2013, TEN-T roads should be motorways, expressways, or conventional strategic roads. Conventional strategic roads are further defined

under Art. 17.3.c as roads that are neither motorways nor expressways but still:

- a) play an important role in long-distance freight and passenger traffic;
- b) integrate the main urban and economic centers:
- 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".

Compliance with TEN-T standards for motorways and expressways on the Comprehensive Network have been assessed in relation to the current condition of the infrastructure (similarly to the Core Network). The same approach was taken for Comprehensive Network conventional roads, in consideration of the fact that no systematic safety assessment is currently performed in the region as per the provisions of Directive 2008/96/EC. While assuming for the purposes of the present report that a conventional road in very good or good state automatically qualifies as sufficiently safe, it is, however, acknowledged that this is far from always being the case. Progress in transposing road safety legislation by regional partners and initiating TODIS should provide sufficient input for a revised methodological approach in future reports.

It should be noted that the methodology adopted for the 2022 report is similar to that used last year, which makes the conclusions of the two documents fully comparable.

The results of this analysis are given in the charts below and highlight the changes since last year.

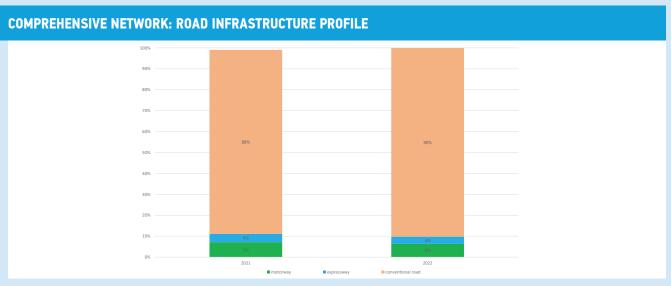


Figure 21. Comprehensive Road Network Profile Compliance 2021 vs 2022

TEN-T NETWORK COMPLIANCE ASSESSMENT

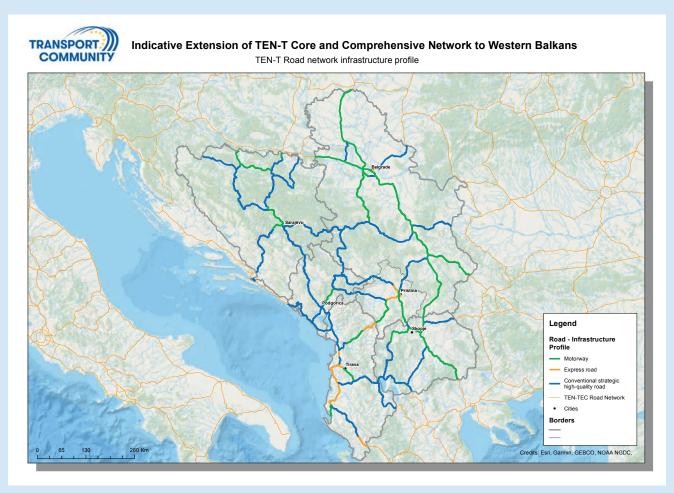


Figure 22. Road infrastructure profile map

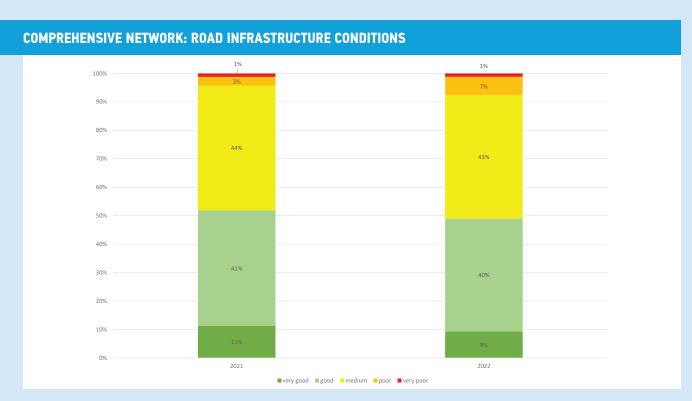


Figure 23. Comprehensive Road Network Condition Compliance 2021 vs 2022

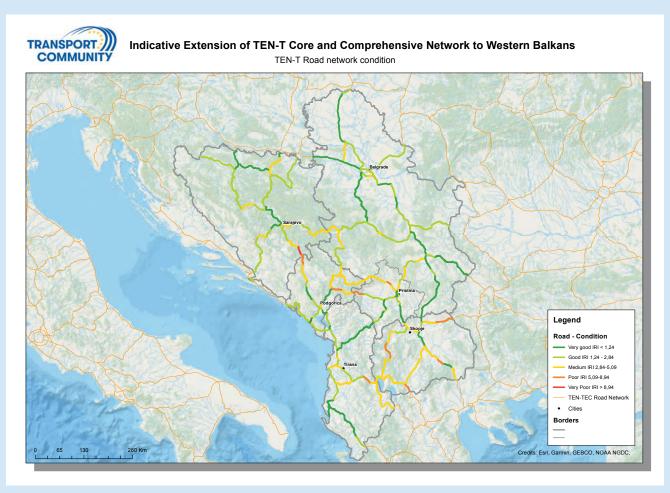


Figure 24. Road network condition map

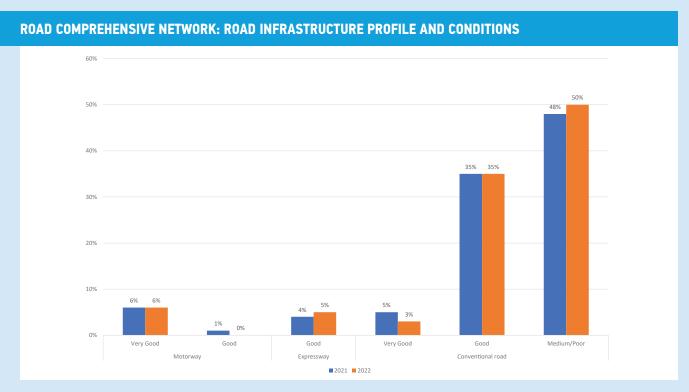


Figure 25. Comprehensive Road Network conditions per each road category 2021 vs 2022

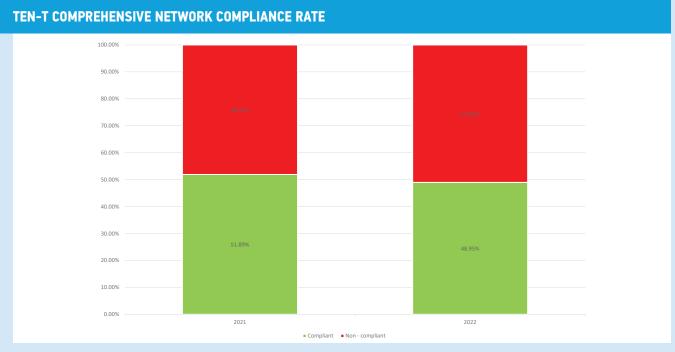


Figure 26. Comprehensive Road Network Compliance (profile and condition) 2021 vs 2022

The following differences from last year's report on the progress of road network development are worth pointing out:

 There has been no progress in upgrading to motorway/expressway standards on the Comprehensive Network;

The total length of motorways/expressway on the Comprehensive Network has remained low, with just 220 km of high-speed road out of a total of 1,763 km. The slight differences from last year stem from some road sections being re-categorised based on updated information received from the regional partners. While there are some ongoing projects on the Comprehensive Network to improve the infrastructure profile (such as Pojate – Preljina and Novi Sad – Ruma in Serbia or the newly promoted Banja Luka – Prijedor project in Bosnia and Herzegovina), focus remains on the Core Network and no significant improvements are therefore expected in the near future.

• There has been a gradual decline in the overall quality of road surface.

The share of roads in very good condition decreased from 11.22% to 9.35%, while roads in good condition are now only 39.60% compared with 40.67% last year. 6.50% of Comprehensive Network roads are now in bad shape, almost doubling the 2021 rate (3.03%). Overall, this means that more than 100 km

of roads on the Comprehensive Network are now in worse shape than last year.

 As such, the overall compliance rate of the Comprehensive Network declined from 51.89% last year to 48.95% now, as illustrated in the above graph.

In view of the fact that under current methodology, Comprehensive Network compliance is basically a matter of road condition, the decrease is a natural consequence of deficient maintenance. This trend is worrisome, not just from the perspective of TEN-T compliance targets but also because it casts doubt on the overall efficiency of large greenfield investments (a maintenance backlog could undermine the economic benefits of new projects).

b) ITS Deployment

The adoption of the Road Action Plan led to ITS-related measures gaining momentum, and some progress was achieved in this regard. Preparation of ITS strategies is back on track after the delays experienced at the outset of the projects supported by the World Bank and the EU-financed CONNECTA. As a result of these projects, it is expected that by the end of 2023 all regional partners will have adopted strategies for ITS deployment.

There is a proliferation of Traffic Control Centres in the region - Bosnia and Herzegovina already has 3 in operation, Montenegro 1 for the newlyopened Matesevo – Smokovac section, Serbia is constructing 2 Traffic Management Centres (Belgrade and Nis) and Albania is planning soon to initiate deployment of ITS on 200 km of the Core Network and build a Traffic Control Centre. North Macedonia is in process of selecting the area for deploying a National Traffic Control Centre. It is important to mention that in cases of projects financed by IFIs, compliance with the ITS Directive is ensured throughout the design phase.

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

REGIONAL	ITS DEPLOYED			
PARTNERS	Length (km)	Traffic Control Center		
Albania	-	No		
Bosnia and Herzegovina	224.3	Yes, 3 centres		
North Macedonia	-	No		
Kosovo	-	No		
Montenegro	40.8	Yes		
Serbia	944.56	Ongoing (2)		

Table 4. Deployment of ITS in Regional Partners

Compared with last year's figures, there has been some progress in Bosnia and Herzegovina resulting from the opening of new adequately equipped motorway sections. The same can be said for Montenegro after the inauguration of the first section of the Bar – Boljare motorway. More progress is expected in the year to come, in line with estimated completion schedules for ongoing projects.

c) Tolling interoperability

Tolling interoperability is only relevant for regional partners that have adopted this user charging method. This is the case in Bosnia and Herzegovina, North Macedonia and Serbia, where the entire motorway network is tolled. Montenegro and Albania introduced tolling on some sections, while Kosovo is still assessing toll introduction.

There is partial transposition of Directive 2004/52/EC on the interoperability of electronic road toll systems in Bosnia and Herzegovina and Serbia. Montenegro has drafted 5 rulebooks and partially transposed the Directive. No further progress has been achieved among the remaining regional partners.

The toll systems already in place, whilst different, are all distance-based, and potentially interoperable. Electronic distance-based tolling has already been introduced in four regional partners, see Table 18 below.

