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EUSAIR FACILITY POINT

EUSAIR Transport MasterPlan

Volume 7

Accessibility to urban nodes and tourist attractions

Contents

This Volume is part of the *Transport Masterplan of the Adriatic-Ionian Region*, elaborated by the *EUSAIR Facility Point* with the technical assistance of *PTSCLAS*, *TPS Pro* and *Systematica*, with the collaboration of *Tplan Consulting*, under the supervision of *Prof. Pierluigi Coppola* (Politecnico di Milano). Credits for reviewing and editing goes to *Dr. Francesco de Fabiis* (Politecnico di Milano).

The Masterplan includes the following volumes:

Volume 1 – Executive Summary

Volume 2 – Maritime Transport

Volume 3 – Inland Waterway Transport

Volume 4 – Road Transport

Volume 5 – Rail Transport and related Intermodality

Volume 6 – Air Transport

Volume 7 – Accessibility to urban nodes and tourist attractions

Introduction and methodology

The following report intends to provide a detailed study on the current accessibility, interconnection and availability and diffusion of different transport services in and among main urban nodes and tourist attraction poles in the Adriatic Ionian macro- region.

The study starts by identifying the main urban and touristic nodes in several steps in the region

This report seeks to delineate the strategic urban nodes within the EUSAIR framework, meticulously investigating the intricacies of urban mobility for both passenger and freight dynamics within each node. Subsequently, it embarks on a comprehensive exploration to pinpoint the principal interconnection corridors spanning diverse modes of transportation. This multifaceted endeavor facilitates an in-depth assessment of urban mobility, uncovering critical challenges and identifying infrastructural voids. Ultimately, the overarching objective is to formulate a prioritized project roster that espouses a seamless, intermodal, and environmentally conscious transport strategy.

The report is structured based on country and provides the following four main chapters and sub chapters for the selected nodes in each of the countries of Adriatic-Ionian macro- region.

1. **Transport and accessibility at regional scale**
   - Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in the Adriatic-Ionian macro- region
   - Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in the Adriatic-Ionian macro- region
   - Interconnection services between the main transport hubs, urban hubs and tourist attractions in the Adriatic-Ionian macro- region
2. **Urban mobility**
   - Availability and dissemination of public transport infrastructure and services
   - Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in the Adriatic-Ionian macro-region
   - Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in the Adriatic-Ionian macro- region
3. **Logistics infrastructure and services**
   - Availability and diffusion of logistics infrastructures
   - Availability and diffusion of city logistics services
4. **Key issues for each urban node**
   - Interconnection to other major urban nodes of the Adriatic-Ionian macro- region
   - Public transport / Electrification and alternative fuels of the public transport fleet
   - Electric mobility infrastructure
   - Sustainable and shared urban mobility
   - Innovative urban logistics solutions

The study concludes by comparison of level of interconnection by different modes of transport between main urban nodes and level of availability and dissemination of sustainable, shared and innovative urban mobility and infrastructure for both passenger and freight transport, and availability of SUMP for each

selected urban node followed by identified key issues focused on urban mobility for each country and their scale of importance in order to provide adequate recommendations for improvements

In order to carry out the study of the major urban nodes and touristic attraction poles of the in the Adriatic-Ionian region, several steps are taken. The following diagram summarizes the selection methodology.

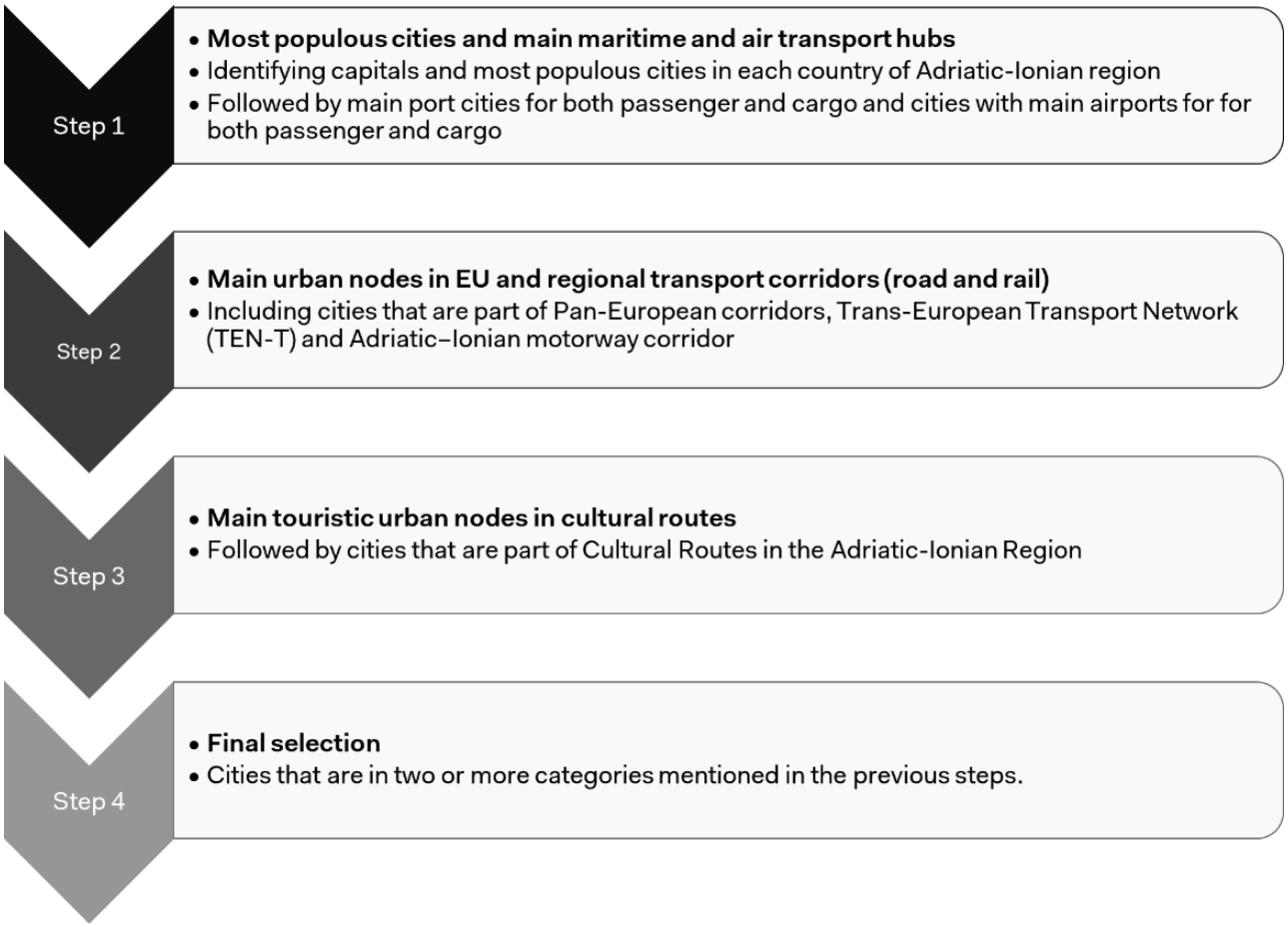
It includes four main steps starting by selecting the most populous cities in each country and the capital city (even if less populous than others) of each region in Italy that are considered part of Adriatic Ionian macro-region, followed by the main mobility hubs for international connections by maritime 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.

For the second step, more cities that are part of Pan-European corridors, Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway corridor are identified.

For the third step, the main cultural routes in the Adriatic-Ionian Region are identified and main urban nodes are added to the first round of selection. Therefore 60 cities are identified in these steps and their relevant information on demographics and transportation and mobility is organized in a table.

The fourth and final step includes selecting the final major urban nodes and touristic poles that will be studies and analyzed in detail in this study and for this selection 39 cities that have two or more characteristics considered in the previous steps are identified for further studies.

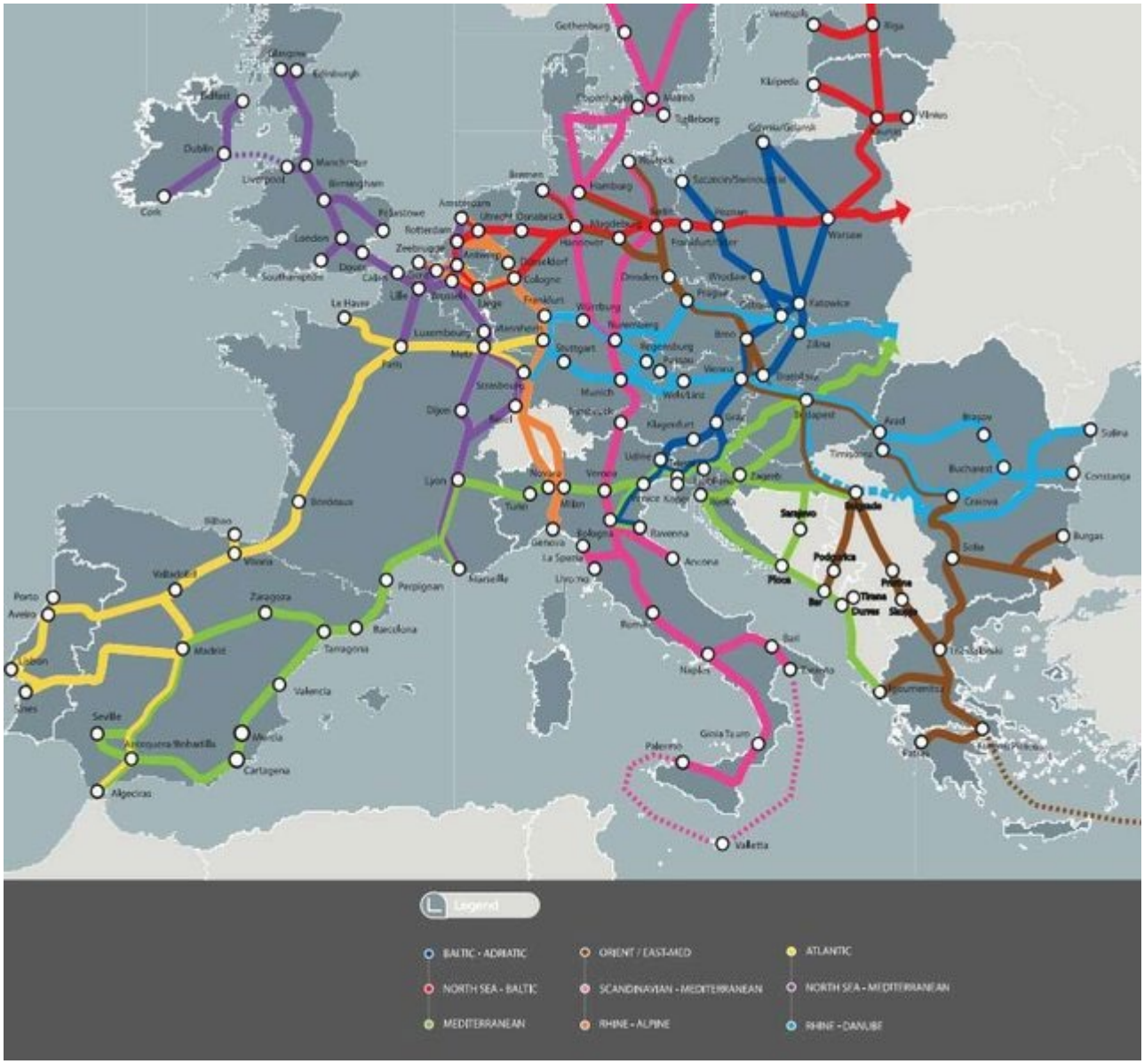
Figure 1 Methodology for identifying major urban nodes and touristic attraction poles of Adriatic Ionian macro- region



The following maps[1] shows the Core Network of Trans-European Transport Network (TEN-T). The Core Network includes the most important connections, linking the most important nodes, and is to be completed by 2030.

[1] https://ec.europa.eu/transport/themes/infrastructure/ten-t_en

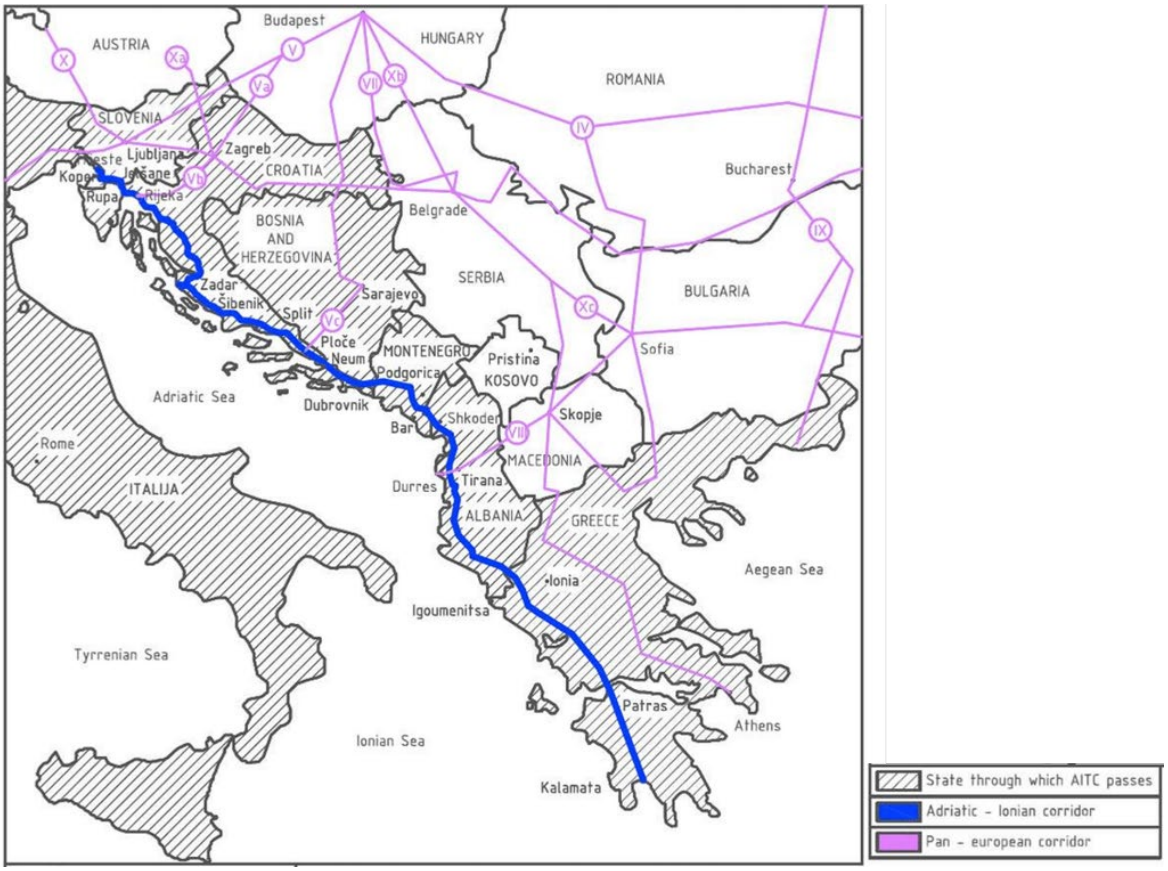
Figure 2 Trans-European Transport Network (TEN-T) map



The following map[2] shows the Adriatic – Ionian Transport Corridor. Adriatic-Ionian traffic corridor extends along the northeastern coast of the Adriatic and Ionian Seas, departing in Trieste in Italy, and ending at the Greek Kalamata. Road transport is consisted of existing Adriatic and Ionian highway, parts of new highways in tourist and urban agglomerations areas, including the Initiative's ultimate goal, which is completion of the Adriatic-Ionian highway.

[2] https://www.researchgate.net/publication/313862528_The_Adriatic_-_Ionian_Transport_Corridor/figures?lo=1

Figure 3 Adriatic – Ionian Transport Corridor



The following table shows the list of the cities identified in the first step of the study with indications of their population, their main airport if any with annual passenger and cargo traffic, their port if any with annual passenger and cargo traffic followed by indications of EU and regional corridors passing through their region and the cultural routes agreed among Adriatic Ionian macro- region countries.

Table 1 Selected urban nodes in the step 1 of the methodology

	Urban Population	Main Airport	Airport Passenger Traffic (2019)	Airport Cargo Traffic in Tonne(2019)	Main Port	Port Cargo Traffic in Tonne (2019)	Port Passenger Traffic (2019)	Pan-European corridors	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway corridor	Cultural Routes
Albania											
Tirana	557,422 (2011)	Nënë Tereza International Airport	3,338,147	2,372	none	none	none			Adriatic–Ionian motorway	ATRIUM (2014) / Routes of the Olive Tree (2005)
Durrës	175,110 (2011)	none	none	none	Port of Durrës	4,070,000	878,867 (2019)	Corridor 8			
Vlorë	104,827 (2011)	Planned Vlorë International Airport	none	none	Port of Durrës	34,768 (2018)					
Shkodër	135,612 (2011)	none	none	none	none	none	none			Adriatic–Ionian motorway	
Gjirokastër	28,673 (2011)	none	none	none	none	none	none			Adriatic–Ionian motorway	
Bosnia and Herzegovina											
Sarajevo	419,957 (2013)	Sarajevo International Airport	1,143,680	13,671	none	none	none	Corridor 5			European Cemeteries Route (2010)
Banja Luka	138,963 (2013)	Banja Luka International Airport	149,693	NA	none	none	none				
Tuzla	110,979 (2013)	none	none	none	none	none	none				
Croatia											
Zagreb	790,017 (2011)	Zagreb Franjo Tuđman Airport	3,435,531	12,881	none	none	none	Corridor 5 & 10	Mediterranean Corridor / Rhine–Danube Corridor		European Cemeteries Route (2010) / Roman Emperors and Danube Wine Route (2015) / Routes of the Olive Tree (2005)
Rijeka	128,624 (2011)	Rijeka International Airport	200,841	1,026	Port of Rijeka	12,600,000 (2017)	264,097 (2017)	Corridor 5	Mediterranean Corridor	Adriatic–Ionian motorway	
Split	178,102 (2011)	Split Airport	3,301,930	273	Port of Split	2,998,013 (2018)	5,422,589 (2018)			Adriatic–Ionian motorway	
Dubrovnik	42,615 (2011)	Dubrovnik Airport	2,896,227	127 t						Adriatic–Ionian motorway	
Ploče	10,135 (2011)	none	none	none	Port of Ploče	3,194,962 (2017)	350,000 (2017)	Corridor 5			
Greece											
Athens	664,046 (2011)	Athens International Airport	25,574,030	103,615	Port of Piraeus	20,121,916 (2007)	17,400,000		Orient/East–Med Corridor		European Cemeteries Route (2010)

Thessaloniki	325,182 (2011)	Thessaloniki Airport	6,897,057	NA	Port of Thessaloniki	18,127,224 (2010)	180,755 (2010)	Corridor 4 & 10			
Heraklion	211,370 (2011)	Heraklion International Airport	7,933,558	NA	Port of Heraklion						
Patras	167,446 (2011)	none	none	none	New Port of Patras	4,000,000	627,139		Orient/East–Med Corridor	Adriatic–Ionian motorway	
Igoumenitsa	25,814 (2011)	none	none	none	Igoumenitsa Port	212,154 Cars (2012) + 149,768 Trucks (2012)	896,130 (2012)	Corridor 10	Orient/East–Med Corridor		
Ioannina	112,486 (2011)	Ioannina International Airport - King Pyrrhus	130,344	NA	none	none	none			Adriatic–Ionian motorway	
Kalamata	69,849 (2011)	Kalamata International Airport	278,961 (2018)	NA	Port of kalamata	NA	NA			Adriatic–Ionian motorway	
Italy											
Milan	1,352,000 (2017)	Milan Malpensa Airport / Milan Linate Airport	28,846,299 (Malpensa Airport) / 6,570,984 (Linate Airport)	558,481	none	none	none		Mediterranean Corridor / Rhine–Alpine Corridor		European Cemeteries Route (2010) / European Mozart Ways (2004) / Réseau Art Nouveau Network (2014)
Palermo	673,735 (2017)	Falcone Borsellino Airport	7,018,087	NA	Port of Palermo	5,789,509	1,954,601		Scandinavian–Mediterranean Corridor		
Bologna	388,367 (2017)	Bologna Guglielmo Marconi Airport	9,405,920	33,754	none	none	none		Baltic–Adriatic Corridor / Scandinavian–Mediterranean Corridor		
Bari	324,198 (2017)	Bari Karol Wojtyła Airport	5,545,588	19,323	Port of Bari	6,099,845	1,871,774		Scandinavian–Mediterranean Corridor		
Catania	313,396 (2017)	Catania–Fontanarossa Airport	10,223,113	5,772	Port of Catania	8,453,348	313,138				
Venice	261,905 (2017)	Marco Polo International Airport	11,561,594	49,425	Port of Venice	24,917,830	1,814,485	Corridor 5	Baltic–Adriatic Corridor / Mediterranean Corridor		
Verona	257,353 (2017)	Verona Villafranca Airport	3,638,088		none	none	none		Scandinavian–Mediterranean Corridor / Mediterranean Corridor		
Messina	236,962 (2017)	none	none	none	Porto di Messina	24,295,221	422,732		Scandinavian–Mediterranean Corridor		
Padua	209,829 (2017)	none	none	none	none	none	none		Baltic–Adriatic Corridor / Mediterranean Corridor		
Trieste	204,234 (2017)	Trieste – Friuli Venezia Giulia Airport	783,179	276	Port of Trieste	61,997,445	204,736		Baltic–Adriatic Corridor / Mediterranean Corridor	Adriatic–Ionian motorway	

