EUSAIR Transport Masterplan

Volume 1: Executive Summary

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Foreword

Prof. Pierluigi Coppola
EUSAIR Thematic Steering Group 2, Coordinator of Transport Sub-Group

Transport policy plays a crucial role in promoting economic development, regional cohesion and environmental sustainability in **the context of the Adriatic-Ionian area, one of the most heterogeneous and challenging regions of Europe in terms of transport infrastructure and mobility**. The actions of Pillar 2 (Transport sub-group) focus on facilitating transport connectivity and mobility services integration between the Countries in the macro-region, promoting territorial cooperation for the development of projects (particularly in maritime sector and multimodal transport) as a tool for economic growth and social cohesion.

The Transport Master Plan for the Region aims to provide a **common knowledge on transport policy in the Region**, analysing the opportunities, challenges and projects in progress and proposing a **shared vision of the transport system** of the Adriatic-Ionian region: interconnected, sustainable and inclusive. In so doing, the Master Plan promotes a holistic methodological approach which aims to increase the transnational cooperation capacity of the Countries involved in planning (construction and upgrading) of roads, railways, ports and airports to improve accessibility and booster economic growth.

A central theme concerns planning of interconnected transport infrastructures in a context characterized by **huge disparities in terms of accessibility, level of mobility services (especially cross-border) and level of transport safety**. The Adriatic-Ionian region is characterized by a unique and fragile environmental heritage, therefore it is essential to adopt transport policies that reduce the environmental impact and favour the use of more sustainable modes of transport, such as public transport, rail and innovative eco-friendly mobility solutions (alternative clean fuels and ITS).

The Master Plan explores **infrastructure projects and strategies that can help bridging up accessibility gaps and improving seamless transport** of goods and people in the region, while reducing environmental impact and boosting economic growth, competitiveness and territorial cohesion. Furthermore, the interconnection of transport networks can favour the development of new commercial, tourist and cultural opportunities, further strengthening cooperation between the regional Countries.

The **macro-regional perspective** allows to identify the potential synergies between the different States, the opportunities to create networks and furthermore, promoting coherence and complementarity between national projects. This can lead to better use of resources, avoiding unnecessary overlaps and ensuring greater overall effectiveness.

The Transport Master Plan **merges and integrates the infrastructure projects implemented by single Countries** to promote interoperability and interconnection of infrastructures, from a macro-regional perspective. Assessing infrastructure projects under a macro-regional perspective is essential to fully understand the importance and the long term impacts, which often do not concern only a specific state or a limited geographical area, but assume value well beyond the administrative borders.

Besides, macro-regional vision can help **overcome the challenges and difficulties associated with the implementation of initiatives that encounter bureaucratic, regulatory or financial obstacles** that can hamper their implementation. Through a macro-regional strategy, it is possible to mobilize resources and support at the European level to overcome these challenges, favouring greater cooperation between the various states concerned.

In this perspective, it is essential to adopt an integrated and cooperative approach in the evaluation of infrastructure projects, also through the support of impact forecasting techniques and models that can more effectively direct investments. The Transport Master Plan analyses and proposes **scenarios assessed with the support of a mathematical model for the simulation of transport networks** (so called **EMTM**).

The present report represents the executive summary of the EUSAIR Transport Masterplan, developed within the framework of the EUSAIR "Facility Point" Strategic Project, which was conceived as an instrument to promote and facilitate the implementation of the EUSAIR and to provide operational support to the governance structures of the EUSAIR.

1 THE ADRIATIC-IONIAN MACROREGION AND ITS TRANSPORT SYSTEM: CURRENT SITUATION AND KEY ISSUES

1.1 INTRODUCTION

The **objective** of the elaboration of the Masterplan is to define **a shared long-term strategic vision for infrastructure development for the macroregion**; to this aim, the Masterplan has been developed with the support of a transport simulation model (EMTM – EUSAIR Multimodal Transport Model) which has been applied in order to **assess the effectiveness of various future infrastructure scenarios**, with a focus on the road and rail transport modes; in addition, analyses and consultations with the involved stakeholders from relevant national institutions have led to the definition of **development guidelines** for all transport modes in the macroregion.

The activities related to the elaboration of the Masterplan have included the following steps:

- Analysis of the current transport system in the macroregion
- Analysis of existing National and international Strategic Plans
- Definition and simulation of alternative infrastructure scenarios

As mentioned, such activities have exploited the possibility to involve relevant stakeholders from the concerned countries. The output of the Masterplan activities, summarized in this report, have included one volume per each considered transport mode (Maritime, Inland Water Ways – IWW, Road, Rail, Air and urban transport).

The present report sums up, in this Chapter, the main features of the current transport system in the macroregion in each of the concerned modes; in Chapter 2, the main policy objectives in the field of transport at the European and macroregional level, including a brief summary of relevant national provisions. Finally, the Masterplan scenario and vision is presented in Chapter 3.

1.2 THE ADRIATIC-IONIAN MACROREGION

The Adriatic-Ionian macroregion is a geographic and cultural area in southeastern Europe that encompasses the Adriatic Sea and the surrounding regions. It includes the countries of Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Montenegro, Serbia, and Slovenia.

Figure 1: Map of the EUSAIR countries

The Adriatic-Ionian macroregion is strategically important for its location at the crossroads of Europe and the Mediterranean. The region serves as a gateway to the Balkans and Eastern Europe and is a key transit point for trade and transportation between Europe and the Middle East. Its ports and harbors are important hubs for shipping, while its airports and highways connect the region to the rest of Europe and beyond. In recent years, the Adriatic-Ionian macroregion has become the focus of increased attention from the European Union and other international organizations. The EU has launched several initiatives aimed at promoting economic development, cultural exchange, and environmental sustainability in the region. These initiatives include the **EU Strategy for the Adriatic and Ionian Region (EUSAIR)**, a macro-regional strategy adopted by the European Commission and endorsed by the European Council in 2014, which aims to strengthen cooperation between the countries in the macroregion and promote regional integration. Within EUSAIR, the Pillar 2 "Connecting the Region" has the goal to improve connectivity within the Region and with the rest of Europe in terms of transport and energy networks.

1.3 MARITIME TRANSPORT

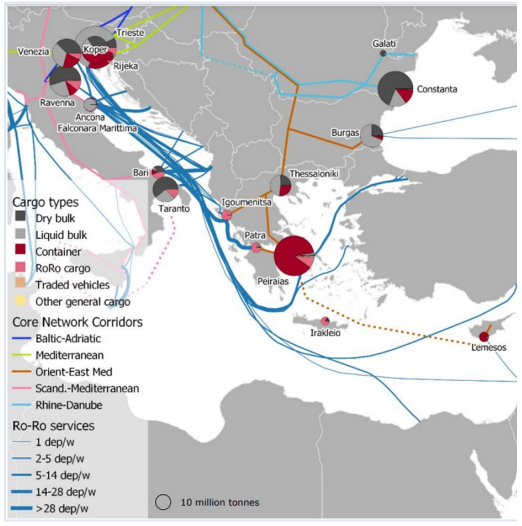
Main features of the sector

Maritime transport is a critical component of the Adriatic-Ionian macro-region's economy, serving as a major driver of trade, tourism, and economic growth. The region's strategic location on the Adriatic and Ionian Seas, as well as its proximity to major European markets, make it an important hub for shipping and logistics.

The Adriatic-Ionian macro-region is home to several major ports and harbors, such as Trieste and Venice in Italy, Piraeus in Greece, and Koper in Slovenia. These ports are crucial nodes in the region's transportation network, connecting the macro-region to global markets and facilitating the movement of goods and passengers between countries.

Considering the 2019 traffic figures, which show an evolution not yet impacted by COVID, the ports of Trieste (some 60 thousand tonnes) and Piraeus (some 58 thousand tonnes) clearly stand out in terms of relevance, mainly thanks to liquid bulks and containers respectively. While the two above mentioned ports have been growing in the last decade at an average annual rate of 4.6% (Trieste) and 5.9% (Piraeus), the average for rest of the ports of the region is a slower growth rate (1.6%), with notable exceptions in Ancona (7.5%) and Bari (10.5%).

Figure 2: Main international ro-ro connections and related frequency in the area



Source: EC, DG MOVE, Motorways of the Sea Detailed Implementation Plan of the European Coordinator, June 2020.

The Adriatic-Ionian macro-region is also part of the EU's Motorways of the Sea (MoS) initiative, which aims to promote the use of maritime transport as a viable alternative to road transport. The MoS initiative includes measures

to improve the efficiency and safety of maritime transport, reduce emissions, and promote the development of intermodal transport networks.

Key issues

One of the key challenges facing maritime transport in the Adriatic-Ionian macro-region is the **need to modernize and upgrade its infrastructure**. Many of the region's ports and transportation networks are outdated and require significant investment to bring them up to modern standards. This includes improving port facilities, dredging channels and harbors to accommodate larger ships, and upgrading transportation links to connect ports to inland markets. Such connections need to be enhanced in order to ensure appropriate capacity and service level in comparison to their needs and assure that the development of the transport system has an impact on the socio-economic growth of regions.

There is a need to **optimise port interfaces and procedures**. This is a common gap in ports all over the EU and the way towards the European Maritime Single Window and the EU-wide acceptance of Electronic Transport Documents is still long. As the 2020 MoS Detailed Implementation Plan recalls: by 2018, only two Member States had put in place regulations and pilot projects to accept Electronic Transport Documents and the EU-wide use was close to zero, while more than half of the 21 member states for which data was available had similar regulations in place for air transport where the use was already widespread (around 40%). Maritime Transport ought to catch up here because the direct competitor of short sea shipping – road transport – has a much lower administrative burden.

Another challenge is the **need to address environmental concerns and promote sustainable shipping practices**. The Adriatic-Ionian Sea is home to a diverse range of marine ecosystems, and the impact of shipping on these ecosystems can be significant. Reducing emissions and improving energy efficiency in the shipping industry is crucial to mitigating these impacts and promoting sustainable transport in the region.

1.4 INLAND WATERWAY TRANSPORT

Main features of the sector

Inland waterway transport (IWT) is a critical component of the transport infrastructure in the Adriatic-Ionian macro-region, connecting ports and cities along rivers and canals. This mode of transport has several advantages, including low environmental impact, high capacity, and low cost, making it an important alternative to road and rail transport. The Adriatic-Ionian macro-region is home to several important rivers, including the Danube, Sava, Drava, and Tisza which provide a vital link between the region's ports and cities. These rivers are used for the transportation of goods such as bulk cargo, containers, and petroleum products, as well as for passenger transport.

Figure 3: The main IWW in the eastern part of the A-I region: Danube river IWW section (in dark blue/purple)

Image source: viadonau.org

In the Western part of the macro-region, the Northern Italy Inland Waterway System (NIIWS), or “Sistema Idroviario Padano-Veneto”, is located entirely in Italy, from Casal Monferrato (in the Piemonte Region) to the Po river delta and Ravenna on one side and the borders with Slovenia near Trieste on the otherOne of the key advantages of IWT in the Adriatic-Ionian macro-region is its low environmental impact.

Compared to road and rail transport, IWT has significantly lower emissions of greenhouse gases, air pollutants, and noise. This makes it a critical component of the EU's efforts to reduce emissions and promote sustainable transport.

IWT also has high capacity and low cost, making it an important alternative to other modes of transport. Ships can transport large volumes of cargo, reducing the number of trucks and trains required to transport goods. This helps to reduce congestion and emissions on the region's roads and railways, and also lowers the cost of transport for businesses.

Key issues

However, there are also several challenges facing IWT in the Adriatic-Ionian macro-region. These include the **need for investment in infrastructure**, including **river ports** and **navigational aids**, as well as the need for **harmonization of regulations and standards** across different countries and regions.

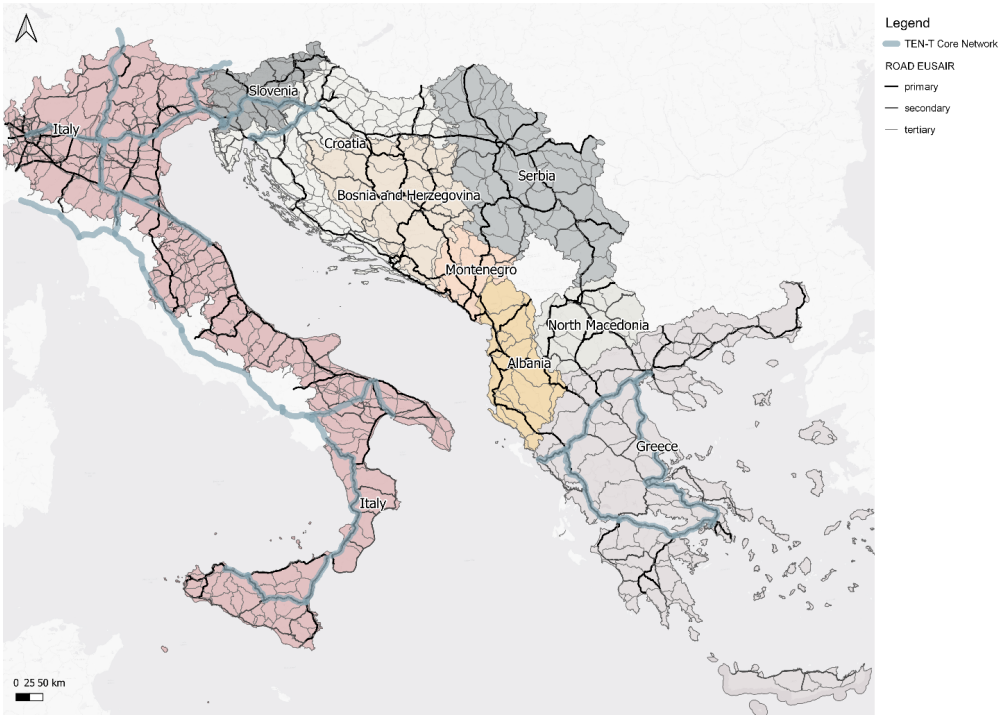
The EU has recognized the importance of IWT in the Adriatic-Ionian macro-region and has developed several initiatives to promote its development. These include the EU Strategy for the Danube Region, which aims to promote sustainable and integrated transport along the Danube, as well as the Connecting Europe Facility, which provides funding for the development of transport infrastructure across the EU.

1.5 ROAD TRANSPORT

Main features of the sector

The road transport sector is a vital component of the transport infrastructure in the Adriatic-Ionian macro-region, being the main mode of transport providing connectivity between cities, ports, and industrial areas. The road network in the Adriatic-Ionian macro-region comprises both national and international roads, including several major highways and motorways. These roads are critical for the movement of goods, particularly for the transport of bulk cargo and containerized goods. They are also important for passenger transport, connecting major cities and tourist destinations.

Figure 4: Road map, lengths (km) and densities (100*km/kmq of country's surface area)



Country	Road network length	Road network density
Albania	18.300	63,7
Bosnia Herzegovina	24.000	46,9
Croatia	26.953	47,6
Greece	117.000	88,7
Italy	167.565	55,5
Montenegro	9.727	70,4
North Macedonia	14.182	55,2
Serbia	45.220	51,1
Slovenia	38.900	191,9

Key issues

However, the road transport sector in the macro-region has a **significant environmental impact**, contributing to air pollution, greenhouse gas emissions, and noise pollution. This has led to calls for greater sustainability in the sector, including the promotion of alternative fuels, such as electric and hybrid vehicles, and the development of more efficient transport systems.

In addition, road transport is associated with a **high level of accidents and fatalities**, making safety a key concern for the sector. This has led to the

development of policies and initiatives aimed at improving road safety, including the adoption of common safety standards and the promotion of road safety education and awareness campaigns.

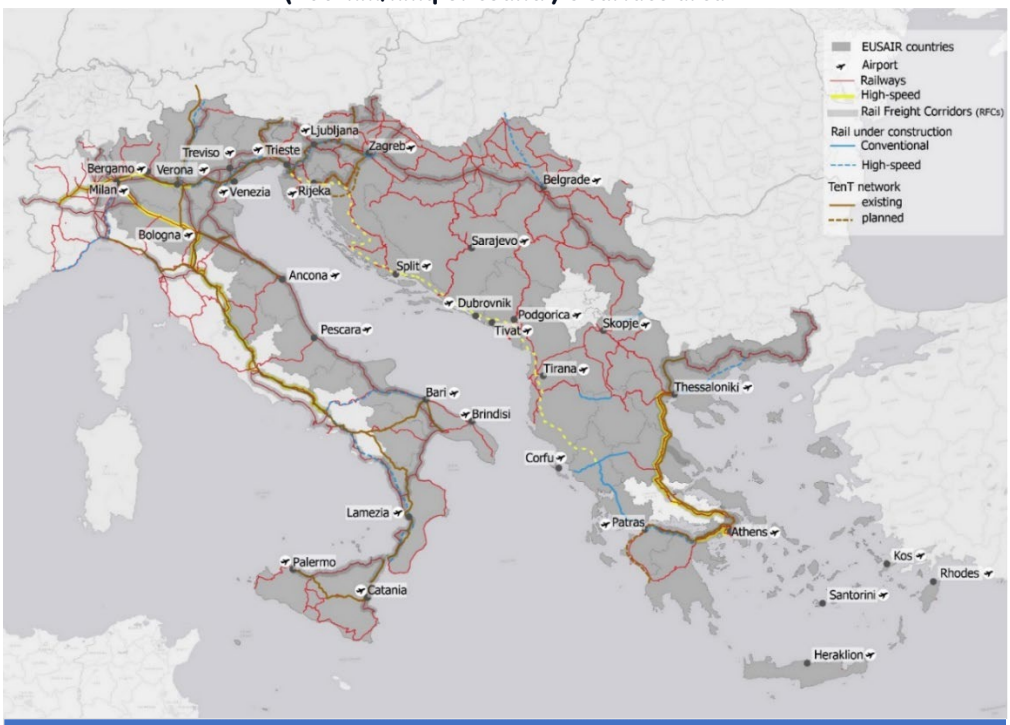
Efficiency is another key challenge facing the road transport sector in the Adriatic-Ionian macro-region. **Congestion, delays, and other inefficiencies** increase the cost of transport and reduce its effectiveness, impacting economic competitiveness and social development. This has led to the development of initiatives aimed at improving transport efficiency, including the development of intelligent transport systems and the promotion of sustainable mobility solutions.