DECIONAL	TOLLING SYSTEM CHARACTERISTICS			
REGIONAL PARTNERS	Length (km)	Tolling system in place	Managing Authority	
Albania	120	Distance based/ DSRC 5.8 GHz Toll plazas, cash, card	Private 30 years concession contract	
Bosnia and Herzegovina	217	Distance based/ DSRC 5.8 GHz Toll plazas, cash, card and e-tolling (ACC tag)	Autoceste BiH/ Autoputevi RS	
North Macedonia	242	Distance based/ DSRC 5.8 GHz Toll plazas, cash, card and e-tolling (ACC tag and smart card payments)	Public Enterprise for State Roads (PESR)	
Kosovo	-	-	-	
Montenegro	Sozina tunnel (5 km)	Tunnel toll Toll gate, cash, card, e-tolling (smart card system)	Monteput.o.o (state owned)	
Serbia	830	Distance based/ DSRC 5.8 GHz Toll plazas, cash, card and e-tolling (ACC tag)	Public Enterprise Roads of Serbia (PESR)	

Table 5. Overview of tolling system in regional partners

In order to support the regional partners' efforts, the Transport Community has commissioned a dedicated Technical Assistance to carry out a baseline and financial assessment and produce a roadmap for achieving tolling interoperability. The project outcome will prepare the ground for more concrete action and progress in the coming years.

Overall compliance assessment

Conclusions on each compliance criterion are given below.

a) Infrastructure profile and condition

Overall information on the TEN-T Road Network infrastructure profile and condition is given in the following charts:

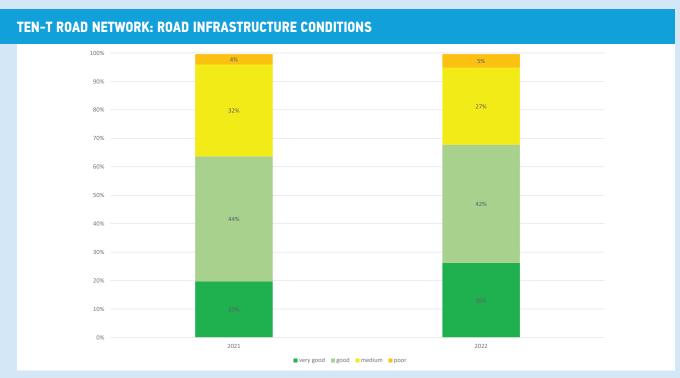


Figure 27. TEN-T Road Network Infrastructure Condition 2021 vs 2022

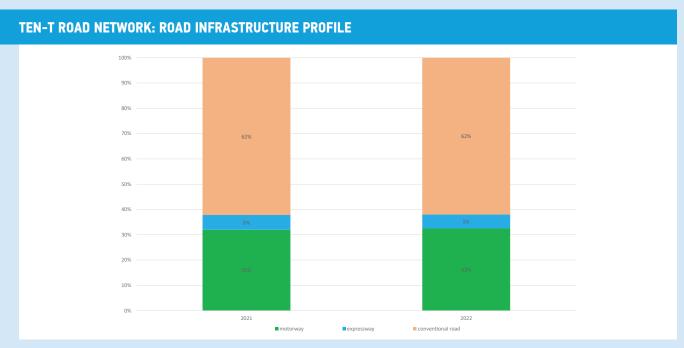


Figure 28. TEN-T Road Network Infrastructure Profile 2021 vs 2022

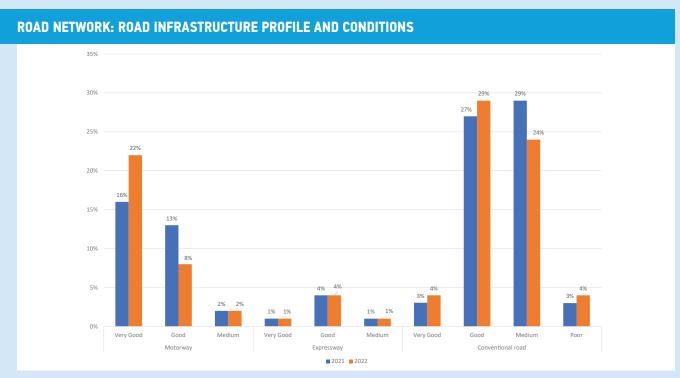


Figure 29. TEN-T Road Network conditions per each road category 2021 vs 2022

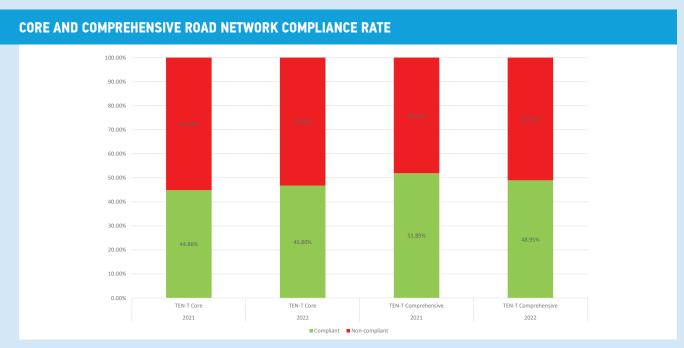


Figure 30. Core and Comprehensive Compliance Rate (infrastructure and profile) 2021 vs 2022

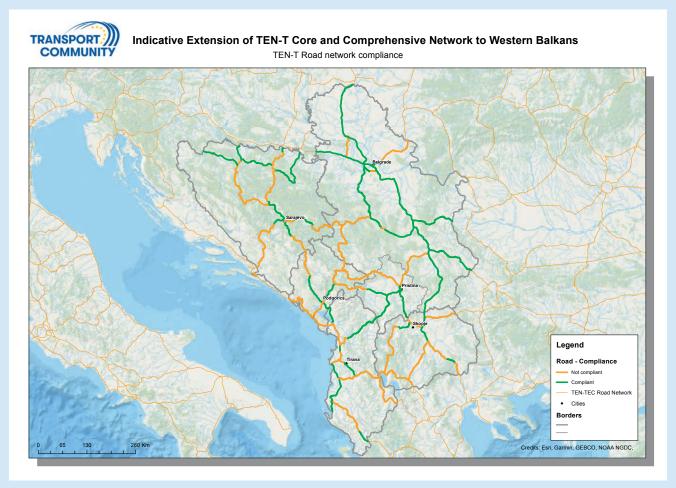


Figure 31. Road network compliance map

TEN-T compliance in the road sector is close to last year's figure, with a slight increase on the Core but a corresponding decrease on the Comprehensive Network. This seems to reflect both the priority given to the Core Network and the region's desire for large investment projects, while far less importance is given to systematic maintenance of existing assets. This risk has been highlighted from the first TEN-T Annual Report onward, and now, unfortunately, seems to have manifested itself to some extent. The decrease in compliance on the Comprehensive Network has been caused by deterioration of road surface conditions.

b) Alternative fuels

As overall compliance is close to zero, substantial effort will be required to ensure adequate deployment of alternative fuel infrastructure in the region. This will take place as part of the Road Action Plan, which clearly lists deadlines and action to be taken. Albania and Serbia have taken steps to deploy electric chargers on their networks (10 more ultra-fast chargers should soon be installed on Corridor X). Action has also been taken at horizontal level through the CONNECTA Technical Assistance Programme to develop a

strategic framework for deployment of e-chargers in the Western Balkans.

Progress will continue to be tracked and will hopefully soon materialise in the full compliance of certain sections with alternative fuels sufficiency requirements.

ITS, e-tolling, safety and tunnels compliance

Regulation 1315/2013 does not impose specific targets for 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. However, adoption of ITS Strategies/Action Plans and full transposition of the relevant EU Directive would put the process on a more systematic track and ensure long-term compliance with TEN-T standards.

TEN-T NETWORK COMPLIANCE ASSESSMENT

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 of the institutional set-up it provides. This is a long-term process currently 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 long. For tunnels at various stages of design or preparation, this is achieved on a project basis. In the case of tunnels already 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 a 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.

4.1.3 INLAND WATERWAY AND MARITIME TRANSPORT

The legal framework for developing the Indicative Extension of the TEN-T Core and Comprehensive Network regarding inland waterways and ports is contained in Regulation (EU) 1315/2013 together with Commission Regulation (EU) 2016/758 amending Regulation (EU) No 1315/2013⁴.

Inland waterway and Maritime Compliance indicators

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

This report will assess the same compliance indicators as the previous one for inland waterways in the Western Balkans:

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

Compliance indicators for Core inland ports in the Western Balkans:

- 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.

Compliance indicators for Core and Comprehensive maritime ports:

- CEMT connection (Class IV waterway connection where possible);
- Connection to rail:
- Connection to road;
- Availability of clean fuels;
- Facilities for ship-generated waste
- VTMIS
- 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.



Figure 32. Indicative extension of the TEN-T Comprehensive and Core Inland Waterways and Ports to the Western Balkan Region

⁴ 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 of ports

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 inland waterway. 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.

• TEN-T Core Network Compliance

Compliance assessment for each indicator:

Port name	Rail connection	Road connection	CEMT Connection	Clean fuels availability	Terminal availability
Belgrade	YES	YES	YES	NO	YES
Novi Sad	YES	YES	YES	N0	YES
Brcko	YES	YES	YES	NO	YES
Bosanski Samac	YES	YES	YES	N0	YES

Table 6. Compliance assessment for Core inland ports – status in 2022

Source: Transport Community Permanent Secretariat, based on direct inquiry to regional partners and ports

According to data received from the regional partners, in 2022Core inland ports of the extended TEN-T to the Western Balkans continued to be compliant with all requirements apart from clean fuels availability. In other words, the 2021 situation remains unchanged.

The only novelty which does not at this time affect the indicator is that Serbia is considering the initiation of small-scale pilot projects for alternative fuels in inland waterways, based on the results of the studies, but not directly connected to the core Ports of Belgrade and Novi Sad. This will be monitored in future reports.

Some of the ports on the Danube and the Sava have promising potential to become Core or comprehensive ports in the ongoing TEN-T revision, as they comply with requirements, including statistical data.

All ports remained compliant with requirements for terminal availability, rail, road and CEMT connection. In 2023, the Transport Community Permanent Secretariat is planning a workshop in an EU Core Inland Waterway port on best practices for alternative fuels deployment. This, it is hoped, will have a positive impact on further planning of projects addressing the alternative fuels availability indicator.

River	Network section	Western Balkans regional partner code	TEN-T (Core/Comprehensive) 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	Υ
Danube	km 1295.0-1075.0	Serbia	Core	220 km	VIc-VII	2.5-3.5 m	8.44 - > 9.15	Υ
Danube	km 1075.0- 845.5	Serbia - Romania	Core	229.5 km	VII	3.5 m	> 9.15	Υ
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 178.0-0.0	Serbia	Core	178 km	IV	2.5 m	6.46 -> 7.0	Υ
Tisa	km 164.0-0.0	Serbia	Comprehensive	164.0 km	IV	2.5 m	> 7.60	N

Table 7. Compliance assessment for inland waterways - status in 2022

Source: Transport Community Permanent Secretariat, based on direct inquiry to regional partners

As shown in the table, in 2022 the inland ports of the extended TEN-T Network complied with most indicators, 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 at the Serbia - Bosnia and Herzegovina border (less than 2.5 m), and

compliance with the RIS on the Tisa river, where the RIS has not yet been deployed.