Taranto	199,561 (2017)	Taranto-Grottaglie Airport	There are no regularly schedules commercial services	NA	Port of Taranto	18,125,171	9,205		Scandinavian–Mediterranean Corridor		
Brescia	196,670 (2017)	Brescia "Gabriele D'Annunzio" Airport	17,003	30,695	none	none	none	Corridor 5			
Reggio Calabria	182,551 (2017)	Reggio Calabria Airport	365,391	NA	Port of Reggio Calabria	NA	NA				
Perugia	166,676 (2017)	Perugia San Francesco d'Assisi – Umbria International Airport	219,183	NA	none	none	none				
Ravenna	159,057 (2017)	none	none	none	Port of Ravenna	26,256,248	17,536		Baltic–Adriatic Corridor / Mediterranean Corridor		
Trento	120 ,336 (2020)	Trento-Mattarello Airport	for private passengers only	For cargo up to 600 kg only	none	none	none		Scandinavian–Mediterranean Corridor		
Bergamo	120,287 (2017)	Orio al Serio International Airport	13,857,257	93,764	none	none	none				
Pescara	119,554 (2018)	Abruzzo Airport	703,386	276	Port of Pescara	40,071 (2010)	23,460 (2010)				
Bolzano	107,436 (2018)	Bolzano Airport	6,561 (2020)	NA	none	none	none		Scandinavian–Mediterranean Corridor		
Ancona	100,696 (2017)	Marche Airport	485,037 (2017)	6,809 (2017)	Port of Ancona	10,767,182	1,189,441		Baltic–Adriatic Corridor		
Brindisi	87,820 (2017)	Brindisi Airport	2,697,749	11	Port of Brindisi	7,543,315	606,555				
L'Aquila	69,956 (2021)	L'Aquila–Preturo Airport	for private passengers only	NA	none	none	none				
Potenza	65,652 (2021)	none	none	none	none	none	none		Scandinavian–Mediterranean Corridor		
Campobasso	47,827 (2021)	none	none	none	none	none	none				
Gioia Tauro	19,970 (2017)	none	none	none	Port of Gioia Tauro	29,122,760	8,463 (2018)				
Montenegro											
Podgorica	185,937 (2011)	Podgorica International Airport	1,297,365	882 (2018)	none	none	none			Adriatic–Ionian motorway	Iter Vitis Route (2009)
Nikšić	56,970 (2011)	none	none	none	none	none	none				
Herceg Novi	19,536 (2011)	none	none	none	none	none	none				
Tivat	9,367 (2011)	Tivat Airport	1,367,282	7,049	Bay of kotor	NA	NA				

Bar	17,649 (2011)	none	none	none	Port of Bar	805,219 (2012)	22,473 (2018)				
North Macedonia											
Skopje	428,988 (2003)	Skopje International Airport	2,360,400	3,407	none	none	none	Corridor 8 & 10			
Bitola	74,550 (2002)	none	none	none	none	none	none				
Kumanovo	70,842 (2002)	none	none	none	none	none	none				
Ohrid	42,033 (2002)	Ohrid St. Paul the Apostle Airport	317218	none	none	none	none				
Serbia											
Belgrade	1,233,796 (2011)	Belgrade Nikola Tesla Airport	6,159,000	25,543 (2018)	none	none	none	Corridor 7 & 10	Rhine–Danube Corridor		European Cemeteries Route (2010)
Novi Sad	277,522 (2011)	none	none	none	none	none	none				
Niš	187,544 (2011)	Niš Constantine the Great Airport	422,255	1,180 t (2019)	none	none	none	Corridor 10			
Slovenia											
Ljubljana	295,504 (2020)	Ljubljana Jože Pučnik Airport	1,721,355	24,874	none	none	none	Corridor 5 & 10	Mediterranean Corridor		European Cemeteries Route (2010) / Impressionisms Routes (2018)
Maribor	96,211 (2020)	Maribor Edvard Rusjan Airport currently mostly used by flight schools for training purposes	NA	NA	none	none	none				
Koper	25,753 (2020)	none	none	none	Port of Koper	18,000,000 (2013)	65,434 (2013)		Mediterranean Corridor		Routes of the Olive Tree (2005)

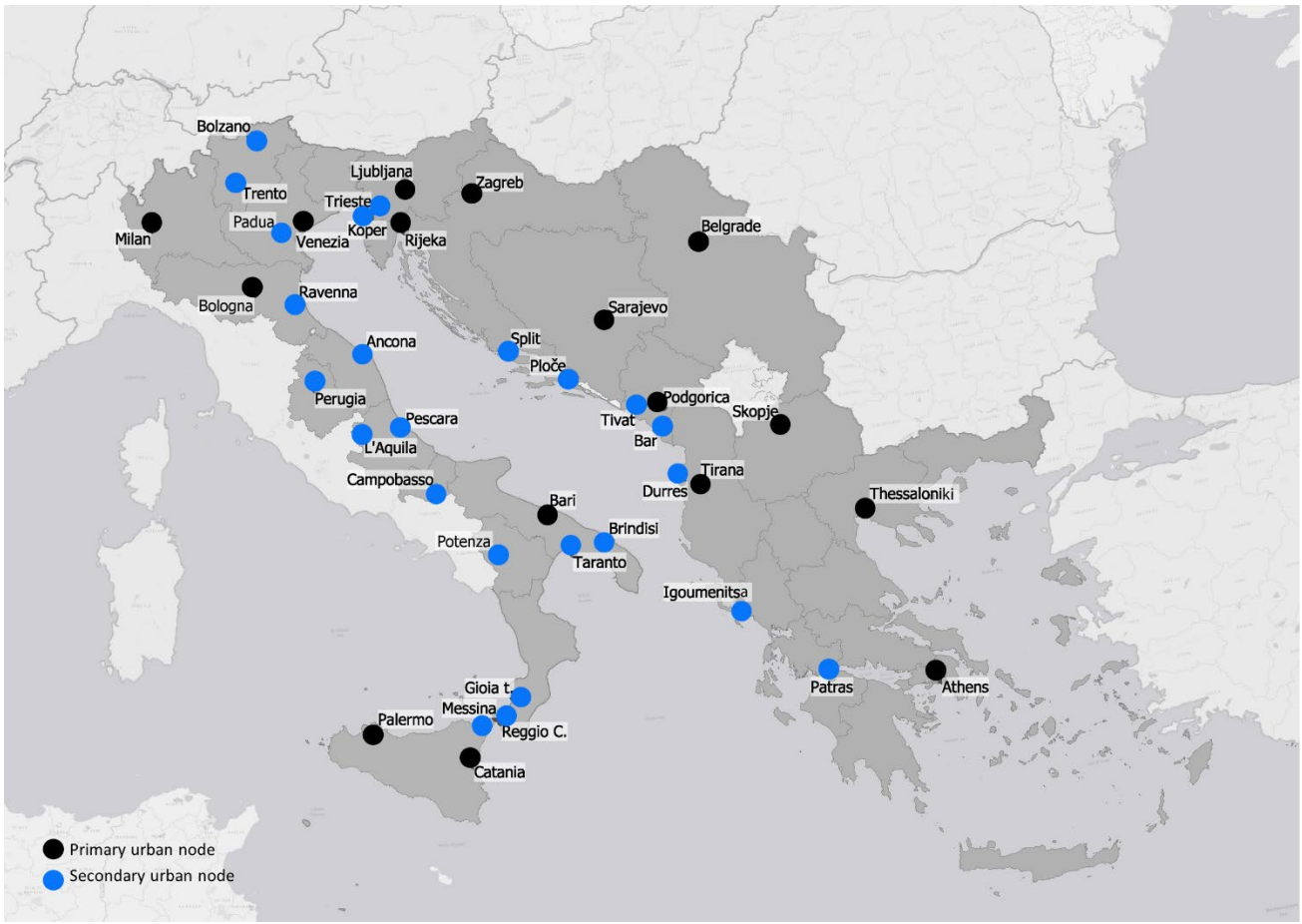
The following map (figure 4) and table (table 2) show the selected main urban nodes and touristic attraction poles. The capitals city and most populous cities (in case of Italy) are marked as primary urban nodes shown in black on the table and the map and other cities as secondary urban nodes shown on blue on the table and the map.

Table 2 List of selected primary and secondary urban nodes

Country	Selected Cities
Albania	Tirana Durrës
Bosnia and Herzegovina	Sarajevo
Croatia	Zagreb Rijeka Split Ploče
Greece	Athens Thessaloniki Patras Igoumenitsa
Italy	Milan Palermo Bologna Bari Catania Venice Messina Padua Trieste Taranto Reggio Calabria Perugia Ravenna Trento Pescara Bolzano Ancona Brindisi L'Aquila Potenza Campobasso Gioia Tauro

Montenegro	Podgorica Tivat Bar
North Macedonia	Skopje
Serbia	Belgrade
Slovenia	Ljubljana Koper

Figure 4 Selected primary and secondary urban nodes



The following chapters provide more details regarding accessibility by different modes of transport to each of the selected major urban nodes, the interconnection between the nodes for both passenger and freight by different modes of transport including air transport, maritime transport, rail transport, road transport and cycling.

In addition, details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, e- scooter sharing and moped sharing network in each

major node is provided. Lastly, availability of the logistics infrastructure and size by air transport, maritime transport and rail transport is analyzed followed by investigating the dissemination of innovative and sustainable strategies at urban scale including cargo bike, electric vehicles for urban delivery and parcel lockers in each selected urban node.

1 Current situation in EUSAIR macro-region countries

1.1 Albania

The following chapter provides the detailed information regarding the three main themes of:

- transport and accessibility in regional scale by different modes of transport;
- urban mobility and its relevant components and
- logistics infrastructure and last mile delivery for city logistics in the selected urban nodes of Albania.

The accessibility and transport in regional scale chapter consists in the details of main transport hubs and interconnection among the selected urban nodes and touristic attraction poles by different modes of transport, including road transport, passenger railway transport, air transport, maritime transport and cycling infrastructure.

The urban mobility chapter includes details of availability and diffusion of urban mobility including public transport, sustainable and future oriented mobility and accessibility and infrastructures for electric mobility and alternative ecological fuels.

The logistics chapter is divided into two scale of logistics infrastructure of the selected nodes of the country and innovative and sustainable urban logistics services for last mile delivery.

The chapter concludes with a set of identified key issues and recommendations for each issue.

1.1.1 Transport and accessibility at regional scale in Albania

The following chapter delves into the critical aspects of transport infrastructure and interconnectivity at regional scale and within the country. Specifically, it encompasses an exploration of the road and rail infrastructure, it addresses the infrastructure and services supporting cycling interconnections. Furthermore, this chapter delves into the interconnection services that link the major transport hubs in the selected nodes. Each of these aspects plays a pivotal role in providing a comprehensive overview of the countries' accessibility and connectivity.

1.1.1.1 Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in Albania

The following chapter includes the existing and planned road and rail infrastructure that passes through the main selected urban nodes. In addition, the main road and rail corridors are identified and their characteristics is studied in details.

Road infrastructure in Albania

The following table shows the main road corridors passing through each urban node and information regarding Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway Corridor passing through them.

Table 3 Road infrastructure passing through the selected urban nodes of Albania

	Main Roads	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway Corridor

Albania			
Tirana	SH2, SH3, SH1	none	Adriatic–Ionian motorway
Durrës	SH4, SH2	none	none

The following table shows the main road corridors passing through the country interconnecting the urban nodes indicating the type of road, the status of the road, the travel time by car and type of Eupropean corridor.

Table 4 Main road corridors in Albania

		Country	Roads Name	Type of Road	European Corridor	Status (related to TENT)	Travel Time by Car
Albania							
Durres-Tirana		Albania	SH2	primary	none	completed	39min
Tirana-Podgorica		Albania-Montenegro	SH1	primary	none	to be upgraded	3h
Igoumenitsa-Durres		Greece-Albania	SH4-A2	motorway	Adriatic–Ionian motorway	completed	4h:20
Skopje-Tirana		Albania-North Macedonia	E65, E852	mixed		to be upgraded	4h
Skopje-Durres		Albania-North Macedonia	SH2-SH3-A3	mixed	Pan European	to be upgraded	

Passenger rail infrastructure in Albania

The following table shows the main passenger rail corridors passing through the country, indicating the type of rail connections, number of trains per day, travel time and type of Eupropean corridor.

Table 5 Passenger railway corridors in Albania

	Country	Type of Rail	European Corridor	Train per Day	Travel Time by Train
Albania					
Durres-Tirana	Albania	none	No corridor is crossing	currently no trains in operation between Tirana and Durres	
Tirana-Podgorica	Albania-Montenegro	none	No corridor is crossing	There are no passenger train	

				connections between these two countries.	

1.1.1.2 Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in Albania

The following table shows the main planned cycling corridors passing through the selected main urban nodes and touristic attraction poles of the country.

Table 6 Regional cycling infrastructure passing through the selected urban nodes of Albania

	Cycling Lane
Albania	
Tirana	Ciclovia Adriatica (Eurovelo 8)
Durrës	Ciclovia Adriatica (Eurovelo 8)

The following table shows the main planned cycling corridors of Adriatic-Ionian macro- region interconnecting the selected main urban nodes and touristic attraction poles.

Table 7 Planned regional cycling infrastructure in Albania

	Country	**Cycle lane name**
Albania		
Tirana-Durres	Albania	Eurovelo 8
Durres-Igoumenitsa	Albania - Greece	Eurovelo 8

1.1.1.3 Interconnection services between the main transport hubs, urban hubs and tourist attractions in Albania

The following table shows the main transport hubs for air, railway and maritime passenger transports the selected main urban nodes and touristic attraction poles of the country, their annual passenger data, the direct connections to other cities of Adriatic-Ionian macro- region and their connection to the city.

Table 8 Main transport hubs in the selected urban nodes of Albania

	Tirana	**Durrës**
Main Airport	Nënë Tereza International Airport	none
Airport Passengers Traffic (2019)	3,338,147	none

Direct Connection by Air Transport (Adriatic-Ionian macro- region)	Athens, Bergamo, Bologna, Milan–Malpensa, Pisa, Rome–Fiumicino, Verona, Ancona, Bari, Florence, Genoa, Perugia, Rimini, Venice, Belgrade	none
City Connection to the Airport	bus, taxi, planned rail link mentioned in SUMP of Tirana	none
Main Train Station	Tirana railway station currently under construction therefore passenger to and from Tirana have to use renovated Kashar station since May 2015.	Durrës railway station
City Connection to the Train Station	bus, taxi	bus, taxi
Main Port	none	Port of Durrës
Port Passengers (2019)	none	878,867
Direct Connection by Maritime Transport (Adriatic-Ionian macro- region)	none	Bari, Ancona, Trieste
City Connection to the Port	none	rail

1.1.2 Urban mobility in Albania

The following chapter provides details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, e- scooter and moped sharing network, public transport app for route finding and e-ticketing in selected urban node. The availability and diffusion of infrastructures for electric mobility and alternative ecological fuels is studied too.

1.1.2.1 Availability and dissemination of public transport infrastructure and services in Albania

In addition to the information regarding interconnection and main hubs for air, railway and maritime transport the following table provides details of the existing and planned public transport infrastructure in the selected main urban nodes and touristic attraction poles of the country.

Table 9 Public transport infrastructure and services in the selected urban nodes of Albania

	Metro and Commuter Rail	**Bus**	**Tram**
Albania			
Tirana	none	10 bus lines served by 250 to 260 buses every	In 2012, the Tirana municipality released a report indicating that

		day, planned BRT for 2025 in SUMP	they were in the process of evaluating a project for the construction of two streetcar lines. These proposed streetcar lines were envisioned to span a combined distance of 16.7 kilometers..
Durrës	none	bus and minibus	none

1.1.2.2 Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in Albania

The following table shows the availability, dissemination and implementation plans of car sharing with indications of availability of electric vehicles, bike sharing with details of number of stations and bicycles when available, followed by availability of e- scooter sharing, moped sharing network and apps for route finding and e-ticketing in each selected major urban node.

Table 10 Shared mobility services and mobility app in the selected urban nodes of Albania

	Car Sharing	**Bike Sharing**	**Scooter or Moped Sharing**	**Public Transport App for Route Finding and E-Ticketing**
Albania				
Tirana	none available	Ecovolis bicycle sharing program launched in 2011, for bike sharing system with docking stations / community-based bike sharing program	none available	Tirana Public Transport App / Moovit (unofficial)
Durrës	none available	Ecovolis bike sharing system with docking stations / community-based bike sharing program	none available	none available

1.1.2.3 Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in Albania

The following chapter provides the detailed information regarding infrastructures for electric mobility and alternative ecological fuels used in public transport and shared mobility in the selected major urban nodes.

Electrification of public and shared urban mobility is an essential step towards a more sustainable urban mobility, with GHG emissions reductions and less environmental impact.

The following table includes the information regarding the availability or planned electrifying public urban buses, electric car sharing, electric taxi network and available public charging stations at each major urban node.

Table 11 Electric mobility and alternative ecological fuels in the selected urban nodes of Albania

	Tirana	**Durrës**
CNG Bus for Public Transport	none available	none available
Electric Bus for Public Transport	Intention to convert 10 to 20 percent of the bus fleet for public transport into electric ones	none available
Electric Car Sharing	none available	none available
Electric Taxi	Green Taxis, Say Taxis with electric vehicles have been operating for a few years now	none available
Public Charging Station	4 public charging stations with 4 connectors	NA

1.1.3 Logistics infrastructure and services in Albania

The following chapter provides details on logistics infrastructure of the selected major nodes of the country and availability of sustainable and innovative urban logistics solution in them. The study includes two main scale of infrastructure and urban logistics services for last mile delivery.

1.1.3.1 Availability and diffusion of logistics infrastructures in Albania

The large-scale infrastructure includes investigating the availability of the logistics infrastructure and size by air transport, maritime transport and rail transport in each major node in order to identify the main interconnection logistics corridors.

Table 12 Logistics infrastructure in the selected urban nodes of Albania

	Tirana	**Durrës**
Main Airport	Nënë Tereza International Airport	none
Airport Cargo Traffic in Tonne(2019)	2,372	none

Main Port	none	Port of Durrës
Port Cargo Traffic in Tonne (2019)	none	4,070,000
Main Train Station	Tirana railway station currently under construction therefore passenger to and from Tirana have to use renovated Kashar station since May 2015.	Durrës railway station
Rail Freight Corridors (RFCs)	none	none

1.1.3.2 Availability and diffusion of city logistics services in Albania

The urban scale includes studying the availability dissemination of innovative and sustainable urban logistics strategies including use of cargo bike and electric vehicles for urban delivery and availability of parcel lockers in each major node. The mentioned solution can contribute to the reducing the negative environmental impact of urban logistics specially related to the GHG and other pollutions caused by fossil fuel road delivery vehicles.

Table 13 Innovative and sustainable urban logistics strategies in the selected urban nodes of Albania

	Tirana	**Durrës**
Cargo Bike for Urban Delivery	none available	none available
Electric Vehicles for Urban Delivery	none available	none available
Parcel Locker (Amazon or similar)	none available	none available

1.1.4 Key issues for each urban node in Albania

The following tables provide details are the key issues and recommended strategies for improvements of interconnection between the major urban nodes, optimization of public transport network and implementation of sustainable and innovative mobility solutions for urban logistics.

Table 14 Identified key issues in Tirana

Tirana, Albania	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should improve as per plans of city / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended

Innovative urban logistics solutions	Currently there are none available, therefore implementation of cargo bikes, parcel lockers and electric vehicles for urban delivery is highly recommended

Table 15 Identified key issues in Durrës

Durrës, Albania	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	Currently there are none available in the city, therefore implementation of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Currently there are none available, therefore implementation of cargo bikes, parcel lockers and electric vehicles for urban delivery is highly recommended

1.2 Bosnia and Herzegovina

The following chapter provides the detailed information regarding the three main themes of:

- transport and accessibility in regional scale by different modes of transport;
- urban mobility and its relevant components and
- logistics infrastructure and last mile delivery for city logistics in the selected urban nodes of Bosnia and Herzegovina.

The accessibility and transport in regional scale chapter consists in the details of main transport hubs and interconnection among the selected urban nodes and touristic attraction poles by different modes of transport, including road transport, passenger railway transport, air transport, maritime transport and cycling infrastructure.

The urban mobility chapter includes details of availability and diffusion of urban mobility including public transport, sustainable and future oriented mobility and accessibility and infrastructures for electric mobility and alternative ecological fuels.

The logistics chapter is divided into two scale of logistics infrastructure of the selected nodes of the country and innovative and sustainable urban logistics services for last mile delivery.

The chapter concludes with a set of identified key issues and recommendations for each issue.

1.2.1 Transport and accessibility at regional scale in Bosnia and Herzegovina

The following chapter delves into the critical aspects of transport infrastructure and interconnectivity at regional scale and within the country. Specifically, it encompasses an exploration of the road and rail infrastructure, it addresses the infrastructure and services supporting cycling interconnections. Furthermore, this chapter delves into the interconnection services that link the major transport hubs in the selected node. Each of these aspects plays a pivotal role in providing a comprehensive overview of the countries' accessibility and connectivity.

1.2.1.1 Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in Bosnia and Herzegovina

The following chapter includes the existing and planned road and rail infrastructure that passes through the main selected urban nodes. In addition, the main road and rail corridors are identified and their characteristics is studied in details.

Road infrastructure in Bosnia and Herzegovina

The following table shows the main road corridors passing through each urban node and information regarding Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway Corridor passing through them.

Table 16 Road infrastructure passing through the selected urban node of Bosnia and Herzegovina

	Main Roads	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway Corridor
Bosnia and Herzegovina			

Sarajevo	A1/E73, M18, M19		

The following table shows the main road corridors passing through the country interconnecting the urban nodes indicating the type of road, the status of the road, the travel time by car and type of Eupropean corridor.

Table 17 Main road corridors in Bosnia and Herzegovina

	Country	Roads Name	Type of Road	European Corridor	Status (related to TENT)	Travel Time by Car
Bosnia and Herzegovina						
Sarajevo-Podgorica	Bosnia-Montenegro	M18-M3	primary		to be upgraded	4h
Zagreb - Sarajevo	Croatia-Bosnia	E70	European		to be upgraded	5h
Ploce-Sarajevo	Croatia-Bosnia	A1-E73	mixed	TENT	completed	3h
Belgrade-Sarajevo	Serbia-Bosnia	M19	primary	TENT	completed	4h:50

Passenger rail infrastructure in Bosnia and Herzegovina

The following table shows the main passenger rail corridors passing through the country, indicating the type of rail connections, number of trains per day, travel time and type of Eupropean corridor.

Table 18 Passenger railway corridors in Bosnia and Herzegovina

	Country	Type of Rail	European Corridor	Train per Day	Travel Time by Train
Bosnia and Herzegovina					
Sarajevo-Podgorica	Bosnia-Montenegro	none	No corridor	none	NA

1.2.1.2 Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in Bosnia and Herzegovina

The following table shows the main planned cycling corridors passing through the selected main urban nodes and touristic attraction poles of the country.

Table 19 Regional cycling infrastructure passing through the selected urban node of Bosnia and Herzegovina

	Cycling Lane
Bosnia and Herzegovina	
Sarajevo	None

The following table shows the main planned cycling corridors of Adriatic Ionian macro- region interconnecting the selected main urban nodes and touristic attraction poles.

Table 20 Planned regional cycling infrastructure in Bosnia and Herzegovina

	Country	Cycle lane name
Bosnia and Herzegovina		
None		

1.2.1.3 Interconnection services between the main transport hubs, urban hubs and tourist attractions in Bosnia and Herzegovina

The following table shows the main transport hubs for air, railway and maritime passenger transports the selected main urban nodes and touristic attraction poles of the country, their annual passenger data, the direct connections to other cities of Adriatic Ionian macro- region and their connection to the city.