1.6 RAIL TRANSPORT

Main features of the sector

The rail network in the Adriatic-Ionian macro-region consists of both **national and international railway lines, including high-speed and conventional rail tracks**. These railways are vital for the movement of goods, facilitating the transportation of bulk cargo, containerized goods, and industrial products.

Figure 5: Rail network map, lengths (km), double track % and densities (100*km/kmq of country's surface area



Country	Rail network length	% Double track	Rail network density
Albania	420	0%	1,5
Bosnia Herzegovina	1.000	0%	2,0
Croatia	2.600	37%	4,6
Greece	2.280	28%	1,7
Italy	20.000	38%	6,6
Montenegro	250	0%	1,8
North Macedonia	669	0%	2,6
Serbia	3.739	8%	4,2
Slovenia	1.209	28%	6,0

Rail transport holds significant **environmental advantages**, contributing to lower emissions of greenhouse gases and air pollutants compared to road transport. This aligns with the region's sustainability goals and the broader

efforts to reduce the carbon footprint of the transport sector. By promoting rail transport, the Adriatic-Ionian macro-region can contribute to a greener and more sustainable future.

The EU has recognized the importance of the rail transport sector in the Adriatic-Ionian macro-region and has implemented initiatives to support its development. This includes the TEN-T policy, which aims to improve transport connections across the EU, and the Connecting Europe Facility, which provides funding for the development of transport infrastructure and the promotion of sustainable transport modes.

Key issues

The rail transport sector in the region faces challenges that need to be addressed for its optimal functioning and development. These challenges include **outdated infrastructure, limited connectivity between different rail networks, and the need for harmonization of regulations and standards across countries.** Investment in modernizing and upgrading rail infrastructure is necessary to improve the efficiency, safety, and reliability of rail transport in the region. As shown in the previous track, the share of double track lines is low overall (as is the share of electrified tracks) and for certain countries equal to zero.

Moreover, ensuring seamless connectivity between different rail networks within the Adriatic-Ionian macro-region is crucial for maximizing the potential of rail transport. **Enhancing interoperability and cross-border cooperation** can facilitate the smooth flow of goods and passengers across the region, contributing to economic growth and regional integration.

1.7 AIR TRANSPORT

Main features of the sector

The air transport sector plays a significant role in the Adriatic-Ionian macro-region, facilitating both domestic and international travel and promoting economic development and tourism. The macro-region is home to several major airports, including those in cities such as Milano Malpensa (Italy - 28.8 million pax in 2019), Athens (Greece - 25.5 million pax), Milan Bergamo (Italy - 13.9 million), Venice (Italy - 11.6 million), Catania (Italy - 10.2

million), Bologna (Italy - 9.4 million), Heraklion (Greece - 7.9 million). These airports serve as important hubs for both domestic and international flights, connecting the region to various destinations around the world. They play a crucial role in supporting tourism, trade, and business activities by facilitating the movement of passengers and goods.

Figure 6: Main airports in the Adriatic-Ionian macroregion (in black, the busiest in each country)

Key issues

However, the air transport sector also faces challenges that need to be addressed for its sustainable development. **Environmental concerns**, including greenhouse gas emissions and noise pollution, have led to calls for reducing the sector's carbon footprint and adopting more sustainable practices. Efforts to improve fuel efficiency, invest in cleaner technologies, and support sustainable aviation fuels are crucial to minimize the environmental impact of air transport in the region.

Another challenge is the **capacity and infrastructure constraints** of airports. As air travel demand grows, there is a need to ensure that airports have adequate facilities and services to handle increasing passenger and cargo volumes. This requires investment in airport infrastructure, including runway expansions, terminal upgrades, and improved air traffic management

systems, to enhance efficiency and accommodate future growth. The **multimodal connections with rail services** are also generally lacking the in the macroregion's airports, with exceptions in Italy and Greece (Athens).

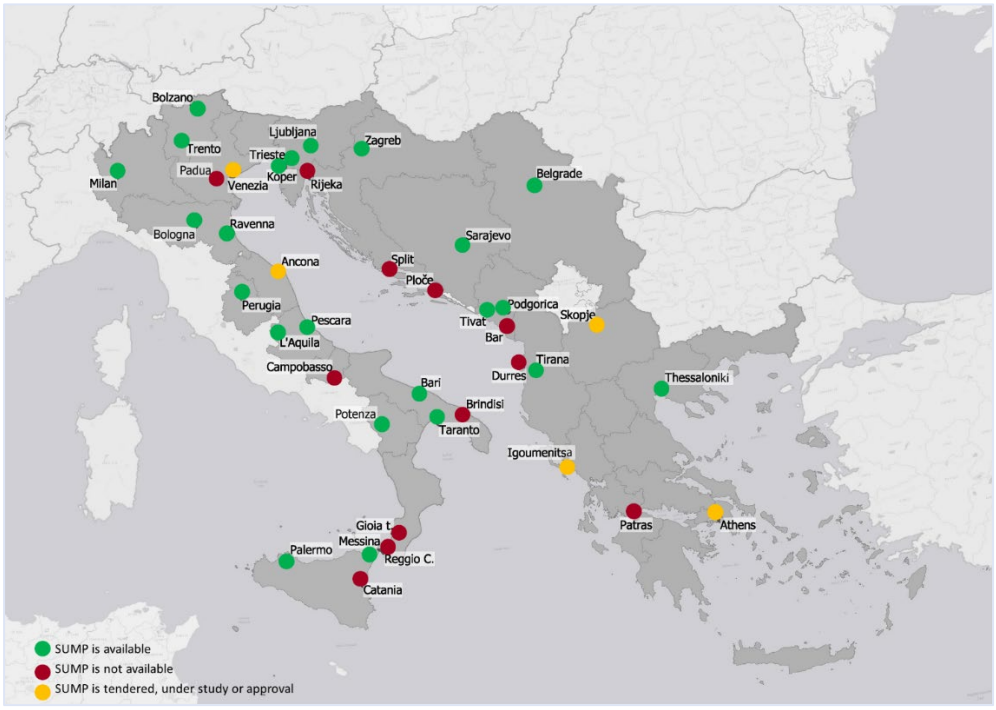
1.8 URBAN TRANSPORT AND ACCESSIBILITY TO NODES

Main features of the sector

The Adriatic-Ionian region is home to several relevant urban nodes; while the biggest cities in the region are Milan (Italy, 1.3 million inhabitants), Belgrade (Serbia, 1.2 million inhabitants), Zagreb (Croatia, 790,000+ inhabitants) and Athens (660,000+ inhabitants), other capitals include Tirana (Albania, 550,000+ inhabitants), Skopje (425,000+ inhabitants), Sarajevo (Bosnia and Herzegovina, 415,000+ inhabitants), Ljubljana (Slovenia, 295,000+ inhabitants) and Podgorica (Montenegro, 185,000+ inhabitants). Other relevant urban nodes area also considered in this analysis, namely the most populous cities and capital of each region in Italy that are considered part of EUSAIR are included, followed by the main mobility hubs for international connections by maritime and air transport including main port cities for both passenger and cargo and cities with the main international airports in the region as the main touristic hubs of the region. Secondly, more cities that are part of Pan-European corridors, Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway corridor are identified.

Within the current study, firstly the availability of Sustainable Urban Mobility Plans, a relevant tool for strategic development of local mobility systems, has been investigated. As shown in the following map, the availability throughout the region is overall good, with most relevant nodes having their SUMPs in place or under preparation.

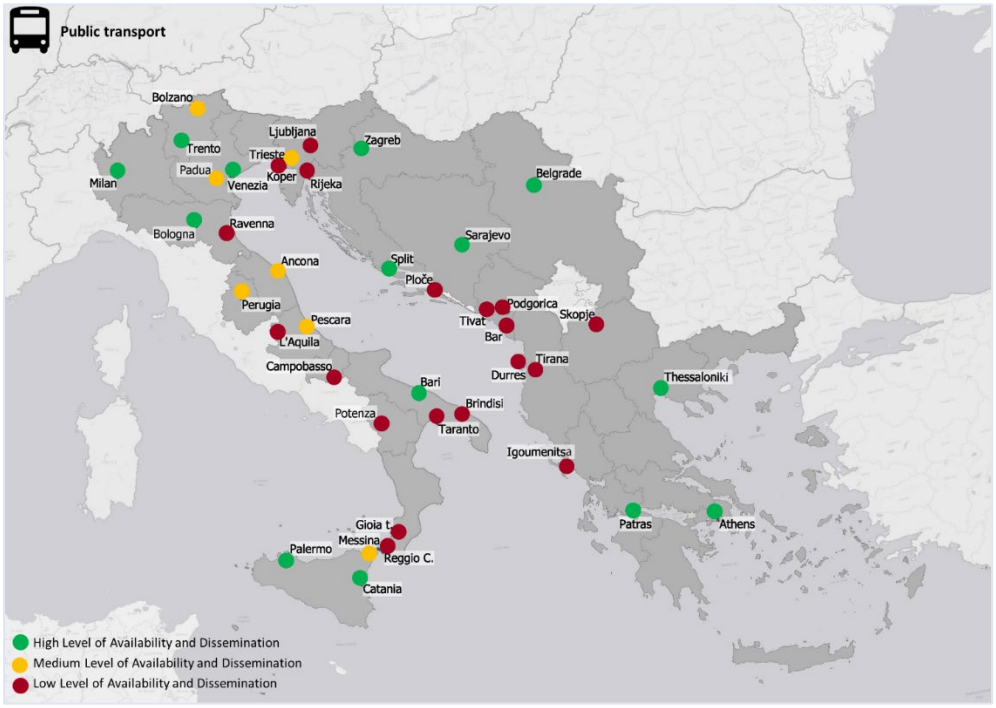
Figure 7: Main urban nodes in the Adriatic-Ionian macroregion, and their SUMPs



The study has investigated their transport accessibility as well as the current situation of their local mobility systems, with particular regard to the availability of public transport infrastructure and services, of services for sustainable and future-oriented mobility and for electric mobility and alternative ecological fuels. In general, the level of public transport services in the cities of the macroregion, in terms of the extension of the network of services, is synthesized in the following map.

While most national capital cities show a good level of local public transport services, the situation is worse in most other relevant urban nodes, including those located in the coastal areas, in both sides of the Atlantic sea.

Figure 8: Availability of local public transport services



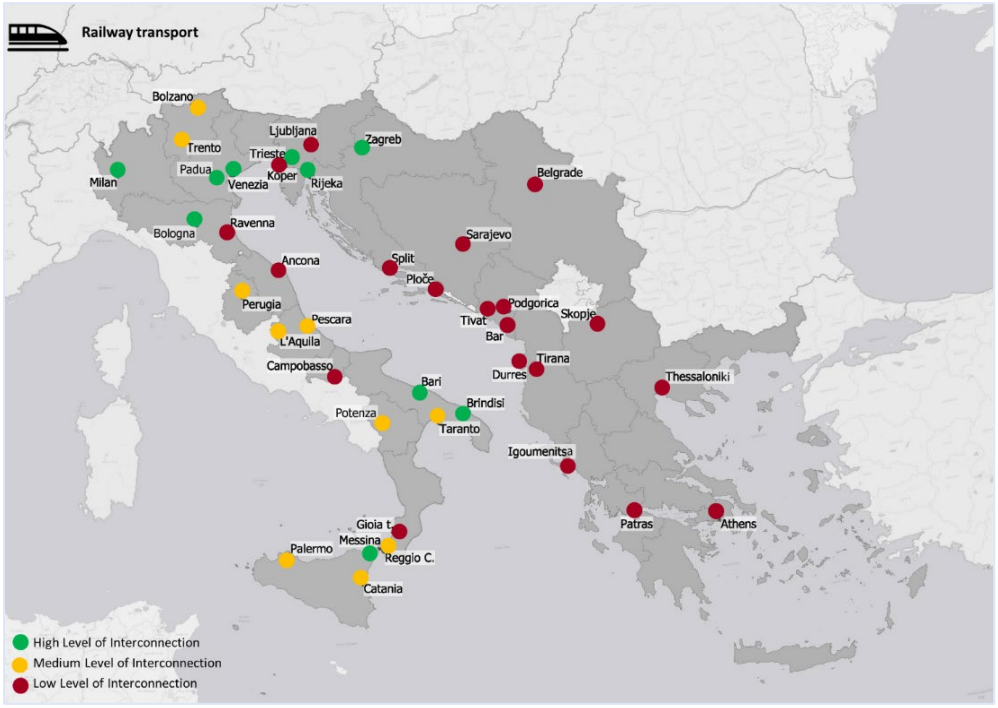
Key issues

The above situation shows that relevant upgrades are needed in urban nodes in the A-I region in order to provide appropriate services which can contribute to reduce the use of private cars thus limiting the social and environmental impact of local mobility. Furthermore, remarkable areas of improvement are also present as concerns:

- **Electrification and use of alternative fuels in public transport fleet** in the selected urban nodes, which is an issue in most secondary nodes throughout the region;
- Dissemination of **sustainable and shared mobility solutions**, especially in Montenegro, North Macedonia, Serbia and Slovenia;
- Availability of **sustainable and innovative urban logistics solutions**.

Many issues emerge also in terms of **the current accessibility to/from urban nodes and their interconnection**, which is quite good in terms of maritime links between port cities on opposite sides of the Adriatic sea, but is lacking when measured in terms of available roads and especially passenger train services, as shown in the following map.

Figure 9: Level of interconnection by passenger railway transport among selected major urban nodes



2 POLICIES AND PROGRAMMES IN THE TRANSPORT SECTOR

2.1 INTRODUCTION

The European Union has a comprehensive transport policy that aims to **promote safe, efficient, and sustainable transport throughout the EU**. The policy covers a wide range of transport modes, including road, rail, air, and maritime transport, and is focused on promoting the development of integrated, multimodal transport networks.

One of the key objectives of the EU's transport policy is to improve connectivity and promote the free movement of goods and people throughout the EU. This includes investments in infrastructure, such as high-speed rail links and the development of intelligent transport systems, to reduce congestion and improve transport efficiency. The EU's transport policy also includes measures to promote environmental sustainability, such as reducing emissions from transport and promoting the use of alternative fuels. This includes the development of low-emission zones in cities, incentives for the use of electric vehicles, and the promotion of sustainable transport modes such as cycling and walking.