It should be mentioned that due to low precipitation in the summer of 2022, the 2.5 m draught was shallower on many sections of the Danube, some of which had to be dredged by the Serbian authorities to enable navigability.

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	N0	YES	NO
Bar	YES	YES	N/A	YES	N0	YES	Partially

Table 8. Compliance assessment for Core Maritime Ports – status in 2022

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 retained a high compliance for most of the indicators in 2022.

Non-compliance at Durres is due to limited rail connection, as currently only the eastern port terminal is linked to the national network. Its multimodal dimensions therefore very restricted. As for compliance with VTMIS, according to the available data VTMIS has not yet been fully implemented in Albania.

As reported in 2021, the Port of Durres is noncompliant in clean fuel availability and no projects to address this are planned for the moment. Durres is, however, compliant in road connection, facilities for ship-generated waste and terminal availability.

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 continues to be only partially compliant.

Like Durres, in 2021/2022, the Port of Bar was still non-compliant with availability of clean fuels, and no planned projects have been reported to address this failure.

It is important to mention that in May 2021, the TCT Secretariat organized a workshop for Western Balkans Maritime Ports (Bar and Durres) on the greening of ports. This included alternative fuel projects as per TEN- T Regulation 1315/2013 in the Port of Piraeus, Greece. The workshop facilitated better dialogue among the participants and possible future project partner initiatives on port sustainability projects, especially studies on alternative fuels. This kind of workshop together with examples of best practice in alternative fuel deployment in EU core maritime ports will continue in future.

• TEN-T Comprehensive Network Compliance

The Port of Vlore in Albania is the only comprehensive maritime port in the Western Balkans; no comprehensive inland waterway ports have been identified in the extended TEN-T. The table below shows the status of compliance of the Port of Vlore in 2022 according to the key performance indicators for ports.

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

Table 9. Compliance for the port of Vlore in 2022

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, in 2022, the Port of Vlore maintained compliance with the following indicators: facilities for shipgenerated waste, road connection and terminal availability. Rail connection and VTMIS, however, were not compliant, as Albania has not yet fully implemented VTMIS at national level.

Overall compliance assessment

ALBANIA

Efforts are still needed to complete the institutional and legislative framework for VTMIS in Albania. This remains a high priority for the country in the coming period.

Plans to relocate the Port of Durres to Porto Romano to the north continued in 2022. Albania undertakes the responsibility to keep and ensure adherence to TEN-T requirements.

Availability of clean fuels might be considered through developing the green ports concept which would improve environmental sustainability.

Regarding the Port of Vlore, there are still no projects planned to address the problem of noncompliance in terms of rail connection.

BOSNIA AND HERZEGOVINA

The project for demining the right bank of the Sava has not kicked off yet but has the support of all stakeholders (World Bank) as well as a strategic base in the EIP for the Western Balkans.

The ports of Brcko and Bosanski Samac have no plans as yet to address non-compliance with the alternative fuel availability indicator.

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, valid until 2025. Any future decision on the location of LNG refueling 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 the prospects for utilisation of LNG-powered vessels.

MONTENEGRO

VTMIS in Montenegro has been partially implemented. Some improvements were visible in 2021/2022 and it remains a high priority for the Government of Montenegro.

Similarly to the Port of Durres, addressing noncompliance 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 continued to be compliant with all indicators throughout 2022, apart from clean fuels availability.

Deployment of the RIS on the Tisa River was finished in 2021, as per the Republic of Serbia's Strategy on Waterborne Transport Development 2015 - 2025.

4.1.4 AIRPORTS

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 with Commission Regulation (EU) 2016/758 amending Regulation (EU) No 1315/2013.

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.

Primary infrastructure characteristics and equipment TEN-T Core Network

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



Figure 33. Indicative extension of TEN-T Comprehensive and Core Airports to the Western Balkans Region

Overall compliance assessment

Conclusions for each compliance standard are 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 a direct rail connection.

ROAD AND RAIL CON	NECTION	CONNECTIO	ON TO RAIL	CONNECTION TO MOT	ORWAY/EXPRESSWAY
STATUS OF AIRPO	ORTS	2021	2022	2021	2022
Albania Tirana		No	No	Yes	Yes
Pagnia and Harragavina	Sarajevo	No	No	Yes	Yes
Bosnia and Herzegovina	Banja Luka	No	No	Yes	Yes
North Macedonia	Skopje	No	No	Yes	Yes
Mortin Macedonia	Ohrid	No	No	Yes	Yes
Kosovo	Pristina	No	No	Yes	Yes
Montenegro	Podgorica	No	No	Yes	Yes
	Beograd	No	No	Yes	Yes
Serbia	Nis	No	No	Yes	Yes
	Kraljevo	No	No	Yes	Yes

Table 10. List of airports with road and rail connections
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.⁵ It should be pointed out that this criterion is to be applied according to market requirements and that airports need to be prepared 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.

			AVAILABILITY OF A	LTERNATIVE FUELS		
REGIONAL PARTNER	AIRPORT	TANK FACILITIES FO	R AVIATION BIOFUEL	AVAILABILITY OF ALTERNATIVE FUELS FOR AIRPORT GROUND SERVICES		
		2021	2022	2021	2022	
Albania	Tirana	No	No			
Deenie and Harmanavina	Sarajevo	No	No	Yes	Yes	
Bosnia and Herzegovina	Banja Luka					
North Macedonia	Skopje	No	No			
North Macedonia	Ohrid		No			
Kosovo	Pristina	No	No	No	No	
Montenegro	Podgorica	No	No			
	Beograd	No		Yes	Yes	
Serbia	Nis			Yes		
	Kraljevo			Yes		

Table 11. List of availability of alternative fuels in airports

c) Terminal availability

All airports are open to international traffic with foreign air-carriers operating in and out. Some

airports such as Sarajevo and Podgorica reached, or came close to reaching, their capacity limit.

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



5. TEN-T PROJECTS

5.1 METHODOLOGICAL ASPECTS

The TCT Secretariat continues to track TEN-T development in the region, collecting and processing relevant information on all ongoing projects while:

- a) providing an outline of overall efforts currently undertaken by the regional partners to upgrade the TEN-T network and
- b) estimating TEN-T future compliance rates based on completion dates for scheduled projects and their anticipated impact on the network.

The methodology used for project definition and selection criteria remains the same, making the results of this exercise fully comparable from one year to the next.

5.2 INFRASTRUCTURE PROJECTS

5.2.1 RAILWAY PROJECTS

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

The situation has changed, and railway transport has become a certain priority. 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 construction and upgrading of transport corridors across its member

states and neighboring countries in order to remove bottlenecks and promote sustainable and seamless transport. Promoted under the Trans-European Transport Network (TEN-T) policy, projects contribute to the completion of the Core Network that will connect the EU and the region. The EU provided direct support to the implementation of rail projects through the Economic and Investment Plan adopted in 2020. Details of EIP rail projects are given in Annex II of the present document.

Overall, the Transport Community Permanent Secretariat has identified fifteen finance-secured or ongoing rail projects. The length of rail sections currently under various forms of upgrading is 785 km (all on the Core Network). Priority has been given to the Core Network. The projects' overall value is 2,824 billion EUR.

All 15 identified rail transport projects in the region should be completed by 2027. During 2021, two projects were completed:

- Belgrade Stara Pazova Novi Sad 80 km, 900 mil EUR, new infrastructure, speed 200 km/h.
- Bijelo Polje Kolasin 45 km, rehabilitation done, speed 100 km/h.

Current status of ongoing and finance-secured projects:

In Albania, the rail section between Tirana and Durres is under construction. However, Albania prepared a design for the sections Vore – Hani Hotit (an investment already approved by the WBIF) as well as Durres – Rogozhine and Rogozhine – Elbasan. All predicted works take due account of TEN-T requirements.

TEN-T PROJECTS

In Bosnia and Herzegovina, rail section Samac – Doboj – Rjecica is ready for construction. However, BIH should resolve issues with the EBRD and launch the tender procedure.

In Montenegro, reconstruction of thirteen critical concrete bridges and eight tunnels should be completed in 2022 and 2023.

On 19 October 2022, North Macedonia has started the construction on phase 1 and phase 2 of the most important rail project on Corridor VIII between Kumanovo and the Bulgarian border with full respect of TEN-T requirements. Overhaul project of the Rail Corridor X has also started on 20 October 2022 (expected duration 36 months).

Construction works in Kosovo on the Hani Elezit – Kosovo Polje sections should be finalised by 2023.

Serbia invested substantially in the railway infrastructure. The Belgrade – Novi Sad section

was completed in March 2022 and is currently the only section in the Western Balkans where speeds exceed 120 km/h. In the first six months of operation, the Serbian national railway carried around 1 million passengers, ca. 30% of the total passenger number. Construction works on the section from Novi Sad to the Hungarian border started in April 2022 and should be completed in 2024.

The Subotica – Horgos project will be completed this year.

A list of TEN-T projects currently ongoing for each regional partner is given in Table 12.

A detailed overview of railway projects in all regional partners will be given separately in Annex II of this document.

Indicative Extension of TEN-T Core and Comprehensive Network to Western Balkans Ongoing rail projects



Figure 34. Ongoing Rail Projects Map

5.2.2 ROAD PROJECTS

The list of ongoing road projects in the region has been adjusted based on the latest information and data from the regional partners. The following changes from last year's report may be observed:

- Projects that left the list "naturally" on completion and operationalisation (best-case scenario);
- Projects that left the list due to downgrading in terms of priority and/or no longer meeting the key criterion for "ongoing" status (ensured financing);
- Projects (temporarily) put aside further to technical clarification with the EC on the limits of TEN-T network alignment adjustment;
- Projects that entered the list by hitting the key reference milestone of ensured financing.

Apart from projects being deleted or added to the list, updating also resulted in cost adjustments

in the case of progress and/or changes to the completion deadline. For many projects, the estimated completion date was simply postponed, which reflects both unrealistic planning and delay in implementation. While this was not unexpected given the region's track record, the amount of delay/postponement recorded for a single year is nonetheless cause for concern.

Overall, the Transport Community Permanent Secretariat has identified 39 road projects ongoing in the region (29 on the Core Network and 10 on the Comprehensive Network). The combined length of road sections currently undergoing various forms of upgrading is 809.01 km (498.51 km on the Core and 310.5 km on the Comprehensive Network). The priority given to the Core Network is also reflected in the projects' overall value (6,694.87 million EUR for the entire network, of which 4,694.17 million EUR on the Core and 2,000.7 million EUR on the Comprehensive Network).