Table 21 Main transport hubs in the selected urban node of Bosnia and Herzegovina

	Sarajevo
Main Airport	Sarajevo International Airport
Airport Passengers Traffic (2019)	1,143,680
Direct Connection by Air Transport (Adriatic Ionian macro- region)	Belgrade, Zagreb
City Connection to the Airport	trolleybus, bus, taxi
Main Train Station	Glavna željeznička stanica u Sarajevu (Sarajevo main railway station)
City Connection to the Train Station	tram, taxi
Main Port	none
Port Passengers (2019)	none
Direct Connection by Maritime Transport (Adriatic Ionian macro- region)	none

City Connection to the Port	none

1.2.2 Urban mobility in Bosnia and Herzegovina

The following chapter provides details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, e- scooter and moped sharing network, public transport app for route finding and e-ticketing in selected urban node. The availability and diffusion of infrastructures for electric mobility and alternative ecological fuels is studied too.

1.2.2.1 Availability and dissemination of public transport infrastructure and services in Bosnia and Herzegovina

In addition to the information regarding interconnection and main hubs for air, railway and maritime transport the following table provides details of the existing and planned public transport infrastructure in the selected main urban nodes and touristic attraction poles of the country.

Table 22 Public transport infrastructure and services in the selected urban node of Bosnia and Herzegovina

	Metro and Commuter Rail	**Bus**	**Tram**
Bosnia and Herzegovina			
Sarajevo	none	43 bus lines and 42 minibus lines	7 lines with 28 stations / 5 trolleybus lines / 1 cable car line

1.2.2.2 Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in Bosnia and Herzegovina

The following table shows the availability, dissemination and implementation plans of car sharing with indications of availability of electric vehicles, bike sharing with details of number of stations and bicycles when available, followed by availability of e- scooter sharing, moped sharing network and apps for route finding and e-ticketing in each selected major urban node.

Table 23 Shared mobility services and mobility app in the selected urban nodes of Bosnia and Herzegovina

	Car Sharing	**Bike Sharing**	**Scooter or Moped Sharing**	**Public Transport App for Route Finding and E-Ticketing**
Bosnia and Herzegovina				
Sarajevo	none available	Nextbike with docking station / 60 bicycles in 6 stations there is lack of bike	electric scooter sharing is available	Moovit (unofficial)

		parking and bike lanes in the city		

1.2.2.3 Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in Bosnia and Herzegovina

The following chapter provides the detailed information regarding infrastructures for electric mobility and alternative ecological fuels used in public transport and shared mobility in the selected major urban nodes.

Electrification of public and shared urban mobility is an essential step towards a more sustainable urban mobility, with GHG emissions reductions and less environmental impact.

The following table includes the information regarding the availability or planned electrifying public urban buses, electric car sharing, electric taxi network and available public charging stations at each major urban node.

Table 24 Electric mobility and alternative ecological fuels in the selected urban node of Bosnia and Herzegovina

	Sarajevo
CNG Bus for Public Transport	none available
Electric Bus for Public Transport	electric trolleybus
Electric Car Sharing	none available
Electric Taxi	Green Mind Project 2019: Development model of electric taxi and / or hybrid propulsion transportation
Public Charging Station	4 public charging stations with 4 connectors

1.2.3 Logistics infrastructure and services in Bosnia and Herzegovina

The following chapter provides details on logistics infrastructure of the selected major nodes of the country and availability of sustainable and innovative urban logistics solution in them. The study includes two main scale of infrastructure and urban logistics services for last mile delivery.

1.2.3.1 Availability and diffusion of logistics infrastructures in Bosnia and Herzegovina

The large-scale infrastructure includes investigating the availability of the logistics infrastructure and size by air transport, maritime transport and rail transport in each major node in order to identify the main interconnection logistics corridors.

Table 25 Logistics infrastructure in the selected urban node of Bosnia and Herzegovina

	Sarajevo
Main Airport	Sarajevo International Airport
Airport Cargo Traffic in Tonne(2019)	13,671
Main Port	none
Port Cargo Traffic in Tonne (2019)	none
Main Train Station	Glavna željeznička stanica u Sarajevu (Sarajevo main railway station)
Rail Freight Corridors (RFCs)	none

1.2.3.2 Availability and diffusion of city logistics services in Bosnia and Herzegovina

The urban scale includes studying the availability dissemination of innovative and sustainable urban logistics strategies including use of cargo bike and electric vehicles for urban delivery and availability of parcel lockers in each major node. The mentioned solution can contribute to the reducing the negative environmental impact of urban logistics specially related to the GHG and other pollutions caused by fossil fuel road delivery vehicles.

Table 26 Innovative and sustainable urban logistics strategies in the selected urban node of Bosnia and Herzegovina

	Sarajevo
Cargo Bike for Urban Delivery	available
Electric Vehicles for Urban Delivery	available
Parcel Locker (Amazon or similar)	available

1.2.4 Key issues for each urban node in Bosnia and Herzegovina

The following tables provide details are the key issues and recommended strategies for improvements of interconnection between the major urban nodes, optimization of public transport network and implementation of sustainable and innovative mobility solutions for urban logistics.

Table 27 Identified key issues in Sarajevo

Sarajevo, Bosnia and Herzegovina	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection to other urban nodes is low by all modes and improvements by road, rail and cycling infrastructure is highly recommended
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended

Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Currently parcel lockers, cargo bike and electric vehicles for urban logistics are available

1.3 Croatia

The following chapter provides the detailed information regarding the three main themes of:

- transport and accessibility in regional scale by different modes of transport;
- urban mobility and its relevant components and
- logistics infrastructure and last mile delivery for city logistics in the selected urban nodes of Croatia.

The accessibility and transport in regional scale chapter consists in the details of main transport hubs and interconnection among the selected urban nodes and touristic attraction poles by different modes of transport, including road transport, passenger railway transport, air transport, maritime transport and cycling infrastructure.

The urban mobility chapter includes details of availability and diffusion of urban mobility including public transport, sustainable and future oriented mobility and accessibility and infrastructures for electric mobility and alternative ecological fuels.

The logistics chapter is divided into two scale of logistics infrastructure of the selected nodes of the country and innovative and sustainable urban logistics services for last mile delivery.

The chapter concludes with a set of identified key issues and recommendations for each issue.

1.3.1 Transport and accessibility at regional scale in Croatia

The following chapter delves into the critical aspects of transport infrastructure and interconnectivity at regional scale and within the country. Specifically, it encompasses an exploration of the road and rail infrastructure, it addresses the infrastructure and services supporting cycling interconnections. Furthermore, this chapter delves into the interconnection services that link the major transport hubs in the selected nodes. Each of these aspects plays a pivotal role in providing a comprehensive overview of the countries' accessibility and connectivity.

1.3.1.1 Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in Croatia

The following chapter includes the existing and planned road and rail infrastructure that passes through the main selected urban nodes. In addition, the main road and rail corridors are identified and their characteristics is studied in details.

Road infrastructure in Croatia

The following table shows the main road corridors passing through each urban node and information regarding Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway Corridor passing through them.

Table 28 Road infrastructure passing through the selected urban nodes of Croatia

	Main Roads	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway Corridor
Croatia			
Zagreb	E70, A3, A2, A6-A1	Mediterranean Corridor / Rhine–Danube Corridor	

Rijeka	E61, A1	Mediterranean Corridor	Adriatic–Ionian motorway
Split	A1		Adriatic–Ionian motorway
Ploče	A1, E73		

The following table shows the main road corridors passing through the country interconnecting the urban nodes indicating the type of road, the status of the road, the travel time by car and type of Eupropean corridor.

Table 29 Main road corridors in Croatia

	Country	Roads Name	Type of Road	European Corridor	Status (related to TENT)	Travel Time by Car
Croatia						
Zagreb-Rijeka	Croatia	A6-A1	motorway	TENT	completed	3 h
Zagreb-Split	Croatia	A1	motorway	Adriatic–Ionian motorway	completed	5 h
Split-Ploce	Croatia	A1	motorway	Adriatic–Ionian motorway	completed	1h:30
Rijeka-Koper	Croatia-Slovenia	A1-E61	mixed		completed	1 h
Ljubljana - Zagreb	Croatia-Slovenia	A2	motorway	TENT	to be upgraded	1h:40
Zagreb - Sarajevo	Croatia-Bosnia	E70	European		to be upgraded	5h
Zagreb-Belgrade	Croatia-Serbia	A3	motorway		to be upgraded	4h
Ploce-Sarajevo	Croatia-Bosnia	A1-E73	mixed	TENT	completed	3h
Ploce-Tivat	Croatia-Montenegro	M6-E65	mixed	Adriatic–Ionian motorway	completed	3h:40
Trieste-Rijeka	Italy - Croatia	E61	European		completed	1h:20

Passenger rail infrastructure in Croatia

The following table shows the main passenger rail corridors passing through the country, indicating the type of rail connections, number of trains per day, travel time and type of Eupropean corridor.

Table 30 Passenger railway corridors in Croatia

	Country	Type of Rail	European Corridor	Train per Day	Travel Time by Train

Croatia					
Zagreb-Rijeka	Croatia	conventional	TENT	51	2h:15
Zagreb-Split	Croatia	conventional		5	6h
Split-Ploce	Croatia	none		none	
Rijeka-Koper	Croatia-Slovenia	conventional		1	1h
Ljubljana - Zagreb	Croatia-Slovenia	conventional	TENT	3	2h
Zagreb- Sarajevo	Croatia-Bosnia	none		none	
Zagreb-Belgrade	Croatia-Serbia	conventional		6	6h
Ploce-Sarajevo	Croatia-Bosnia	conventional	TENT	1	14h
Ploce-Tivat	Croatia-Montenegro	none		none	

1.3.1.2 Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in Croatia

The following table shows the main planned cycling corridors passing through the selected main urban nodes and touristic attraction poles of the country.

Table 31 Regional cycling infrastructure passing through the selected urban nodes of Croatia

	Cycling Lane
Croatia	
Zagreb	None
Rijeka	Ciclovia Adriatica (Eurovelo 8)
Split	Ciclovia Adriatica (Eurovelo 8)
Ploče	Ciclovia Adriatica (Eurovelo 8)

The following table shows the main planned cycling corridors of Adriatic Ionian macro- region interconnecting the selected main urban nodes and touristic attraction poles.

Table 32 Planned regional cycling infrastructure in Croatia

	Country	Cycle lane name
Croatia		
Rijeka-Split	Croatia	Eurovelo 8
Split- Ploce	Croatia	Eurovelo 8
Ploce-Tivat	Croatia - Montenegro	Eurovelo 8
Koper-Rijeka	Slovenia - Croatia	Eurovelo 8

1.3.1.3 Interconnection services between the main transport hubs, urban hubs and tourist attractions in Croatia

The following table shows the main transport hubs for air, railway and maritime passenger transports the selected main urban nodes and touristic attraction poles of the country, their annual passenger data, the direct connections to other cities of Adriatic Ionian macro- region and their connection to the city.

Table 33 Main transport hubs in the selected urban nodes of Croatia

	Zagreb	**Rijeka**	**Split**	**Ploče**
Main Airport	Zagreb Franjo Tuđman Airport	Rijeka International Airport	Split Airport	none
Airport Passengers Traffic (2019)	3,435,531	200,841	3,301,930	none
Direct Connection by Air Transport (Adriatic Ionian macro- region)	Athens, Belgarde, Dubrovnik, Mostar, Pula, Rome–Fiumicino, Sarajevo, Skopje, Split, Zadar, Podgorica, Rome–Ciampino, Osijek	Dubrovnik, Osijek, Split	Athens, Belgrade, Rome–Fiumicino, Zagreb, Dubrovnik, Skopje, Ancona, Milan–Malpensa, Naples, Venice	none
City Connection to the Airport	bus, taxi	bus, taxi	bus, taxi	none
Main Train Station	Zagreb Glavni kolodvor	Rijeka railway station	Željeznički kolodvor Split (Split Central Train Station)	Durrës railway station
City Connection to the Train Station	airport bus, bus, taxi	bus, taxi		bus, taxi
Main Port	none	Port of Rijeka	Port of Split	Port of Durrës
Port Passengers (2019)	none	264,097 (2017)	5,422,589 (2018)	878,867
Direct Connection by Maritime Transport (Adriatic Ionian macro- region)	none	Lokrum, Cres, Martinscica (Cres), Unije, Susak, Ilovik, Mali Losinj,Rab, Novalja	Islands of Brač and Hvar, Islands of Vis, Lastovo, Korčula, Šolta, Drvenik Veliki, Drvenik Mali, Piraeus, Ancona, Civitanova Marche, Rogac,	Bari, Ancona, Trieste

			Slatine (Ciovo), Velva Luka, Ubli (Lastovo), Milna (Brac)	
City Connection to the Port	none	walking distance to center, bus, taxi	airport bus, walking distance to city center & train station (5 min), commuter rail to suburb	rail

1.3.2 Urban mobility in Croatia

The following chapter provides details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, e- scooter and moped sharing network, public transport app for route finding and e-ticketing in selected urban node. The availability and diffusion of infrastructures for electric mobility and alternative ecological fuels is studied too.

1.3.2.1 Availability and dissemination of public transport infrastructure and services in Croatia

In addition to the information regarding interconnection and main hubs for air, railway and maritime transport the following table provides details of the existing and planned public transport infrastructure in the selected main urban nodes and touristic attraction poles of the country.

Table 34 Public transport infrastructure and services in the selected urban nodes of Croatia

	Metro and Commuter Rail	**Bus**	**Tram**
Croatia			
Zagreb	1 commuter rail line with 15 stations	130 day lines and 4 night lines	15 day and 4 night lines
Rijeka	none	19 day and 2 night lines	none (ended operation in 1952 and was replaced by bus network)
Split	1 commuter rail line with 7 stations, with plans to extend to Split Airport	22 city lines and 30 suburban lines	none
Ploče	none	none	none

1.3.2.2 Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in Croatia

The following table shows the availability, dissemination and implementation plans of car sharing with indications of availability of electric vehicles, bike sharing with details of number of stations and bicycles when available, followed by availability of e- scooter sharing, moped sharing network and apps for route finding and e-ticketing in each selected major urban node.

Table 35 Shared mobility services and mobility app in the selected urban nodes of Croatia

	Car Sharing	Bike Sharing	Scooter or Moped Sharing	Public Transport App for Route Finding and E-Ticketing
Croatia				
Zagreb	Avant2Go and SpintCity offers electric cars for any rental period	NextBike bike sharing system with docking stations including electric bikes / 50 bicycles in 6 stations	ESCO.bike electric scooter sharing	Zagreb Tram app (unofficial) & EasyWay public transport app (unofficial) Moovit (unofficial)
Rijeka	none available	Ricikleta bike sharing system with docking stations / 28 pedelecs in 4 stations	Bolt kick scooter sharing	Urban Mobility Rijeka app / Moovit (unofficial)
Split	none available	NextBike bike sharing system with docking stations / 128 bicycles including 32 pedelecs in 48 stations	none available	Split Bus app (unofficial)
Ploče	none available	none available	none available	none available

1.3.2.3 Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in Croatia

The following chapter provides the detailed information regarding infrastructures for electric mobility and alternative ecological fuels used in public transport and shared mobility in the selected major urban nodes.

Electrification of public and shared urban mobility is an essential step towards a more sustainable urban mobility, with GHG emissions reductions and less environmental impact.

The following table includes the information regarding the availability or planned electrifying public urban buses, electric car sharing, electric taxi network and available public charging stations at each major urban node.

Table 36 Electric mobility and alternative ecological fuels in the selected urban nodes of Croatia

	Zagreb	Rijeka	Split	Ploče
CNG Bus for Public Transport	Under the Civitas Eu2020 Plan, a	Autotroej Company uses	none available	none available

	total of 160 new buses were acquired, with 60 of them operating on compressed natural gas (CNG). These newly procured buses were introduced into service between 2008 and 2010.	CNG buses for public transport		
Electric Bus for Public Transport	Electric buses are available	During 2021, agreements were finalized for the procurement of 17 buses, which is part of a larger fleet expansion effort that includes a total of 32 new buses for Autotrolej, as part of the "Strengthening the Public Transport System" project.	Electric buses are available	none available
Electric Car Sharing	Avant2Go and SpintCity offers electric and gas cars for any rental period.	none available	none available	none available
Electric Taxi	Eko-taxi and RIDE2 Taxi use electric vehicles	Eko-taxi uses electric vehicles	Eko-taxi uses electric vehicles	none available
Public Charging Station	15 public charging stations with 27 connectors	6 public charging stations with 14 connectors	2 public charging stations with 4 connectors	NA

1.3.3 Logistics infrastructure and services in Croatia

The following chapter provides details on logistics infrastructure of the selected major nodes of the country and availability of sustainable and innovative urban logistics solution in them. The study includes two main scale of infrastructure and urban logistics services for last mile delivery.

1.3.3.1 Availability and diffusion of logistics infrastructures in Croatia

The large-scale infrastructure includes investigating the availability of the logistics infrastructure and size by air transport, maritime transport and rail transport in each major node in order to identify the main interconnection logistics corridors.

Table 37 Logistics infrastructure in the selected urban nodes of Croatia

	Zagreb	**Rijeka**	**Split**	**Ploče**
Main Airport	Zagreb Franjo Tuđman Airport	Rijeka International Airport	Split Airport	none
Airport Cargo Traffic in Tonne(2019)	12,881	1,026	273	none
Main Port	none	Port of Rijeka	Port of Split	Port of Ploče
Port Cargo Traffic in Tonne (2019)	none	12,600,000 (2017)	2,998,013 (2018)	3,194,962 (2017)
Main Train Station	Zagreb Glavni kolodvor	Rijeka railway station	Željeznički kolodvor Split (Split Central Train Station)	none
Rail Freight Corridors (RFCs)	Mediterranean (RFC3), Alpine-Western Balkan (RFC10)	Mediterranean (RFC3)	none	none

1.3.3.2 Availability and diffusion of city logistics services in Croatia

The urban scale includes studying the availability dissemination of innovative and sustainable urban logistics strategies including use of cargo bike and electric vehicles for urban delivery and availability of parcel lockers in each major node. The mentioned solution can contribute to the reducing the negative environmental impact of urban logistics specially related to the GHG and other pollutions caused by fossil fuel road delivery vehicles.

Table 38 Innovative and sustainable urban logistics strategies in the selected urban nodes of Croatia

	Zagreb	**Rijeka**	**Split**	**Ploče**

Cargo Bike for Urban Delivery	none available	none available	none available	none available
Electric Vehicles for Urban Delivery	none available	none available	none available	none available
Parcel Locker (Amazon or similar)	available	available	available	available

1.3.4 Key issues for each urban node in Croatia

The following tables provide details are the key issues and recommended strategies for improvements of interconnection between the major urban nodes, optimization of public transport network and implementation of sustainable and innovative mobility solutions for urban logistics.

Table 39 Identified key issues in Zagreb

Zagreb, Croatia	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes / connection by cycling infrastructure should be implemented
Public transport / Electrification and alternative fuels of the public transport fleet	In compare to other nodes the availability and extension of public transport and electrification or use of alternative fuels is high
Electric mobility infrastructure	Currently there are several public charging stations available in the city
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 40 Identified key issues in Rojeka

Rijeka, Croatia	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 41 Identified key issues in Split

Split, Croatia	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway and road to other nodes should be implemented and improved
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 42 Identified key issues in Ploče

Ploče, Croatia	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway and road to other nodes should be implemented and improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	Currently there are none available in the city, therefore implementation of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

1.4 Greece

The following chapter provides the detailed information regarding the three main themes of:

- transport and accessibility in regional scale by different modes of transport;
- urban mobility and its relevant components and
- logistics infrastructure and last mile delivery for city logistics in the selected urban nodes of Greece.

The accessibility and transport in regional scale chapter consists in the details of main transport hubs and interconnection among the selected urban nodes and touristic attraction poles by different modes of transport, including road transport, passenger railway transport, air transport, maritime transport and cycling infrastructure.

The urban mobility chapter includes details of availability and diffusion of urban mobility including public transport, sustainable and future oriented mobility and accessibility and infrastructures for electric mobility and alternative ecological fuels.

The logistics chapter is divided into two scale of logistics infrastructure of the selected nodes of the country and innovative and sustainable urban logistics services for last mile delivery.

The chapter concludes with a set of identified key issues and recommendations for each issue.

1.4.1 Transport and accessibility at regional scale in Greece

The following chapter delves into the critical aspects of transport infrastructure and interconnectivity at regional scale and within the country. Specifically, it encompasses an exploration of the road and rail infrastructure, it addresses the infrastructure and services supporting cycling interconnections. Furthermore, this chapter delves into the interconnection services that link the major transport hubs in the selected nodes. Each of these aspects plays a pivotal role in providing a comprehensive overview of the countries' accessibility and connectivity.

1.4.1.1 Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in Greece

The following chapter includes the existing and planned road and rail infrastructure that passes through the main selected urban nodes. In addition, the main road and rail corridors are identified and their characteristics is studied in details.

Road infrastructure in Greece

The following table shows the main road corridors passing through each urban node and information regarding Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway Corridor passing through them.

Table 43 Road infrastructure passing through the selected urban nodes of Greece

	Main Roads	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway Corridor
Greece			
Athens	A1, A8	Orient/East–Med Corridor	

Thessaloniki	E75, A1, A2, SH4		
Patras	A8, A5	Orient/East–Med Corridor	Adriatic–Ionian motorway
Igoumenitsa	A2, SH4, A5	Orient/East–Med Corridor	

The following table shows the main road corridors passing through the country interconnecting the urban nodes indicating the type of road, the status of the road, the travel time by car and type of Eupropean corridor.

Table 44 Main road corridors in Greece

	Country	Roads Name	Type of Road	European Corridor	Status (related to TENT)	Travel Time by Car
Greece						
Athens-Patras	Greece	A8	motorway	TENT	completed	2h
Igoumenitsa - Thessaloniki	Greece	A2	motorway	TENT	completed	3h:30
Athens-Thessaloniki	Greece	A1	motorway	TENT	completed	6h
Igoumenitsa-Patras	Greece	A5-A2	motorway	TENT	completed	2h:55
Igoumenitsa-Durres	Greece-Albania	SH4-A2	motorway	Adriatic–Ionian motorway	completed	4h:20
Thessaloniki-Skopje	Greece-North Macedonia	A1-E75	mixed		to be upgraded	3h

Passenger rail infrastructure in Greece

The following table shows the main passenger rail corridors passing through the country, indicating the type of rail connections, number of trains per day, travel time and type of Eupropean corridor.

Table 45 Passenger railway corridors in Greece

	Country	Type of Rail	European Corridor	Train per Day	Travel Time by Train
Greece					
Athens-Patras	Greece	high speed	TENT	10	3h
Igoumenitsa-Thessaloniki	Greece	none	TENT	none	
Athens-Thessaloniki	Greece	high speed	TENT	5	4h:30

Igoumenitsa-Patras	Greece	none	TENT	none	
Igoumenitsa-Durres	Greece-Albania	none		none	
Thessaloniki-Skopje	Greece-North Macedonia	none		none	

1.4.1.2 Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in Greece

The following table shows the main planned cycling corridors passing through the selected main urban nodes and touristic attraction poles of the country.