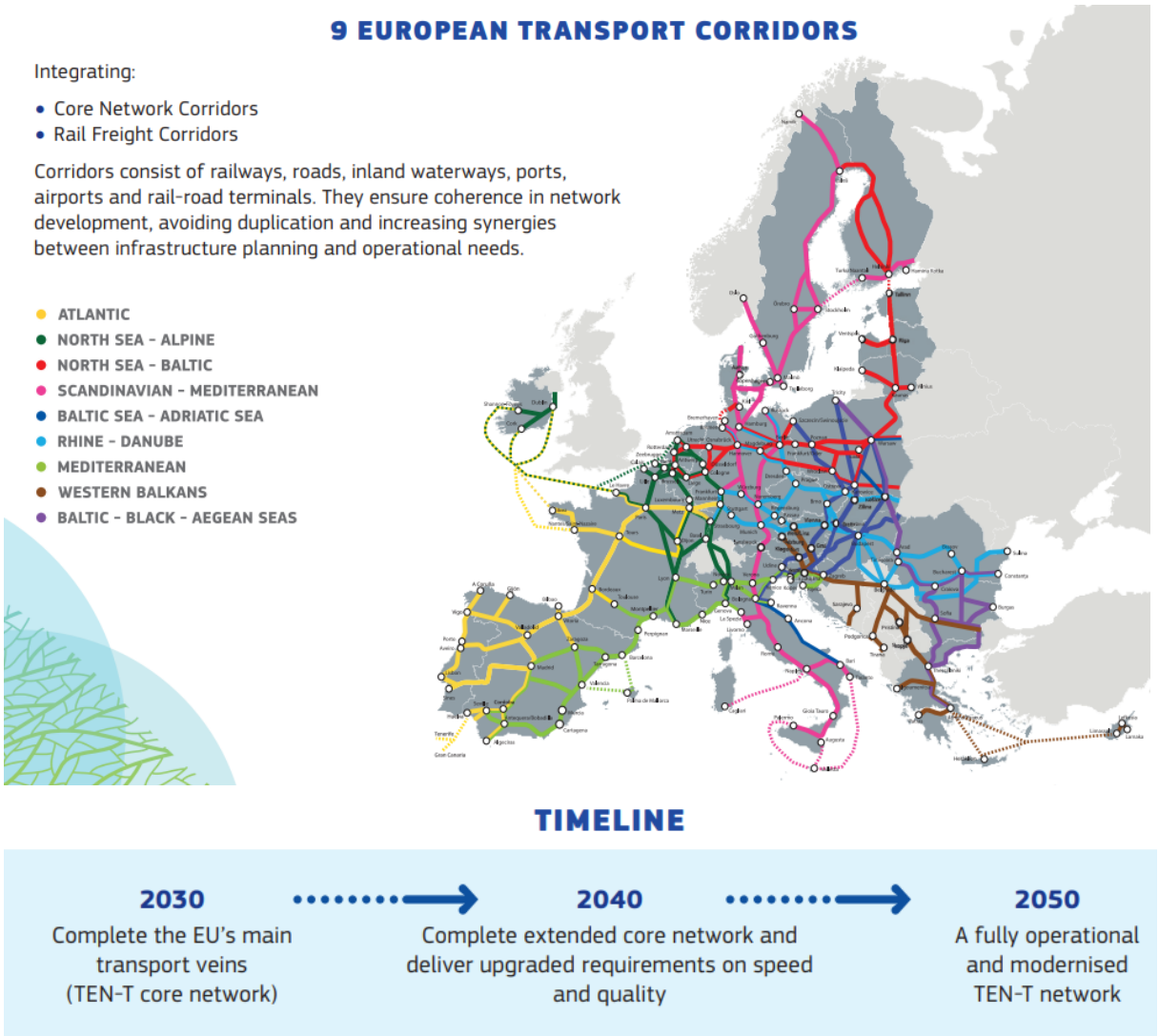
In the Western Balkans, transport policy is a critical component of the region's economic development and integration with the EU. The EU has launched several initiatives aimed at promoting transport development and integration in the Western Balkans, including the **Transport Community Treaty**. This treaty is designed to promote the development of transport networks and improve connectivity within the region and with the EU. One of the key challenges facing transport policy in the Western Balkans is the need to modernize and upgrade transport infrastructure. Many of the region's roads, railways, and ports are outdated and require significant investment to bring them up to modern standards. This includes improving transport links to connect the region's cities and markets, as well as promoting the use of sustainable transport modes. Another challenge is the need to address safety concerns and promote good governance in the transport sector. This includes strengthening regulatory frameworks, improving road safety, and promoting transparency and accountability in the management of transport infrastructure.

2.2 THE TEN-T POLICY AND THE CONNECTING EUROPE FACILITY

The TEN-T (Trans-European Transport Network) policy and the Connecting Europe Facility (CEF) are two critical components of the European Union's (EU) transport policy, aimed at

improving connectivity and promoting the development of sustainable transport networks across the EU. The European Commission has proposed a revised regulation of the TEN-T Policy in December 2021 to enhance the effort towards connectivity, safety, sustainability, and convenience of the EU's transport network.

Figure 10: Main TEN-T policy elements



Improving the quality standards of the network is a priority to address existing gaps and modernize the infrastructure. The aim is for major passenger rail lines within the Trans-European Transport Network (TEN-T) to allow trains to travel at speeds of 160 km/h or higher by 2040. Canals and rivers should also ensure favorable navigation conditions for a minimum number of days per year. Enhancing trans-shipment terminals and enabling piggy-back services on the rail network are important objectives. Furthermore, major cities are expected to develop sustainable urban action plans to promote zero-emission mobility.

Alongside the core and comprehensive networks, an extended core network will be established, targeted for completion by 2040. The core network corridors and rail freight corridors will merge to form European Transport Corridors, integrating various modes of transportation.

The main funding mechanism that supports the implementation of the TEN-T policy by providing funding for transport infrastructure projects in the Connecting Europe Facility (CEF). The CEF provides grants and financial instruments to support the development of transport infrastructure, including roads, railways, ports, and airports, as well as the deployment of new technologies and the promotion of sustainable transport modes. The CEF has a budget of €33.7 billion for the period 2021-2027 and is focused on supporting projects that have a significant impact on the EU's transport network and promote economic growth and job creation. Projects that are eligible for CEF funding must be included in the TEN-T network, and must meet certain criteria related to sustainability, safety, and efficiency.

A key objective of CEF is to promote the development of transport infrastructure in less developed regions of the EU, and to improve connectivity with neighboring regions. This includes supporting the development of transport links with the Western Balkans.

2.3 The Extension of the TEN-T to Western Balkans

The extension of the TEN-T to the Western Balkans is a critical step towards improving connectivity and promoting economic development in the region. The extension of the TEN-T to the Western Balkans will help to promote the development of transport infrastructure and services in the region, which is critical for improving connectivity and promoting economic growth. This includes investments in roads, railways, ports, and airports, as well as the deployment of new technologies and the promotion of sustainable transport modes.

The TEN-T policy will also help to promote the integration of the Western Balkans with the rest of the EU, by improving transport links and promoting the free movement of people and goods. This will help to promote economic development and job creation in the region, and will help to reduce the economic disparities between the Western Balkans and the rest of the EU.

Figure 11: Extension of the TEN-T network in the Western Balkans

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

Comprehensive and Core Networks: Roads, ports, railway-roads terminals, and airports

Comprehensive and Core Networks: Inland Waterways and Ports

Source: Transport Community Treaty

2.4 The Sustainable and Smart Mobility Strategy (EU and Western Balkans)

In 2021, the EU[1] and the Transport Community[2] have settled their vision for the transport system of the future and the action plan to follow. Their documents "**Sustainable and Smart Mobility Strategy**" are structured around three key objectives:

- **Sustainable Mobility**: zero-emission mobility by making all transport modes more sustainable, ensuring wide availability of the most sustainable options and giving users incentives to make sustainable choices;
- **Smart mobility**: supporting digitalization and automation to achieve seamless, safe and efficient connectivity;
- **Resilient mobility**: create a Single European Transport Area that is affordable and accessible for all citizens and businesses and resilient against possible crises and future challenges.

[1] European Commission, "Sustainable and Smart Mobility Strategy – putting European transport on track for the future", COM(2020) 789 final

[2] Transport Community, "STRATEGY FOR SUSTAINABLE AND SMART MOBILITY IN THE WESTERN BALKANS", Transport Community Treaty Permanent Secretariat – Staff Working Document, July 2021

These objectives support the aim to deliver a 90% reduction in the transport sector's emissions by 2050. This vision includes 10 flagship areas with an action plan that will help to reach the objective.

- ***Sustainable mobility challenges***
  - Flagship 1 - Boosting uptake of zero-emission vehicles, renewable & low-carbon fuels and related infrastructure
  - Flagship 2 - Creating zero-emission airports and ports
  - Flagship 3 - Making interurban and urban mobility healthier and more sustainable
  - Flagship 4 - Greening freight transport
  - Flagship 5 - Pricing carbon and providing better incentives for users
- ***Smart mobility challenges***
  - Flagship 6 - Making connected and automated multimodal mobility a reality
  - Flagship 7 - Innovation, data and AI for smart mobility
- ***Resilient mobility challenges***
  - Flagship 8 – Working towards the single market
  - Flagship 9 - Making mobility fair and just for all
  - Flagship 10 - Enhancing transport safety and security

2.5 The New EU Urban Mobility Framework

As part of its broader efforts to promote sustainable development, reduce greenhouse gas emissions, and improve the quality of life for citizens in urban areas, the EU has recently adopted a new **Urban Mobility Framework**, published by the European Commission in December 2021 and designed to promote sustainable and smart mobility in urban areas across the EU. The new Urban Mobility Framework includes a range of policies and measures aimed at promoting sustainable and smart mobility in urban areas, including the promotion of active transport modes such as cycling and walking, the development of public transport networks, and the deployment of clean energy technologies and low-carbon transport infrastructure.

One of the key elements of the Urban Mobility Framework is the promotion of active transport modes, such as cycling and walking. The EU is investing in the development of dedicated cycling lanes and pedestrian zones, as well as promoting the use of shared mobility services such as bike-sharing and car-sharing. By promoting these modes of transport, the EU can help to reduce congestion and emissions in urban areas, as well as promoting public health and well-being.

Another key element of the Urban Mobility Framework is the development of public transport networks. The EU is investing in the expansion and improvement of public transport networks, including the development of new tram and metro systems, and the promotion of bus rapid transit systems. By promoting public transport, the EU can help to reduce congestion and emissions in urban areas, as well as promoting social inclusion and accessibility for all citizens.

The Urban Mobility Framework also includes measures to promote the deployment of clean energy technologies and low-carbon transport infrastructure. The EU is investing in the development of new clean energy technologies, such as electric buses and hydrogen fuel cell vehicles, as well as the deployment of new low-carbon transport infrastructure, such as electric vehicle charging stations and smart traffic management systems. By promoting these technologies and infrastructure, the EU can help to reduce emissions and improve the efficiency and sustainability of urban transport systems.

Finally, the Urban Mobility Framework includes measures to promote the use of digital technologies to improve the efficiency and sustainability of urban transport systems. The EU is investing in the development of new smart transport systems, including the use of real-time traffic data to optimize transport flows and reduce congestion, and the deployment of connected and automated vehicles. By promoting these technologies, the EU can help to reduce emissions and improve the safety and efficiency of urban transport systems.

2.6 NATIONAL PLANS

Albania	The Government of Albania adopted the **Sectorial Strategy of Transport (SST) and Action Plan 2016- 2020** through the Decision of the Council of Ministers, No. 811, dated 16th of November 2016, “For the approval of the Transport Strategy and Action Plan 2016-2020”. The main goal of the Strategy is to have an efficient transport system, integrated in the region and in the EU network, which promotes economic development and upgrades the citizens’ quality of life. The overall objective of the Sectorial Strategy of Transport and Action Plan 2016-2020 is to (i) further develop Albania’s national transport system, and in addition (ii) to significantly improve its sustainability, interconnectivity, interoperability and integration with the international and European wider transport system and region.

Bosnia and Herzegovina	The Transport Strategy is defined in the **Framework Transport Strategy of Bosnia and Herzegovina (FTS)**, considering that there are two different "entities" (Bosnia and Herzegovina Federation and Srpska Republic). Each of these entities distinguishes "main goals" and "specific targets". Activities are grouped in: "short" (2016 -2020); "medium" (2021 -2025); "long" (2026 -2030) term. National transport strategy is especially oriented to the improvement and efficiency of the railroad system, trying to align its internal goals to European standards and regulations.
Croatia	The **Transport Development Strategy of the Republic of Croatia for the period 2017 to 2030** (TDS 2017) assesses and defines the future measures (infrastructure, operation, and organization) in the transport sector related to international and national transport in all transport segments independent from the funding source. The general objectives include: • Developing the passenger Modal Split in favor of Public transport (PT) and 0 emission modes; • developing the freight Modal Split in favor of rail transport, maritime freight transport and inland water transport; • developing the transport system (operation, organization and infrastructure development and maintenance) according to the principle of economic sustainability; • reducing the Climate change impact of the Croatian transport system; reducing the impact on the Environment of the Croatian transport system (Environmental sustainability); • improving the traffic safety in the Croatian Transport system; improving interoperability of the Croatian transport system (PT, rail, road, maritime, inland water and air); • improving integration of transport modes in Croatia (operation, ITS, P&R, etc.); • further developing the Croatian TEN-T (core and comprehensive) network.

Greece

Within the development of the **National Transport Plan for Greece (2019)**, the High Level Objectives (HLO) defined for the transport sector in Greece are:

- delivering Economic Growth and Efficiency in the development and operation of the transport system, at Regional and National level, measured through travel times, reliability, and cost effectiveness;
- improving Transport Connectivity, comprising connectivity with the islands, connectivity between complementary transport modes, interoperability of systems, territorial cohesion and cross-border connectivity with EU/non-EU countries;
- ensuring an Environmentally Sustainable transport sector;
- providing Accessibility and Social Inclusion with respect to jobs, education and social services for the population;
- maintaining a Safe and Secure transport system.

Italy

The most relevant recent strategic document in Italy that plans the development of transport and mobility sector is the **PNRR (Piano Nazionale di Ripresa e Resilienza)**, defined as the national Recover and Resilience Facility within the EU response to the pandemic crisis. The PNNR for Italy consists of 132 investments and 58 reforms. They will be supported by € 68.9 billion in grants and €122.6 billion in loans; 37.5% of the plan will support climate objectives and 25.1% of the plan will support the digital transition. All reforms and investments must be implemented within a tight time frame, as the Regulation on the Recovery and Resilience Facility foresees, they have to be completed by August 2026.

Italy's recovery and resilience plan supports the green transition with key investments in energy efficiency in residential and public buildings (€ 15.3 billion), sustainable mobility (€ 34 billion) and development of renewable energies and the circular economy and improvement in waste and water management (€ 11.2 billion). Those investments are accompanied by important reforms aimed at improving the efficiency in the use and management of water resources and local public services, increasing recycling rate, deploying of charging points for electric vehicles, increasing competition in the electric market, improving the functioning of concessions in Italian ports, or simplifying the various legal frameworks for the

	acceleration of energy efficiency interventions and transport infrastructure projects.
Montenegro	The goal of the **Transport Development Strategy – Montenegro 2019-2035** is to create the path for improving and upgrading Montenegro's transportation system and to support full harmonization with EU policies and requirements TDS sets five strategic objectives, which reflect the vision for the country's future transportation system. These are the following: 1. Economic Welfare: Achieve economic efficiency and financial sustainability and support for economic development. 2. Accessibility, Performance of Operations and Quality of Services: Provide maximum possible accessibility, offer quality transportation services and maintain an adequate performance in operations, as a whole and with respect to its individual elements within the system. 3. Safety and Security: Improve safety, security of people and goods in the transportation sectors. 4. EU Integration: Core transportation network and policies which are fully compatible and integrated to EU requirements. 5. Environmental Sustainability: Minimize carbon footprint, noise pollution and impact to the natural, historical and socio-economic environment. For this objective, a special Separate has been prepared: Strategic environmental impact assessment of Transport Development Strategy – Montenegro, period 2018-2035.
North Macedonia	The most recent available national document that sets out a transport strategy is the **Development of National Strategy for the Transport Sector** (December 2018). The overall objective of the National Transport Strategy is to develop a harmonised transport sector that is internationally compatible and integrated in the TEN-T system, that stimulates the economic and social development of the country, preserves the environment, and secures the needs of future generations, by: • Strengthening EU integration and promoting regional cooperation;

- Contributing to the improvement of the economic sustainability at the national level;
- Introducing green mobility and logistic focused to environmental performance of the Transport sector;
- Establishing reliable and safe transport systems.

Serbia

An updated **National Transport Strategy for Serbia** is currently under development. According to the most recent available document, Strategy of railway, road, inland waterway, air and intermodal transport development in the republic of Serbia, 2008 – 2015, the transport infrastructure promotion must primarily focus on the improvement of the existing networks, the level of safety and services, construction of additional lanes/tracks and by-passes in the context of environmental improvement, relocation of transit flows out of the urban city zones, modernization of equipment, reconstruction of crossroads and elimination/rehabilitation of highly risky road sections.

Slovenia

The vision of the "**Transport Development Strategy of the Republic of Slovenia Until 2030**" aims to implement measures which will provide the sustainable mobility of the population and sustainable supply to the economy. The general objectives of transport policy which ensure that the vision is realised are determined on the basis of the vision. The objectives are:

- To improve mobility and accessibility;
- to improve the supply to the economy;
- to improve traffic safety and protection;
- to reduce energy consumption;
- to reduce costs to user and operators;
- to reduce environmental burdens.

3 DEFINITION OF A EUSAIR MASTERPLAN SCENARIO

3.1 APPROACH AND METHODOLOGY: THE EMTM

As mentioned in the introduction, the present Masterplan has been developed with the support of a transport simulation model (EMTM – EUSAIR Multimodal Transport Model) which has been developed and applied in order to assess the effectiveness of various future infrastructure scenarios, with a focus on road and rail networks.

To this end, the main logical process applied was as illustrated in the following chart.