Indicative Extension of TEN-T Core and Comprehensive Network to Western Balkans

Ongoing road projects

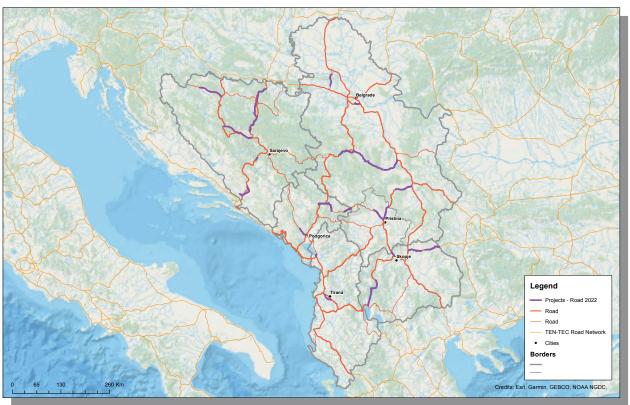


Figure 35. Ongoing Road Projects Map

5.2.3 INLAND WATERWAYS AND MARITIME PROJECTS

Inland waterway projects

Current ongoing projects in the inland waterway sector, although relevant (upgrades of various inland waterway ports in Serbia, upgrade of the shipment capacities at the Port of Brcko), do not directly address the TEN-T key indicators for compliance. The project mentioned in the previous report, i.e., *River training and dredging works on critical sectors on the Danube river between Backa Palanka and Belgrade* and targeting the permissible draught - was successfully finished in late 2021.

Maritime projects

Current ongoing projects in the maritime sector, although relevant, do not directly address the TEN-T key indicators for compliance. The project in the Port of Durres (*Rehabilitation of Quays 1 and 2 on the Western Terminal of the Port of Durres*) is financed by the 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 the Port of Durres as well as its TEN-T compliance, the 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.

5.2.4 AIRPORT PROJECTS

Currently, four ongoing projects address the TEN-T compliance indicators for airports: Sarajevo Airport Terminal B Extension; Modernisation and Connection of the Airport to the Railway Network in Tirana, Albania; Terminal Building Expansion in Nis, and Modernisation of Belgrade Airport.

The Sarajevo project aims to provide more airport capacity by extending Terminal B and the east apron. Estimated project cost is 22.8 million EUR and the deadline for completion is December 2022. Several other projects for modernisation of Sarajevo airport are in the pipeline, with tender or project documentation being prepared.

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.

At Nis, the existing terminal building cannot meet future airport needs. It is planned to reconstruct the existing area of 2,115 m² and build new facilities of 3,600 m². A permit has been obtained and public procurement for construction work closed on 20 January 2022. Deadline for completion of works is end-2023.

Work on modernising and expanding Belgrade's Nikola Tesla Airport began in early 2020. Most of thiswill be completed in the course of 2023. Currently, works are proceeding at several locations. These include expansion of the terminal, a new runway and additional taxiways, additional aircraft parking positions, a new de-/anti-icing pad, additional car park space and new access roads⁶.

https://www.beg.aero/eng/construction/the_project

Corridor/ Route/Node	Regional Participant	Name of the project	EIP Flagship (Yes/No)	Core/ Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
		RO	AD PROJEC	TS				
Corridor VIII	Albania	Construction of Tirana bypass (Kashar - Vaqarr - Mullet)	Yes	Core	New infrastructure	21.5	150.88	2025
Route 2b	Albania	Skhodra bypass	No	Comprehensive	New infrastructure	6.6	18.1	2023
Corridor Vc	Bosnia and Herzegovina	Vukoslavije - Johovac	Yes	Core	New infrastructure	36	456.9	2025
Corridor Vc	Bosnia and Herzegovina	Johovac - Rudanka	Yes	Core	New infrastructure	5.5	78.4	2022
Corridor Vc	Bosnia and Herzegovina	Rudanka - Putnikovo Brdo	Yes	Core	New infrastructure	5.2	164.1	2026
Corridor Vc	Bosnia and Herzegovina	Putnikovo Brdo - Medakovo	Yes	Core	New infrastructure	6.23	93	2024
Corridor Vc	Bosnia and Herzegovina	Medakovo - Ozimica	Yes	Core	New infrastructure	21.29	160.23	2025
Corridor Vc	Bosnia and Herzegovina	Ozimica - Poprikuse	Yes	Core	New infrastructure	13.74	172.7	2025
Corridor Vc	Bosnia and Herzegovina	Poprikuse - Nemila	Yes	Core	New infrastructure	5.5	164.8	2024
Corridor Vc	Bosnia and Herzegovina	Nemila - Vranduk	Yes	Core	New infrastructure	5.7	34.6	2024
Corridor Vc	Bosnia and Herzegovina	Vranduk - Ponirak	Yes	Core	New infrastructure	5.3	65.5	2024
Corridor Vc	Bosnia and Herzegovina	Ponirak - Vraca	Yes	Core	New infrastructure	3.4	60	2023
Corridor Vc	Bosnia and Herzegovina	Vraca (Tunnel Zenica) - Donja Gračanica	Yes	Core	New infrastructure	3.9	57.6	2021
Corridor Vc	Bosnia and Herzegovina	Tarčin - Ivan	Yes	Core	New infrastructure	7.03	124.2	2022
Corridor Vc	Bosnia and Herzegovina	Mostar South - Tunnel Kvanj	Yes	Core	New infrastructure	9.2	63	2024
Corridor Vc	Bosnia and Herzegovina	Tunnel Kvanj - Buna	Yes	Core	New infrastructure	5.2	98	2025
Corridor Vc	Bosnia and Herzegovina	Buna - Počitelj	Yes	Core	New infrastructure	7.2	22	2025
Corridor Vc	Bosnia and Herzegovina	Počitelj - Zvirovići	Yes	Core	New infrastructure	11.1	84.6	2023
Route 2a	Bosnia and Herzegovina	Jajce - Lašva Express Road	No	Core	New infrastructure	64.2	536.95	2027
Route 9a	Bosnia and Herzegovina	Banja Luka - Prijedor	No	Comprehensive	New Infrastructure	40.7	297	2027
Route 6	Kosovo	Construction of Pristina – Mitrovica Highway	Yes	Core	New infrastructure	19.4	42	2023
Route 7	Kosovo	Construction of Pristina – Merdare Motorway	Yes	Core	New infrastructure	28.86	210	2025
Route 6	Montenegro	Rozaje - Spiljani rehabilitation	No	Comprehensive	Reconstruction/ Rehabilitation	20	19	2022
Route 2b	Montenegro	Danilovgrad - Podgorica rehabilitation	No	Comprehensive	Reconstruction/ Rehabilitation	15	23	2022
Route 6	Montenegro	Berane - Bijelo Polje - Mojkovac rehabilitation	No	Core/ Comprehensive	Reconstruction/ Rehabilitation	43	36	2023
Corridor VIII	North Macedonia	Construction of Rankovce – Kriva Palanka Expressway	No	Core	New infrastructure	23	85.5	2022
Corridor VIII	North Macedonia	Rehabilitation and upgrade of Kriva Palanka - Deve Bair road section	No	Core	Reconstruction/ rehabilitation	13.2	13.67	2021
Corridor VIII	North Macedonia	Rehabilitation and upgrade of Kumanovo – Stracin road section	No	Core	Reconstruction/ rehabilitation	15.2	4.74	2022
Corridor VIII	North Macedonia	Construction of the Bukojcani – Kicevo Motorway section	No	Core	New infrastructure	10.7	120	2024
Corridor VIII	North Macedonia	Construction of the Kicevo - Ohrid Motorway	No	Core	New infrastructure	57	598	2023
Route 6	North Macedonia	Construction of Blace – Skopje (Stenkovec Interchange) Motorway Section	No	Core	New infrastructure	12.5	120.8	2025
Corridor X	Serbia	Construction of Belgrade bypass (sector B)	No	Core	New infrastructure	19.5	207	2021
Route 7	Serbia	Nis - Plocnik	Yes	Core	New Infrastructure	33	255	2026
Route 9a	Serbia	Novi Sad - Ruma	No	Comprehensive	New infrastructure	16.4	606	2025
Route 5	Serbia	Pojate - Preljina	No	Comprehensive	New infrastructure	112.3	745	2023
Route 4	Serbia	Preljina - Pozega	No	Core	New infrastructure	30.96	450	2022

TEN-T PROJECTS

Corridor/ Route/Node	Regional Participant	Name of the project	EIP Flagship (Yes/No)	Core/ Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline
		RAIL	WAY PROJE	CTS				
Corridor Vc	Bosnia and Herzegovina	Corridor Vc-Overhaul and modernisation of the railway section Šamac-Doboj - Rječica	Yes	Core	Reconstruction/ rehabilitation	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	Yes	Core	New infrastructure, Reconstruction/ rehabilitation	41	90.45	2023
Corridor VIII	North Macedonia	Rehabilitation of eastern part of Rail Corridor VIII-PHASE I-Section Kumanovo-Beljakovce	Yes	Core	Reconstruction/ rehabilitation	30.8	48.9	2023
Corridor VIII	North Macedonia	Rail Corridor VIII-PHASE 2-Section Beljakovce-Kriva Palanka	Yes	Core	New infrastructure, Reconstruction/ rehabilitation	34	145	2025
Corridor VIII	North Macedonia	Rail Corridor VIII-PHASE 3-Section Kriva Palanka -Deve Bair, border with Bulgaria	Yes	Core	New infrastructure	34	420	2027
Corridor X	Serbia	Reconstruction and modernisation of rail line (Nis) Brestovac - Presevo - state North Macedonia border	Yes	Core	Reconstruction/ rehabilitation	23	60	2023
Corridor X	North Macedonia	Project for track renewal works on the section Nogaevci-Negotino	No	Core	Reconstruction/ rehabilitation	31	9.6	2022
Corridor Xb	Serbia	Reconstruction and modernisation of rail line Novi Sad - Subotica - Kelebija - Hungarian border	No	New infrastructure, Reconstruction/ rehabilitation		108	1021	2025
Corridor Xc	Serbia	Reconstruction and modernisation of Nis - Dimitrovgrad railway line	No	New infrastructure, Core Reconstruction/ rehabilitation		108	268	2024
Route 4	Montenegro	Rehabilitation railway line "Vrbnica- Bar" (rail Route 4) section Kolasin - Bar	Yes	Core	Reconstruction/ rehabilitation	114	244	2024
Route 4	Montenegro	Rehabilitation of 4 tunnels Lot#1, railway line Vrbnica - Bar	Yes	Core	Reconstruction/ rehabilitation		7.5	2023
Route 4	Montenegro	Rehabilitation of 4 tunnels Lot#2, railway line Vrbnica - Bar	Yes	Core	Reconstruction/ rehabilitation		5.7	2023
Route 4	Montenegro	Rehabilitation of 13 concrete bridges along the railway line Vrbnica - Bar, Montenegro	Yes	Core	Reconstruction/ rehabilitation		6.7	2022
Route 10	Kosovo	Railway rehabilitation and modernisation of Route 10 from Hani elezit - Leshak	Yes	Core	Reconstruction/ rehabilitation	149	245	2025
Route 13	Serbia	Modernization and reconstruction of the existing railway line Subotica - Horgos - state border with Hungary	No	Comprehensive	Reconstruction/ rehabilitation	27	90	2022
		AIRP	ORT PROJE	CTS				
Tirana	Albania	Rail connection to airport (construction of new Tirana-Rinas branch line and rehabilitation Durres-Tirana)	No	Core	Reconstruction/ rehabilitation	41	90.45	2023
Sarajevo	Bosnia and Herzegovina	Sarajevo airport Terminal B extension and modernisation	No	Core	Reconstruction/ rehabilitation	/	26.7	2021
Belgrade	Serbia	Modernisation and expanding Belgrade's Nikola Tesla Airport	No	Core	Construction/ reconstruction	/	na	2023
Nis	Serbia	Reconstruction of existing area and construction of new facilities	No	Comprehensive	Construction/ reconstruction	/	na	2023
			TIME PROJE	CTS				
Durres	Albania	Rehabilitation of Quay 1 and Quay at the Western Terminal of Port of Durres	No	Core	Reconstruction/ rehabilitation	N/A	62.4	2023

Table 12. Projects overview

6. TEN-T KEY PERFORMANCE INDICATORS PROGRESS FORECAST

6.1. RAILWAY INDICATORS

As most finance-secured 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 should be taken 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.

a) Electrification

One of the most critical TEN-T performance indicators for railways is network electrification. Enhanced efficiency, lower green gas emissions and low operation and maintenance costs are the main "green" characteristics deriving from this.