Table 46 Regional cycling infrastructure passing through the selected urban nodes of Greece

	Cycling Lane
Greece	
Athens	Ciclovia Adriatica (Eurovelo 8), Eurovelo 11
Thessaloniki	Eurovelo 11
Patras	Ciclovia Adriatica (Eurovelo 8)
Igoumenitsa	Ciclovia Adriatica (Eurovelo 8)

The following table shows the main planned cycling corridors of Adriatic Ionian macro- region interconnecting the selected main urban nodes and touristic attraction poles.

Table 47 Planned regional cycling infrastructure in Greece

	Country	**Cycle lane name**
Greece		
Igoumenitsa-Patras	Greece	Eurovelo 8
Patras-Athens	Greece	Eurovelo 8
Athens-Thessaloniki	Greece	Eurovelo 11
Skopje-Thessaloniki-	North Macedonia - Greece	Eurovelo 11

1.4.1.3 Interconnection services between the main transport hubs, urban hubs and tourist attractions in Greece

The following table shows the main transport hubs for air, railway and maritime passenger transports the selected main urban nodes and touristic attraction poles of the country, their annual passenger data, the direct connections to other cities of Adriatic Ionian macro- region and their connection to the city.

Table 48 Main transport hubs in the selected urban nodes of Greece

	Athens	**Thessaloniki**	**Patras**	**Igoumenitsa**

Main Airport	Athens International Airport	Thessaloniki Airport	none	none
Airport Passengers Traffic (2019)	25,574,030	6,897,057	none	none
Direct Connection by Air Transport (Adriatic Ionian macro- region)	Corfu, Ioannina, Kastoria, Kozani, Thessaloniki, Kavala, Alexandroupolis, Limnos, Skyros, Skiathos, Mytilene (Lesbos), Chios, Samos, Ikria Island, Leros, Kalymnos, Rhodes, Kos, Astypalaia Island, Santorini, Milos, Kythira, Kalamata, Zakynthos Island, Kefalonia, Catania, Palermo, Naples, Bari, Rome-Fiumicino, Rome-Ciampino, Pisa, Bologna, Bergamo, Milan-Malpensa, Verona, Venice, Zagreb, Split, Dubrovnik, Tirana, Skopje, Belgrade	Athens, Kalamata, Zakynthos Island (from June to October), Corfu, Limnos, Mytilene (Lesbos), Chios, Samos, Rhodes, Kos, Mikonos, Paros, Santorini, Heraklion, Chania, Kythira, Skyros, Naples, Rome-Ciampino, Bologna, Bergamo, Venice, Treviso, Belgrade	none	none
City Connection to the Airport	metro, bus, taxi	bus, taxi, planned metro connection	none	none
Main Train Station	Athens railway station	New Thessaloniki Railway Station	Patras railway station	none
City Connection to the Train Station	metro, commuter rail	metro, bus, airport bus, taxi	bus	not available
Main Port	Port of Piraeus	Port of Thessaloniki	New Port of Patras	Igoumenitsa Port
Port Passengers (2019)	17,400,000	180,755 (2010)	627,139	896,130 (2012)

Direct Connection by Maritime Transport (Adriatic Ionian macro-region)	Crete, Dodecanese Islands, Cyclades Islands, Saronic Islands, Aegean Islands, Samos, Lesbos, Greece & Ikaria with crossings available to Heraklion, Chania & Sitia (in Crete), Astypalea, Rhodes, Tilos, Karpathos, Kalymnos, Kastelorizo, Kos, Leros, Nisyros, Patmos, Lipsi, Symi, Chalki, Diafani & Kasos (in Dodecanese Islands), Schinoussa, Syros, Tinos, Anafi, Katapola, Aegiali, Donoussa, Ios, Iraklia, Koufonissi, Mykonos, Naxos, Paros, Thira, Milos, Sifnos, Serifos, Kythnos, Sikinos, Kimolos & Folegandros (in Cyclades Islands), Poros, Aegina, Hydra, Spetses, Agia Marina & Agistri (in Saronic Islands), Chios, Fournoi, Limnos & Psara (in Aegean Islands), Karlovassi & Vathi (in Samos), Mytilene (in Lesbos), Ermioni, Porto Heli, Kavala, Oinousses, Agistri Myli, Souvala &	Perea port, Neous Epivates, Kalamaria and Agia Triada	Ancona, Venice, Bari,Brindisi, Trieste, Kerkyra, Kefallonia and Zakynthos, Igoumenitsa, Anafi, Ithaki	Patras, Anafi, Ancona, Venice, Bari, Brindisi, Ravenna, Corfu,Paxoi, Lefkimi, Cephalonia

	Methana (in Greece) & Evdilos & Agios Kirikos (in Ikaria) Santorini, Mykonos, Rhodes, Katakolon (Olympia), Corfu - Kerkira, Dubrovnik, Split			
City Connection to the Port	metro, bus, airport bus	walking distance to city center	bus, taxi	taxi, walking

1.4.2 Urban mobility in Greece

The following chapter provides details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, e- scooter and moped sharing network, public transport app for route finding and e-ticketing in selected urban node. The availability and diffusion of infrastructures for electric mobility and alternative ecological fuels is studied too.

1.4.2.1 Availability and dissemination of public transport infrastructure and services in Greece

In addition to the information regarding interconnection and main hubs for air, railway and maritime transport the following table provides details of the existing and planned public transport infrastructure in the selected main urban nodes and touristic attraction poles of the country.

Table 49 Public transport infrastructure and services in the selected urban nodes of Greece

	Metro and Commuter Rail	**Bus**	**Tram**
Greece			
Athens	3 metro lines / 5 commuter rail line with 53 stations	322 bus lines	3 tram lines
Thessaloniki	2 lines with 34 stations (18 under construction, 16 planned)	92 bus lines (2 night routes)	none
Patras	The ΤΡΑΙΝΟΣΕ - TrainOSE Patras Suburban Railway has 2 Train lines in Patra with 2 Train stations / The TRAINOSE SA has 6 Train lines in Patra with 16 Train stations.	The ΚΤΕΛ Νομού Αχαΐας has 12 Bus routes in Patra with 411 Bus stops / The ΤΡΑΙΝΟΣΕ - TrainOSE has 3 Bus routes in Patra with 5 Bus stops / The Αστικό ΚΤΕΛ Πατρών ΑΕ has 21 Bus routes in Patra with 497 Bus stops	none

Igoumenitsa	none	none	none

1.4.2.2 Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in Greece

The following table shows the availability, dissemination and implementation plans of car sharing with indications of availability of electric vehicles, bike sharing with details of number of stations and bicycles when available, followed by availability of e- scooter sharing, moped sharing network and apps for route finding and e-ticketing in each selected major urban node.

Table 50 Shared mobility services and mobility app in the selected urban nodes of Greece

	Car Sharing	**Bike Sharing**	**Scooter or Moped Sharing**	**Public Transport App for Route Finding and E-Ticketing**
Greece				
Athens	none available	AthensBikes with docking station and eBikeShare by Heron / 100 pedelecs in 11 stations and Cyclopolis Neas Smyrnis / 45 bicycles in 3 stations	none available	Athens Transportation app / Moovit (unofficial)
Thessaloniki	none available	Thessbike with docking station / 100 bicycles in 7 stations Bikeazy free floating / 30 dockless pedelecs	electric kick scooter sharing by Lime	OASTH Bus / Moovit (unofficial)
Patras	none available	EasyBike with docking station	none available	Patra bus app (unofficial) / Moovit (unofficial)
Igoumenitsa	none available	EasyBike with docking station / 20 bicycles in 2 stations	none available	none available

1.4.2.3 Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in Greece

The following chapter provides the detailed information regarding infrastructures for electric mobility and alternative ecological fuels used in public transport and shared mobility in the selected major urban nodes.

Electrification of public and shared urban mobility is an essential step towards a more sustainable urban mobility, with GHG emissions reductions and less environmental impact.

The following table includes the information regarding the availability or planned electrifying public urban buses, electric car sharing, electric taxi network and available public charging stations at each major urban node.

Table 51 Electric mobility and alternative ecological fuels in the selected urban nodes of Greece

	Athens	**Thessaloniki**	**Patras**	**Igoumenitsa**
CNG Bus for Public Transport	Athens public transport has the fleet of 2,375 buses, 619 run on compressed natural gas, making up the largest fleet of natural gas-powered buses in Europe	none available	none available	none available
Electric Bus for Public Transport	354 are electric buses (trolleybuses). All of the 354 trolleybuses are equipped to enable them to run on diesel in case of power failure	Thessaloniki is set to introduce a fleet of one hundred electric buses in the upcoming years.	none available	none available
Electric Car Sharing	none available	none available	none available	none available
Electric Taxi	In March 2021, 14.000-15.000 taxis will have to be cut across Greece due to age. A large part of these vehicles is	In March 2021, 14.000-15.000 taxis will have to be cut across Greece due to age. A large part of these vehicles is	none available	none available

	planned to become electric	planned to become electric		
Public Charging Station	22 public charging stations, number of connectors is not available	4 public charging stations, number of connectors is not available	2 public charging stations, number of connectors is not available	NA

1.4.3 Logistics infrastructure and services in Greece

The following chapter provides details on logistics infrastructure of the selected major nodes of the country and availability of sustainable and innovative urban logistics solution in them. The study includes two main scale of infrastructure and urban logistics services for last mile delivery.

1.4.3.1 Availability and diffusion of logistics infrastructures in Greece

The large-scale infrastructure includes investigating the availability of the logistics infrastructure and size by air transport, maritime transport and rail transport in each major node in order to identify the main interconnection logistics corridors.

Table 52 Logistics infrastructure in the selected urban nodes of Greece

	Athens	**Thessaloniki**	**Patras**	**Igoumenitsa**
Main Airport	Athens International Airport	Thessaloniki Airport	none	none
Airport Cargo Traffic in Tonne(2019)	103,615	NA	none	none
Main Port	Port of Piraeus	Port of Thessaloniki	New Port of Patras	Igoumenitsa Port
Port Cargo Traffic in Tonne (2019)	20,121,916 (2007)	18,127,224 (2010)	4,000,000	212,154 Cars (2012) + 149,768 Trucks
Main Train Station	Athens railway station	New Thessaloniki Railway Station	Patras railway station	not available

Rail Freight Corridors (RFCs)	Orient/East-Med (RFC7)	Orient/East-Med (RFC7)	Orient/East-Med (RFC7)	none

1.4.3.2 Availability and diffusion of city logistics services in Greece

The urban scale includes studying the availability dissemination of innovative and sustainable urban logistics strategies including use of cargo bike and electric vehicles for urban delivery and availability of parcel lockers in each major node. The mentioned solution can contribute to the reducing the negative environmental impact of urban logistics specially related to the GHG and other pollutions caused by fossil fuel road delivery vehicles.

Table 53 Innovative and sustainable urban logistics strategies in the selected urban nodes of Greece

	Athens	**Thessaloniki**	**Patras**	**Igoumenitsa**
Cargo Bike for Urban Delivery	available	none available	none available	none available
Electric Vehicles for Urban Delivery	none available	none available	none available	none available
Parcel Locker (Amazon or similar)	none available	available	none available	none available

1.4.4 Key issues for each urban node in Greece

The following tables provide details are the key issues and recommended strategies for improvements of interconnection between the major urban nodes, optimization of public transport network and implementation of sustainable and innovative mobility solutions for urban logistics.

Table 54 Identified key issues in Athens

Athens, Greece	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	In compare to other nodes the availability and extension of public transport and electrification or use of alternative fuels is high
Electric mobility infrastructure	Currently there are several public charging stations available in the city
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Implementation of parcel lockers and electric vehicles for urban delivery is highly recommended

Table 55 Identified key issues in Thessaloniki

Thessaloniki, Greece	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 56 Identified key issues in Patras

Patras, Greece	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Currently there are none available, therefore implementation of cargo bikes, parcel lockers and electric vehicles for urban delivery is highly recommended

Table 57 Identified key issues in Igoumenitsa

Igoumenitsa, Greece	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	Currently there are none available in the city, therefore implementation of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended

Innovative urban logistics solutions	Currently there are none available, therefore implementation of cargo bikes, parcel lockers and electric vehicles for urban delivery is highly recommended

1.5 Italy

The following chapter provides the detailed information regarding the three main themes of:

- transport and accessibility in regional scale by different modes of transport;
- urban mobility and its relevant components and
- logistics infrastructure and last mile delivery for city logistics in the selected urban nodes of Italy.

The accessibility and transport in regional scale chapter consists in the details of main transport hubs and interconnection among the selected urban nodes and touristic attraction poles by different modes of transport, including road transport, passenger railway transport, air transport, maritime transport and cycling infrastructure.

The urban mobility chapter includes details of availability and diffusion of urban mobility including public transport, sustainable and future oriented mobility and accessibility and infrastructures for electric mobility and alternative ecological fuels.

The logistics chapter is divided into two scale of logistics infrastructure of the selected nodes of the country and innovative and sustainable urban logistics services for last mile delivery.

The chapter concludes with a set of identified key issues and recommendations for each issue.

1.5.1 Transport and accessibility at regional scale in Italy

The following chapter delves into the critical aspects of transport infrastructure and interconnectivity at regional scale and within the country. Specifically, it encompasses an exploration of the road and rail infrastructure, it addresses the infrastructure and services supporting cycling interconnections. Furthermore, this chapter delves into the interconnection services that link the major transport hubs in the selected nodes. Each of these aspects plays a pivotal role in providing a comprehensive overview of the countries' accessibility and connectivity.

1.5.1.1 Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in Italy

The following chapter includes the existing and planned road and rail infrastructure that passes through the main selected urban nodes. In addition, the main road and rail corridors are identified and their characteristics is studied in details.

Road infrastructure in Italy

The following table shows the main road corridors passing through each urban node and information regarding Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway Corridor passing through them.

Table 58 Road infrastructure passing through the selected urban nodes of Italy

	Main Roads	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway Corridor
Italy			
Milan	A4, A1-A14	Mediterranean Corridor / Rhine–Alpine Corridor	

Palermo	A19, A20, A29	Scandinavian–Mediterranean Corridor	
Bologna	A14, A13	Baltic–Adriatic Corridor / Scandinavian–Mediterranean Corridor	
Bari	E45, A14-SS106-SS100	Scandinavian–Mediterranean Corridor	
Catania	A19, A18		
Venice	A4, SS309	Baltic–Adriatic Corridor / Mediterranean Corridor	
Messina	A18, A20	Scandinavian–Mediterranean Corridor	
Padua	A4, A13-A14	Baltic–Adriatic Corridor / Mediterranean Corridor	
Trieste	A4, A1-A3(to Rijeka)	Baltic–Adriatic Corridor / Mediterranean Corridor	Adriatic–Ionian motorway
Taranto	A14, SS100, SS7	Scandinavian–Mediterranean Corridor	
Reggio Calabria	A2, E45, SS106		
Perugia	SS3bis, SS76		
Ravenna	SS309, A13, RA8	Baltic–Adriatic Corridor / Mediterranean Corridor	
Trento	A14, A22	Scandinavian–Mediterranean Corridor	
Pescara	A25, A14		
Bolzano	A22	Scandinavian–Mediterranean Corridor	
Ancona	A1-A14,	Baltic–Adriatic Corridor	
Brindisi	SS7, SS379-SS16		
L'Aquila	SS17, A24		
Potenza	SS658	Scandinavian–Mediterranean Corridor	
Campobasso	SS17		
Gioia Tauro	A2, SS106		

The following table shows the main road corridors passing through the country interconnecting the urban nodes indicating the type of road, the status of the road, the travel time by car and type of Eupropean corridor.

Table 59 Main road corridors in Italy

	Country	Roads Name	Type of Road	European Corridor	Status (related to TENT)	Travel Time by Car
Italy						
Palermo-Catania	Italy	A19	motorway	TENT	completed	2h:30
Messina-Catania	Italy	A18	motorway	TENT	completed	1 h
Palermo-Messina	Italy	A20	motorway		completed	2h:30
Messina-Reggio Calabria	Italy	A2-E45	mixed		to be upgraded	1 h
Bari-Reggio Calabria	Italy	A2-SS106-SS100	motorway and primary		to be upgraded	5 h
Brindisi-Bari	Italy	SS379-SS16	primary	TENT	to be upgraded	1 h
Brindisi-Taranto	Italy	SS7	primary		completed	50 min
Bari-Gioia Tauro	Italy	A2-SS106-SS100	motorway and primary		to be upgraded	4 h
Bologna-Ravenna	Italy	A14	motorway	TENT	completed	56 min
Padova-Ravenna	Italy	A13-A14	motorway		completed	5h
Taranto-Reggio Calabria	Italy	SS106	primary		completed	4 h
Taranto-Bari	Italy	SS100	motorway		completed	1h:30
Bari-Ancona	Italy	A14	motorway	TENT	completed	4 h
Ravenna-Venice	Italy	SS309	primary			2 h
Milano-Venice	Italy	A4	motorway	TENT	completed	3 h
Milano-Ancona	Italy	A1-A14	motorway	TENT	completed	4 h
Milano-Trieste	Italy	A4	motorway	TENT	completed	5 h
Milano-Bologna	Italy	A1	motorway	TENT	completed	2h:16

Venice-Trieste	Italy	A4	motorway	TENT	to be upgraded	2 h
Milano-Padova	Italy	A4	motorway	TENT	to be upgraded	3 h
Padua-Venice	Italy	A4	motorway	TENT	completed	38 min
Padua-Trento	Italy	A4-A22	motorway	TENT	completed	1h:48
Padua-Bologna	Italy	A13	motorway	TENT	completed	1h:20
Padua-L'Aquila	Italy	SS3bis	primary		to be upgraded	2h:16
Pescara-L'Aquila	Italy	A24	motorway		completed	1h:31
Campobasso-L'Aquila	Italy	SS17	primary		to be upgraded	2h:54
Pescara-Ancona	Italy	A14	motorway		completed	1h:42
Perugia-Bologna	Italy	A1-E35	mixed	TENT	to be upgraded	3h
Perugia-Ravenna	Italy	SS3bis	primary		completed	2h:17
Perugia-Ancona	Italy	SS318-SS76	primary		to be upgraded	1h:20
Bolzano-Trento	Italy	A22	motorway	TENT	completed	40 min
Trieste-Rijeka	Italy - Croatia	E61	European		completed	1h:20
Trieste-Koper	Italy - Slovenia	SS202-H5	mixed		completed	24min
Ljubljana-Trieste	Italy - Slovenia	A1-A3	motorway	TENT	completed	2 h

Passenger rail infrastructure in Italy

The following table shows the main passenger rail corridors passing through the country, indicating the type of rail connections, number of trains per day, travel time and type of Eupropean corridor.

Table 60 Passenger railway corridors in Italy

	Country	Type of Rail	European Corridor	Train per Day	Travel Time by Train
Italy					
Palermo-Catania	Italy	conventional	TENT	13	4h

Messina-Catania	Italy	conventional	TENT	30	2h
Palermo-Messina	Italy	conventional		18	4h
Messina-Reggio Calabria	Italy	conventional		20	1h
Bari-Reggio Calabria	Italy	conventional		11	8h
Brindisi-Bari	Italy	conventional	TENT	51	1h
Brindisi-Taranto	Italy	conventional		15	1h:30
Bari-Gioia Tauro	Italy	conventional		13	11h
Bari-Potenza	Italy	conventional	TENT	13	4h
Padova-Ravenna	Italy	conventional		11	8h
Taranto-Reggio Calabria	Italy	conventional		7	7h
Taranto-Bari	Italy	conventional		21	1h:30
Bari-Ancona	Italy	conventional	TENT	14	5h
Bari-Pescara	Italy	conventional	TENT	12	3h:44
Bari-Campobasso	Italy	conventional		2	6h:34
Ravenna-Venice	Italy	conventional		2	2h:20
Bologna-Ravenna	Italy	conventional	TENT	1	1h:10
Milano-Bologna	Italy	High speed	TENT	66	2h:50
Milano-Venice	Italy	conventional	TENT	30	2h
Bologna-Ancona	Italy	conventional	TENT	31	
Ancona-Perugia	Italy	conventional		14	3h:30
Perugia-L'Aquila	Italy	conventional		10	4h:30
L'Aquila-Pescara	Italy	conventional		10	2h:32
L'Aquila-Campobasso	Italy	conventional		2	6h:40
Potenza-Campobasso	Italy	conventional		2	7h:30
Milano-Ancona	Italy	high speed till bologna / conventional	TENT	8	6h
Milano-Trieste	Italy	conventional	TENT	14	6h
Venice-Trieste	Italy	conventional	TENT	36	2h
Milano-Padova	Italy	conventional	TENT	21	2h
Padua-Venice	Italy	conventional	TENT	133	30 min

Trento-Bolzano	Italy	conventional	TENT	51	30 min
Trieste-Rijeka	Italy - Croatia	conventional		1	5h
Trieste-Koper	Italy - Slovenia	conventional		2	3h
Ljubljana-Trieste	Italy - Slovenia	conventional	TENT	9	5h

1.5.1.2 Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in Italy

The following table shows the main planned cycling corridors passing through the selected main urban nodes and touristic attraction poles of the country.

Table 61 Regional cycling infrastructure passing through the selected urban nodes of Italy

	Cycling Lane
Italy	
Milan	Ciclovia Francigena (Eurovelo 5)
Palermo	Ciclovia del Sole
Bologna	Ciclovia del Sole (Eurovelo 7)
Bari	Ciclovia Adriatica (Eurovelo 8)
Catania	Ciclovia del Sole (Eurovelo 7)
Venice	Ciclovia Adriatica (Eurovelo 8), Eurovelo 11
Messina	Ciclovia del Sole (Eurovelo 7)
Padua	None
Trieste	Ciclovia Adriatica (Eurovelo 8), Eurovelo 9
Taranto	Ciclovia Francigena (Eurovelo 5)
Reggio Calabria	Ciclovia del Sole (Eurovelo 7)
Perugia	None
Ravenna	Ciclovia Adriatica (Eurovelo 8)
Trento	Ciclovia del Sole (Eurovelo 7)
Pescara	Ciclovia del Sole (Eurovelo 7)
Bolzano	Ciclovia del Sole (Eurovelo 7)
Ancona	Ciclovia Adriatica (Eurovelo 8)
Brindisi	Ciclovia Adriatica (Eurovelo 8), Ciclovia Francigena (Eurovelo 5)
L'Aquila	None
Potenza	None
Campobasso	None
Gioia Tauro	Ciclovia del Sole (Eurovelo 7)

The following table shows the main planned cycling corridors of Adriatic Ionian macro- region interconnecting the selected main urban nodes and touristic attraction poles.