Figure 12: Approach to the EUSAIR Transport Masterplan Scenario definition via the EMTM

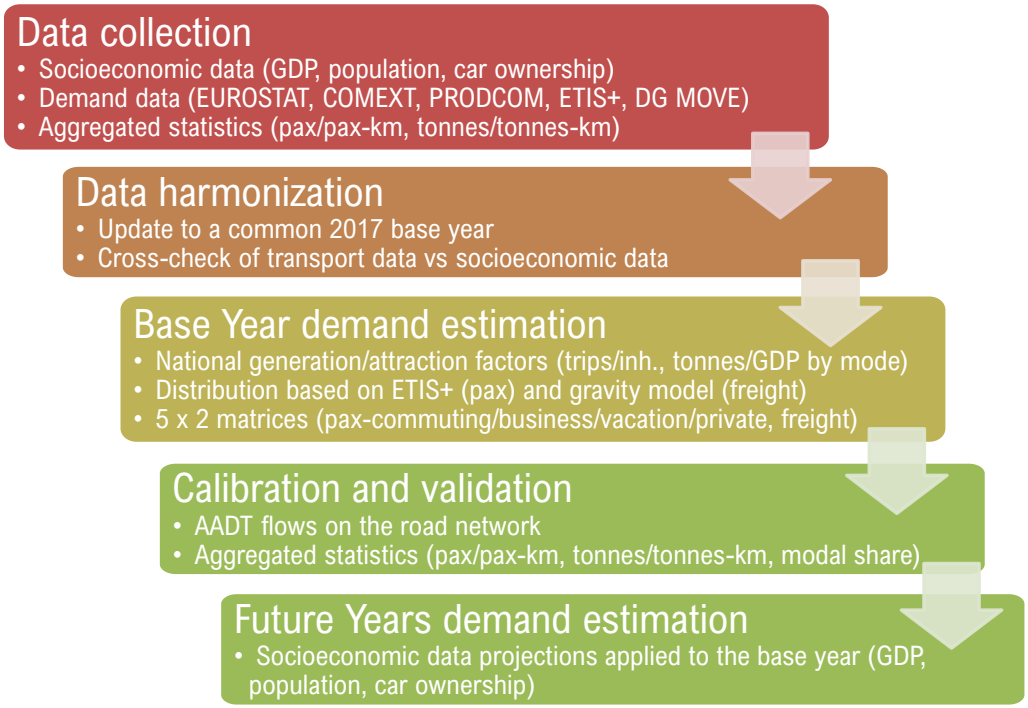
More in detail:

- **The EMTM was developed and validated for a base year (set at 2017 for completeness of available information and data)**
  - ✓ The EUSAIR Multimodal Transport Model (EMTM), developed by TPLAN Consulting, is a tool developed to analyse the characteristics and performance of the Rail and Road networks in the AI Region, with a focus on medium-long distance flows. The EMTM aims at assessing ex-ante infrastructure scenarios based on quantitative indicators. Its main simulated network parameters are:
    - **i.** Rail: n. of tracks and speed
    - **ii.** Road: n. of lanes and type of road

    The EMTM is multimodal in that it simulates passenger and freight transport flows on the rail and road networks. It covers 232 NUTS-3 or equivalent zones in the Adriatic-Ionian macroregion.

    The following chart illustrates how demand data is modelled within the EMTM.

Figure 13: EMTM Data modelling



The model has been developed and calibrated according to a base year set with 2017 data, and the input for the simulations of future scenario derives from demand estimations based on year-by-year socioeconomic data projections related to GDP, population and car ownership in concerned zones.

- **A number of future infrastructure scenarios in the macro-region was defined and simulated, based on existing national plans.**
  - ✓ Collection of information on major current and existing infrastructure project along the core network corridors in the macro-region;
  - ✓ Definition of a "baseline" scenario including projects with high maturity (i.e. with advanced design and with secured funding);
  - ✓ Simulation of the traffic flows in the macro-region in 20403 according to the baseline scenario and analysis of its outcomes in terms of connectivity and modal share across the macro-region;

[3] 2040 adopted as reference year for the Masterplan Projects' Scenarios, in consideration of the requirement set for completion of the TEN-T core and extended core networks by this time horizon and possible uncertainties about factual completion of planned projects by 2030

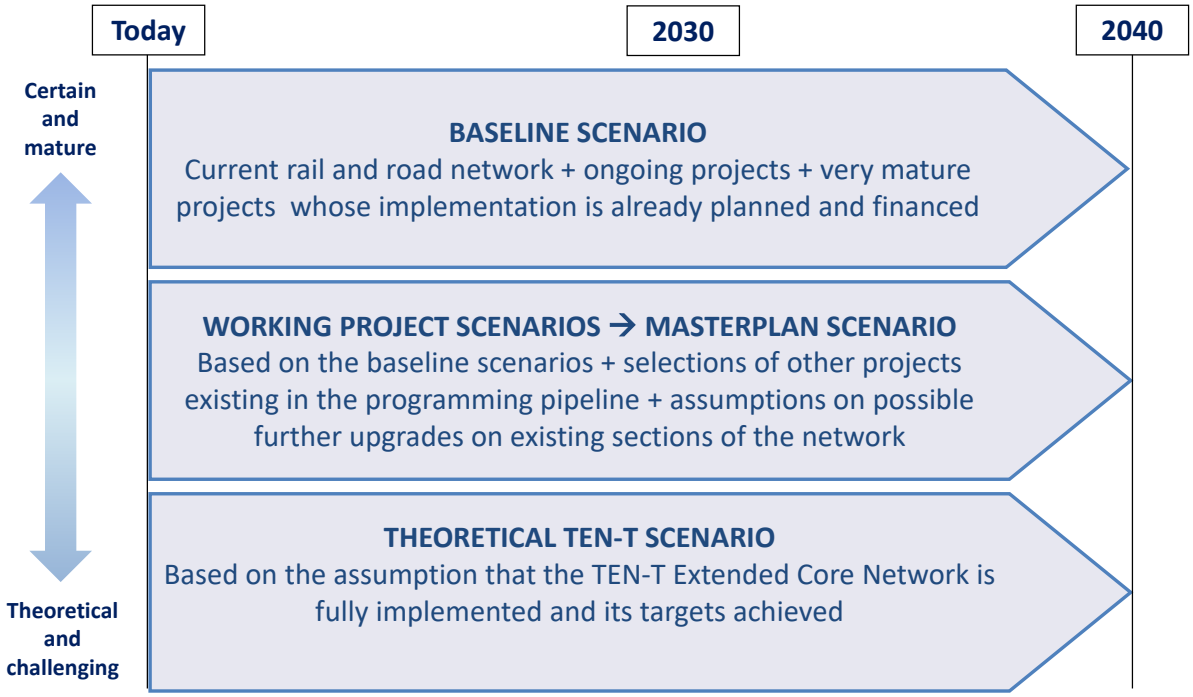
- ✓ Simulation of a further scenario ("Integrated baseline") including also other projects already in planning pipelines of the concerned countries, and analysis of its outcomes in terms of connectivity and modal share across the macro-region;

- **Definition and inclusion in a final "Masterplan scenario" of additional projects aimed at eliminating the most relevant connectivity gaps in the macro-region and maximising the accessibility indicators.**

Further to this, a theoretical "TEN-T 2040" scenario has also been simulated and analysed, which assumes the complete realisation of the core and extended core networks and their full development with TEN-T standards, in order to analyse the degree of connectivity and modal share that could be achieved in the macro-region if these targets were to be fulfilled.

The following chart further illustrates the approach for infrastructure scenario definition.

Figure 14: Simulated scenarios



The **indicators used** for assessing the outcomes of the simulations in the different scenarios are the following:

- **Rail Infrastructure Connectivity Index (ICI)**:
  - ✓ The rail Infrastructure Connectivity Index (ICI) is calculated as the average of the ratios between the simulated inter-zonal travel time on the rail network and a

road-related reference travel time calculated assuming reference speeds of 120 km/h on the entire road network.

- ✓ The index is evaluated for each zone with reference to all the other zones of the EUSAIR region and the values, between 0 and 1, represent the infrastructural gap compared to the reference performance.
- ✓ In the **base year (2017)**, this indicator is equal to 0 1 (no railway connectivity) for 6.81% of the region; lower than 0.30 for 18.36% of the region; between 0.3 and 0.45 for 55.40% of the region; higher than 0.450 for 19.43% of the region.

- **Road Infrastructure Connectivity Index (ICI)**
  - ✓ The road Infrastructure Connectivity Index (ICI) is calculated as the average of the ratios between the simulated inter-zonal travel time on the road network and a reference travel time calculated assuming reference speeds of 120 km/h on the entire road network;
  - ✓ The index is evaluated for each zone with reference to all the other zones of the EUSAIR region and the values, between 0 and 1, represent the infrastructural gap compared to the reference performance;
  - ✓ In the **base year (2017)**, this indicator is lower than 0.60 for 13.05% of the region; between 0.60 and 0.65 for 8.89% of the region; between 0.65 and 0.70 for 46.52% of the region; higher than 0.70 for 31.50% of the region.
- The **passenger and freight modal share**
  - ✓ The passenger modal shares by country are calculated based on the transport activity (passenger-km and tonnes-km) on the network ("territorial" approach by EUROSTAT and DG MOVE Pocketbook);
  - ✓ Passenger modal shares by zone is instead calculated based on the sum of the pax transport volumes generated and attracted in each zone.
  - ✓ In the **base year (2017)**, **for passenger transport**, the recorded share is of 78.23% for private cars, of 12.24% for buses, of 9.54% for rail transport;
  - ✓ In the **base year (2017)**, **for freight transport**, the recorded share is of 86.67% for road transport and 13.33% for rail.

Table 1: EMTM indicators for the base year (2017) – Rail network

	% of the region
No railway	6.8%
ICI < 0.3	18.4%
0.3 < ICI < 0.45	55.4%
ICI > 0.45	19.4%

Table 2: EMTM indicators for the base year (2017) – Road network

	% of the region
ICI < 0.60	13.1%
0.60 < ICI < 0.65	8.9%
0.65 < ICI > 0.70	46.5%
ICI > 0.70	31.5%

Table 3: Modal shares for the base year (2017)

	Rail transport	Road transport
Modal shares (passenger transport)	9.54%	Private cars: 78.23% Buses: 12.24%
Modal shares (freight transport)	13.33%	86.67%

3.2 INFRASTRUCTURE SCENARIOS

3.2.1 Baseline scenario: projects and results

The following maps show the rail and road ICI in the base year (2017). Both rail and road Interconnectivity Indexes are particularly low in Western Balkans, due to the poor conditions of the rail infrastructure and presence of areas not linked to the rail network. The maps also represent the baseline scenario projects, whose complete list is presented in the tables in Appendix.

Figure 15: Rail Connectivity BASE YEAR + representation of BASELINE scenario projects

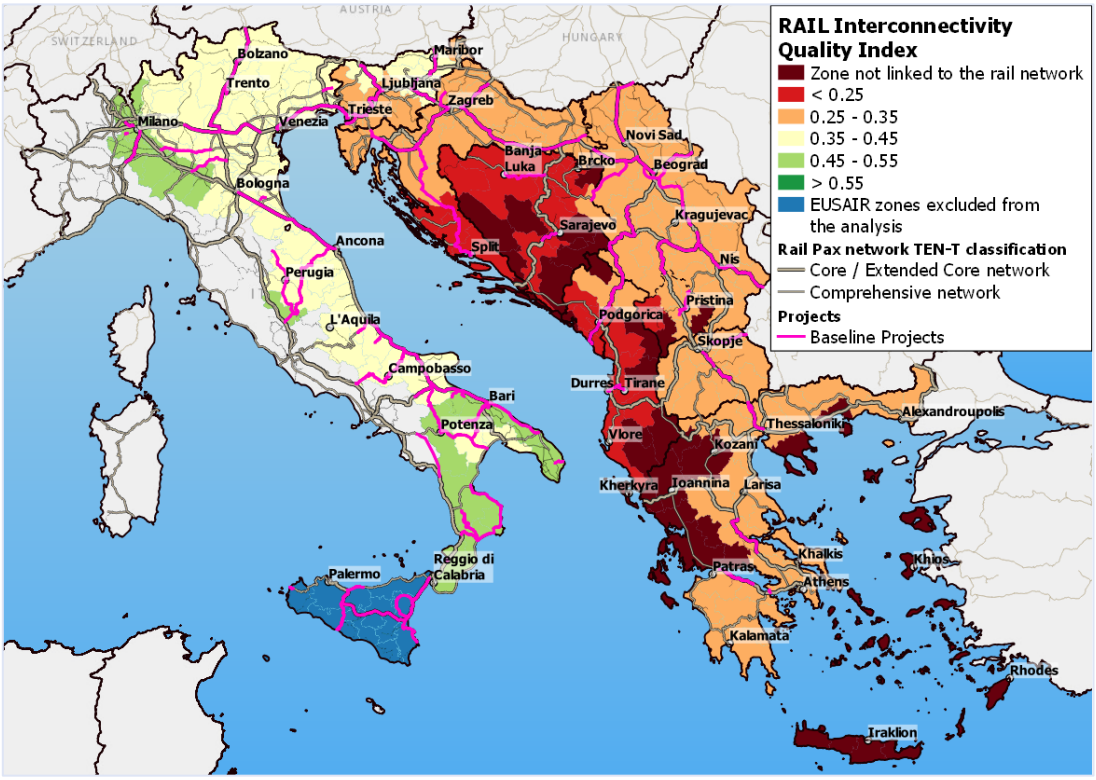
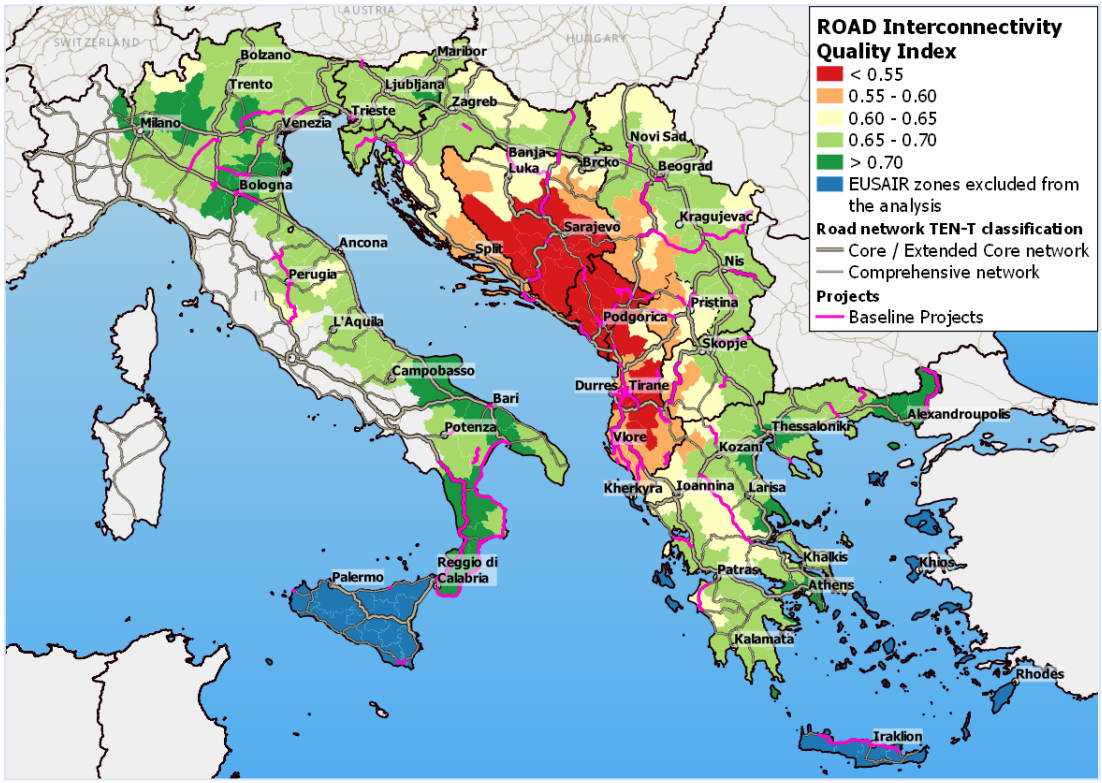


Figure 16: Road Connectivity BASE YEAR + representation of BASELINE scenario projects



The EMTM indicators for the Baseline scenario result as follows.

Table 4: EMTM indicators for the BASELINE scenario (2040) – Rail network

	% of the region
No railway	6.7%
ICI < 0.3	9.3%
0.3 < ICI < 0.45	38.6%
ICI > 0.45	45.4%

Table 5: EMTM indicators for the BASELINE scenario (2040) – Road network

	% of the region
ICI < 0.60	13.6%
0.60 < ICI < 0.65	23.1%
0.65 < ICI > 0.70	59.0%
ICI > 0.70	4.30%

Table 6: Modal shares for the BASELINE scenario (2040)

	Rail transport	Road transport
Modal shares (passenger transport)	9.5%	Private cars: 78.7% Buses: 10.2%
Modal shares (freight transport)	13.3%	82.6%

The Baseline scenario improves the rail core network corridors in Croatia, Italy, Serbia and Greece, including corridor lines interconnecting to the ports of Ancona, Bar, Koper, Piraeus, Ravenna, Rijeka and Venice. As concerns the road network, The Baseline scenario improves the core network corridors, with accessibility improvements in particularly in Albania, Bosnia and Herzegovina and North Macedonia.

3.2.2 Integrated baseline scenario: projects and results

The following maps show the rail and road ICI in the former scenario (baseline 2040) and represents the planned projects that are included for the next step of simulations (listed in the tables in Appendix).