If we consider the progress forecast for electrification, it is obvious that the electrified Core Network will grow slightly by around 6% and will reach 80.20%. It is therefore necessary to boost plans for total Core Network electrification in the region.

ELECTRIFICATION - FORECAST

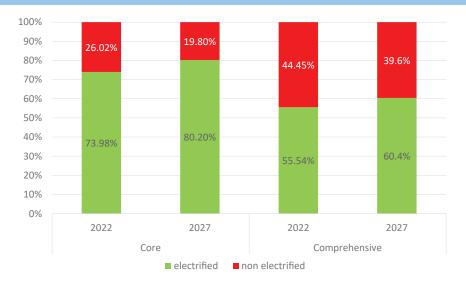


Figure 36. Western Balkans rail network electrification progress forecast for 2027



Electrification forecast 2027



Figure 37. Electrification Forecast 2027 Map

b) Axle Load

Regarding axle load performance on the rail network in 2027, it is evident that 89.36% of the Core and 76.03% of the Comprehensive will be compliant with TEN-T criteria. This constitutes

a significant development in terms of track performance but will only be perfect if the criterion is met by 100% throughout the entire Core and Comprehensive network.

AXLE LOAD - FORECAST



Figure 38. Western Balkans Rail network axle load progress forecast for 2027



Axle load forecast 2027

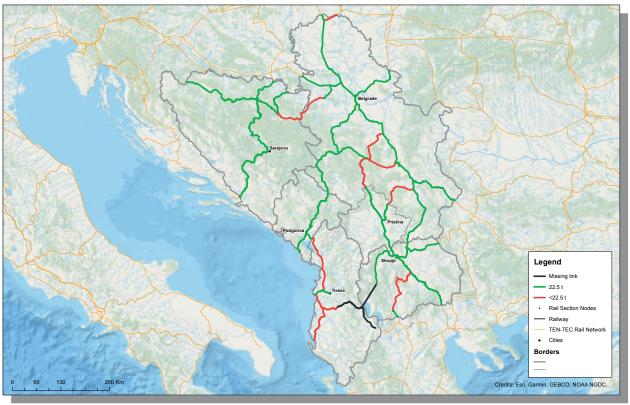


Figure 39. Axle Load Forecast 2027 Map

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 requirement.

Some of the planned projects take account of train length and plan for it wherever possible. However, the deadline for completion of these projects is after 2027, so they are not the subject of this forecast. In other words, infrastructure managers in the region must face this challenge and respect it as a TEN-T requirement. Freight transport business community has also made a strong request for longer trains, since long trains are more efficient and cheaper than short ones.

In five years, it could be possible to operate with higher traction efficiency on 30% of the Core and almost 20% of the Comprehensive Network by adjusting operations, bearing in mind that there are stations capable of accommodating longer trains, but their number is insufficient.

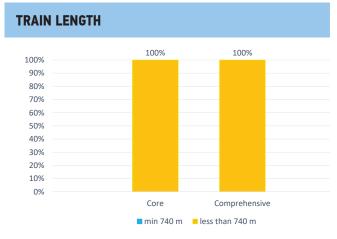


Figure 40. Western Balkans Rail Network train length progress forecast for 2027

d) Design Speed

The two figures below illustrate improvement in design and operational speed. It is clear that when the projects are fully implemented, by 2027 design speed will have improved by 8,7%, a major achievement; however, an overall design speed of 100 km/h throughout the network is desirable.

MINIMUM DESIGN SPEED 100 km/h

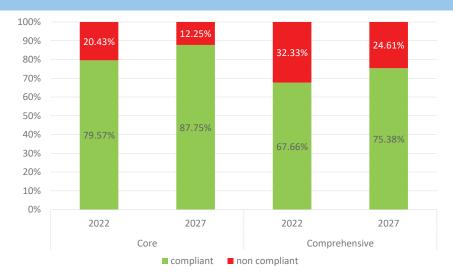


Figure 41. Western Balkans Rail network minimum design speed compliance progress forecast for 2027

e) Operational Speed

On the other hand, significant progress is expected on the operational speed compliance indicator. From 13.58% on the Core and 12.37% on the Comprehensive Network, in 2027 compliance is expected to rise to 49.18% and 38.06% respectively. The situation indicates the unsatisfactory condition

of railways in the Western Balkans and how the maintenance gap impacts on rail competitiveness, but also their readiness to make huge efforts to achieve improvement of conditions in the railway infrastructure.

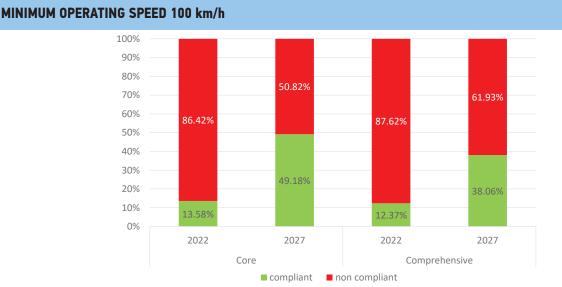


Figure 42. Western Balkans Rail network minimum operating speed compliance progress forecast for 2027

f) ERTMS

ERTMS deployment (track-side) is included in some of the projects planned for the future, but improvement by 2027 will be mainly confined to just one quarter of the Core Network. It is worth mentioning that in 2022, 2.71% of operational

ERTMS are on the Core Network, thanks to the newly-reconstructed Belgrade – Novi Sad line. Nevertheless, significant efforts are for at least the Core Network to be equipped with ERTMS in future.

ERTMS - FORECAST



Figure 43. Western Balkans Rail Network ERTMS compliance progress forecast for 2027

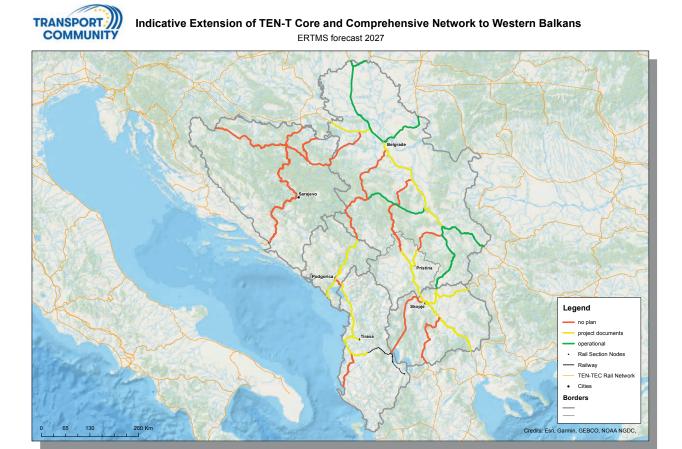


Figure 44. ERTMS Forecast 2027 Map

g) Infrastructure conditions – forecast

One of the best indicators on how the rail network on the Western Balkan will look is the infrastructure condition forecast (see below). It is clear that the projects planned and those already implemented will improve the condition of the infrastructure significantly from 44% to 75% in the categories of "good" and "very good" condition. This does

not mean that the regional partners can afford to relax; maintenance of the network is a permanent task and if we fail in delivering it, all investment in improvement will become obsolete while costs will grow exponentially because of f maintenance failure.

INFRASTRUCTURE CONDITION - FORECAST

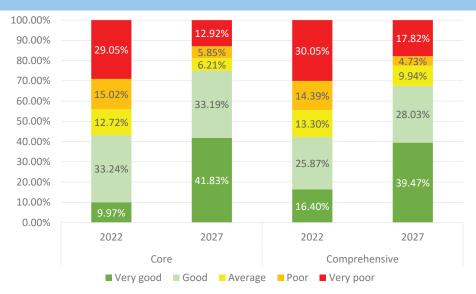


Figure 45. Western Balkans Rail Network Infrastructure condition forecast for 2027



Indicative Extension of TEN-T Core and Comprehensive Network to Western Balkans

Railway infrastructure conditions - forecast 2027

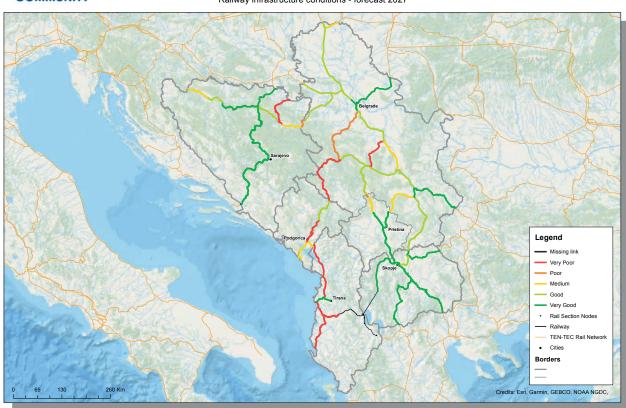


Figure 46. Rail infrastructure conditions forecast 2027 Map

6.2 ROAD INDICATORS

The TEN-T compliance forecast is based on the estimated completion date for ongoing TEN-T projects listed under Section V above.

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

- projects to be completed as per the current implementation deadline;
- · compliance with TEN-T indicators to be achieved as planned;
- no compliance downgrading on any of the network sections (adequate maintenance of assets to be ensured).

The results of this exercise are given below. As information on future alternative fuel-related projects that would ensure full compliance with the sufficiency requirements under the directive is still scarce, the compliance forecasting exercise refers solely to the infrastructure profile and condition criterion.