Table 62 Planned regional cycling infrastructure in Italy

	Country	Cycle lane name
Italy		
Messina-Catania	Italy	Eurovelo 7
Messina-Reggio C	Italy	Eurovelo 7
Reggio- Gioia Tauro	Italy	Eurovelo 7
Taranto-Brindisi	Italy	Eurovelo 5
Brindisi-Bari	Italy	Eurovelo 8
Bari-Ancona	Italy	Eurovelo 8
Ancona-Ravenna	Italy	Eurovelo 8
Ravenna-Venezia	Italy	Eurovelo 8
Venezia-Trieste	Italy	Eurovelo 8
Milano-Venezia	Italy	Eurovelo 8
Milano-Taranto	Italy	Eurovelo 5
Bologna-Padova	Italy	Eurovelo 7
Trentp-Bolzano	Italy	Eurovelo 7
Trieste-Ljubljana	Italy - Slovenia	Eurovelo 9
Koper-Trieste	Slovenia - Italy	Eurovelo 8 - Eurovelo 9

1.5.1.3 Interconnection services between the main transport hubs, urban hubs and tourist attractions in Italy

The following table shows the main transport hubs for air, railway and maritime passenger transports the selected main urban nodes and touristic attraction poles of the country, their annual passenger data, the direct connections to other cities of Adriatic Ionian macro- region and their connection to the city.

Table 63 Main transport hubs in the selected urban nodes of Italy

	Main Airport	Airport Passengers Traffic (2019)	Direct Connection by Air Transport (Adriatic Ionian macro- region)	City Connection to the Airport	Main Train Station	City Connection to the Train Station	Main Port	Port Passengers (2019)	Direct Connection by Maritime Transport (Adriatic Ionian macro-region)	City Connection to the Port
Milan	Milan Malpensa Airport / Milan Linate Airport / Orio al Serio International Airport	28,846,299 (Malpensa Airport) / 6,570,984 (Linate Airport) / 13,857,257 (Orio al Serio Airport)	From Malpensa Airport: Trapani, Palermo, Comiso, Catania, Lamezia Terme, Brindisi, Bari, Naples, Rome-Fiumicino, Verona, Zadar, Split, Podgorica, Pristina, Skopje, Ohrid, Tirana, Corfu, Skiathos, Athens, Mykonos, Kos, Rhodes, Karpathos, Heraklion, Chania, Kalamata, Zakynthos Island, Kefalonia, Preveza/Lefkada, Belgrade, Lampedusa, Cagliari, Olbia, Alghero / From Linate Airport: Bari, Brindisi, Cagliari, Catania, Naples, Olbia, Palermo, Perugia, Pescara, Reggio Calabria, Rome–Fiumicino, Trieste, Comiso, Lampedusa, Pantelleria, Rhodes, Lamezia Terme, Elba	bus, taxi, train (only to Malpensa Airport) & Metro for Linate Airport (partially opened)	Milano Centrale railway station, Milano Garibaldi station, Milano Lambrate station, Milano Cadorna station	metro, bus, trolley bus, tram, airport bus, taxi, commuter rail	none	none	none	none
Palermo	Falcone Borsellino Airport	7,018,087	Florence, Milan–Malpensa, Rome–Fiumicino, Milan–Linate, Olbia, Turin, Lampedusa, Pantelleria, Naples, Verona, Athens, Bari, Bergamo, Bologna, Brindisi, Cagliari, Perugia, Pisa, Trieste, Turin, Venice, Alghero, Cuneo, Rimini, Santorini, Genoa, Ancona, Treviso, Corfu, Dubrovnik, Heraklion, Olbia, Pescara, Rhodes, Santorini, Split, Zakynthos	Railway connecting the airport to Palermo Centrale railway station, bus and taxi	Palermo Centrale railway station	bus, tram, airport bus, suburban bus, taxi	Port of Palermo	1,954,601	Eolie Islands, Napoli, Egadi Islands, Pantelleria, Linosa, Lampedusa, Cagliari, Ustica, Favignana, Livorno, Genova, Salerno, Catania, Messina, Reggio Calabria	The new (temporary) cruise port is only a 5 minute walking distance to downtown Palermo. The
Bologna	Bologna Guglielmo Marconi Airport	9,405,920	Athens, Tirana, Kos, Mykonos, Rhodes, Thessaloniki, Bari, Brindisi, Catania, Palermo, Corfu, Heraklion, Podgorica, Skopje	Railway connected with monorail, bus, taxi	Bologna Centrale railway station	Monorail to airport, bus, trolleybus	none	none	none	none
Bari	Bari Karol Wojtyła Airport	5,545,588	Athens, Rhodes, Tirana, Milan–Linate, Rome–Fiumicino, Turin, Milan–Malpensa, Olbia, Florence, Forli, Parma, Alghero, Bergamo, Bologna, Cagliari, Catania, Palermo, Pisa, P Trieste, Venice, Verona, Chania, Genoa, Kos, Santorini, Zadar, Zakynthos, Athens, Corfu, Dubrovnik, Heraklion, Kefalonia, Preveza/Lefkada, Rhodes, Santorini, Skiathos, Split	metropolitan railway, commuter railway, bus, shuttle bus, taxi	Bari Centrale railway station	metropolitan railway, commuter railway, bus, airport bus, taxi	Port of Bari	1,871,774	Dubrovnik, Bar, Durres, Patras, Ancona, Corfu, Igoumenitsa	bus, taxi
Catania	Catania–Fontanarossa Airport	10,223,113	Palermo, Brindisi, Bari, Naples, Pescara, Rome-Fiumicino, Perugia, Ancona, Rimini, Florence, Pisa, Genoa, Bologna, Venice, Verona, Bergamo, Milan-Linate, Milan-Malpensa, Turin, Trieste, Tirana, Athens, Rhodes, Lampedusa, Pantelleria, Cagliari, Olbia, Alghero	bus, taxi, planned metro station	Catania Centrale railway station	metro, bus, airport bus	Port of Catania	313,138	Naples, Salerno	The city center is located within a 10 minutes walk from the harbor.

Venice	Marco Polo International Airport	11,561,594	Rome-Fiumicino, Naples, Pescara, Bari, Brindisi, Lamezia Terme, Catania, Palermo, Trapani, Belgrade, Split, Dubrovnik, Tirana, Skopje, Thessaloniki, Skiathos, Samos, Kos, Karpathos, Heraklion, Santorini, Mykonos, Athens, Kalamata, Kefalonia, Zakynthos Island, Preveza/Lefkada, Corfu, Lampedusa, Pantelleria, Cagliari, Olbia, Alghero	water taxi, ferry, taxi, bus and shuttle bus	Venezia Santa Lucia railway station	airport bus, water taxi, water bus, ferry	Port of Venice	1,814,485	Umag, Porec, Pula, Rovinj, Piran, Rabac, Patras	Venice People Mover, shuttle, taxi, airport bus, water taxi
Messina	none	none	none	none	Messina Centrale railway station	bus, tram, railway	Porto di Messina	422,732	Reggio Calabria, Salerno, Villa San Giovanni	walking distance to city center
Padua	none	none	none	none	Padova railway station	bus, tram, taxi	none	none	none	none
Trieste	Trieste – Friuli Venezia Giulia Airport	783,179	Milan–Linate, Rome–Fiumicino, Bari, Cagliari, Catania, Naples, Palermo, Trapani, Lamezia Terme, Olbia	railway, taxi	Trieste Centrale railway station	railway to airport , bus	Port of Trieste	204,736	Porec, Rovinj, Mali Losinj, Piran, Patras, Pula,	bus
Taranto	Taranto-Grottaglie Airport	There are no regularly schedules commercial services	It does not offer any regularly schedules commercial services	There are no regularly schedules commercial services	Taranto railway station	bus, taxi	Port of Taranto	9,205	Dubrovnik, Messina, Taormina, Sicily, Igoumenitsa, Kotor	bus, taxi
Reggio Calabria	Reggio Calabria Airport	365,391	Milan–Linate, Rome–Fiumicino	bus, taxi	Reggio di Calabria Centrale railway station	bus, taxi, airport bus	Port of Reggio Calabria	NA	Messina, Catania, Aeolian Islands, Taormina, Vulcano Island, Panarea Island, Salina Island, Stromboli Island, Salerno, Lipari Island	bus, taxi, bus to train station
Perugia	Perugia San Francesco d'Assisi – Umbria International Airport	219,183	Tirana	Railway, bus, taxi	Perugia railway station (Perugia Fontivegge railway station)		none	none	none	none
Ravenna	none	none	none	none	Ravenna railway station	bus, shuttle bus to port	Port of Ravenna	17,536	Catania, Brindisi, Igoumenitsa	shuttle bus
Trento	Trento-Mattarello Airport	for private passengers only	none	none	Trento railway station	bus, taxi	none	none	none	none
Pescara	Abruzzo Airport	703,386	Milan–Linate, Bergamo, Turin, Catania, Cagliari, Palermo, Olbia, Dubrovnik, Split, Tirana	trolleybus, bus, taxi	Pescara Centrale railway station	bus, taxi	Port of Pescara	23,460 (2010)	Venice, Athens,	
Bolzano	Bolzano Airport	6,561 (2020)	Olbia, Parma,	Railway, bus, taxi	Bolzano/Bozen railway station	bus, taxi	none	none	none	none
Ancona	Marche Airport	485,037 (2017)	Tirana, Catania, Palermo, Cagliari, Olbia	railway to Ancona train station, bus, taxi	Ancona railway station	bus, airport bus, taxi	Port of Ancona	1,189,441	Split, Zadar, Stari Grad (Hvar), Patras, Kefalonia, Korčula - Hvar, Bari, Dubrovnik, Dugi otok, Igoumenitsa, Patras, Bar	bus, taxi

Brindisi	Brindisi Airport	2,697,749	Naples, Trapani, Milan–Linate, Rome–Fiumicino, Catania, Milan–Malpensa, Tirana, Verona, Bergamo, Bologna, Cagliari, Palermo, Pisa, Turin, Venice,	bus, taxi	Brindisi railway station	airport bus, bus	Port of Brindisi	606,555	Agioi Saranta, Corfu, Igoumenitsa, Kefalonia, Patras, Paxoi, Vlora, Zakynthos, Ravenna, Vlorë	bus, bust to airport and train station
L'Aquila	L'Aquila–Preturo Airport	for private passengers only	none	none	L'Aquila railway station	bus, taxi	none	none	none	none
Potenza	none	none	none	none	Potenza Centrale railway station	bus, taxi	none	none	none	none
Campobasso	none	none	none	none	Campobasso railway station	bus, taxi	none	none	none	none
Gioia Tauro	none	none	none	none	Gioia Tauro railway station	taxi	Port of Gioia Tauro	8,463 (2018)	not avaiable	taxi

1.5.2 Urban mobility in Italy

The following chapter provides details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, e- scooter and moped sharing network, public transport app for route finding and e-ticketing in selected urban node. The availability and diffusion of infrastructures for electric mobility and alternative ecological fuels is studied too.

1.5.2.1 Availability and dissemination of public transport infrastructure and services in Italy

In addition to the information regarding interconnection and main hubs for air, railway and maritime transport the following table provides details of the existing and planned public transport infrastructure in the selected main urban nodes and touristic attraction poles of the country.

Table 64 Public transport infrastructure and services in the selected urban nodes of Italy

	Metro and Commuter Rail	**Bus**	**Tram**
Italy			
Milan	5 metro lines / 12 commuter rail	66 bus lines and 4 trolleybus lines	17 tram line
Palermo	2 metropolitan railway lines with 16 stations / commuter rail 1 line with 3 sections A, B and C / under construction Palermo Ring Railway 1 line with 8 stations	60 bus lines and 4 night bus lines	4 light rail lines with 44 stops and 3 other lines planned
Bologna	8 commuter rail line with 87 stations	33 bus lines, 5 night bus lines and 19 suburban lines	6 trolleybus lines
Bari	2 metropolitan railway lines with 13 stations / 2 commuter regional railway lines	33 bus lines and 6 minibus lines / 4 BRT lines are planned with 89 stops	none
Catania	1 metro line with 11 stations with planned extension to airport and west side of city	45 bus lines	3 lines are planned
Venice	People Mover (automated elevated shuttle train) 1 line with 3 stations	23 water bus lines in Venice and 48 urban bus lines in Mestre	2 tram lines
Messina	none	41 weekday bus lines and 17 festive bus lines	1 tram line with 18 stops
Padua	none	21 bus lines, suburban bus lines and minibus	1 tram line with 26 stations

Trieste	none	60 bus lines	1 Trieste–Opicina tramway (hybrid tramway and funicular railway) line with 13 stations /
Taranto	none	31 bus lines with 856 stops	none
Reggio Calabria	none	37 bus lines	none
Perugia	1 MiniMetro (automated people mover) line with 7 stations	21 bus lines and 15 suburban bus lines	none
Ravenna	none	8 bus lines	none
Trento	2 commuter rail lines	22 bus lines	1 planned tram line
Pescara	none	19 bus lines	1 Trolleybus line under construction
Bolzano	Planned overground metro	17 bus lines	3 cable car lines
Ancona	none	34 bus lines and 49 suburban bus lines	1 Trolleybus line
Brindisi	none	15 bus lines and 14 suburban bus lines	none
L'Aquila	Planned surface metro	bus	none
Potenza	none	bus	none
Campobasso	none	22 bus lines	none
Gioia Tauro	none	none	none

1.5.2.2 Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in Italy

The following table shows the availability, dissemination and implementation plans of car sharing with indications of availability of electric vehicles, bike sharing with details of number of stations and bicycles when available, followed by availability of e- scooter sharing, moped sharing network and apps for route finding and e-ticketing in each selected major urban node.

Table 65 Shared mobility services and mobility app in the selected urban nodes of Italy

	Car Sharing	**Bike Sharing**	**Scooter or Moped Sharing**	**Public Transport App for Route Finding and E-Ticketing**
Italy				

Milan	electric and fossil fuel car sharing network by Car2go, DriveNow, Enjoy, Share'Ngo for free floating / E-Vai and Ubeeqo with fixed stations	BikeMi with docking station including electric bikes / 5291 bicycles including 1110 pedelecs in 319 stations and RideMovifree floating / 2100 dockless bicycles and Greta by Helbiz free floating electric bikes / 300 dockless pedelecs	electric kick scooter sharing by Voi, Wind, Bit, Lime, Dott / Moped sharing by MiMoto, ZigZag, Govolt, Cityscoot, eCooltra, Acciona	ATM Milano App / Moovit (unofficial)
Palermo	amiGO car sharing including electric cars	amiGO bike sharing service with docking station and Bici PA with docking station / 145 bicycles including 20 pedelecs in 13 stations	electric kick scooter sharing by Helbiz	Moovit (unofficial)
Bologna	Io Guido and Enjoy with petrol cars, and Corrente , with electric cars	Mobike and TPER bike sharing	none available	Moovit (unofficial)
Bari	none available	bike sharing is recently closed but municipality is planning to implement a new network	electric kick scooter sharing by Helbiz	MUVT app / Moovit (unofficial)
Catania	amiGO car sharing including electric cars	ScuolainBici with docking station / 32 pedelecs in 4 stations	none available	AMT Catania app
Venice	none available	RideMovi with docking station and other free floating / 1000 bicycles including 200 pedelecs in 354 stations	none available	Moovit (unofficial)
Messina	PISTA car sharing network	none available	none available	Moovit (unofficial)

Padua	Car Sharing Padova including electric cars	Goodbik bike sharing service with docking station / 150 bicycles including 50 pedelecs in 27 stations Mobike free floating / 800 dockless bicycles	planned moped sharing	Moovit (unofficial)
Trieste	none available	BiTS bike sharing service with docking station / 70 bicycles including 10 pedelecs in 10 stations	440 electric moped sharing	Moovit (unofficial)
Taranto	none available	none available	planned scooter sharing	mycicero app / Moovit (unofficial)
Reggio Calabria	C'entro Car Sharing service including electric cars	Reggio in Bici bike sharing service with docking station / 130 bicycles including 50 pedelecs in 10 stations	none available	ATAM app
Perugia	Electric car sharing	PERUGIA BIKE has 7 stops of bike parking with charging points, 30 electrically assisted bicycles and a photovoltaic shelter over the Minimetrò Station	none available	Moovit (unofficial)
Ravenna	none available	Mi muovo in Bici bike sharing service with docking station / 46 bicycles in 7 stations	none available	Roger app, Muver app, DropTicket app and myCicero app
Trento	LA FLOTTA car sharing	bike sharing service with 37 docking stations and 482 bikes	Bit Mobility and Wind Mobility	OpenMove, DropTicket, Muoversi, Viaggia Trento Moovit (unofficial)

Pescara	none available	250 free floating e-bikes	Helbiz scooter sharing	Moovit (unofficial)
Bolzano	Südtirol Alto Adige car sharing including electric cars	Bici bike sharing service with docking station	none available	Südtirolmobil / Moovit (unofficial)
Ancona	MaSMo (Marche Smart Mobility) planned car sharing	none available	MaSMo (Marche Smart Mobility) planned scooter sharing	ATMA Travel Planner / Moovit (unofficial)
Brindisi	none available	none available	none available	mycicero app
L'Aquila	none available	bike sharing service with 2 docking stations with 8 bikes in each	none available	Moovit (unofficial)
Potenza	none available	bike sharing service with 14 docking stations	none available	Moovit (unofficial)
Campobasso	none available	bike sharing service with 1 docking station and 25 bikes	none available	Moovit (unofficial)
Gioia Tauro	none available	none available	none available	none available

1.5.2.3 Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in Italy

The following chapter provides the detailed information regarding infrastructures for electric mobility and alternative ecological fuels used in public transport and shared mobility in the selected major urban nodes.

Electrification of public and shared urban mobility is an essential step towards a more sustainable urban mobility, with GHG emissions reductions and less environmental impact.

The following table includes the information regarding the availability or planned electrifying public urban buses, electric car sharing, electric taxi network and available public charging stations at each major urban node.

Table 66 Electric mobility and alternative ecological fuels in the selected urban nodes of Italy

	CNG Bus for Public Transport	Electric Bus for Public Transport	Electric Car Sharing	Electric Taxi	Public Charging Station
Italy					
Milan	By 2023 CNG buses will be introduced	As of March 2021, 85 e-buses are in operation and the number will rise to 170 by the end of 2021, ATM Milano has the target of having 1,200 e-buses in operation by 2030 / By end of 2021, ATM will provide 14 fast charging stations in the city for buses, the charging procedure takes 5-8 minutes	electric car sharing is available	none available	27 public charging stations with 59 connectors /The city is planning to have a total of 142 plug-in chargers by the end of 2021
Palermo	none available	33 new electric buses are planned by the municipality	electric car sharing is available	none available	9 public charging stations, number of connectors is not available
Bologna	300 CNG buses	Planned 20 electric city buses	electric car sharing is available	none available	46 public charging station, number of connectors is not available
Bari	none available	4 BRT lines are planned with electric 18-meter buses, charging stations along the route	none available	none available	3 public charging stations with 4 connectors
Catania	none available	16 new electric buses will serve Catania	electric car sharing is available	none available	1 public charging station with 2 connectors
Venice	none available	electric buses are available	none available	electric taxi is available	19 public charging stations with 31 connectors
Messina	none available	16 electric buses	none available	none available	20 public charging stations, number of connectors is not available
Padua	none available	none available	electric car sharing is available	none available	1 public charging station with 2 connectors
Trieste	none available	none available	none available	mini electric taxi is available (4people)	1 public charging station with 4 connectors
Taranto	none available	Taranto will be equipped with 50 electric buses for electric BTR	none available	none available	1 public charging station with 4 connectors
Reggio Calabria	none available	Reggio will be equipped with 20 electric buses	electric car sharing is available	none available	1 public charging station with 4 connectors
Perugia	Planned CNG buses	none available	electric car sharing is available	none available	39 public charging station, number of connectors is not available

Ravenna	none available	Ravenna will be equipped with 14 new electric buses	none available	none available	2 public charging stations with 2 connectors
Trento	14 CNG buses	none available	none available	none available	20 public charging station, number of connectors is not available
Pescara	Planned CNG minibuses	none available	none available	none available	39 public charging station, number of connectors is not available
Bolzano	12 Solaris hydrogen buses	none available	electric car sharing is available	none available	3 public charging station, number of connectors is not available
Ancona	none available	electric Trolleybuses	none available	none available	2 public charging stations with 3 connectors
Brindisi	29 natural gas-powered buses are purchased by public transport authority	none available	none available	none available	1 public charging station with 2 connectors
L'Aquila	none available	none available	none available	none available	NA
Potenza	none available	none available	none available	none available	3 public charging station, number of connectors is not available
Campobasso	none available	none available	none available	none available	3 public charging station, number of connectors is not available
Gioia Tauro	none available	none available	none available	none available	1 public charging station, number of connectors is not available

1.5.3 Logistics infrastructure and services in Italy

The following chapter provides details on logistics infrastructure of the selected major nodes of the country and availability of sustainable and innovative urban logistics solution in them. The study includes two main scale of infrastructure and urban logistics services for last mile delivery.

1.5.3.1 Availability and diffusion of logistics infrastructures in Italy

The large-scale infrastructure includes investigating the availability of the logistics infrastructure and size by air transport, maritime transport and rail transport in each major node in order to identify the main interconnection logistics corridors.

The following table provides the mentioned details.

1.5.3.2 Availability and diffusion of city logistics services in Italy

The urban scale includes studying the availability dissemination of innovative and sustainable urban logistics strategies including use of cargo bike and electric vehicles for urban delivery and availability of parcel lockers in each major node. The mentioned solution can contribute to the reducing the negative environmental impact of urban logistics specially related to the GHG and other pollutions caused by fossil fuel road delivery vehicles.

The following table provides the mentioned details.