Figure 17: Rail Connectivity BASELINE + representation of planned projects

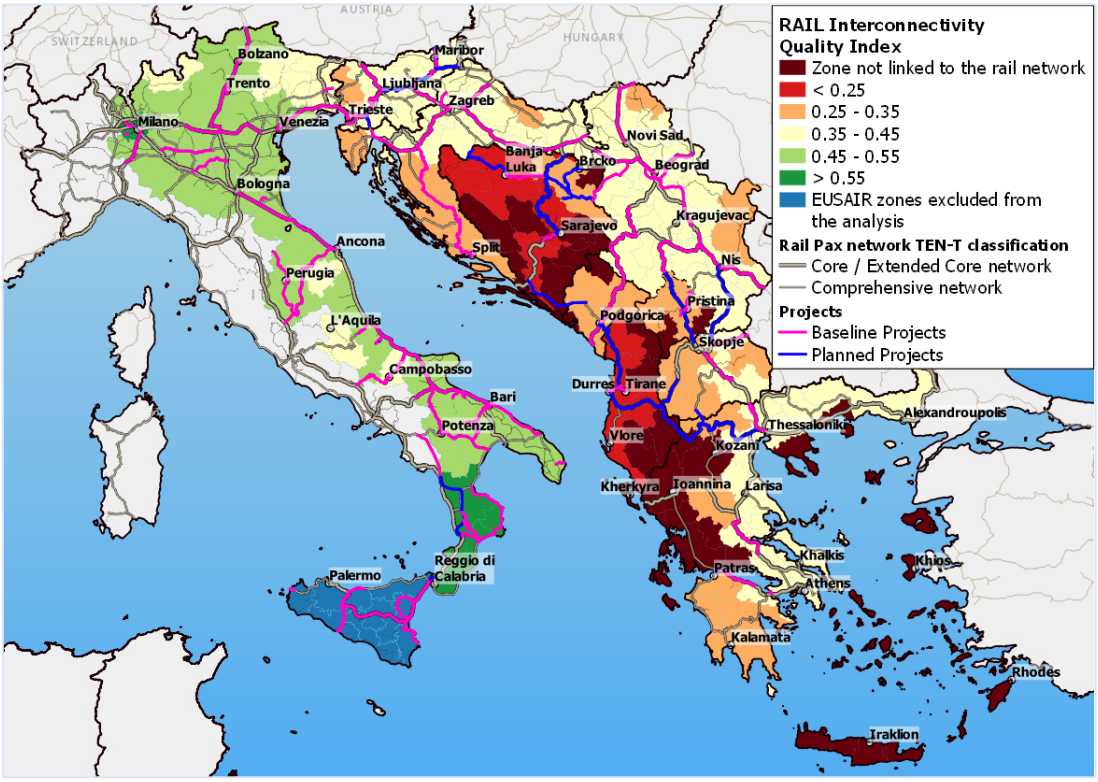
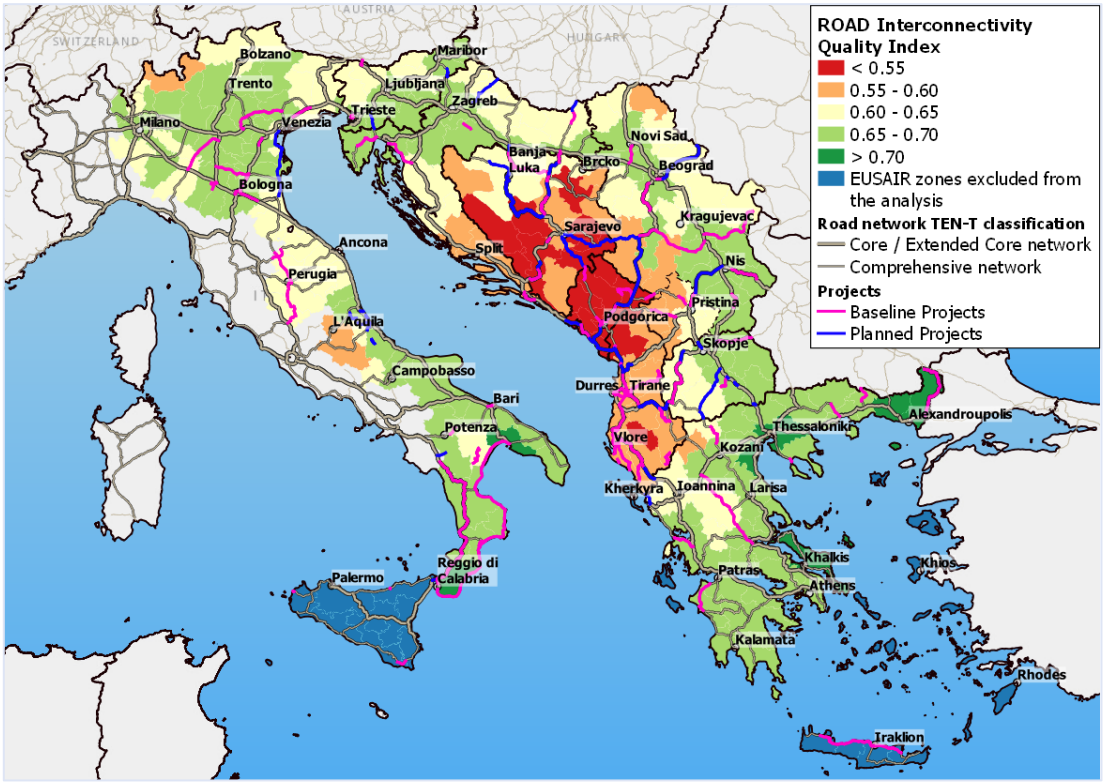


Figure 18: Road Connectivity BASELINE + representation of planned projects



3.2.3 Masterplan scenario: projects and results

The planned projects included in the previous scenario improve the conditions of the rail infrastructure in Western Balkans: interconnections Albania-Greece, Albania-North Macedonia, Serbia-North Macedonia-Greece, Croatia-Bosnia and Herzegovina. Planned projects significantly improve the condition of the infrastructure in Western Balkans. However, additional projects would further improve connectivity in low accessibility areas in the Western Balkans, and, as for road, especially on the core network and along the Adriatic Coast. The following maps show the rail and road ICI in the former scenario (integrated baseline 2040) and represents the additional projects, aimed at solving major connectivity gaps, that are included in the Masterplan scenario.

Figure 19: Rail Connectivity INTEGRATED BASELINE + representation of additional projects

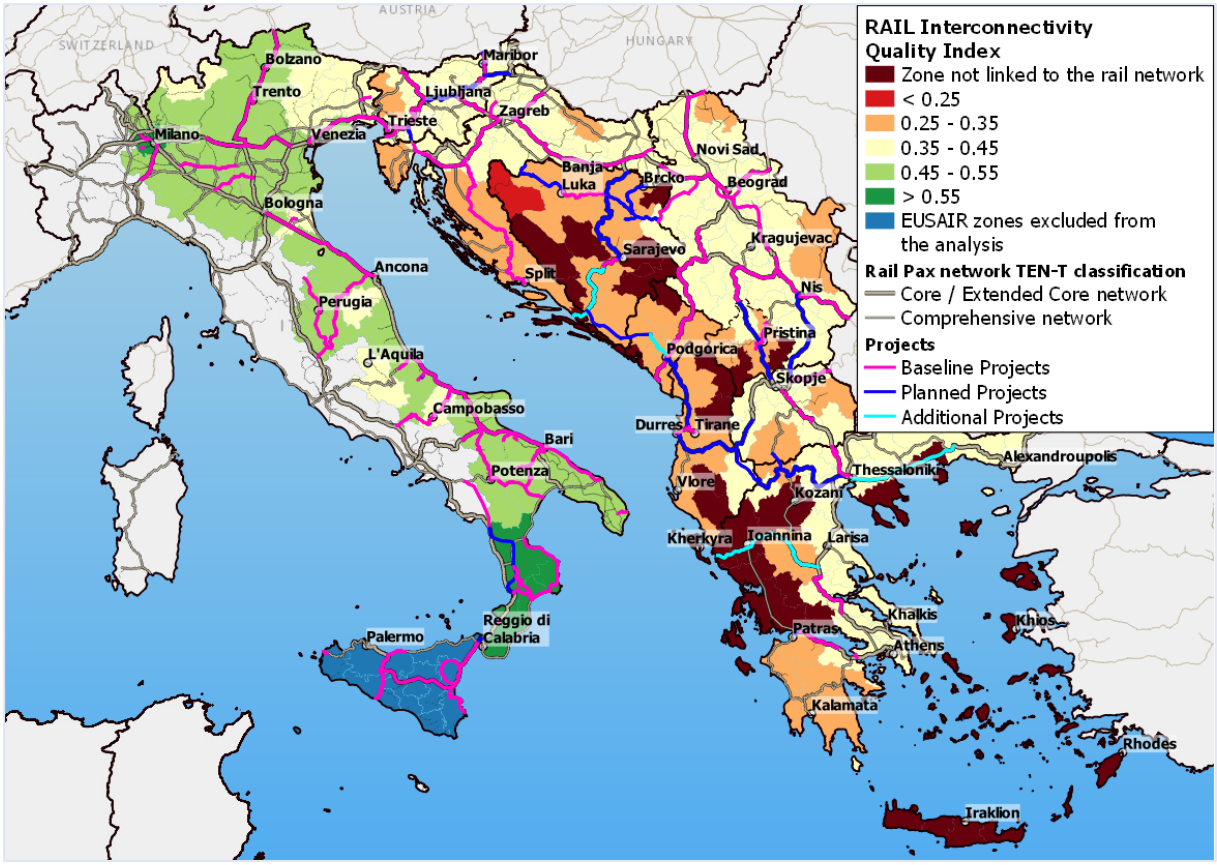
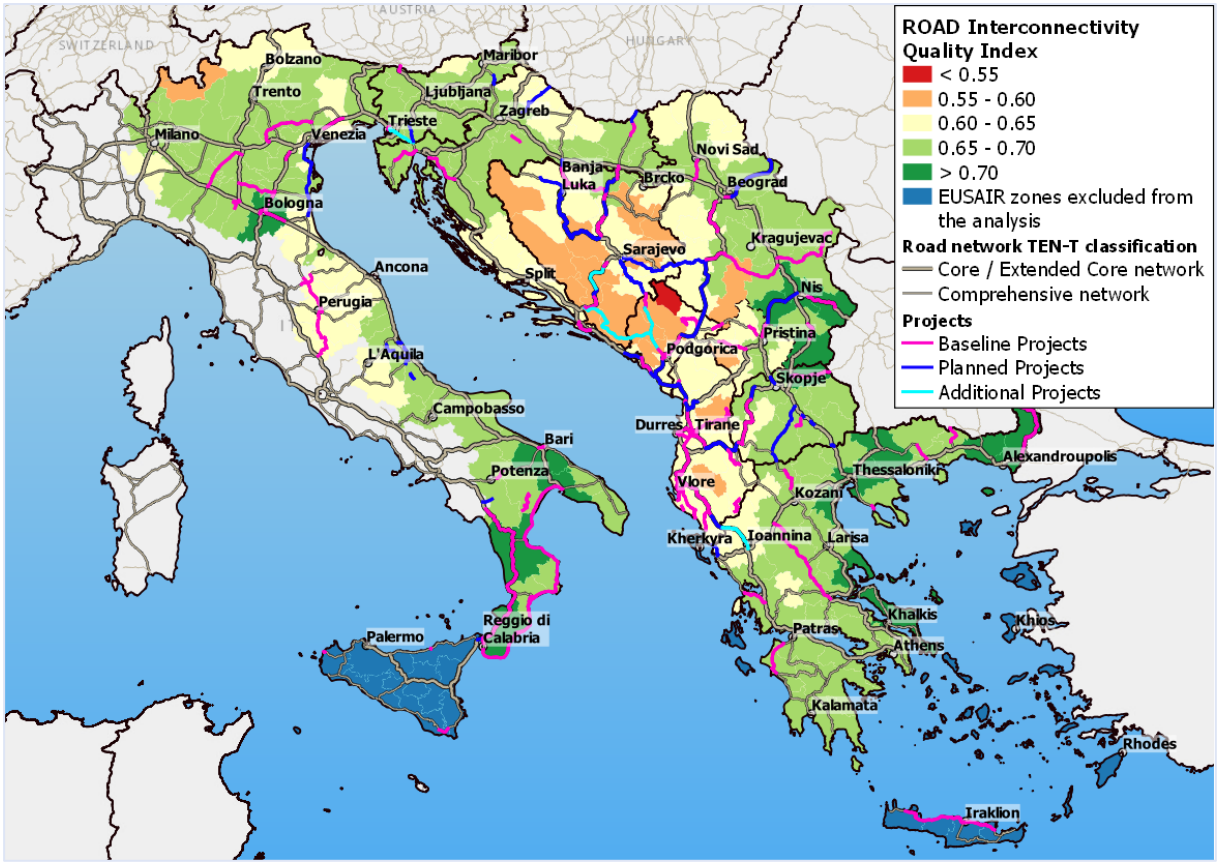


Figure 20: Road Connectivity INTEGRATED BASELINE + representation of additional projects



The EMTM indicators for the Masterplan scenario result as follows.

Table 7: EMTM indicators for the MASTERPLAN scenario (2040) – Rail network

	% of the region
No railway	5.7%
ICI < 0.3	4.6%
0.3 < ICI < 0.45	46.2%
ICI > 0.45	43.5%

Table 8: EMTM indicators for the MASTERPLAN scenario (2040) – Road network

	% of the region
ICI < 0.60	3.8%
0.60 < ICI < 0.65	19.3%
0.65 < ICI > 0.70	59.3%
ICI > 0.70	17.6%

Table 9: Modal shares for the BASELINE scenario (2040)

	Rail transport	Road transport
Modal shares (passenger transport)	11.4%	Private cars: 78.5% Buses: 10.2%
Modal shares (freight transport)	17.3%	82.7%

As shown in the following map, additional projects further improve the condition of the infrastructure in Western Balkans: in particular for the rail network the interconnections Bosnia and Herzegovina-Montenegro-Albania, Sarajevo-Ploče; and in Greece: interconnection between Greece and Turkey and link to the port of Igoumenitsa are beneficial to rail connectivity.

Figure 21: Rail Connectivity MASTERPLAN scenario

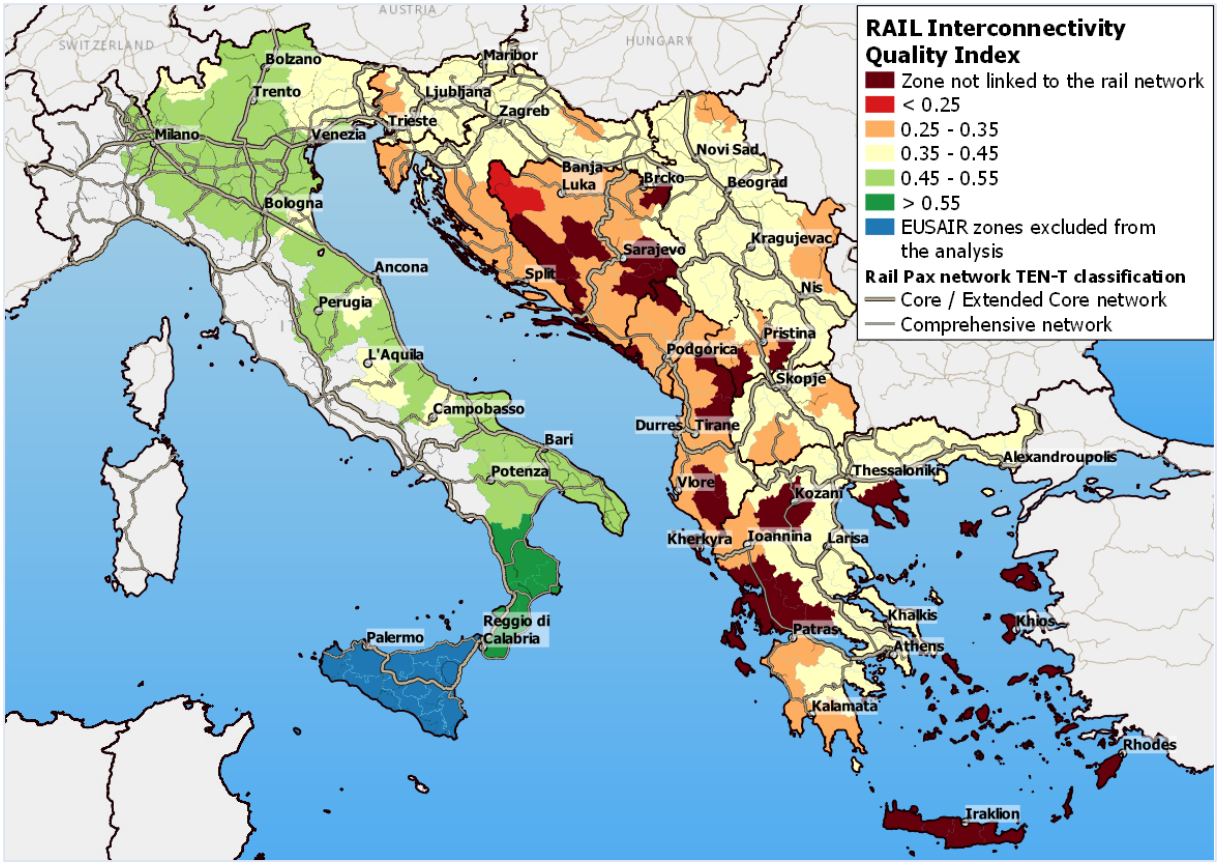
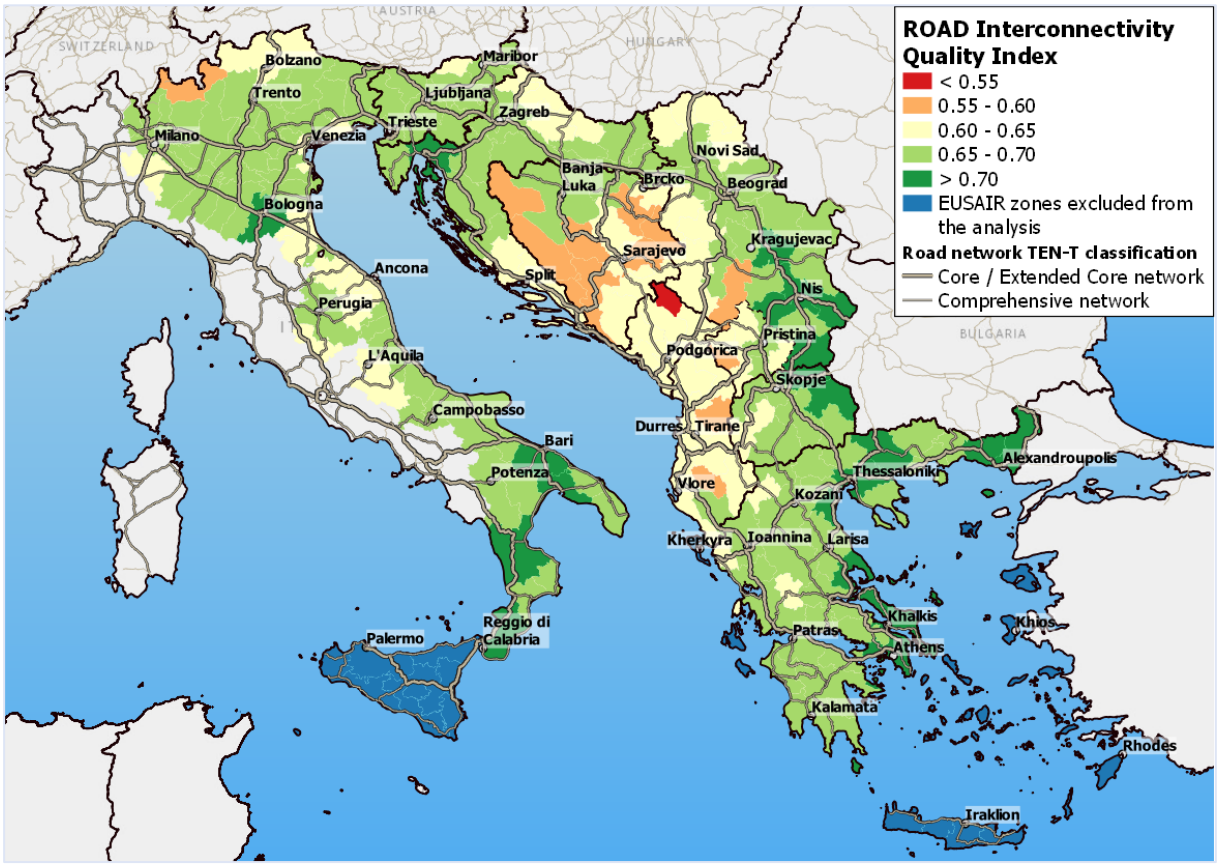