FORECAST COMPLIANCE RATE BY 2027 / CORE AND COMPREHENSIVE ROAD NETWORK



Figure 47. TEN-T Compliance progress forecast (infrastructure profile and condition)

TEN-T ROAD NETWORK - 2027 COMPLIANCE FORECAST

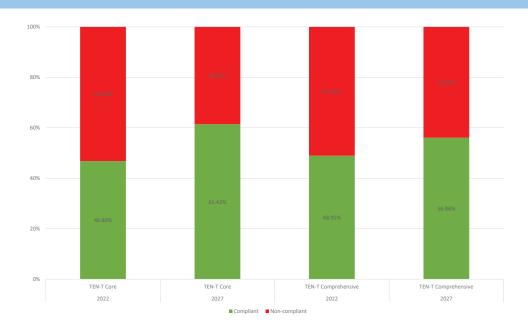


Figure 48. TEN-T road network – 2027 compliance forecast (infrastructure profile and condition)

TEN-T KEY PERFORMANCE INDICATORS PROGRESS FORECAST

Differences are negligible, in any case far less prominent than the significant changes in project list and data would have suggested. This, however, is due to the fact that, despite much postponment, most projects are still scheduled for completion by 2027. The reliability of such predictions is nevertheless doubtful considering the length of delays accumulated in just one year.

6.3. INLAND WATERWAYS AND MARITIME TRANSPORT INDICATORS

Inland waterways indicators

As mentioned earlier, the only currently noncompliant indicator for inland waterway 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 relevant regional partners to develop concepts and studies to address this indicator through proper analysis and approach. This will be done by 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 with this indicator before 2030. As for non-compliance in achieving permissible draught on some sections of the Sava, this is likely to be resolved in the nearfuture through dredging-related projects.

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 is 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. An adequate analysis and a proper approach could result in investments that would ensure availability of alternative fuels for ships. This will be done by implementing the Action plan for Waterborne Transport and Multimodality between 2021 and 2025. However, according to data presently available, it is unlikely that either port will be compliant with the stated indicator before 2030.

6.4. AIRPORT INDICATORS

With four ongoing projects, Tirana will become the first airport with a railway connection, in compliance with TEN-T criteria.

On completion of projects in Sarajevo, Nis and Belgrade, capacity will be improved, and the airports will continue to have terminal availability in the future.

7. OVERALL CONCLUSIONS AND RECCOMENDATIONS

eeting TEN-T standards within the time-frame laid down by Regulation 1315/2013 remains a challenging goal requiring systematic and coordinated efforts on the part of all regional partners.

The progress achieved over the year is noticeable, but so are the weaknesses of the *business-as-usual* scenario (some of them already highlighted in the 5-year rolling work plan drafted by the Transport Community).

- The TEN-T compliance rate has progressed more slowly than anticipated and even decreased in some cases because of insufficient maintenance, resulting in declining infrastructure condition.
- Compliance gaps remain, therefore, significant, requiring well-targeted and calibrated investments over the next few years.
- Available resources, though significant, are far from covering identified needs. This emphasises the importance of a focused investment policy aimed at maximising returns, as the task of upgrading the entire TEN-T Core Network by 2030 to the required standards seems an increasingly challenging one.
- Large projects are implemented at a slower pace than initially estimated, while insufficient maintenance sometimes results in declining quality of the existing assets. Consequently, progressin reaching TEN-T compliance remains slow.
- Improving maintenance is particularly critical, as no consolidated and lasting progress can be achieved if newly-built assets are not adequately taken care of.

- Soft policy measures and small-scale projects that may bring quick and significant benefits in terms of TEN-T compliance standards with only limited financial effort are yet to be promoted and systematically pursued;
- Differences in compliance rates remain high between transport modes and individual criteria and so does the progress achieved in the space of a year, suggesting that discrepancies will remain and even increase in the future.

Better planning and wise resource allocation would be an adequate response to most of the issues highlighted above. Here we list the salient policy recommendations arising from the key conclusions of this year's report:

- With regard to large projects, there is still a strong need to improve the quality and reliability of mid- to long-term planning. The list of priority projects should be closed and no new entries permitted. This will allow all efforts to focus on implementation and delivery.
- An assessment of what is realistically achievable by 2030 should be conducted by each regional partner, based on the inputs and forecasts included in TEN-T annual reports and the 5-year rolling work plan. Alternative upgrade scenarios for non-prioritised sections should also be considered in order to ensure optimal balance between resources and results.
- Maintenance should improve, both in terms of policy planning and tools (currently addressed under the Transport Community's

OVERALL CONCLUSIONS AND RECCOMENDATIONS

Road Action Plan), as should real political commitment and funds allocation. This will have to go hand-in-hand with large infrastructure investments, to secure their targeted benefits.

Quick wins should be identified and promoted more systematically, as a potential solution to increase TEN-T compliance rates in due observance of the limited available resources.



ANNEX I – ROAD PROJECTS OVERVIEW

ALBANIA

Albania is currently implementing a total of 2 TEN-T projects, with a combined value of 168.98 million EUR (150.88 on the Core Network and 18.1 on the Comprehensive Network).

The combined length of road sections currently subject to upgrading is 28.1 km (21.5 on the Core Network and 6.6 on the Comprehensive Network).

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

Name of the project	Core/ Comprehensive Network	Foreseen intervention	Length (km)	Cost (M€)	Estimated completion deadline	EIP
Construction of Tirana bypass (Kashar - Vaqarr - Mullet)	Core	New infrastructure	21.5	150.88	2025	Yes
Construction of Shkodra Bypass	Comprehensive	New infrastructure	6.6	18.1	2023	No

Table 13. List of TEN-T projects in Albania



Indicative Extension of TEN-T Core and Comprehensive Network to Western Balkans TEN-T Projects in Albania

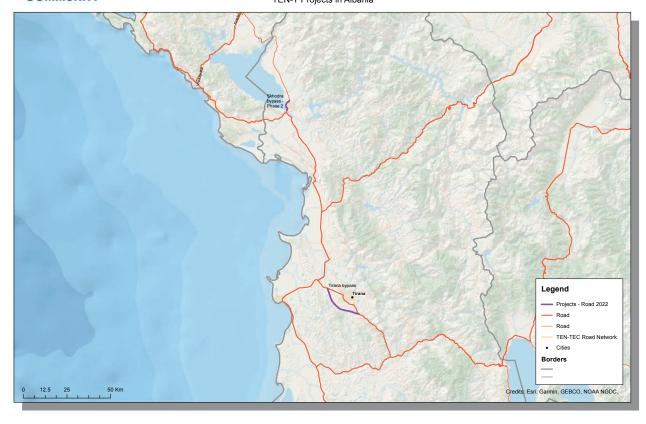


Figure 49. Map of TEN-T Projects in Albania

ANNEX I - ROAD PROJECTS OVERVIEW

From last year reporting, the list was modified by removing 3 projects, as follows:

- Construction of the Fier bypass (currently finalised and operational);
- Construction of the Qukes Qafe Plloce Expressway (pending a formal decision to be included in the TEN-T Network);
- Construction of the Vlore bypass (pending a formal decision to be included in the TEN-T Network):

Apart from the modifications listed above, it should also be mentioned that the first section of the Shkodra bypass has gone into operation and the current report (with different length and value) refers to the second lot only.

BOSNIA AND HERZEGOVINA

Bosnia and Herzegovina is currently implementing a total of 18 TEN-T projects, with a combined value of 2,733.58 million EUR (2,436.58 million EUR on the Core Network and 297 million EUR on the Comprehensive Network).

The combined length of road sections currently undergoing various forms of upgrading is 256.39 km, of which 215.69 km on the Core Network and 40.7 km on the Comprehensive Network.

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

NAME OF THE PROJECT	CORE/ COMPREHENSIVE NETWORK	FORESEEN Intervention	LENGTH (km)	COST (M€)	ESTIMATED COMPLETION DEADLINE	EIP
Construction of Vukoslavije — Johovac Motorway	Core	New infrastructure	36	456.9	2025	Yes
Construction of Johovac - Rudanka Motorway	Core	New infrastructure	5.5	78.4	2022	Yes
Construction of Rudanka - Putnikovo Brdo Motorway	Core	New infrastructure	5.2	164.1	2026	Yes
Construction of Putnikovo Brdo — Medakovo Motorway	Core	New infrastructure	6.23	93	2024	Yes
Construction of Medakovo — Ozimica Motorway	Core	New infrastructure	21.29	160.23	2025	Yes
Construction of Ozimica — Poprikuse Motorway	Core	New infrastructure	13.74	172.7	2025	Yes
Construction of Poprikuse — Nemila Motorway	Core	New infrastructure	5.5	164.8	2024	Yes
Construction of Nemila — Vranduk Motorway	Core	New infrastructure	5.7	34.6	2024	Yes
Construction of Vranduk — Ponirak Motorway	Core	New infrastructure	5.3	65.5	2024	Yes
Construction of Ponirak – Vraca Motorway	Core	New infrastructure	3.4	60	2023	Yes
Construction of Vraca (Tunnel Zenica) - Donja Gračanica Motorway	Core	New infrastructure	3.9	57.6	2021	Yes
Construction of Tarčin – Ivan Motorway	Core	New infrastructure	7.03	124.2	2022	Yes
Construction of Mostar South - Tunnel Kvanj Motorway	Core	New infrastructure	9.2	63	2024	Yes
Construction of Tunnel Kvanj — Buna Motorway	Core	New infrastructure	5.2	98	2025	Yes
Construction of Buna – Počitelj Motorway	Core	New infrastructure	7.2	22	2025	Yes
Construction of Počitelj — Zvirovići Motorway	Core	New infrastructure	11.1	84.6	2023	Yes
Construction of Jajce - Lašva Express Road	Core	New infrastructure	64.2	536.95	2027	No
Construction of Banja Luka — Prijedor Motorway	Comprehensive	New infrastructure	40.7	297	2027	No

Table 14. List of TEN-T projects in Bosnia and Herzegovina



TEN-T Projects in Bosnia and Herzegovina

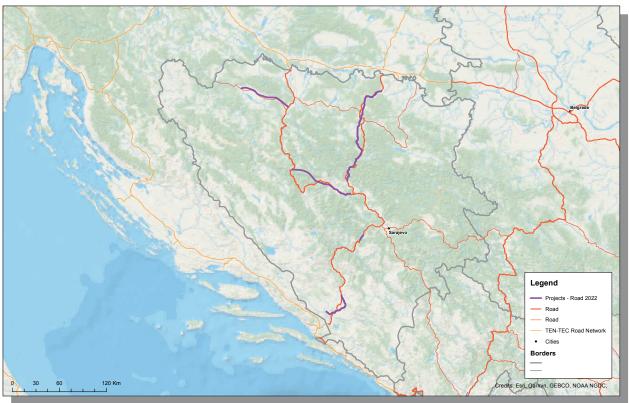


Figure 50. Map of TEN-T Projects in Bosnia and Herzegovina

Compared to last year's report, the list has been modified by removing 4 projects and adding 2 new ones, as followsg:

- Svilja Odzak, Donja Gracanica Klopce and Klopce – Drivusa motorway sections were finalised and put into operation;
- Mostar South Mostar North Motorway section was no longer-considered "ongoing", not having yet secured full financing (the project is nevertheless progressing well in this regard);
- Jajce Lašva Express Road was reported as having secured funding and was consequently added to the map;
- Banja Luka Prijedor Motorway was added to the list, as construction works have reportedly started.

Apart from these modifications, we should point out that for most ongoing projects the completion deadline was postponed ascompared with last year's forecast.