Table 67 Logistics infrastructure and i Innovative and sustainable urban logistics strategies in the selected urban nodes of Italy

	Main Airport	Airport Cargo Traffic in Tonne(2019)	Main Port	Port Cargo Traffic in Tonne (2019)	Main Train Station	Rail Freight Corridors (RFCs)	Cargo Bike for Urban Delivery	Electric Vehicles for Urban Delivery	Parcel Locker (Amazon or similar)
Italy									
Milan	Milan Malpensa Airport / Milan Linate Airport / Orio al Serio International Airport	558,481	none	none	Milano Centrale railway station, Milano Garibaldi station, Milano Lamberate station, Milano Cadorna station	Rhine-Alpine (RFC1), Mediterranean (RFC6)	available	available	available
Palermo	Falcone Borsellino Airport	NA	Port of Palermo	5,789,509	Palermo Centrale railway station	Scandinavian-Mediterranean (RFC3)	available	none available	yes
Bologna	Bologna Guglielmo Marconi Airport	33,754	none	none	Bologna Centrale railway station	Scandinavian-Mediterranean (RFC3)	available	available	available
Bari	Bari Karol Wojtyła Airport	19,323	Port of Bari	6,099,845	Bari Centrale railway station	none	available	available	available
Catania	Catania–Fontanarossa Airport	5,772	Port of Catania	8,453,348	Catania Centrale railway station	none	available	none available	available
Venice	Marco Polo International Airport	49,425	Port of Venice	24,917,830	Venezia Santa Lucia railway station	Baltic-Adriatic (RFC5), Mediterranean (RFC6)	none available	none available	available
Messina	none	none	Porto di Messina	24,295,221	Messina Centrale railway station	Scandinavian-Mediterranean (RFC3)	none available	none available	available
Padua	none	none	none	none	Padova railway station	Baltic-Adriatic (RFC5), Mediterranean (RFC6)	available	available	available
Trieste	Trieste – Friuli Venezia Giulia Airport	276	Port of Trieste	61,997,445	Trieste Centrale railway station	Baltic-Adriatic (RFC5), Mediterranean (RFC6)	none available	none available	available
Taranto	Taranto-Grottaglie Airport	NA	Port of Taranto	18,125,171	Taranto railway station	Scandinavian-Mediterranean (RFC3)	available	none available	available
Reggio Calabria	Reggio Calabria Airport	NA	Port of Reggio Calabria	NA	Reggio di Calabria Centrale railway station	none	none available	none available	available
Perugia	Perugia San Francesco d'Assisi – Umbria International Airport	NA	none	none	Perugia railway station (Perugia Fontivegge railway station)	none	available	available	available

Ravenna	none	none	Port of Ravenna	26,256,248	Ravenna railway station	Baltic-Adriatic (RFC5)	none available	none available	available
Trento	Trento-Mattarello Airport	NA / For cargo up to 600 kg only	none	none	Trento railway station	Scandinavian-Mediterranean (RFC3)	available	available	available
Pescara	Abruzzo Airport	276	Port of Pescara	40,071 (2010)	Pescara Centrale railway station	Scandinavian-Mediterranean (RFC3)	available	none available	available
Bolzano	Bolzano Airport	NA	none	none	Bolzano/Bozen railway station	Scandinavian-Mediterranean (RFC3)	available	none available	available
Ancona	Marche Airport	6,809 (2017)	Port of Ancona	10,767,182	Ancona railway station	Scandinavian-Mediterranean (RFC3)	none available	available	available
Brindisi	Brindisi Airport	11	Port of Brindisi	7,543,315	Brindisi railway station	none	none available	none available	available
L'Aquila	L'Aquila–Preturo Airport	none	none	none	L'Aquila railway station	none	none available	none available	available
Potenza	none	none	none	none	Potenza Centrale railway station	none	available	none available	available
Campobasso	none	none	none	none	Campobasso railway station	none	available	none available	available
Gioia Tauro	none	none	Port of Gioia Tauro	29,122,760	Gioia Tauro railway station	none	none available	none available	none available

1.5.4 Key issues for each urban node in Italy

The following tables provide details are the key issues and recommended strategies for improvements of interconnection between the major urban nodes, optimization of public transport network and implementation of sustainable and innovative mobility solutions for urban logistics.

Table 68 Identified key issues in Milan

Milan, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes
Public transport / Electrification and alternative fuels of the public transport fleet	In compare to other nodes the availability and extension of public transport and electrification or use of alternative fuels is high
Electric mobility infrastructure	Currently there are several public charging stations available in the city
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Currently parcel lockers, cargo bike and electric vehicles for urban logistics are available

Table 69 Identified key issues in Palermo

Palermo, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	Currently there are several public charging stations available in the city
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Implementation of electric vehicles for urban delivery is highly recommended

Table 70 Identified key issues in Bologna

Bologna, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by road and cycling to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	In compare to other nodes the availability and extension of public transport and electrification or use of alternative fuels is high
Electric mobility infrastructure	Currently there are several public charging stations available in the city

Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Currently parcel lockers, cargo bike and electric vehicles for urban logistics are available

Table 71 Identified key issues in Bari

Bari, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Currently parcel lockers, cargo bike and electric vehicles for urban logistics are available

Table 72 Identified key issues in Catania

Catania, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Implementation of electric vehicles for urban delivery is highly recommended

Table 73 Identified key issues in Venice

Venice, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	Currently there are several public charging stations available in the city

Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 74 Identified key issues in Messina

Messina, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	Currently there are several public charging stations available in the city
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 75 Identified key issues in Padua

Padua, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by cycling infrastructure to other nodes should be implemented
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Currently parcel lockers, cargo bike and electric vehicles for urban logistics are available

Table 76 Identified key issues in Trieste

Trieste, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended

Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 77 Identified key issues in Taranto

Taranto, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of electric vehicles for urban delivery is highly recommended

Table 78 Identified key issues in Reggio Calabria

Reggio Calabria, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 79 Identified key issues in Perugia

Perugia, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by cycling infrastructure to other nodes should be improved

Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	Currently there are several public charging stations available in the city
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Currently parcel lockers, cargo bike and electric vehicles for urban logistics are available

Table 80 Identified key issues in Ravenna

Ravenna, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway and road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 81 Identified key issues in Trento

Trento, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes
Public transport / Electrification and alternative fuels of the public transport fleet	In compare to other nodes the availability and extension of public transport and electrification or use of alternative fuels is high
Electric mobility infrastructure	Currently there are several public charging stations available in the city
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Currently parcel lockers, cargo bike and electric vehicles for urban logistics are available

Table 82 Identified key issues in Pescara

Pescara, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes

Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	Currently there are several public charging stations available in the city
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Implementation of electric vehicles for urban delivery is highly recommended

Table 83 Identified key issues in Bolzano

Bolzano, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Well connected to other nodes
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Implementation of electric vehicles for urban delivery is highly recommended

Table 84 Identified key issues in Ancona

Ancona, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway and road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Electrification of public transport infrastructure or use of sustainable fuels is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of cargo bikes for urban delivery is highly recommended

Table 85 Identified key issues in Brindisi

Brindisi, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by road to other nodes should be improved

Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 86 Identified key issues in L'Aquila

L'Aquila, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by road and cycling infrastructure to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 87 Identified key issues in Potenza

Potenza, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by road and cycling infrastructure to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of electric vehicles for urban delivery is highly recommended

Table 88 Identified key issues in Campobasso

Campobasso, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by road and cycling infrastructure and rail to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of electric vehicles for urban delivery is highly recommended

Table 89 Identified key issues in Gioia Tauro

Gioia Tauro, Italy	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway and road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Currently there are none available, therefore implementation of cargo bikes, parcel lockers and electric vehicles for urban delivery is highly recommended

1.6 Montenegro

The following chapter provides the detailed information regarding the three main themes of:

- transport and accessibility in regional scale by different modes of transport;
- urban mobility and its relevant components and
- logistics infrastructure and last mile delivery for city logistics in the selected urban nodes of Montenegro.

The accessibility and transport in regional scale chapter consists in the details of main transport hubs and interconnection among the selected urban nodes and touristic attraction poles by different modes of transport, including road transport, passenger railway transport, air transport, maritime transport and cycling infrastructure.

The urban mobility chapter includes details of availability and diffusion of urban mobility including public transport, sustainable and future oriented mobility and accessibility and infrastructures for electric mobility and alternative ecological fuels.

The logistics chapter is divided into two scale of logistics infrastructure of the selected nodes of the country and innovative and sustainable urban logistics services for last mile delivery.

The chapter concludes with a set of identified key issues and recommendations for each issue.

1.6.1 Transport and accessibility at regional scale in Montenegro

The following chapter delves into the critical aspects of transport infrastructure and interconnectivity at regional scale and within the country. Specifically, it encompasses an exploration of the road and rail infrastructure, it addresses the infrastructure and services supporting cycling interconnections. Furthermore, this chapter delves into the interconnection services that link the major transport hubs in the selected nodes. Each of these aspects plays a pivotal role in providing a comprehensive overview of the countries' accessibility and connectivity.

1.6.1.1 Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in Montenegro

The following chapter includes the existing and planned road and rail infrastructure that passes through the main selected urban nodes. In addition, the main road and rail corridors are identified and their characteristics is studied in details.

Road infrastructure in Montenegro

The following table shows the main road corridors passing through each urban node and information regarding Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway Corridor passing through them.

Table 90 Road infrastructure passing through the selected urban nodes of Montenegro

	Main Roads	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway Corridor
Montenegro			

Podgorica	M3, M10, M2		Adriatic–Ionian motorway
Tivat	M10, M2.4, E65		
Bar	M2, M2.4		

The following table shows the main road corridors passing through the country interconnecting the urban nodes indicating the type of road, the status of the road, the travel time by car and type of Eupropean corridor.

Table 91 Main road corridors in Montenegro

	Country	Roads Name	Type of Road	European Corridor	Status (related to TENT)	Travel Time by Car
Montenegro						
Podgorica-Tivat	Montenegro	M10	primary		completed	1h:30
Podgorica-Bar	Montenegro	M2	primary		completed	1h
Tivat-Bar	Montenegro	M2.4	primary		to be upgraded	1h:15
Tirana-Podgorica	Albania-Montenegro	SH1	primary		to be upgraded	3h
Sarajevo-Podgorica	Bosnia-Montenegro	M18-M3	primary		to be upgraded	4h
Ploce-Tivat	Croatia-Montenegro	M6-E65	mixed	Adriatic–Ionian motorway	completed	3h:40

Passenger rail infrastructure in Montenegro

The following table shows the main passenger rail corridors passing through the country, indicating the type of rail connections, number of trains per day, travel time and type of Eupropean corridor.

Table 92 Passenger railway corridors in Montenegro

	Country	Type of Rail	European Corridor	Train per Day	Travel Time by Train
Montenegro					
Podgorica-Tivat	Montenegro	none		none	
Podgorica-Bar	Montenegro	conventional		2	1h
Tivat-Bar	Montenegro	none		none	

1.6.1.2 *Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in Montenegro*

The following table shows the main planned cycling corridors passing through the selected main urban nodes and touristic attraction poles of the country.

Table 93 Regional cycling infrastructure passing through the selected urban nodes of Montenegro

	Cycling Lane
Montenegro	
Podgorica	None
Tivat	Ciclovia Adriatica (Eurovelo 8)
Bar	Ciclovia Adriatica (Eurovelo 8)

The following table shows the main planned cycling corridors of Adriatic Ionian macro- region interconnecting the selected main urban nodes and touristic attraction poles.

Table 94 Planned regional cycling infrastructure in Montenegro

	Country	**Cycle lane name**
Tivat-Bar	Montenegro	Eurovelo 8
Bar-Tirana	Montenegro - Albania	Eurovelo 8

1.6.1.3 *Interconnection services between the main transport hubs, urban hubs and tourist attractions in Montenegro*

The following table shows the main transport hubs for air, railway and maritime passenger transports the selected main urban nodes and touristic attraction poles of the country, their annual passenger data, the direct connections to other cities of Adriatic Ionian macro- region and their connection to the city.

Table 95 Main transport hubs in the selected urban nodes of Montenegro

	Podgorica	**Tivat**	**Bar**
Main Airport	Podgorica International Airport	Tivat Airport	none
Airport Passengers Traffic (2019)	1,297,365	1,367,282	none
Direct Connection by Air Transport (Adriatic Ionian macro- region)	Belgrade, Bologna, Zagreb, Milan–Malpensa	Belgrade, Niš	none
City Connection to the Airport	bus, taxi, The Airport train station along the Belgrade-Bar railway is situated 1.2 kilometers	taxi	none

	from the passenger terminal. However, it sees limited use as a city connection due to its inconvenient location and train schedule.		
Main Train Station	Podgorica railway station	none	Bar railway station
City Connection to the Train Station	bus, taxi	none	bus
Main Port	none	Bay of kotor	Port of Bar
Port Passengers (2019)	none	NA	22,473 (2018)
Direct Connection by Maritime Transport (Adriatic Ionian macro-region)	none	Kamenari, Lepetane	Bari, Ancona
City Connection to the Port	none	taxi	railway, bus, taxi

1.6.2 Urban mobility in Montenegro

The following chapter provides details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, kick scooter and moped sharing network, public transport app for route finding and e-ticketing in selected urban node. The availability and diffusion of infrastructures for electric mobility and alternative ecological fuels is studied too.

1.6.2.1 Availability and dissemination of public transport infrastructure and services in Montenegro

In addition to the information regarding interconnection and main hubs for air, railway and maritime transport the following table provides details of the existing and planned public transport infrastructure in the selected main urban nodes and touristic attraction poles of the country.

Table 96 Public transport infrastructure and services in the selected urban nodes of Montenegro

	Metro and Commuter Rail	**Bus**	**Tram**
Montenegro			
Podgorica	none	11 urban and 16 suburban bus lines	none

Tivat	none	bus	none
Bar	none	bus	none

1.6.2.2 Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in Montenegro

The following table shows the availability, dissemination and implementation plans of car sharing with indications of availability of electric vehicles, bike sharing with details of number of stations and bicycles when available, followed by availability of e- scooter sharing, moped sharing network and apps for route finding and e-ticketing in each selected major urban node.

Table 97 Shared mobility services and mobility app in the selected urban nodes of Montenegro

	Car Sharing	**Bike Sharing**	**Scooter or Moped Sharing**	**Public Transport App for Route Finding and E-Ticketing**
Montenegro				
Podgorica	none available	none available	none available	Klik Bus app / Moovit (unofficial)
Tivat	none available	Bike Tivat bike sharing service with docking station / 30 bicycles in 6 stations	none available	none available
Bar	none available	none available	none available	none available

1.6.2.3 Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in Montenegro

The following chapter provides the detailed information regarding infrastructures for electric mobility and alternative ecological fuels used in public transport and shared mobility in the selected major urban nodes.

Electrification of public and shared urban mobility is an essential step towards a more sustainable urban mobility, with GHG emissions reductions and less environmental impact.

The following table includes the information regarding the availability or planned electrifying public urban buses, electric car sharing, electric taxi network and available public charging stations at each major urban node.

Table 98 Electric mobility and alternative ecological fuels in the selected urban nodes of Montenegro

	Podgorica	**Tivat**	**Bar**

CNG Bus for Public Transport	none available	none available	none available
Electric Bus for Public Transport	none available	none available	none available
Electric Car Sharing	none available	none available	none available
Electric Taxi	electric taxi is available	none available	none available
Public Charging Station	2 public charging stations, number of connectors is not available	1 public charging station, number of connectors is not available	1 public charging station, number of connectors is not available

1.6.3 Logistics infrastructure and services in Montenegro

The following chapter provides details on logistics infrastructure of the selected major nodes of the country and availability of sustainable and innovative urban logistics solution in them. The study includes two main scale of infrastructure and urban logistics services for last mile delivery.

1.6.3.1 Availability and diffusion of logistics infrastructures in Montenegro

The large-scale infrastructure includes investigating the availability of the logistics infrastructure and size by air transport, maritime transport and rail transport in each major node in order to identify the main interconnection logistics corridors.

Table 99 Logistics infrastructure in the selected urban nodes of Montenegro

	Podgorica	**Tivat**	**Bar**
Main Airport	Podgorica International Airport	Tivat Airport	none
Airport Cargo Traffic in Tonne(2019)	882 (2018)	7,049	none
Main Port	none	Bay of kotor	Port of Bar
Port Cargo Traffic in Tonne (2019)	none	NA	805,219 (2012)
Main Train Station	Podgorica railway station	none	Bar railway station

Rail Freight Corridors (RFCs)	none	none	none

1.6.3.2 Availability and diffusion of city logistics services in Montenegro

The urban scale includes studying the availability dissemination of innovative and sustainable urban logistics strategies including use of cargo bike and electric vehicles for urban delivery and availability of parcel lockers in each major node. The mentioned solution can contribute to the reducing the negative environmental impact of urban logistics specially related to the GHG and other pollutions caused by fossil fuel road delivery vehicles.

Table 100 Innovative and sustainable urban logistics strategies in the selected urban nodes of Montenegro

	Podgorica	**Tivat**	**Bar**
Cargo Bike for Urban Delivery	none available	none available	none available
Electric Vehicles for Urban Delivery	none available	none available	none available
Parcel Locker (Amazon or similar)	available	available	available

1.6.4 Key issues for each urban node in Montenegro

The following tables provide details are the key issues and recommended strategies for improvements of interconnection between the major urban nodes, optimization of public transport network and implementation of sustainable and innovative mobility solutions for urban logistics.

Table 101 Identified key issues in Podgorica

Podgorica, Montenegro	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway and cycling infrastructure to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 102 Identified key issues in Tivat

Tivat, Montenegro	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway and road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Improvement of sustainable and shared urban mobility is recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 103 Identified key issues in Bar

Bar, Montenegro	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway and road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

1.7 North Macedonia

The following chapter provides the detailed information regarding the three main themes of:

- transport and accessibility in regional scale by different modes of transport;
- urban mobility and its relevant components and
- logistics infrastructure and last mile delivery for city logistics in the selected urban nodes of North Macedonia.

The accessibility and transport in regional scale chapter consists in the details of main transport hubs and interconnection among the selected urban nodes and touristic attraction poles by different modes of transport, including road transport, passenger railway transport, air transport, maritime transport and cycling infrastructure.

The urban mobility chapter includes details of availability and diffusion of urban mobility including public transport, sustainable and future oriented mobility and accessibility and infrastructures for electric mobility and alternative ecological fuels.

The logistics chapter is divided into two scale of logistics infrastructure of the selected nodes of the country and innovative and sustainable urban logistics services for last mile delivery.

The chapter concludes with a set of identified key issues and recommendations for each issue.

1.7.1 Transport and accessibility at regional scale in North Macedonia

The following chapter delves into the critical aspects of transport infrastructure and interconnectivity at regional scale and within the country. Specifically, it encompasses an exploration of the road and rail infrastructure, it addresses the infrastructure and services supporting cycling interconnections. Furthermore, this chapter delves into the interconnection services that link the major transport hubs in the selected nodes. Each of these aspects plays a pivotal role in providing a comprehensive overview of the countries' accessibility and connectivity.

1.7.1.1 Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in North Macedonia

The following chapter includes the existing and planned road and rail infrastructure that passes through the main selected urban nodes. In addition, the main road and rail corridors are identified and their characteristics is studied in details.

Road infrastructure in North Macedonia

The following table shows the main road corridors passing through each urban node and information regarding Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway Corridor passing through them.

Table 104 Road infrastructure passing through the selected urban node of North Macedonia

	Main Roads	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway Corridor
North Macedonia			

Skopje	A1, A2, SH4		

The following table shows the main road corridors passing through the country interconnecting the urban nodes indicating the type of road, the status of the road, the travel time by car and type of Eupropean corridor.

Table 105 Main road corridors in North Macedonia

	Country	Roads Name	Type of Road	European Corridor	Status (related to TENT)	Travel Time by Car
North Macedonia						
Skopje-Tirana	Albania-North Macedonia	E65, E852	mixed		to be upgraded	4h
Skopje-Durres	Albania-North Macedonia	SH2-SH3-A3	mixed	Pan European	to be upgraded	
Belgrade-Skopje	Serbia-North Macedonia	A1	motorway		to be upgraded	4h
Thessaloniki-Skopje	Greece-North Macedonia	A1-E75	mixed		to be upgraded	3h

Passenger rail infrastructure in North Macedonia

The following table shows the main passenger rail corridors passing through the country, indicating the type of rail connections, number of trains per day, travel time and type of Eupropean corridor.

Table 106 Passenger railway corridors in North Macedonia

	Country	Type of Rail	European Corridor	Train per Day	Travel Time by Train
North Macedonia					
Skopje-Tirana	Albania-North Macedonia	none		none	
Skopje-Durres	Albania-North Macedonia	none		none	
Belgrade-Skopje	Serbia-North Macedonia	conventional		1	10h

1.7.1.2 Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in North Macedonia

The following table shows the main planned cycling corridors passing through the selected main urban nodes and touristic attraction poles of the country.

Table 107 Regional cycling infrastructure passing through the selected urban node of North Macedonia

	Cycling Lane
North Macedonia	
Skopje	Eurovelo 11

The following table shows the main planned cycling corridors of Adriatic Ionian macro- region interconnecting the selected main urban nodes and touristic attraction poles.

Table 108 Planned regional cycling infrastructure in North Macedonia

	Country	Cycle lane name
North Macedonia		
Skopje-Thessaloniki-	North Macedonia - Greece	Eurovelo 11
Skopje-Belgrade	Serbia - North Macedonia	Eurovelo 11

1.7.1.3 Interconnection services between the main transport hubs, urban hubs and tourist attractions in North Macedonia

The following table shows the main transport hubs for air, railway and maritime passenger transports the selected main urban nodes and touristic attraction poles of the country, their annual passenger data, the direct connections to other cities of Adriatic Ionian macro- region and their connection to the city.

Table 109 Main transport hubs in the selected urban node of North Macedonia

	Skopje
Main Airport	Skopje International Airport
Airport Passengers Traffic (2019)	2,360,400
Direct Connection by Air Transport (Adriatic Ionian macro- region)	Athens, Belgrade, Zargreb, Milan–Malpensa, Rome–Ciampino
City Connection to the Airport	bus, taxi
Main Train Station	Transportation Center Skopje
City Connection to the Train Station	bus, taxi
Main Port	none

Port Passengers (2019)	none
Direct Connection by Maritime Transport (Adriatic Ionian macro- region)	none
City Connection to the Port	none

1.7.2 Urban mobility in North Macedonia

The following chapter provides details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, e- scooter and moped sharing network, public transport app for route finding and e-ticketing in selected urban node. The availability and diffusion of infrastructures for electric mobility and alternative ecological fuels is studied too.

1.7.2.1 Availability and dissemination of public transport infrastructure and services in North Macedonia

In addition to the information regarding interconnection and main hubs for air, railway and maritime transport the following table provides details of the existing and planned public transport infrastructure in the selected main urban nodes and touristic attraction poles of the country.

Table 110 Public transport infrastructure and services in the selected urban node of North Macedonia

	Metro and Commuter Rail	**Bus**	**Tram**
North Macedonia			
Skopje	none	24 urban lines and 56 suburban and rural lines	none

1.7.2.2 Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in North Macedonia

The following table shows the availability, dissemination and implementation plans of car sharing with indications of availability of electric vehicles, bike sharing with details of number of stations and bicycles when available, followed by availability of e- scooter sharing, moped sharing network and apps for route finding and e-ticketing in each selected major urban node.