Figure 22: Road Connectivity MASTERPLAN scenario



3.2.4 Recap of results and TEN-T scenario

As shown in the previous maps, the rail and road connectivity indexes largely benefit from the defined Masterplan infrastructure scenario.

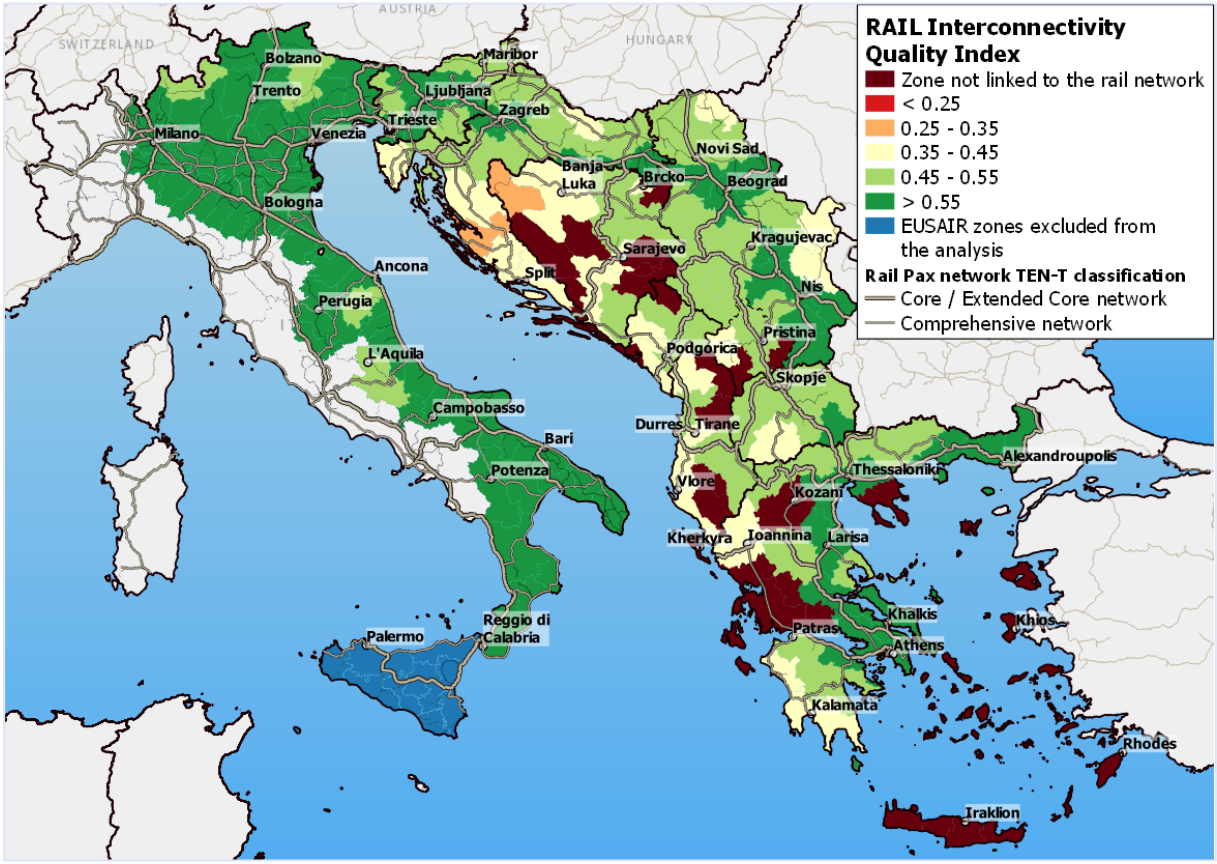
As concerns the **rail network**, the projects' database includes initiatives that are relevant to enhance transnational interconnectivity in the Adriatic-Ionian Region: the Baseline scenario projects particularly improve the core network corridor sections, although some gaps remain in the Western Balkan region and Greece, especially along the Adriatic coast; the planned projects not included in the Baseline scenario are relevant to solve these gaps and further improve the rail network. Albeit relevant to modernise the network, the impact of the planned projects may not result in the achievement of the TEN-T speed standards for freight (100 km/h) and passenger transport (160 km/h) according to the new TEN-T Regulation; further to the Baseline and planned projects, additional projects have been identified to complete the core and extended core networks and their modernisation, with a focus on areas presenting low accessibility indexes. However, upon completion of the Masterplan projects' scenarios

gaps will remain in terms of accessibility, only in the areas not linked to the rail network and in Western Greece, where gaps may be solved by investments on the comprehensive lines.

As concerns the **road network**, the Baseline scenario projects particularly improve the core network corridor sections, although lower accessibility indexes remain in the Western Balkans, especially along the Adriatic coast; the planned projects not included in the Baseline 2040 scenario are relevant to further improve the road network. Albeit relevant to modernise the network, improvements may not always imply the development of expressways/motorways solutions; further to the Baseline and planned projects, a limited number of additional projects has been identified to complete the core and extended core networks and their modernisation, with a focus on areas presenting low accessibility indexes.

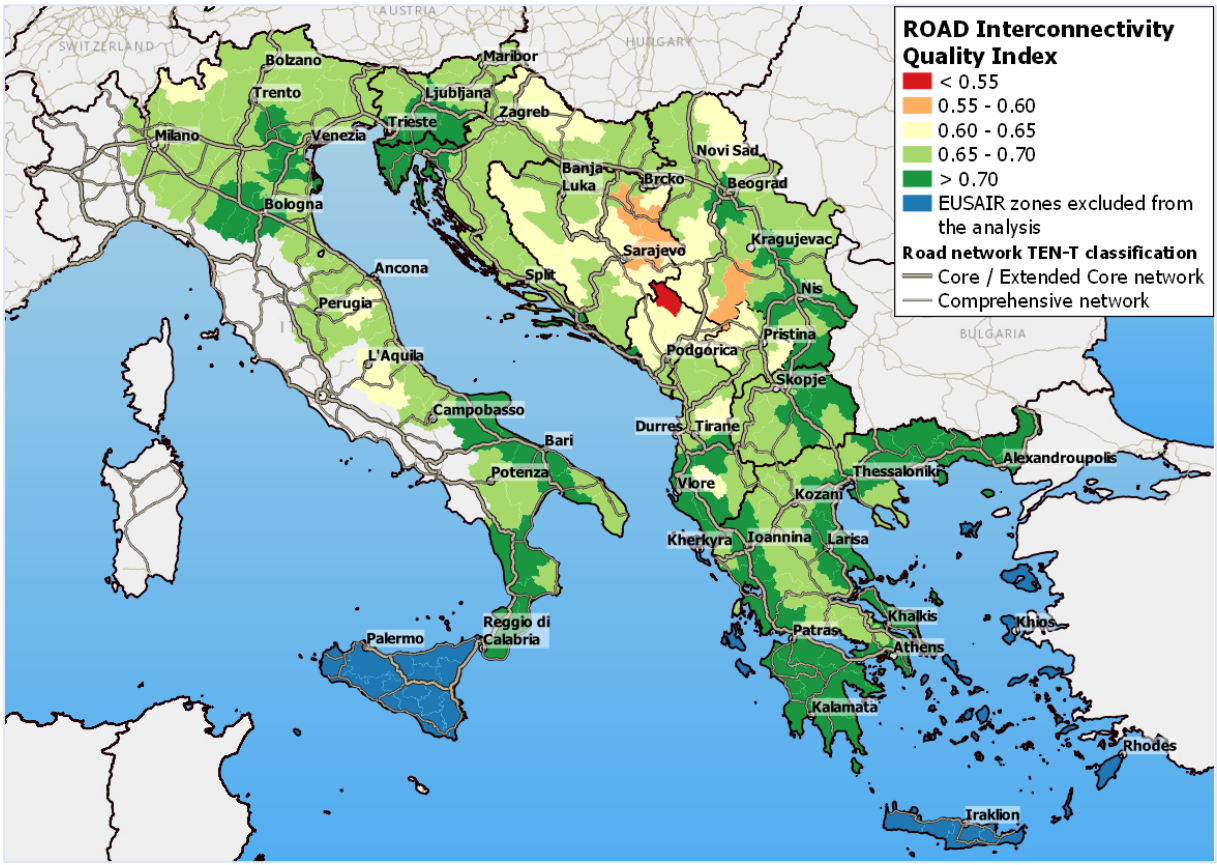
Within the Masterplan simulations, a further scenario has been applied, which assumes the full completion of the extended TEN-T network and the achievement of the related targets in terms of infrastructure endowment and quality. The following maps show such scenario for the rail and road sector.

Figure 23: TEN-T 2040 Scenario – Rail network



The TEN-T 2040 scenario includes the Masterplan 2040 scenario projects + increase of the speed standard for pax and freight transport to 160 km/h and 100 km/h on the core and extended core network. For the road sector, the TEN-T 2040 scenario assumes that the core/extended core network are developed as expressways/ motorways (not strictly required by the TEN-T Regulation).

Figure 24: TEN-T 2040 SCENARIO – ROAD NETWORK



The implementation of projects allowing reaching the speed standards foreseen in the TEN-T regulation for the core and extended core railway lines by 2040 and for the comprehensive lines by 2050, as well as the adoption of expressway/motorways solutions for the core and extended core lines by 2040 and for the comprehensive lines by 2050 would result in higher accessibility indexes.

The follow tables recap the connectivity indicators for all considered scenarios.

Table 10: Rail indicators in the considered scenarios

	NO RAILWAY	ICI < 0.3	0.3 < ICI < 0.45	ICI > 0.45
Base Year	6,81%	18,36%	55,40%	19,43%
Baseline	6,72%	9,28%	38,60%	45,41%
Masterplan	5,74%	4,62%	46,17%	43,47%
TEN-T Completion	5,74%	0,63%	14,80%	78,83%

Table 11: Road indicators in the considered scenarios

	ICI < 0.60	0.60 < ICI < 0.65	0.65 < ICI < 0.70	ICI > 0.70
Base Year	13,05%	8,89%	46,52%	31,50%
Baseline	13,59%	23,13%	58,99%	4,29%
Masterplan	3,79%	19,27%	59,33%	17,61%
TEN-T Completion	1,44%	7,65%	56,78%	34,13%

The modal shares per scenario are presented in the next figures, for passenger and freight transport.

Table 12: Passenger transport modal shares per scenario

Mode	Base Year	Baseline	Masterplan	TEN-T
	**78.23 %**	**78.66 %**	**78.45 %**	**77.72 %**
	**12.24 %**	**10.21 %**	**10.16 %**	**9.95 %**
	**9.54 %**	**11.14 %**	**11.39 %**	**12.33 %**

Upon completion of the TEN-T Core and Extended Core Network, the modal share of public transport (bus and rail) slightly increases (from 21.8% to 22.3%), but with a very mixed trend,

due to the generalised decline of bus (about 2%, mainly in Eastern EUSAIR countries) and different growth in rail by country (+2.8%). Similarly, in the Masterplan Scenario the rail modal share increase by +1.9%, while the bus modal share decrease by the same amount.

Table 13: Freight transport modal shares per scenario

Mode	Base Year	Baseline	Masterplan	TEN-T
	86.67 %	82.58 %	82.66 %	81.67 %
	13.33 %	17.42 %	17.34 %	18.33 %

In the EUSAIR region, the modal share of rail freight transport rises from 13.3% to 17.3% in the Masterplan Scenario and to 18.3% upon completion of the TEN-T Core and Extended Core Network. Bosnia & Herzegovina and Serbia will register over 20% of rail freight modal share and Slovenia over 35%.

3.3 DEVELOPMENT GUIDELINES FOR THE TRANSPORT SYSTEM

This last chapter is dedicated to integrating the indications and the vision about the transport system of the Adriatic-Ionian macroregion deriving from the Masterplan scenario definition, by extending the scope to all transport modes and to remarks concerning not only infrastructure endowment but also strategy and policy issues.

The resulting development guidelines have been defined on the basis of:

- ➔ The analysis of the current situation and the related key issues (see Volumes 2-7 of the Masterplan)
- ➔ The analysis of international policies and strategies
- ➔ A thematic consultation with country institutional and sectorial stakeholders in the framework of the revision of the EUSAIR Action Plan

The guidelines are presented in the following figures. They have been grouped up into three main cross-cutting themes, that reflect the main strategy scopes of national and international policies in the transport sector:

- **Safety, security and resilience**
- **Environmental and social sustainability**
- **Connectivity and traffic development**

Table 14: Development guidelines for transport modes in the Adriatic-Ionian region, per strategic scope

	SAFETY, SECURITY AND RESILIENCE	ENVIRONMENTAL AND SOCIAL SUSTAINABILITY	CONNECTIVITY AND TRAFFIC DEVELOPMENT
MARITIME AND IWW TRANSPORT AND RELATED INTERMODALITY	• Increase the resilience of maritime port infrastructure and IWW infrastructure to extreme weather events • Exploit existing digital solutions for monitoring the status of infrastructure • Expand the use of vessel traffic monitoring and information system (VTMIS) and of existing digital solutions for security within ports	• Boost the uptake of alternative fuels and low carbon vessels in ports and rivers • Develop cold ironing solutions • Monitor GHG, pollutant emissions and water quality in ports and rivers • Greening ports (green spaces, energy efficiency, circular economy)	• Improve port infrastructures for specific traffic types • Improve the integration of inland and sea ports with land transport modes • Expand the use of Port Community Systems • Implement solutions for overcoming paper-based procedures and long waiting times of border crossing procedures • Expand year round navigability of IWWs
ROAD AND RAIL TRANSPORT	• Harmonise road network safety standards of non-EU countries to the EU (Road Safety Action Plan is in place in Western Balkan countries) • Increase the resilience of rail and road infrastructure to extreme weather events • Exploit digital solutions for improving safety of driving conditions • Increase the availability of safe and secure parking areas • Boost the diffusion of ERTMS/ETCS in the rail network • Implement EU Acquis in the field of dangerous goods transport	• Support car fleet renewal to boost the uptake of low carbon road vehicles • Support the diffusion of EV charging infrastructure (harmonise regulations and policies/measures with EU countries) • Explore the viability of hydrogen-based pilot solutions for rail transport	• Increase rail transport capacity and quality (speed, electrification, completion of rail reforms) in Western Balkan countries • Provide continued and interoperable international rail links between countries • Harmonise the quality of roads in cross border sections • Define specific Multimodal Transport Plans in Western Balkan countries to support its diffusion • Harmonise the adoption frameworks for ITS solutions • Commonly address the problem of cumbersome paper-based cross-border procedures in Western Balkan countries

	Safety, security and resilience	Environmental and social Sustainability	Connectivity and traffic development
Air transport	• Support projects for improving the resilience of airport infrastructure • Boost the development of projects in the SESAR framework	• Support the diffusion of alternative fuels availability in airports: ✓ Electric power supply to stationary aircraft ✓ EV charging for ground service vehicles ✓ Sustainable aviation fuels • Greening airports (green spaces; hydrogen powered airport operations; and energy efficiency)	• Improve intermodal connections to/from airports, especially in Western Balkan countries
Urban nodes and local transport	• Support the improvement of safety standards for road infrastructures in urban areas in Western Balkan countries • Support urban design practices aimed at the safety of cycling and pedestrian	• Boost the uptake of SUMPs and SULPs initiatives especially in urban nodes with strong urbanization trends • Boost the electrification and the use of alternative fuels in public transport fleet • Improve the availability of sustainable private and/or shared transport modes • Support the diffusion of sustainable and innovative urban logistics solutions	• Support public transport fleet renewal to lower the average age and improve the quality and sustainability of the service • Support the extension of public transport network via urban rail • Support the realization of cycling lanes and networks and other measures for the promotion of cycling mobility • Promote the diffusion of integrated fare and single ticketing solutions within urban and interurban areas, especially in Western Balkan countries • Support the diffusion of sustainable private and/or shared transport modes and promote the diffusion of MaaS initiatives to integrate traditional and innovative mobility solutions • Promote the diffusion of MaaS initiatives to integrate traditional and innovative mobility solutions

APPENDIX – LISTS OF PROJECTS

The following tables present the lists of infrastructure projects considered in all simulated scenarios.