KOSOVO

Kosovo is currently implementing a total of 2 TEN-T projects, with a combined value of 252 million EUR, both on the TEN-T Network. The combined project length is 46.26 km.

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

Name of the project	Core/ Comprehensive Network	Foreseen intervention	Length (km)	Cost (M€)	Estimated completion deadline	EIP
Construction of Pristina – Merdare Motorway	Core Network	New infrastructure	26.86	210	2025	Yes
Construction of Pristina - Mitrovica Highway	Core Network	New infrastructure	19.4	42	2023	No

Table 15. List of TEN-T projects in Kosovo



TEN-T Projects in Kosovo

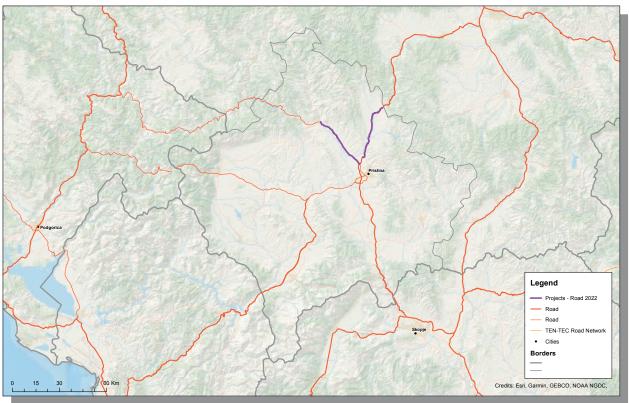


Figure 51. Map of TEN-T Projects in Kosovo

The Kijevë - Zahaq highway project was removed from the list as having apparently been downgraded in terms of priority. No progress was registered on the Pristina – Merdare motorway section either. Delays in securing a loan for co-financing will most probably result in this project also being downgraded in the next reporting period.

MONTENEGRO

Montenegro is currently implementing a total of 3 TEN-T projects, with a combined value of 78 million EUR.

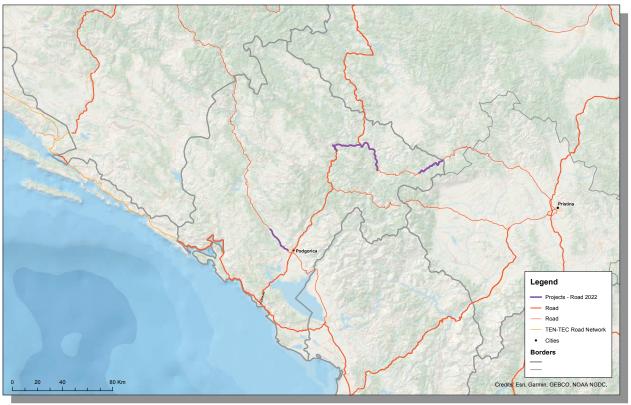
The combined length of road sections currently under various forms of upgrading is 78 km, mostly on the Comprehensive Network, as shown in the table below:

Name of the project	Core/ Comprehensive Network	Foreseen intervention	Length (km)	Cost (M€)	Estimated completion deadline	EIP
Reconstruction and widening of road section M-2 Rozaje - Spiljani, including works on 5 bridges and 10 tunnels.	Comprehensive	Reconstruction/ rehabilitation	20	19	2022	No
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	No
Reconstruction and widening of road section M-2 Berane - Bijelo Polje - Mojkovac, length 43 km	Core/ Comprehensive network	Reconstruction/ rehabilitation	42	36	2023	No

Table 16. List of TEN-T projects in Montenegro



TEN-T Projects in Montenegro



Figure~52.~Map~of~TEN-T~Projects~in~Montene gro

Compared with last year's report, 2 projects were removed from the list:

- Construction of the Matesevo Smokovac section of the motorway Bar Boljare (finalised and operational);
- Construction of the Budva bypass (grant financing cancelled further to priority downgrade).

NORTH MACEDONIA

North Macedonia is currently implementing a total of 6 TEN-T projects with a combined value of 942.71 million EUR, all on the Core Network.

The combined length of road sections currently undergoing various forms of upgrading is 131.6 km.

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

Name of the project	Core/ Comprehensive Network	Foreseen intervention	Length (km)	Cost (M€)	Estimated completion deadline	EIP
Rehabilitation of state road A2 Kumanovo — Stracin	Core Network	Reconstruction/ rehabilitation	15.2	4.74	2024	No
Construction of Rankovce — Kriva Palanka Expressway	Core Network	New infrastructure	23	85.5	2022	No
Rehabilitation and upgrade of Kriva Palanka — Deve Bair road section	Core Network	Reconstruction /Rehabilitation	13.2	13.67	2023	No
Construction of Blace — Skopje (Stenkovec Interchange) Motorway Section	Core Network	New infrastructure	12.5	120.8	2025	No

ANNEX I - ROAD PROJECTS OVERVIEW

Name of the project	Core/ Comprehensive Network	Foreseen intervention	Length (km)	Cost (M€)	Estimated completion deadline	EIP
Construction of the Bukojcani — Kicevo Motorway section	Core Network	New infrastructure	10.7	120	2024	No
Construction of the Kicevo - Ohrid Motorway	Core Network	New infrastructure	57	598	2023	No

Table 17. List of TEN-T projects in North Macedonia

Compared with last year's report, the projects Gradsko – Drenovo Interchange and Drenovo Interchange – Raec Bridge have been (provisionally) taken out of the list, pending official inclusion in the TEN-T Network.

The motorway section Kicevo – Ohrid is still facing numerous delays as compared with previous estimates.



Indicative Extension of TEN-T Core and Comprehensive Network to Western Balkans

TEN-T Projects in North Macedonia

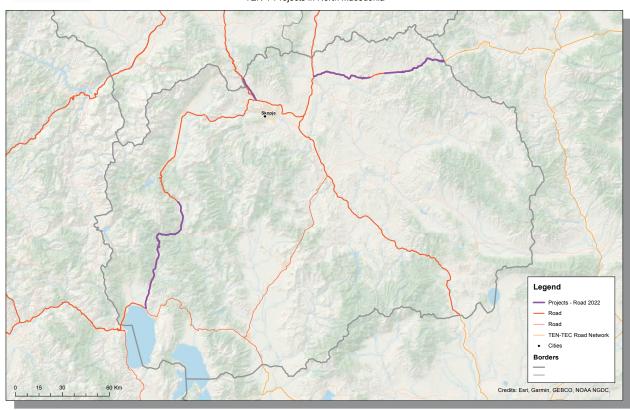


Figure 53. Map of TEN-T Projects in North Macedonia

SERBIA

Serbia is currently implementing a total of 5 TEN-T projects, with a combined value of 2,263 million EUR (912 million EUR on the Core Network and 1,351 million EUR on the Comprehensive Network).

The combined length of road sections currently under various forms of upgrading is 212.16 km

(83.46 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:

Name of the project	Core/ Comprehensive Network	Foreseen intervention	Length (km)	Cost (M€)	Estimated completion deadline	EIP
Construction of Novi Sad - Ruma Expressway	Comprehensive network	New infrastructure	16.4	606	2025	No
Construction of Pojate - Preljina Motorway	Comprehensive network	New infrastructure	112.3	745	2023	No
Construction of Belgrade bypass (sector B)	Core Network	New infrastructure	19.5	207	2022	No
Construction of Niš (Merošina) - Merdare Highway (Beloljin - Plocnik)	Core Network	New infrastructure	33	255	2026	Yes
Construction of Preljina - Pozega motorway	Core Network	New infrastructure	30.96	450	2022	No

Table 18. List of TEN-T projects in Serbia



Indicative Extension of TEN-T Core and Comprehensive Network to Western Balkans TEN-T Projects in Serbia

Legend

Projects - Road 2022

Road

TEN TEC Road Network

Credits Earl, Gamme, GEBCO, NOAA NGDC.

Figure 54. Map of TEN-T Projects in Serbia

Compared with last year's report, the Plocnik – Merdare section was taken out, as still not having secured financing.

ANNEX II – RAIL PROJECTS OVERVIEW

ALBANIA

Currently, only one project is ongoing in Albania, i.e. the reconstruction and modernisation of the Durres – Tirana section and construction of the new Tirana - Rinas Airport branch line as part of the same project.

Construction started in February 2022. 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. This has been identified as a flagship project 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 of railway line on the Core Network should be finished by 2024 and is compliant with all TEN-T compliance indicators, apart from electrification. However, electrification is planned for the second phase of the project. The cost of the new line is estimated at 90.45 million EUR.

TRANSPORT

Indicative Extension of TEN-T Core and Comprehensive Network to Western Balkans

Ongoing rail projects

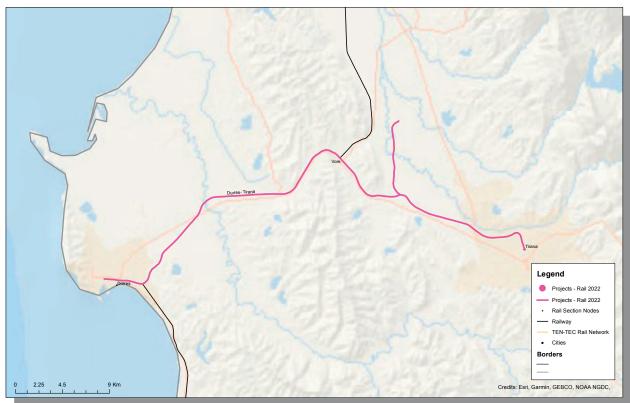


Figure 55. Ongoing Project in Albania

BOSNIA AND HERZEGOVINA

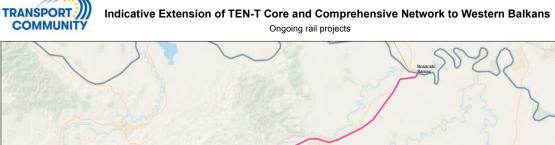
Corridor Vc-Overhaul and modernisation of the Samac – Doboj – Rjecica railway section

This project is part of the initiative to complete Corridor Vc connecting the Port of Ploce on the Croatian Adriatic coast 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 project has been identified as a Flagship 2 project of the Economic and Investment Plan for the Western Balkans.

The 85 km Samac – Doboj - Rjecica section is being evaluated by the WBIF mechanism. The estimated amount is 162.5 million EUR, with a 82 million EUR grant. Construction is expected to be completed by 2025. The project is in accordance with all TEN-T compliance indicators, apart from ERTMS and train length.

However, there has been no progress since 2021, because of issues related to securing financing for the project. BIH should solve all issues with the IFI as soon as possible and launch tender procedure.



Legend

Projects - Rail 2022

Projects - Rail 2022

Projects - Rail 2022

Rail Section Nodes

Railway

TEN TEC Rail Network

Cities

Borders

Figure 56. Ongoing Project in Bosnia and Herzegovina

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 northern 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 represents an alternative route to Skopje: Belgrade – Lapovo – Kraljevo - Fushe Kosove – Skopje.

Credits: Esri, Garmin, GEBCO, NOAA NGDC

ANNEX II - RAIL PROJECTS OVERVIEW

The project has a strong regional dimension, and general rehabilitation and modernisation is being carried out in order to meet EU standards, respecting the technical specifications on interoperability but no electrification in this phase. At the same time, the project is part of Flagship 2 projects of the Economic and Investment Plan for the Western Balkans.