Table 111 Shared mobility services and mobility app in the selected urban node of North Macedonia

	Car Sharing	**Bike Sharing**	**Scooter or Moped Sharing**	**Public Transport App for Route Finding and E-Ticketing**
North Macedonia				
Skopje	none available	none available	none available	Moovit (unofficial)

1.7.2.3 Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in North Macedonia

The following chapter provides the detailed information regarding infrastructures for electric mobility and alternative ecological fuels used in public transport and shared mobility in the selected major urban nodes.

Electrification of public and shared urban mobility is an essential step towards a more sustainable urban mobility, with GHG emissions reductions and less environmental impact.

The following table includes the information regarding the availability or planned electrifying public urban buses, electric car sharing, electric taxi network and available public charging stations at each major urban node.

Table 112 Electric mobility and alternative ecological fuels in the selected urban node of North Macedonia

	Skopje
CNG Bus for Public Transport	CNG buses are available
Electric Bus for Public Transport	In March 2018, the city of Skopje's public transport operator, JSP Skopje, initiated a pilot program featuring an electric bus manufactured by Chariot Motors.
Electric Car Sharing	none available, however the Electra project is active that promotes electric mobility via scooter sharing
Electric Taxi	none available
Public Charging Station	4 public charging stations with 8 connectors

1.7.3 Logistics infrastructure and services in North Macedonia

The following chapter provides details on logistics infrastructure of the selected major nodes of the country and availability of sustainable and innovative urban logistics solution in them. The study includes two main scale of infrastructure and urban logistics services for last mile delivery.

1.7.3.1 Availability and diffusion of logistics infrastructures in North Macedonia

The large-scale infrastructure includes investigating the availability of the logistics infrastructure and size by air transport, maritime transport and rail transport in each major node in order to identify the main interconnection logistics corridors.

Table 113 Logistics infrastructure in the selected urban node of North Macedonia

	Skopje

Main Airport	Skopje International Airport
Airport Cargo Traffic in Tonne(2019)	3,407
Main Port	none
Port Cargo Traffic in Tonne (2019)	none
Main Train Station	Transportation Center Skopje
Rail Freight Corridors (RFCs)	none

1.7.3.2 Availability and diffusion of city logistics services in North Macedonia

The urban scale includes studying the availability dissemination of innovative and sustainable urban logistics strategies including use of cargo bike and electric vehicles for urban delivery and availability of parcel lockers in each major node. The mentioned solution can contribute to the reducing the negative environmental impact of urban logistics specially related to the GHG and other pollutions caused by fossil fuel road delivery vehicles.

Table 114 Innovative and sustainable urban logistics strategies in the selected urban node of North Macedonia

	Skopje
Cargo Bike for Urban Delivery	none available
Electric Vehicles for Urban Delivery	none available
Parcel Locker (Amazon or similar)	none available

1.7.4 Key issues for each urban node in North Macedonia

The following tables provide details are the key issues and recommended strategies for improvements of interconnection between the major urban nodes, optimization of public transport network and implementation of sustainable and innovative mobility solutions for urban logistics.

Table 115 Identified key issues in Skopje

Skopje, North Macedonia	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended

Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Currently there are none available, therefore implementation of cargo bikes, parcel lockers and electric vehicles for urban delivery is highly recommended

1.8 Serbia

The following chapter provides the detailed information regarding the three main themes of:

- transport and accessibility in regional scale by different modes of transport;
- urban mobility and its relevant components and
- logistics infrastructure and last mile delivery for city logistics in the selected urban nodes of Serbia.

The accessibility and transport in regional scale chapter consists in the details of main transport hubs and interconnection among the selected urban nodes and touristic attraction poles by different modes of transport, including road transport, passenger railway transport, air transport, maritime transport and cycling infrastructure.

The urban mobility chapter includes details of availability and diffusion of urban mobility including public transport, sustainable and future oriented mobility and accessibility and infrastructures for electric mobility and alternative ecological fuels.

The logistics chapter is divided into two scale of logistics infrastructure of the selected nodes of the country and innovative and sustainable urban logistics services for last mile delivery.

The chapter concludes with a set of identified key issues and recommendations for each issue.

1.8.1 Transport and accessibility at regional scale in Serbia

The following chapter delves into the critical aspects of transport infrastructure and interconnectivity at regional scale and within the country. Specifically, it encompasses an exploration of the road and rail infrastructure, it addresses the infrastructure and services supporting cycling interconnections. Furthermore, this chapter delves into the interconnection services that link the major transport hubs in the selected nodes. Each of these aspects plays a pivotal role in providing a comprehensive overview of the countries' accessibility and connectivity.

1.8.1.1 Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in Serbia

The following chapter includes the existing and planned road and rail infrastructure that passes through the main selected urban nodes. In addition, the main road and rail corridors are identified and their characteristics is studied in details.

Road infrastructure in Serbia

The following table shows the main road corridors passing through each urban node and information regarding Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway Corridor passing through them.

Table 116 Road infrastructure passing through the selected urban node of Serbia

	Main Roads	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway Corridor
Serbia			
Belgrade	A3, M18, M19	Rhine–Danube Corridor	

The following table shows the main road corridors passing through the country interconnecting the urban nodes indicating the type of road, the status of the road, the travel time by car and type of Eupropean corridor.

Table 117 Main road corridors in Serbia

	Country	Roads Name	Type of Road	European Corridor	Status (related to TENT)	Travel Time by Car
Serbia						
Belgrade-Sarajevo	Serbia-Bosnia	M19	primary	TENT	completed	4h:50
Belgrade-Skopje	Serbia-North Macedonia	A1	motorway		to be upgraded	4h
Zagreb-Belgrade	Croatia-Serbia	A3	motorway		to be upgraded	4h

Passenger rail infrastructure in Serbia

The following table shows the main passenger rail corridors passing through the country, indicating the type of rail connections, number of trains per day, travel time and type of Eupropean corridor.

Table 118 Passenger railway corridors in Serbia

	Country	Type of Rail	European Corridor	Train per Day	Travel Time by Train
Serbia					
Belgrade-Sarajevo	Serbia-Bosnia	none	TENT	none	
Belgrade-Skopje	Serbia-North Macedonia	conventional		1	10h

1.8.1.2 Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in Serbia

The following table shows the main planned cycling corridors passing through the selected main urban nodes and touristic attraction poles of the country.

Table 119 Regional cycling infrastructure passing through the selected urban node of Serbia

	Cycling Lane
Serbia	
Belgrade	Eurovelo 11

The following table shows the main planned cycling corridors of Adriatic Ionian macro- region interconnecting the selected main urban nodes and touristic attraction poles.

Table 120 Planned regional cycling infrastructure in Serbia

	Country	Cycle lane name
Serbia		
Skopje-Belgrade	Serbia - North Macedonia	Eurovelo 11

1.8.1.3 Interconnection services between the main transport hubs, urban hubs and tourist attractions in Serbia

The following table shows the main transport hubs for air, railway and maritime passenger transports the selected main urban nodes and touristic attraction poles of the country, their annual passenger data, the direct connections to other cities of Adriatic Ionian macro- region and their connection to the city.

Table 121 Main transport hubs in the selected urban node of Serbia

	Belgrade
Main Airport	Belgrade Nikola Tesla Airport
Airport Passengers Traffic (2019)	6,159,000
Direct Connection by Air Transport (Adriatic Ionian macro- region)	Athens, Banja Luka, Ljubljana, Milan–Malpensa, Podgorica, Rome–Fiumicino, Sarajevo, Skopje, Thessaloniki, Tirana, Tivat, Venice, Zagreb, Dubrovnik, Split, Corfu, Heraklion, Karpathos, Kefalonia, Kos, Preveza/Lefkada, Rhodes, Samos, Santorini, Zakynthos
City Connection to the Airport	bus, taxi, planned rail
Main Train Station	Belgrade Centre railway station (Prokop)
City Connection to the Train Station	tram
Main Port	none
Port Passengers (2019)	none
Direct Connection by Maritime Transport (Adriatic Ionian macro- region)	none

City Connection to the Port	none

1.8.2 Urban mobility in Serbia

The following chapter provides details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, e- scooter and moped sharing network, public transport app for route finding and e-ticketing in selected urban node. The availability and diffusion of infrastructures for electric mobility and alternative ecological fuels is studied too.

1.8.2.1 Availability and dissemination of public transport infrastructure and services in Serbia

In addition to the information regarding interconnection and main hubs for air, railway and maritime transport the following table provides details of the existing and planned public transport infrastructure in the selected main urban nodes and touristic attraction poles of the country.

Table 122 Public transport infrastructure and services in the selected urban node of Serbia

	Metro and Commuter Rail	**Bus**	**Tram**
Serbia			
Belgrade	2 lines are planned with 43 stations	118 urban lines and more than 300 suburban lines / 149 regular lines and 25 night lines	12 lines / trolleybuses (8 lines)

1.8.2.2 Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in Serbia

The following table shows the availability, dissemination and implementation plans of car sharing with indications of availability of electric vehicles, bike sharing with details of number of stations and bicycles when available, followed by availability of e- scooter sharing, moped sharing network and apps for route finding and e-ticketing in each selected major urban node.

Table 123 Shared mobility services and mobility app in the selected urban node of Serbia

	Car Sharing	**Bike Sharing**	**Scooter or Moped Sharing**	**Public Transport App for Route Finding and E-Ticketing**
Serbia				
Belgrade	none available	Over the course of the next three years, Belgrade will introduce 50 bicycle sharing stations	Electric scooter sharing is planned	Public Transport Belgrade / Moovit (unofficial)

		equipped with 900 public bicycles.		

1.8.2.3 Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in Serbia

The following chapter provides the detailed information regarding infrastructures for electric mobility and alternative ecological fuels used in public transport and shared mobility in the selected major urban nodes.

Electrification of public and shared urban mobility is an essential step towards a more sustainable urban mobility, with GHG emissions reductions and less environmental impact.

The following table includes the information regarding the availability or planned electrifying public urban buses, electric car sharing, electric taxi network and available public charging stations at each major urban node.

Table 124 Electric mobility and alternative ecological fuels in the selected urban node of Serbia

	Belgrade
CNG Bus for Public Transport	200 new buses powered by compressed natural gas (CNG)
Electric Bus for Public Transport	electrict Trolleybuses
Electric Car Sharing	none available
Electric Taxi	none available
Public Charging Station	2 public charging stations with 3 connectors

1.8.3 Logistics infrastructure and services in Serbia

The following chapter provides details on logistics infrastructure of the selected major nodes of the country and availability of sustainable and innovative urban logistics solution in them. The study includes two main scale of infrastructure and urban logistics services for last mile delivery.

1.8.3.1 Availability and diffusion of logistics infrastructures in Serbia

The large-scale infrastructure includes investigating the availability of the logistics infrastructure and size by air transport, maritime transport and rail transport in each major node in order to identify the main interconnection logistics corridors.

Table 125 Logistics infrastructure in the selected urban node of Serbia

	Belgrade
Main Airport	Belgrade Nikola Tesla Airport
Airport Cargo Traffic in Tonne(2019)	25,543 (2018)
Main Port	none
Port Cargo Traffic in Tonne (2019)	none
Main Train Station	Belgrade Centre railway station (Prokop)
Rail Freight Corridors (RFCs)	Alpine-Western Balkan (RFC10)

1.8.3.2 Availability and diffusion of city logistics services in Serbia

The urban scale includes studying the availability dissemination of innovative and sustainable urban logistics strategies including use of cargo bike and electric vehicles for urban delivery and availability of parcel lockers in each major node. The mentioned solution can contribute to the reducing the negative environmental impact of urban logistics specially related to the GHG and other pollutions caused by fossil fuel road delivery vehicles.

Table 126 Innovative and sustainable urban logistics strategies in the selected urban node of Serbia

	Belgrade
Cargo Bike for Urban Delivery	none available
Electric Vehicles for Urban Delivery	none available
Parcel Locker (Amazon or similar)	yes

1.8.4 Key issues for each urban node in Serbia

The following tables provide details are the key issues and recommended strategies for improvements of interconnection between the major urban nodes, optimization of public transport network and implementation of sustainable and innovative mobility solutions for urban logistics.

Table 127 Identified key issues in Belgrade

Belgrade, Serbia	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	In compare to other nodes the availability and extension of public transport and electrification or use of alternative fuels is high

Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

1.9 Slovenia

The following chapter provides the detailed information regarding the three main themes of:

- transport and accessibility in regional scale by different modes of transport;
- urban mobility and its relevant components and
- logistics infrastructure and last mile delivery for city logistics in the selected urban nodes of Slovenia.

The accessibility and transport in regional scale chapter consists in the details of main transport hubs and interconnection among the selected urban nodes and touristic attraction poles by different modes of transport, including road transport, passenger railway transport, air transport, maritime transport and cycling infrastructure.

The urban mobility chapter includes details of availability and diffusion of urban mobility including public transport, sustainable and future oriented mobility and accessibility and infrastructures for electric mobility and alternative ecological fuels.

The logistics chapter is divided into two scale of logistics infrastructure of the selected nodes of the country and innovative and sustainable urban logistics services for last mile delivery.

The chapter concludes with a set of identified key issues and recommendations for each issue.

1.9.1 Transport and accessibility at regional scale in Slovenia

The following chapter delves into the critical aspects of transport infrastructure and interconnectivity at regional scale and within the country. Specifically, it encompasses an exploration of the road and rail infrastructure, it addresses the infrastructure and services supporting cycling interconnections. Furthermore, this chapter delves into the interconnection services that link the major transport hubs in the selected nodes. Each of these aspects plays a pivotal role in providing a comprehensive overview of the countries' accessibility and connectivity.

1.9.1.1 Equipment and conditions of the road and rail infrastructure for interconnection between urban nodes and tourist attractions and main networks in Slovenia

The following chapter includes the existing and planned road and rail infrastructure that passes through the main selected urban nodes. In addition, the main road and rail corridors are identified and their characteristics is studied in details.

Road infrastructure in Slovenia

The following table shows the main road corridors passing through each urban node and information regarding Trans-European Transport Network (TEN-T) and Adriatic–Ionian motorway Corridor passing through them.

Table 128 Road infrastructure passing through the selected urban nodes of Slovenia

	Main Roads	Trans-European Transport Network (TEN-T)	Adriatic–Ionian motorway Corridor
Slovenia			
Ljubljana	A1-A3, A2	Mediterranean Corridor	

Koper	A1-E61	Mediterranean Corridor	

The following table shows the main road corridors passing through the country interconnecting the urban nodes indicating the type of road, the status of the road, the travel time by car and type of Eupropean corridor.

Table 129 Main road corridors in Slovenia

	Country	Roads Name	Type of Road	European Corridor	Status (related to TENT)	Travel Time by Car
Slovenia						
Ljubljana-Koper	Slovenia	A1	motorway		to be upgraded	1h
Trieste-Koper	Italy - Slovenia	SS202-H5	mixed		completed	24min
Ljubljana-Trieste	Italy - Slovenia	A1-A3	motorway	TENT	completed	2 h
Rijeka-Koper	Croatia-Slovenia	A1-E61	mixed		completed	1 h
Ljubljana - Zagreb	Croatia-Slovenia	A2	motorway	TENT	to be upgraded	1h:40

Passenger rail infrastructure in Slovenia

The following table shows the main passenger rail corridors passing through the country, indicating the type of rail connections, number of trains per day, travel time and type of Eupropean corridor.

Table 130 Passenger railway corridors in Slovenia

	Country	Type of Rail	European Corridor	Train per Day	Travel Time by Train
Slovenia					
Ljubljana-Koper	Slovenia	conventional		4	2h:30
Trieste-Koper	Italy - Slovenia	conventional		2	3h
Ljubljana-Trieste	Italy - Slovenia	conventional	TENT	9	5h
Rijeka-Koper	Croatia-Slovenia	conventional		1	1h
Ljubljana - Zagreb	Croatia-Slovenia	conventional	TENT	3	2h

1.9.1.2 Infrastructures and services for interconnection cycling between the main urban nodes and tourist attractions in Slovenia

The following table shows the main planned cycling corridors passing through the selected main urban nodes and touristic attraction poles of the country.

Table 131 Regional cycling infrastructure passing through the selected urban nodes of Slovenia

	Cycling Lane
Slovenia	
Ljubljana	Eurovelo 9
Koper	Ciclovia Adriatica (Eurovelo 8), Eurovelo 9

The following table shows the main planned cycling corridors of Adriatic Ionian macro- region interconnecting the selected main urban nodes and touristic attraction poles.

Table 132 Planned regional cycling infrastructure in Slovenia

	Country	**Cycle lane name**
Slovenia		
Koper-Trieste	Slovenia - Italy	Eurovelo 8 - Eurovelo 9
Trieste-Ljubljana	Italy - Slovenia	Eurovelo 9
Koper-Rijeka	Slovenia - Croatia	Eurovelo 8

1.9.1.3 Interconnection services between the main transport hubs, urban hubs and tourist attractions in Slovenia

The following table shows the main transport hubs for air, railway and maritime passenger transports the selected main urban nodes and touristic attraction poles of the country, their annual passenger data, the direct connections to other cities of Adriatic Ionian macro- region and their connection to the city.

Table 133 Main transport hubs in the selected urban nodes of Slovenia

	Ljubljana	**Koper**
Main Airport	Ljubljana Jože Pučnik Airport	none
Airport Passengers Traffic (2019)	1,721,355	none
Direct Connection by Air Transport (Adriatic Ionian macro- region)	Corfu, Karpathos, Preveza/Lefkada, Rhodes, Belgrade, Dubrovnik, Heraklion, Kefalonia, Kos, Preveza/Lefkada, Samos, Santorini, Zakynthos	none

City Connection to the Airport	bus, taxi, planned rail	none
Main Train Station	Ljubljana railway station	Koper railway station
City Connection to the Train Station	bus, taxi	bus, taxi
Main Port	none	Port of Koper
Port Passengers (2019)	none	65,434 (2013)
Direct Connection by Maritime Transport (Adriatic Ionian macro- region)	none	Venice, Trieste
City Connection to the Port	none	taxi, walking distance to city center (5 to 10 min)

1.9.2 Urban mobility in Slovenia

The following chapter provides details regarding current and planned public transport infrastructure, availability of shared and active mobility including car sharing, bike sharing, e- scooter and moped sharing network, public transport app for route finding and e-ticketing in selected urban node. The availability and diffusion of infrastructures for electric mobility and alternative ecological fuels is studied too.

1.9.2.1 Availability and dissemination of public transport infrastructure and services in Slovenia

In addition to the information regarding interconnection and main hubs for air, railway and maritime transport the following table provides details of the existing and planned public transport infrastructure in the selected main urban nodes and touristic attraction poles of the country.

Table 134 Public transport infrastructure and services in the selected urban nodes of Slovenia

	Metro and Commuter Rail	**Bus**	**Tram**
Slovenia			
Ljubljana	none	Routes 32 (as of December 2018) As of December 2018 the fleet consisted of 213 vehicles, including 143 articulated buses, 54 single buses and 16 minibuses.	none
Koper	none	5 bus lines	none

1.9.2.2 Availability and dissemination of services for sustainable and future-oriented mobility and accessibility at the main urban nodes and tourist attractions in Slovenia

The following table shows the availability, dissemination and implementation plans of car sharing with indications of availability of electric vehicles, bike sharing with details of number of stations and bicycles when available, followed by availability of e- scooter sharing, moped sharing network and apps for route finding and e-ticketing in each selected major urban node.

Table 135 Shared mobility services and mobility app in the selected urban nodes of Slovenia

	Car Sharing	**Bike Sharing**	**Scooter or Moped Sharing**	**Public Transport App for Route Finding and E-Ticketing**
Slovenia				
Ljubljana	Avant2Go electric car sharing / electric and fossil fuel car sharing network / Electric Car Sharing between city and the Airport	Since May 2011, the self-service bicycle rental system known as BicikeLJ has been providing Ljubljana's residents and visitors with access to 600 bicycles and over 600 parking spots at 60 stations within the city's central area. The system sees approximately 2,500 daily rentals. In 2015, Ljubljana earned the 13th spot in a global ranking of bicycle-friendly cities, and in 2016, it secured the 8th position on the Copenhagenize list.	GiroMobility electric scooter	Ljubljana Bus app / Moovit (unofficial)
Koper	none available	none available	none available	Moovit (unofficial)

1.9.2.3 Availability and diffusion of infrastructures for electric mobility and alternative ecological fuels at the main urban nodes and tourist attractions in Slovenia

The following chapter provides the detailed information regarding infrastructures for electric mobility and alternative ecological fuels used in public transport and shared mobility in the selected major urban nodes.

Electrification of public and shared urban mobility is an essential step towards a more sustainable urban mobility, with GHG emissions reductions and less environmental impact.

The following table includes the information regarding the availability or planned electrifying public urban buses, electric car sharing, electric taxi network and available public charging stations at each major urban node.

Table 136 Electric mobility and alternative ecological fuels in the selected urban nodes of Slovenia

	Ljubljana	**Koper**
CNG Bus for Public Transport	38 new CNG vehicles for Urban train service	none available
Electric Bus for Public Transport	The electric vehicle Urban "train"	KURJERCA, a free of charge electric minibus transport for the city center
Electric Car Sharing	Electric Car Sharing between city and the Airport	none available
Electric Taxi	6 Kavilir electric taxis, the only vehicle to be used to move around the city center	none available
Public Charging Station	6 public charging stations with 21 connectors	2 public charging stations, number of connectors is not available

1.9.3 Logistics infrastructure and services in Slovenia

The following chapter provides details on logistics infrastructure of the selected major nodes of the country and availability of sustainable and innovative urban logistics solution in them. The study includes two main scale of infrastructure and urban logistics services for last mile delivery.

1.9.3.1 Availability and diffusion of logistics infrastructures in Slovenia

The large-scale infrastructure includes investigating the availability of the logistics infrastructure and size by air transport, maritime transport and rail transport in each major node in order to identify the main interconnection logistics corridors.

Table 137 Logistics infrastructure in the selected urban nodes of Slovenia

	Ljubljana	**Koper**
Main Airport	Ljubljana Jože Pučnik Airport	none

Airport Cargo Traffic in Tonne(2019)	24,874	none
Main Port	none	Port of Koper
Port Cargo Traffic in Tonne (2013)	none	18,000,000
Main Train Station	Ljubljana railway station	Koper railway station
Rail Freight Corridors (RFCs)	Almber (RFC11), Baltic-Adriatic (RFC5), Mediterranean (RFC3)	Almber (RFC11), Baltic-Adriatic (RFC5), Mediterranean (RFC3)

1.9.3.2 Availability and diffusion of city logistics services in Slovenia

The urban scale includes studying the availability dissemination of innovative and sustainable urban logistics strategies including use of cargo bike and electric vehicles for urban delivery and availability of parcel lockers in each major node. The mentioned solution can contribute to the reducing the negative environmental impact of urban logistics specially related to the GHG and other pollutions caused by fossil fuel road delivery vehicles.