Table 15: Planned projects in the Baseline scenario – Rail network

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	END DATE
AL1	New construction	Albania	Rehabilitation of Tirana - Durrës railway line (34.5km) and construction for a new railway line Tirana - Rinas Airport (7.4km)	2024
BA5	Upgrade	Bosnia and Herzegovina	Modernization of the signaling equipment of Sarajevo - Bradina and Doboj - Banja Luka railway lines: Miljacka railway station and Stup freight station	n/a
BA6	Upgrade	Bosnia and Herzegovina	Modernization of the signaling equipment of Sarajevo - Bradina and Doboj - Banja Luka railway lines: Banja Luka - Doboj line	2019
BA7	Upgrade	Bosnia and Herzegovina	Rehabilitation of Sarajevo - Bradina railway line	2016
EL1	New construction	Greece	New double high speed (160-200 km/h) railway line Tithorea - Lianokladi - Domokos (106 km) along the Athens - Thessaloniki axis, replacing the existing single line (122 km)	2018
EL10	New construction	Greece	Upgrade of railway Thessaloniki - Edomeni. Polikastro - Idomeni variant section	2023
EL2	New construction	Greece	Construction of a railway infrastructure in section Rododafni (Km 91,5) - Psathopirgos (Km 113) of the new railway line Athens - Patras (part of Orient/East-Med Corridor)	2022
EL3	Upgrade	Greece	Electrification of existing Kiato - Rododafni railway line (71 km) (project expected to start by December 2020)	2020
EL4	New construction	Greece	Construction of new double track Kiato - Diakopto of Athens - Patras railway line	2019
EL5	New construction	Greece	Construction of new double track Diakopto - Rododafni of Athens - Patras railway line	n/a
EL8	Upgrade	Greece	Standardisation and electrification of railway link Isthmos - Loutrak	n/a
EL9	New construction	Greece	Installation of signaling & ETCS level1 on the existing single railway line Thessaloniki-Edomeni	n/a
HR1	New construction	Croatia	Upgrade and construction for a 2nd track on the Križevci - Koprivnica - state border railway section	2024

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	END DATE
HR2	New construction	Croatia	Preparation for construction of 2nd track, upgrade and modernisation of Škrljevo - Rijeka - Jurdani railway section	2021
HR3	New construction	Croatia	Upgrade of Dugo Selo - Križevci railway line and construction for a 2nd track	2023
HR4	Upgrade	Croatia	Upgrade of existing railway line Hrvatski Leskovac - Karlovac	2023
HR5	New construction	Croatia	Reconstruction of railway line on the section Zagreb Zapadni Kolodvor - Savski Marof	2023
HR6	Upgrade	Croatia	Upgrade of railway line Vinkovci - Vukovar	2022
HR7	New construction	Croatia	Modernization of railway section Zaprešić - Zabok	2022
HR8	New construction	Croatia	R3 - Karlovac - Port of Rijeka	2027
HR9	New construction	Croatia	Construction of a new railway line Dugo Selo - Novska	2028
	Upgrade	Croatia	Lika and Dalmatian Railway modernization, electrification and 2nd track: section Ostarije - Knin - Split	n/a
	Upgrade	Croatia	Reconstruction of Okucani - Vinkovci railway section	n/a
IT1	New construction	Italy	Construction of Brenner Base Tunnel	2032
IT10	Upgrade	Italy	High speed rail connection Turin - Milan - Venice: Brescia - Verona section	2025
IT11	New construction	Italy	High speed rail connection Turin - Milan - Venice: Verona - Padova section	2028
IT12	New construction	Italy	High speed rail connection Salerno - Reggio Calabria (lot 1): Battipaglia - Praja section	2030
IT13	Upgrade	Italy	Increase speed on Catania - Siracusa railway line	n/a
IT14	New construction	Italy	Increase speed on Palermo - Catania railway line and construction of double track Bicocca - Catenanuova	n/a
IT15	New construction	Italy	Construction of double track Bari S.Andrea - Bitetto	2022
IT16	New construction	Italy	Construction of double track Fiumetorto - Cefalù - Castelbuono	n/a
IT17	Upgrade	Italy	Construction of Pescara - Scafa railway section	n/a
IT19	Upgrade	Italy	Electrification of Lamezia - Catanzaro - Sibari railway line	n/a
IT20	Upgrade	Italy	Upgrade and speeding up of Venice Mestre - Trieste railway line	n/a
IT21	New construction	Italy	4 tracks upgrade of railway section Rho - Parabiago (lot 1)	n/a

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	END DATE
IT24	Upgrade	Italy	Improve connectivity to the High speed railway network through diagonal lines. Modernitation on Taranto-Metaponto-Potenza-Battipaglia, Potenza-Metaponto section.	n/a
IT25	Upgrade	Italy	Upgrade of infrastructure of Bari - Bitritto railway line	n/a
IT26	New construction	Italy	Doubling of the railway line on Bari - Barletta: Andria - Barletta section	n/a
IT27	Upgrade	Italy	Electrification of Barletta - Canosa railway section	n/a
IT28	Upgrade	Italy	Modernization of railway line Potenza - Foggia	n/a
IT30	Upgrade	Italy	Electrification of rail corridor Parma - Suzzara - Poggio Rusco	n/a
IT31	Upgrade	Italy	Infrastructural and technological projects of Udine - Cividale railway line	n/a
IT33	Upgrade	Italy	Electrification of railway line (Rome) Venafro - Campobasso - Termoli	n/a
IT35	Upgrade	Italy	Upgrade and modernization of regional railway section Bari - Gravina, Maglie - Otranto and Bari - Matera	n/a
IT4	Upgrade	Italy	Increase speed on Milano - Genova (lot 1)	2024
IT40	Upgrade	Italy	Electrification of railway line Palermo - Agrigento - Porto Empedocle	n/a
IT41	Upgrade	Italy	Intermodality and accessibility of Trapani Birgi	n/a
IT44	Upgrade	Italy	Ugrade and modernisation of the railway line Cosenza - Catanzaro	n/a
IT46	New construction	Italy	Completion of railway line Ferrandina - Matera	n/a
IT47	Upgrade	Italy	Increase speed on Orte - Falconara railway line	n/a
IT48	Upgrade	Italy	Upgrade and modernization of regional railway line Terni - Sansepolcro	n/a
IT5	Upgrade	Italy	Increase speed on Bologna - Rimini railway section	2024
IT53	New construction	Italy	Construction of a new Passo Corese - Rieti railway line	n/a
IT6	Upgrade	Italy	Increase speed on Rimini - Ancona railway section	2024
IT60	New construction	Italy	Construction of the 2nd track of Albairate - Abbiategrasso railway line	n/a
IT61	New construction	Italy	Construction of the 2nd track of Codogno - Cremona - Mantova (I phase)	n/a
IT62	New construction	Italy	Construction of a new Trento bypass (priority lot Verona - Brennero)	n/a
IT7	Upgrade	Italy	Increase speed on Pescara - Termoli - Foggia - Brindisi railway section	2024
IT8	New construction	Italy	Double track upgrade of Termoli - Lesina railway section	beyond 2024

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	END DATE
IT9	New construction	Italy	High speed rail connection Naples - Cancello - Frasso Telesino	2027
KS1	New construction	Kosovo*	Construction and modernisation of a Railway Line Pristina – Fushe Kosove – Pristina Airport “Adem Jashari”	n/a
KS2	Upgrade	Kosovo*	General Rehabilitation of the East- ern Railway line (CCP with Serbia – Podujevo – Fushe Kosove)	n/a
ME1	Upgrade	Montenegro	Reconstruction and modernization of railway line Vrbnica - Bar (Orient/East-Med Corridor R4)	n/a
MK1	New construction	North Macedonia	Construction of a new railway section Kumanovo - Beljakovce (30.8 km) of the rail Corridor VIII (Orient/East-Med Corridor) Kumanovo - Deve Bair	2022
MK2	New construction	North Macedonia	Construction of a new railway section Beljakovce - Kriva Palanka (34 km) of the rail Corridor VIII (Orient/East-Med Corridor) Kumanovo - Deve Bair	2024
MK3	New construction	North Macedonia	Construction of Rail Corridor VIII, section Kriva Palanka-border with Bulgaria	2026
MK6	Upgrade	North Macedonia	Project for track renewal works on the section Nogaevci - Negotino (Corridor X)	n/a
MK7	New construction	North Macedonia	Construction of new alignment of railway section along Corridor X Dracevo – Veles	n/a
RS1	New construction	Serbia	High speed rail connection Novi Sad - Subotica	2023
RS10	New construction	Serbia	Construction of the by-pass railway line Beli Potok – Vinca – Pancevo with road-railway bridge over the Danube River near Vinca	n/a
RS11	New construction	Serbia	Reconstruction of the railway bypass around Belgrade, Batajnica – Ostruznica – Beograd Ranzirna	n/a
RS12	New construction	Serbia	Reconstruction and modernization of single-track railway Belgrade – Nis	
RS13	New construction	Serbia	Reconstruction and modernization of the railway line Kraljevo – Rudnica	
RS14	New construction	Serbia	Reconstruction and modernization of the railway line Stalać – Kraljevo	
RS15	New construction	Serbia	Reconstruction and modernization of the Belgrade Podgorica railway line (section Valjevo – Vrbnica)	
RS16	New construction	Serbia	Reconstruction and modernization of the railway line Pančevo – Vršac	
RS17	New construction	Serbia	Modernization of the railway line Ruma – Sabac – Donja Borina – State Border with Bosnia and Herzegovina	
RS18	New construction	Serbia	Modernization and reconstruction of the existing railway line Subotica – Horgos – state border with Hungary (Segedin)	
RS2	New construction	Serbia	High speed rail connection Belgrade - Stara Pazova	2022

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	END DATE
RS7	Upgrade	Serbia	Upgrade of railway section Niš - Dimitrovgrad - Border with Bulgaria of the Serbia - Bulgaria CXc Rail Interconnection (Orient/East-Med Corridor)	2024
RS9	Upgrade	Serbia	Reconstruction and modernization of the two-track railway line Stara Pazova – Šid – border with Croatia and section Golubinci – Inđija	
SI12	Upgrade	Slovenia	Upgrade of R6 - Divača - Sežana (IT)	2027
SI15	Upgrade	Slovenia	Upgrade of R9 - Pragersko - Maribor	2030
SI18	Upgrade	Slovenia	Deployment of ERTMS/ETCS on the Dobova - Zidani Most and Pragersko - Maribor - Sentilj railway lines	2024
SI3	Upgrade	Slovenia	Upgrade of railway line Poljčane - Slovenska Bistrica, including railway stations Poljčane and Slovenska Bistrica	2020
SI4	Upgrade	Slovenia	Upgrade of railway line Zidani Most - Celje	2022
SI6	New construction	Slovenia	Construction of new tunnels T1-T7 of second track Divača - Koper	2025
SI7	Upgrade	Slovenia	Upgrade of R1 - Koper - Ljubljana (HSL)	2027 (section Ljubljana - Divaca)
SI8	Upgrade	Slovenia	Upgrade of R2 - Zidani Most - Dobova (HR)	2027
SI9	Upgrade	Slovenia	Upgrade of R3 - Ljubljana - Jesenice (AT)	2025

** 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.*

Table 16: Projects in the Baseline scenario – Road network

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	TYPE OF ROAD	END DATE
AL1	Upgrade	Albania	Rehabilitation and upgrading of the road between Fier and Tepelene	Road with junctions	2017
AL10	New construction	Albania	Construction of Vlora river road: section Vlora-Qeparo	Road with junctions	2022
AL11	New construction	Albania	Construction of Kardhiq-Delvina road	Road with junctions	2022
AL12	New construction	Albania	Reconstruction and upgrade of the Road Erseke - Leskovik in Korca region	Road with junctions	2022
AL13	New construction	Albania	Construction of the Llogara tunnel in the road section Orikum-Himara	Road with junctions	n/a
AL14	New construction	Albania	Construction of road Lezha bypass	Expressway	n/a
AL15	New construction	Albania	Construction of Tirana bypass	Expressway	2025
AL16	New construction	Albania	Construction of road Tirana - Elbasan	Motorway	2019
AL17	New construction	Albania	Construction of road Qukes Qafe - Plloce	Road with junctions	n/a
AL18	New construction	Albania	Construction of road Milot - Thumane	Motorway	n/a
AL19	Upgrade	Albania	Upgrade of road Thumane - Kashar	Motorway	n/a
AL2	New construction	Albania	Construction of a new two-lane motorway between Levan and Vlorë	Expressway	2017
AL20	New construction	Albania	Construction of road Kashar - Peze Helmes	Motorway	n/a
AL21	New construction	Albania	Construction of road Peze Helmes - Luzi Vogel	Motorway	n/a
AL22	Upgrade	Albania	Upgrade of road Luzi Vogel / Lekaj – I/C Rrogozhine	Motorway	n/a
AL23	Upgrade	Albania	Upgrade of road Rrogozhine - beginning of Fier Bypass	Motorway	n/a
AL25	New construction	Albania	Construction of Shkodra bypass	Expressway	2021
AL3	New construction	Albania	Construction of the Tepelene and Gjirokaster bypass	Expressway	2020
AL4	New construction	Albania	Construction of the Fier bypass	Expressway	2020
AL5	New construction	Albania	Construction of Tirana Ring Road	Expressway	2022
AL6	Upgrade	Albania	Widening of Tirana - Durres motorway	Motorway	2024
AL7	Upgrade	Albania	Reconstruction of Tirana - Durres road on the direction Tirana-Ndroq -Plepa	Road with junctions	n/a
AL8	New construction	Albania	Construction of Arbri Road: section Tirana-Peshkopi	Road with junctions	2022
AL9	New construction	Albania	Construction of Vlora bypass	Expressway	2021
BA1	New construction	Bosnia and Herzegovina	Corridor Vc: Construction of Svilaj - Odžak / Svilaj Bridge	Road with junctions	2021
BA10	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: PUTNIKOVO BRDO - MEDAKOVO	Motorway	2023
BA11	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: POPRIKUŠE - NEMILA	Motorway	2024

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	TYPE OF ROAD	END DATE
BA12	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: TUNEL KVANJ - BUNA	Motorway	2024
BA18	New construction	Bosnia and Herzegovina	Construction of the Ozimica - Poprikuse Motorway	Motorway	n/a
BA19	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: NEMILA-VRANDUK	Motorway	2024
BA2	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: Tunnel Zenica - Donja Gračanica	Motorway	2021
BA20	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: Construction of the Vranduk - Ponirak Motorway	Motorway	2024
BA21	New construction	Bosnia and Herzegovina	Corridor Vc: Construction of the Klopce - Drivusa Motorway	Motorway	n/a
BA3	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: BUNA - POČITELJ	Motorway	2021
BA4	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: PONIRAK - TUNNEL ZENICA	Motorway	2023
BA5	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: JOHOVAC - RUDANKA INTERCHANGE	Motorway	2022
BA6	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: TARČIN - IVAN SUBSECTION I	Motorway	2022
BA7	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: TARČIN - IVAN SUBSECTION II / TUNNEL IVAN	Motorway	2022
BA8	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: POČITELJ - ZVIROVIĆI	Motorway	2022
BA9	New construction	Bosnia and Herzegovina	Construction of Road Corridor Vc: RUDANKA - PUTNIKOVO BRDO	Motorway	2023
EL1	New construction	Greece	Construction of A3 Motorway: section Xyniada - Lamia	Motorway	2022
EL10	Upgrade	Greece	Construction of Egnatia Odos Vertical Axis Kozani-Ptolemaida -Florina -Niki (Cross border with N. Macedonia) -section Ptolemaida -Florina	Expressway	n/a
EL2	New construction	Greece	Construction of A3 Motorway: section Grevena-Trikala	Motorway	2024