Implementation of this project will increase regional connectivity and facilitate both import-export and passenger traffic across the region. It 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 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 2022;
- b) Evaluation procedure to appoint a contractor for Phase Two is ongoing and works are expected to start in Q1 of 2023,
- c) Procedure is ongoing for drafting Terms of Reference for Project Design for Phase Three which will be implemented through IPF 9.

Total estimated project cost is 245 million EUR and the estimated deadline is 2025.

There is a delay as against the 2021 plan in completing the first phase of the project, the problem being insufficient funds for the signal system and telecommunications. However, it is still the highest priority, and this issue should be resolved as soon as possible.

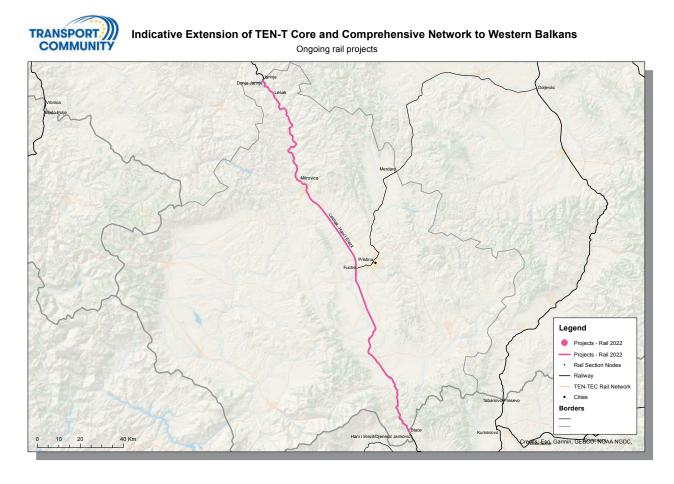


Figure 57. Ongoing Projects in Kosovo

MONTENEGRO

Montenegro is implementing 6 TEN-T projects, with total value of 264 million EUR (all on the Core Network).

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

The length of sections currently under various forms of upgrading is 114 km.

NAME OF THE PROJECT	CORE/ COMPREHENSIVE NETWORK	FORESEEN INTERVENTION	TOTAL LENGTH (km)	TOTAL COST (M€)	ESTIMATED COMPLETION DEADLINE	EIP
Rehabilitation railway line "Vrbnica-Bar" (rail Route 4) on the section Kolašin-Podgorica	Core Network	Rehabilitation	64		2022	yes
Rehabilitation railway line "Vrbnica-Bar" (rail Route 4) on the section Podgorica - Virpazar	Core Network	Rehabilitation	29	244	2023	yes
Rehabilitation railway line "Vrbnica-Bar" (rail Route 4) on the section Virpazar-Bar	Core Network	Rehabilitation	21		2023	yes
Rehabilitation of 4 tunnels Lot#1, railway line Vrbnica - Bar	Core Network	Rehabilitation		7.5	2023	yes
Rehabilitation of 4 tunnels Lot#2, railway line Vrbnica - Bar	Core Network	Rehabilitation		5.7	2023	yes
Rehabilitation of 13 concrete bridges along the railway line Vrbnica - Bar, Montenegro	Core Network	Rehabilitation		6.7	2022	yes

Table 19. Overview of rail TEN-T projects in Montenegro

Montenegro completed rehabilitation of the first three stretcheses:

- Rehabilitation of the section Bijelo Polje Mojkovac 25 km on the line "Vrbnica-Bar"
- Rehabilitation of the section Mojkovac Trebaljevo 11 km on the line "Vrbnica-Bar"
- Rehabilitation of the section Trebaljvo-Kolašin
 9 km on the line "Vrbnica-Bar"

The first three projects concern reconstruction of sections on the line Vrbnica (Serbian border) - Podgorica - Bar, forming part of the Orient/East Mediterranean TEN-T Core Network Corridor, the indicative extension TEN-T network to the Western Balkans.

The proposed bridges and tunnels for reconstruction were refurbished almost 40 years ago.

On completion of the projects, trains as long as 500 m will be able to operate on these lines at a design speed of 100 km/h instead of the present 50 km/h. The Route 4 railway line will remain electrified but no ETCS, GSM-R or rail – road terminals are planned to be built.

This still leaves room for improvement on this main Montenegrin railway route in terms of TEN-T compliance.



Ongoing rail projects

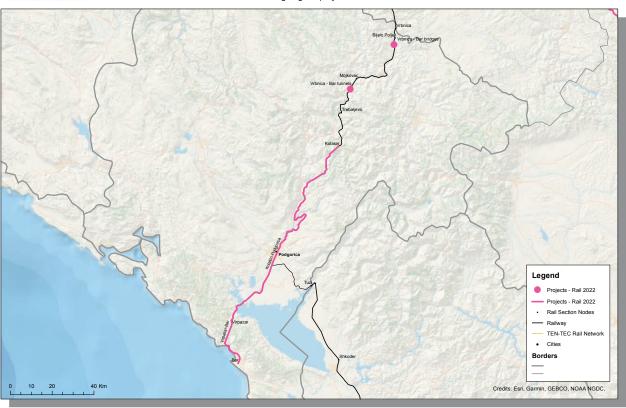


Figure 58. Ongoing Projects in Montenegro

NORTH MACEDONIA

The Macedonian railway network will be improved following the implementation of one project for new railway infrastructure in the eastern part of Corridor VIII, and rehabilitation project on Corridor X.

North Macedonia is currently implementing four TEN-T projects, with a total value of 675 million EUR (all on Core Network)

The length of rail sections subject to various forms of upgrading is 130 km (all on Core Network).

An overview of the TEN-T projects is presented in table below:

Name of the project	Core/ Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline	EIP
Rehabilitaton of Eastern Part of Rail Corridor VIII-PHASE I-Section Kumanovo-Beljakovce	Core Network	New infrastructure	30.8	48.9	2024	yes
Rail Corridor VIII-PHASE 2-Section Beljakovce-Kriva Palanka	Core Network	New infrastructure	34	145	2025	yes
Rail Corridor VIII-PHASE 3-Section Kriva Palanka -Deve Bair, border with RB	Core Network	New infrastructure	34	420	2027	yes
Renewal works on the section Nogaevci-Negotino	Core Network	Rehabilitation	31	9.6	2023	no

Table 20. Overview of rail TEN-T projects in North Macedonia

Tender for the first two phases on Corridor VIII has closed and construction will start in October 2022. An expected deadline for the completion of these two sections is 2024.

The tender for a third section is under preparation and should be published by the end of 2022. This phase is partly financially secured. Only 60.7 million EUR has been secured by the EU from IPA funds, while the remainder 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 of 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. With regard to GSM-R implementation, the Macedonian government plans to carry it out as a separate project.

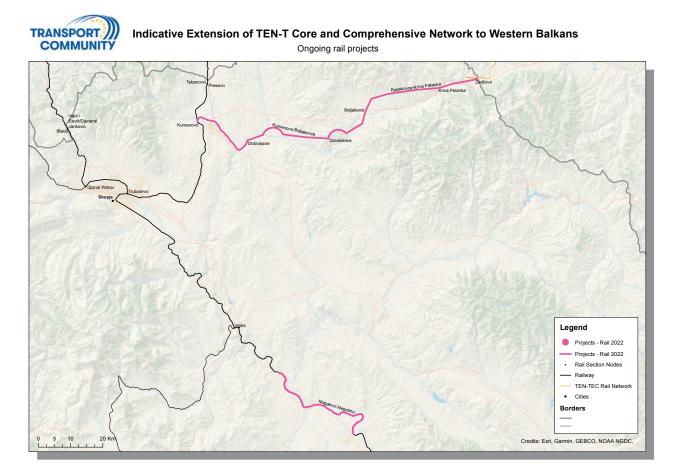


Figure 59. Ongoing Projects in North Macedonia

In the 9.6 million EUR project for track renewal on the Nogaevci – Negotino section, only basic activities are planned for 2022 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 at the same level as the design speed of 100 km/h.

ANNEX II - RAIL PROJECTS OVERVIEW

SERBIA

Serbia is implementing 4 TEN-T projects, with total value of 1.409 billion EUR.

The length of sections currently under various forms of upgrading is 269 km.

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

Name of the project	Core/ Comprehensive Network	Foreseen intervention	Total length (km)	Total Cost (M€)	Estimated completion deadline	EIP
Modernisation and reconstruction of the existing railway line Subotica - Horgos - Hungarian border	Comprehensive	Rehabilitation	27	60	2022	no
Reconstruction and modernization of Novi Sad - Subotica - Hungarian border railway line	Core Network	New infrastructure	108	1021	2024	no
Reconstruction and modernization of Nis - Dimitrovgrad railway line	Core Network	Rehabilitation	108	268	2024	yes
Reconstruction and modernisation of rail line (Nis) Brestovac - Presevo - state border with North Macedonia	Core Network	Rehabilitation	23	60	2023	yes

Table 21. Overview of TEN-T projects rail in Serbia

During 2021, Serbia completed the first two stretches of the railway line Belgrade – Subotica – Hungarian border. The given sections are:

- Belgrade Stara Pazova section, 34.5 km, total amount 307.5 million EUR. Works were financed through a Chinese loan.
- Stara Pazova Novi Sad section, 40.4 km, value 615.7 million EUR. Works were financed through a Russian loan.

The entire line between Belgrade and Novi Sad is interoperable, with a maximum speed of 200 km/h and covered by ETCS 2.

Construction on the Novi Sad – Subotica section started in April 2022. An estimated deadline is 2024, complying with all TEN-T requirements.

Tender procedure for the Nis – Dimitrovgrad section was completed and construction should start in October 2022. By 2024, 108 km of railway line on the Core network will be improved in terms of all TEN-T compliance indicators except ETCS and GSM-R. The cost of the improvements is estimated at 268 million EUR. Sources of financing are a WBIF grant, an EIB loan and the Serbian budget.



Indicative Extension of TEN-T Core and Comprehensive Network to Western Balkans Ongoing rail projects

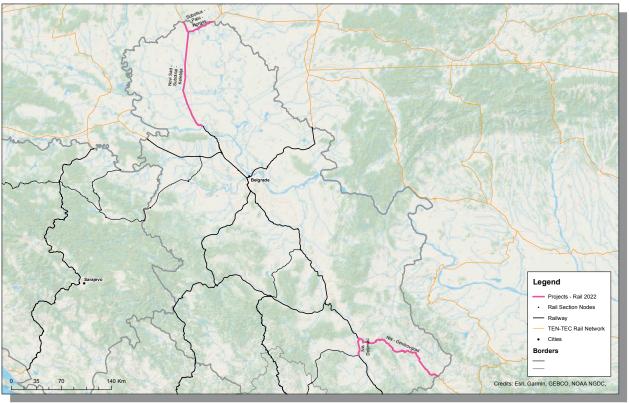


Figure 60. Ongoing Projects in Serbia

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