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	TYPE OF ROAD	END DATE
EL3	New construction	Greece	Construction of road Egnatia Odos Vertical Axis: section of Alexandroupolis-Ormenio (missing section between intersection Egnatia Odos-Greek National Road 51 till the border with Bulgaria)	Expressway	2019
EL4	New construction	Greece	Construction of road Egnatia Odos Vertical Axis: section of Xanthi – Ehinos – GR/BG Border	Road with junctions	n/a
EL5	New construction	Greece	Construction of road Egnaria Odos Vertical Axes: section of Moudania-Potidaia	Expressway	2021
EL6	New construction	Greece	Construction of Aktio-Amvrakia linking E55 and A5 motorway	Expressway	2024
EL7	New construction	Greece	Construction of A5 Motorway: southern section Patra-Pyrgos	Motorway	2022
EL8	New construction	Greece	Construction of road North Crete Road Axis (A90 Motorway)	Expressway	2028
EL9	New construction	Greece	Construction of Egnatia odos Vertical axis Serres -Drama -Kavala-section Drama - Kavala. (Ten -T comprehensive network)	Expressway	n/a
HR1	New construction	Croatia	Construction of Croatia's Istrian Y motorway : section Pazin-Ucka	Motorway	2022
HR2	New construction	Croatia	Construction of Ucka tunnel	Motorway	2024
HR3	New construction	Croatia	Construction of road Osijek - Beli Manastir	Motorway	2023
HR4	New construction	Croatia	Construction of the Pelješac bridge	Expressway	2022
HR6	New construction	Croatia	Construction of road A7 Križišće to Žuta Lokva: section A7 Rupa - Rijeka - Žuta Lokva	Motorway	n/a
HR7	New construction	Croatia	Construction of road A11 Lekenik – Sisak	Motorway	2024
IT1	Upgrade	Italy	Upgrade motorway A4 with a third lane: section Alvisopoli-Portogruaro	Motorway	2022
IT10	New construction	Italy	Construction of road A18 Siracusa - Gela Motorway: section Ispica-Modica	Motorway	2022
IT11	Upgrade	Italy	Upgrading of road SS 106 Jonica highway	Expressway	2026
IT2	Upgrade	Italy	Upgrade motorway A4 with a third lane: section San Doná di Piave-San Stino di Livenza	Motorway	2026
IT3	Upgrade	Italy	Upgrade motorway A4 with a third lane: section San Stino di Livenza-Portogruaro	Motorway	2026
IT4	New construction	Italy	Construction of a new motorway link between Campogalliano and Sassuolo	Motorway	n/a
IT42	Upgrade	Italy	Upgrading and improving of E45/E55 road itinerary	Motorway	n/a
IT44	Upgrade	Italy	Four-lane adjustment on Route E78 Grosseto-Fano. Le Ville di Monterchi AR - Selci Lama E45 section (Section 4 - lot 7)	Expressway	n/a

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	TYPE OF ROAD	END DATE
IT45	Upgrade	Italy	Two-lane adjustment on Route E78 Grosseto-Fano. Selci Lama E45- Parnacciano (Guinza) section (Section 5 - lot 1)	Expressway	n/a
IT5	Upgrade	Italy	Upgrading of the road infrastructure interconnecting the A2 Motorway Salerno-Reggio Calabria	Motorway	2021
IT6	New construction	Italy	Construction of Cispadana connecting A22-A13 in Emilia-Romagna	Motorway	n/a
IT7	New construction	Italy	Construction of Pedemontana Veneta highway	Motorway	2024
IT8	Upgrade	Italy	Upgrading of road SS 106 Jonica highway	Expressway	2026
IT9	New construction	Italy	Construction of road Tirreno - Brennero (Ti.Bre)	Motorway	n/a
KS1	New construction	Kosovo*	Construction of Pristina - Mitrovica Highway	Expressway	n/a
KS2	New construction	Kosovo*	Construction of the Kijev - Zahaq highway	Expressway	n/a
KS3	New construction	Kosovo*	Construction of Pristina - Merdare Motorway	Motorway	n/a
ME15	New construction	Montenegro	Highway Bar-Boljare: section Smokovac - Mateševo	Motorway	n/a
ME16	Upgrade	Montenegro	Reconstruction and widening of road section M-2 Rozaje - Spiljani, including works on 5 bridges and 10 tunnels	Road with junctions	n/a
ME17	Upgrade	Montenegro	Reconstruction and widening of road section M-2 Berane - Bijelo polje -Mojkovac, lenght: 43 km	Road with junctions	n/a
ME18	Upgrade	Montenegro	Reconstruction and widening of road section M-3 Danilovgrad - Podgorica; length: 15 km (2+2 traffic lanes), including works on 5 bridges and 5 roundabouts.	Expressway	n/a
ME2	Upgrade	Montenegro	Reconstruction of road Scepan Polje (BiH Border) - Pluzine	Road with junctions	n/a
ME3	New construction	Montenegro	Construction of Budva Bypass	Expressway	2024
ME4	New construction	Montenegro	Highway Bar-Boljare: Construction of Podgorica bypass (section Smokovac – Tološi – Farmaci)	Expressway	n/a
ME6	New construction	Montenegro	Reconstruction of the road Niksic -Vilusi	Road with junctions	2016
ME7	Upgrade	Montenegro	Reconstruction of the road Mojkovac-Lubnice: section Mojkovac-Vragodo	Road with junctions	2022
MK1	New construction	North Macedonia	Construction of road Kriva Palanka - Deve Bair Section	Motorway	n/a
MK12	New construction	North Macedonia	Construction of road section Prilep - Raec Bridge	Expressway	n/a
MK19	New construction	North Macedonia	Construction of the Kicevo - Ohrid Motorway	Motorway	n/a

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	TYPE OF ROAD	END DATE
MK2	New construction	North Macedonia	Construction of Motorway A2: section Gostivar - Kicevo	Motorway	n/a
MK4	Upgrade	North Macedonia	Rehabilitation of the State road A2, Kumanovo – Stracin, section I (km.0+000 – km.15+195)	Motorway	n/a
MK5	New construction	North Macedonia	Construction of corridor VIII- Section between Rankovce-Kriva Palanka Expressway	Expressway	2022
MK6	New construction	North Macedonia	Construction of Expressway Raec bridge - Drenovo	Expressway	2023
MK7	New construction	North Macedonia	Construction of road section Gradsko - Interchange Drenovo as part of road corridor X-d	Expressway	2023
MK9	Upgrade	North Macedonia	Construction of road section Trebeniste - Struga	Expressway	n/a
RS1	New construction	Serbia	Construction of the Belgrade bypass: section from Ostruznica to Bubanj Potok	Motorway	2022
RS3	New construction	Serbia	Construction of the road Kragujevac - Batočina	Expressway	2021
RS4	New construction	Serbia	Construction of the A5 Motorway section between Pojate and Preljina (Morava Corridor)	Motorway	2022
RS5	New construction	Serbia	Construction of the A2 Motorway: section Preljina - Požega	Motorway	2022
RS7	New construction	Serbia	Construction of the Fruskogorski Corridor: section Ruma - Novi Sad	Road with junctions	2024
RS8	New construction	Serbia	Route Paracin-Zajecar-Negotin: connection between Corridor IV in Bulgaria to Corridor X in Serbia	Expressway	n/a
SI2	New construction	Slovenia	Construction of Karawanken 2nd tube	Motorway	2026

** 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.*

Table 17: Planned projects (integrating the baseline scenario) – Rail network

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	END DATE
AL2	New construction	Albania	Rehabilitation of Vora/Vorë - Han i Hotit railway line	n/a
AL3	New construction	Albania	Construction of a new railway line Pogradec - Korçë border to Greece (Krystallopigi)	n/a
AL4	New construction	Albania	Rehabilitation of Durrës - Pogradec - Lin railway line and construction for a new railway line Lin - border to North Macedonia (part of rail Corridor VIII)	n/a
BA1	New construction	Bosnia and Herzegovina	Construction of a new railway line BanjaLukaPrijedor - Novi and Grad - Dobrljin (Route 9a - parallel to Corridor X)	n/a
BA10	Upgrade	Bosnia and Herzegovina	Rehabilitation of Šamac - Doboj section (Corridor Vc)	2025
BA11	Upgrade	Bosnia and Herzegovina	Rehabilitation (2 tracks) of Doboj - Maglaj section (Corridor Vc)	n/a
BA12	Upgrade	Bosnia and Herzegovina	Rehabilitation (2 tracks) of Maglaj - Jelina section (Corridor Vc)	n/a
BA13	Upgrade	Bosnia and Herzegovina	Rehabilitation of Jelina - Zenica section (Corridor Vc)	n/a
BA14	Upgrade	Bosnia and Herzegovina	Rehabilitation of Zenica - Podlugovi section (Corridor Vc)	n/a
BA2	Upgrade	Bosnia and Herzegovina	Rehabilitation of Doboj - PetrovoNovo - Tuzla (Route 9a - parallel to Corridor X)	n/a
BA3	Upgrade	Bosnia and Herzegovina	Rehabilitation of Živinice - Caparde - Zvornik incl. tunnel Križevići (Route 9a - parallel to Corridor X)	n/a
BA4	Upgrade	Bosnia and Herzegovina	Rehabilitation of Brčko - Banovići (Route 9a - parallel to Corridor X)	n/a
BA8	Upgrade	Bosnia and Herzegovina	Overhaul of Sarajevo - Podlugovi railway section (Mediterranean Corridor - Rail CVc)	n/a
BA9	New construction	Bosnia and Herzegovina	Construction of a new railway line ČapljinaTrebinje - Nikšić as a part of Adriatic Ionian Corridor	n/a
EL11	New construction	Greece	Reconfiguration of railway line Thessaloniki - Florina - North Macedonia on the existing Thessaloniki - Platy - Edessa - Florina - Neos Kafkasos railway line	n/a

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	END DATE
EL12	New construction	Greece	Construction of a new railway connection with Albania (Florina - Krystallopigi - Pogradec section)	n/a
EL6	New construction	Greece	Construction of new double railway line between Kiato and Patra (sections Rododafni - New Port of Patra) of Athens - Patras railway line	2027
IT18	New construction	Italy	High speed rail connection Salerno - Reggio Calabria (lots 2-3-4): Praja - Tarsia, Tarsia - Cosenza, Cosenza - Lamezia Terme sections	2030
	New construction	Italy	Strait of Messina Bridge	n/a
KS3	Upgrade	Kosovo**	Railway rehabilitation and modernisation Route 10	n/a
ME2	Upgrade	Montenegro	Reconstruction and electrification of Podgorica - Tuzi - border with Albania and Route 4	2035
ME3	New construction	Montenegro	Construction of a new Capljina - Trebinje - Niksic railway line	2035
MK4	New construction	North Macedonia	Orient/East-Med Corridor:Construction of Rail Corridor VIII,Kicevo to the border with Albania	n/a
MK5	New construction	North Macedonia	Construction of a new railway interconnection North Macedonia - Serbia Rail, Tabanovce Joint Border Station (Orient/East-Med Corridor)	n/a
RS6	Upgrade	Serbia	Upgrade of railway section Nis - Presevo - Border between two States of the Serbia - North Macedonia CX Rail Interconnection (Orient/East-Med Corridor)	2023
SI11	New construction	Slovenia	Upgrade of R5 - Ljubljana–Zidani Most	2027
SI13	Upgrade	Slovenia	Upgrade of R7 - Pragersko - Pukonci and Pukonci - Hormoz (HU)	2030
SI16	Upgrade	Slovenia	Upgrade of R10 - Zidani Most - Pragersko	2030
SI17	Upgrade	Slovenia	Upgrade of R11 - Postojna - Ilirska Bistrica - Šapjane (HR)	2030
SI5	Upgrade	Slovenia	Upgrade of existing rail track on the Maribor - Šentilj - national border section	n/a

Table 18: Planned projects (integrating the baseline scenario) – Road network

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	TYPE OF ROAD	END DATE
AL24	Upgrade	Albania	Doubling of road Milot -Rreshen	Motorway	2024
AL26	Upgrade	Albania	Construction of Adriatic – Ionian Corridor (AIC) Section 1: Muriqan – Baldreni	Motorway	n/a
AL27	Upgrade	Albania	AIC Section 2: Baldreni (starting from Lezha Bypass) – Milot	Motorway	n/a
AL28	Upgrade	Albania	Construction of a 23.8 km -long highway between Gjirokaster and Kakavije on the Adriatic - Ionian Corridor	Expressway	n/a
AL29	Upgrade	Albania	Rehabilitation of Corridor VIII, connection with Northern Macedonia. Section Elbasan - Qafe Thane	Expressway	n/a
BA15	New construction	Bosnia and Herzegovina	Corridor Vc: Construction of the Medakovo - Ozimica Motorway	Motorway	n/a
BA16	New construction	Bosnia and Herzegovina	Constuction of corridor Vc- section between Mostar North-Mostar South motorway	Motorway	2023
BA22	Upgrade	Bosnia and Herzegovina	Improvement and construction of the road route Sarajevo - Foca (Brod na Drini) - Hum (Scepan Polje) with the interstate bridge at the border BIH/MNE	Road with junctions	n/a
BA23	New construction	Bosnia and Herzegovina	Construction of the expressway section Turbe – Nevića Polje –Lašva	Expressway	2027
BA24	Upgrade	Bosnia and Herzegovina	Betterment of the road section Banja Luka (Bypass) - Jajce - Lasva, part in FBiH Ugar - Jajce - Lasva	Road with junctions	n/a
BA26	New construction	Bosnia and Herzegovina	Construction of expressway Sarajevo - Visegrad - Border BiH/SRB	Expressway	n/a
ME1	New construction	Montenegro	Construction of Adriatic Motorway: section Border with Croatia - Bijela (Bypass Herceg Novi & Herceg Novi-Bijela)	Motorway	n/a
ME12	New construction	Montenegro	Construction of Adriatic Motorway: Bar - Albanian Border	Motorway	n/a
ME13	New construction	Montenegro	Highway Bar-Boljare: section Mateševo-Andrijevica	Motorway	n/a
ME14	New construction	Montenegro	Highway Bar-Boljare:section Andrijevica-Boljare (Border with Serbia)	Motorway	n/a
ME5	New construction	Montenegro	Construction of Motorway Bar-Boljare: section Durmani - Farmaci	Expressway	n/a
RS10	New construction	Serbia	Construction of highway E-761/ M-5/ Bosnia and Herzegovina Border - Kotroman - Uzice - Kotroman	Motorway	n/a
RS6	New construction	Serbia	Construction of the A2 Motorway: section between Pozega-Border with Montenegro	Motorway	n/a
BA13	New construction	Bosnia and Herzegovina	Construction of the cross-border bridge over the River Sava (Bosnia and Herzegovina - Croatia R2a Road Interconnection)	Motorway	2022

ID	TYPE OF INTERVENTION	COUNTRY	PROJECT	TYPE OF ROAD	END DATE
BA14	New construction	Bosnia and Herzegovina	Corridor Vc: Construction of Johovac-Vukosavlje motorway	Motorway	2025
BA17	New construction	Bosnia and Herzegovina	Motorway Banja Luka - Prijedor	Motorway	n/a
BA25	Upgrade	Bosnia and Herzegovina	Improvement (betterment) of the road route Banja Luka - entity border (Ugar), construction of Banja Luka Bypass	Expressway	n/a
EL11	New construction	Greece	Construction of Igoumenitsa bypass and the road section Igoumenitsa -Mauromati (Cross border with Albania at the BCCP Quafe Bote)	Road with junctions	n/a
HR5	New construction	Croatia	Construction of road A5 Osijek - HU border	Motorway	2023
HR8	New construction	Croatia	Construction of road DC 10 Vrbovec - Križevci - Koprivnica - Hungarian border towards Kaposvar	Expressway	n/a
IT32	New construction	Italy	State Road n.RA12 - Construction works for the third lane.	Motorway	n/a
IT41	New construction	Italy	Val d'Agri (SS. 598) – Autostrada del Mediterraneo (Villa d'Agri – Padula Buonabitacolo) new connection	Expressway	n/a

Table 19: Additional projects completing the Masterplan scenario – Rail network

TYPE OF INTERVENTION	COUNTRY	PROJECT
Upgrade	Bosnia and Herzegovina / Croatia	Upgrade of Sarajevo - Ploce railway line
New construction	Greece	Kalambaka - Igoumenitsa new railway line
New construction	Greece	Thessaloniki - Xanthi new railway line
Upgrade	Greece	Upgrade of Kalambaka - Palaiosarfalos railway line
Upgrade	Montenegro	Upgrade of Niksic - Podgorica railway line

Table 20: Additional projects completing the Masterplan scenario – Road network

TYPE OF INTERVENTION	COUNTRY	PROJECT	
New construction	Bosnia and Herzegovina	Road Sarajevo - Ploce (Bradina - Potoci section)	Motorway
New construction	Montenegro	Road Podgorica - Sarajevo (Danilovgrad - Pluzine section)	Expressway
Upgrade	Italy	Adriatic Ionian Corridor: Trieste - Basovizza - border IT/SI section	Expressway
Upgrade	Slovenia	Adriatic Ionian Corridor: border IT/SI section - Kozina - border SI/HR	Expressway
Upgrade	Croatia	Adriatic Ionian Corridor: border SI/HR - Rupa A7 Motorway	Motorway
Upgrade	Bosnia and Herzegovina	Adriatic Ionian Corridor: Capljina - Trebinje - border BA/ME	Motorway
Upgrade	Montenegro	Adriatic Ionian Corridor: border BA/ME - Niksic	Motorway
Upgrade	Albania	Adriatic Ionian Corridor: border AL/EL	Motorway