Table 138 Innovative and sustainable urban logistics strategies in the selected urban nodes of Slovenia

	Ljubljana	**Koper**
Cargo Bike for Urban Delivery	none available	none available
Electric Vehicles for Urban Delivery	none available	none available
Parcel Locker (Amazon or similar)	yes	yes

1.9.4 Key issues for each urban node in Slovenia

The following tables provide details are the key issues and recommended strategies for improvements of interconnection between the major urban nodes, optimization of public transport network and implementation of sustainable and innovative mobility solutions for urban logistics.

Table 139 Identified key issues in Ljubljana

Ljubljana, Slovenia	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway to other nodes should be improved

Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	In compare to other nodes the availability and expansion of sustainable and shared mobility is high
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

Table 140 Identified key issues in Koper

Koper, Slovenia	
Interconnection to other major urban nodes of the Adriatic Ionian macro- region	Interconnection by railway and road to other nodes should be improved
Public transport / Electrification and alternative fuels of the public transport fleet	Public transport should be improved / electrification of public transport fleet is highly recommended
Electric mobility infrastructure	The current infrastructure is limited and therefore increasing the number of public electric charging stations is highly recommended
Sustainable and shared urban mobility	Currently the availability is low therefore implantation of sustainable and shared urban mobility is highly recommended
Innovative urban logistics solutions	Implementation of cargo bikes and electric vehicles for urban delivery is highly recommended

1.10 Comparison of available infrastructure for interconnectivity between nodes and urban mobility at the main urban nodes and tourist attractions in the EUSAIR macro-region

1.10.1 Current level of interconnection by different modes of transport between main urban nodes

The following table shows the indicative level of interconnection between the main urban nodes and touristic poles of Adriatic-Ionian macro-region by air, maritime, rail, rail freight, road transport and cycling infrastructure. The chapter also includes the maps showing the reginal transport infrastructure of the macro-region by modes of transport followed by the maps show the level of interconnection by mode of transport in each selected urban node in order to enable the comparison among the selected cities.

The following is the methodology used for defining the interconnection level from low to high for each mode of transport.

- Air transport: the availability of the airport, the annual number of passengers and availability of direct flights to other cities of Adriatic-Ionian macro- region is taken into consideration to classify the level of interconnection
- Maritime transport: the availability of port, the annual number of passengers and availability of direct connection by maritime transport to other cities of Adriatic-Ionian macro- region is taken into consideration to classify the level of interconnection
- Rail passenger transport: the number of trains per day among the linked cities is taken into consideration to determine the level of interconnection
- Rail freight transport: availability and number of rail freight corridors among the linked cities is taken into consideration to determine the level of interconnection
- Road transport: the level is considered high by availability of motorway links to other nearest urban nodes
- Cycling infrastructure: availability and number of cycling corridors among the linked cities is taken into consideration to determine the level of interconnection

Table 141 Current level of interconnection by different modes of transport between selected urban nodes

	Interconnection by Air Transport	Interconnection by Maritime Transport	Interconnection by Rail Transport	Interconnection by Freight Rail	Interconnection by Road Transport	Interconnection by Cycling Infrastructure
Albania						
Tirana	high	low	low	low	medium	medium
Durrës	low	high	low	low	medium	medium
Bosnia and Herzegovina						
Sarajevo	high	low	low	low	low	low
Croatia						

Zagreb	high	low	high	high	high	low
Rijeka	medium	medium	high	medium	high	medium
Split	high	high	low	low	low	medium
Ploče	low	medium	low	low	low	medium
Greece						
Athens	high	high	low	medium	medium	high
Thessaloniki	high	medium	low	medium	high	medium
Patras	low	high	low	medium	medium	medium
Igoumenitsa	low	high	low	low	medium	medium
Italy						
Milan	high	low	high	high	high	medium
Palermo	high	high	medium	medium	high	medium
Bologna	high	low	high	high	high	medium
Bari	high	high	high	low	low	medium
Catania	high	medium	medium	low	medium	medium
Venice	high	high	high	high	low	high
Messina	low	medium	high	medium	medium	medium
Padua	low	low	high	high	medium	low
Trieste	medium	medium	high	high	medium	high
Taranto	low	medium	medium	medium	low	medium
Reggio Calabria	medium	medium	medium	low	low	medium
Perugia	medium	low	medium	low	low	low
Ravenna	low	medium	low	medium	low	medium
Trento	low	low	medium	medium	high	medium
Pescara	medium	medium	medium	medium	high	medium
Bolzano	low	low	medium	medium	high	medium
Ancona	medium	high	low	medium	low	medium
Brindisi	high	high	high	low	low	high
L'Aquila	low	low	medium	low	medium	low

Potenza	low	low	medium	low	low	low
Campobasso	low	low	low	low	low	low
Gioia Tauro	low	medium	low	low	low	medium
Montenegro						
Podgorica	high	low	low	low	medium	low
Tivat	high	medium	low	low	low	medium
Bar	low	medium	low	low	low	medium
North Macedonia						
Skopje	high	low	low	low	medium	medium
Serbia						
Belgrade	high	low	low	medium	medium	medium
Slovenia						
Ljubljana	high	low	low	high	high	medium
Koper	low	medium	low	high	low	high

The provided map illustrates the presence of both passenger airports and those exclusively catering to private passenger flights within the selected cities of the Adriatic-Ionian macro-region. It underscores the pivotal role of air transportation in bolstering the accessibility of tourism-driven economies and fostering regional interconnectivity.

Figure 5 Airports in the selected urban nodes of Adriatic-Ionian macro- region

Figure 6 depicts the degree of interconnectivity air transport facilitates among the selected urban nodes within the Adriatic-Ionian macro-region. The methodology employed in generating this map hinges on several key factors. Firstly, it considers the presence of airports in these urban centers. Secondly, it evaluates the annual passenger traffic volume at these airports. Lastly, the availability of direct flights to other cities within the Adriatic-Ionian macro-region serves as a critical criterion for classifying the level of interconnection. This multifaceted approach provides valuable insights into the aerial accessibility and connectivity of these urban nodes. Level of Connectivity by air transport is high among the primary nodes of the macro-region and much lowers in the selected secondary nodes.

Figure 6 Level of interconnection by air transport among selected major urban nodes of Adriatic-Ionian macro- region

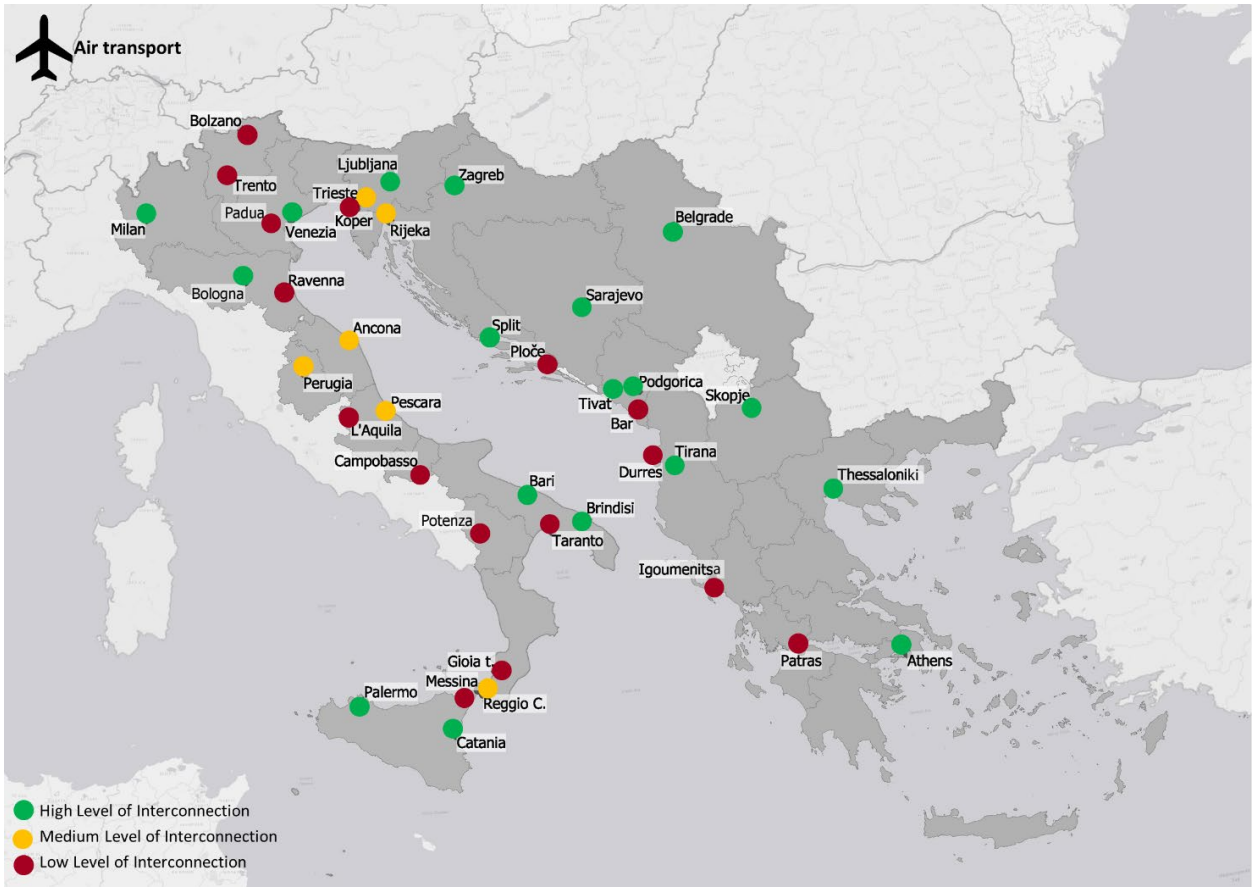


Figure 7 illustrates the extent of interconnection facilitated by maritime transport among the selected urban nodes in the Adriatic-Ionian macro-region. This map is generated using a methodical approach that encompasses various essential factors. It begins by assessing the presence and accessibility of ports within these urban centers. Additionally, it considers the annual volume of passengers transported through these maritime facilities. Moreover, the availability of direct maritime connections to other cities within the Adriatic-Ionian macro-region is a pivotal criterion in categorizing the level of interconnection.

This meticulous methodology offers valuable insights into the maritime accessibility and connectivity of these urban nodes, interconnectivity among the major cities of the region by maritime transport for both citizens and tourists. . Several ports across the region have the potential to offer more passenger services.

Figure 8 provides an overview of the current railway infrastructure within the Adriatic-Ionian macro-region, encompassing existing and under-construction railways. The map highlights the high-speed railway lines and the under construction conventional and high-speed railway lines in the macro-region.

Figure 7 Level of interconnection by maritime transport among selected major urban nodes of Adriatic-Ionian macro- region

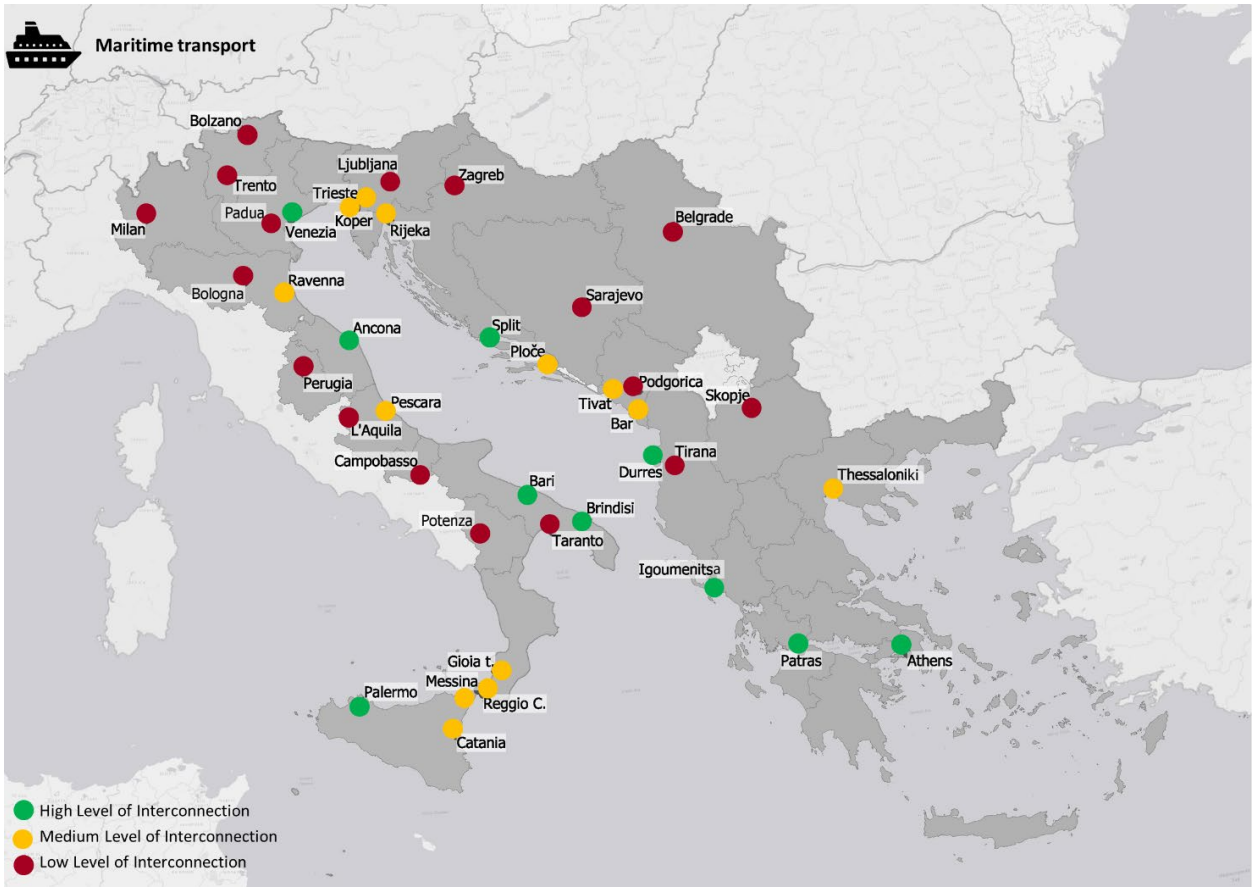


Figure 8 The existing and under construction railway infrastructure of the Adriatic-Ionian macro- region

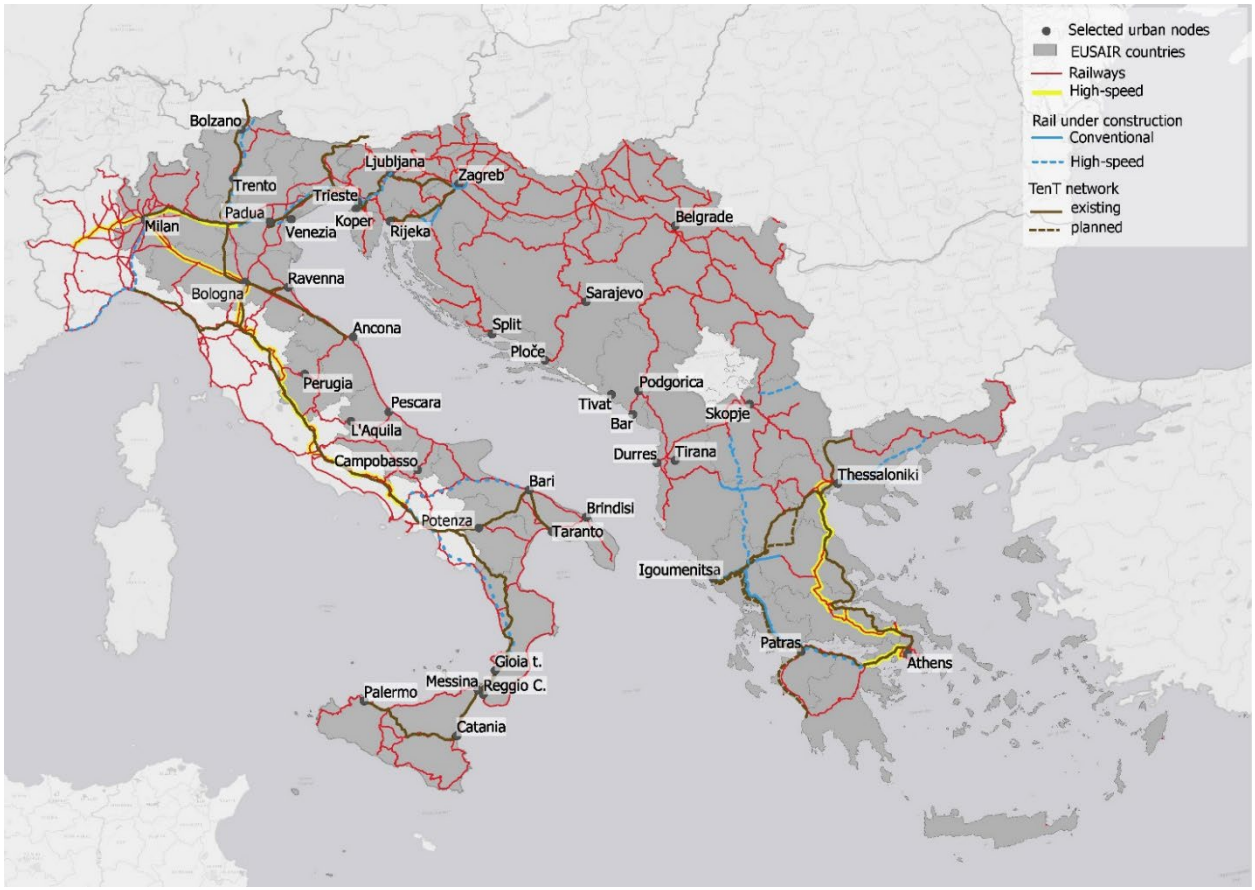


Figure 9 illustrates the extent of interconnection facilitated by passenger railway transport among the selected urban nodes in the Adriatic-Ionian macro-region.

The methodology behind this map hinges on several key factors. Firstly, it evaluates rail passenger transport, considering the availability of passenger railway transport and the frequency of daily train services between the cities of the macro-region to gauge the level of interconnection.

It is essential to underscore the significance of railway transport as a sustainable mode of transportation that significantly contributes to regional connectivity, benefiting both the residents and the tourism sector within the region.

Connectivity level by railway transport is higher in Italy in compare to the other countries, especially in the primary urban nodes.

Figure 9 Level of interconnection by passenger railway transport among selected major urban nodes of Adriatic-Ionian macro- region

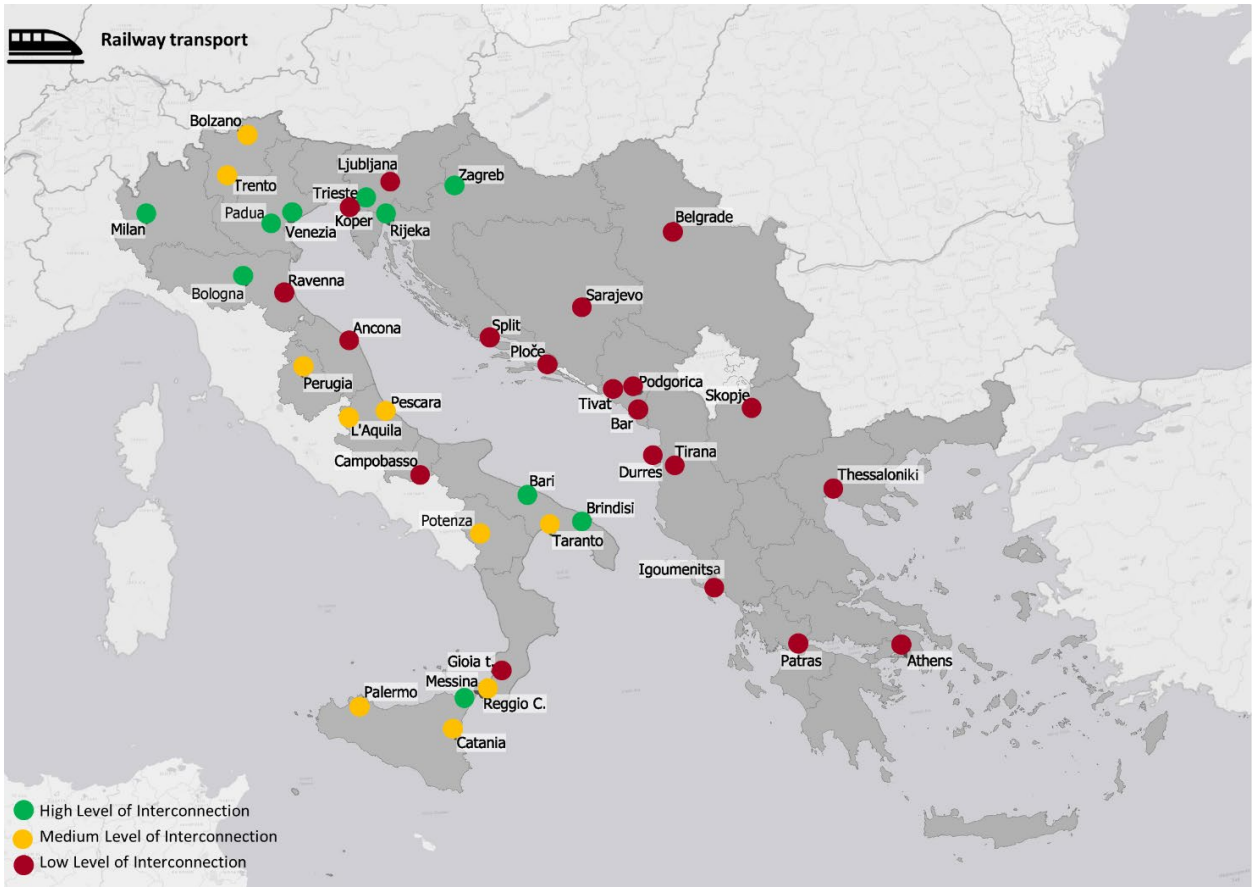


Figure 10 provides an overview of the current freight railway infrastructure within the Adriatic-Ionian macro-region, encompassing existing and under-construction railways. The map highlights the ports and airports of the macro-region highlighting their connection to the freight railway transport. .

Figure 11 illustrates the degree of interconnection facilitated by freight railway transport among selected urban nodes within the Adriatic-Ionian macro-region. The methodology used to compile this map revolves around a critical aspect: rail freight transport. This assessment factors in the availability and number of rail freight corridors connecting the linked cities to determine the level of interconnection. Northern Italian regions, Slovenia and Croatia have the highest level of interconnectivity by freight railway and the inter connectivity is mostly low for the rest of macro-region.

Figure 10 The freight railway corridors of the Adriatic-Ionian macro- region

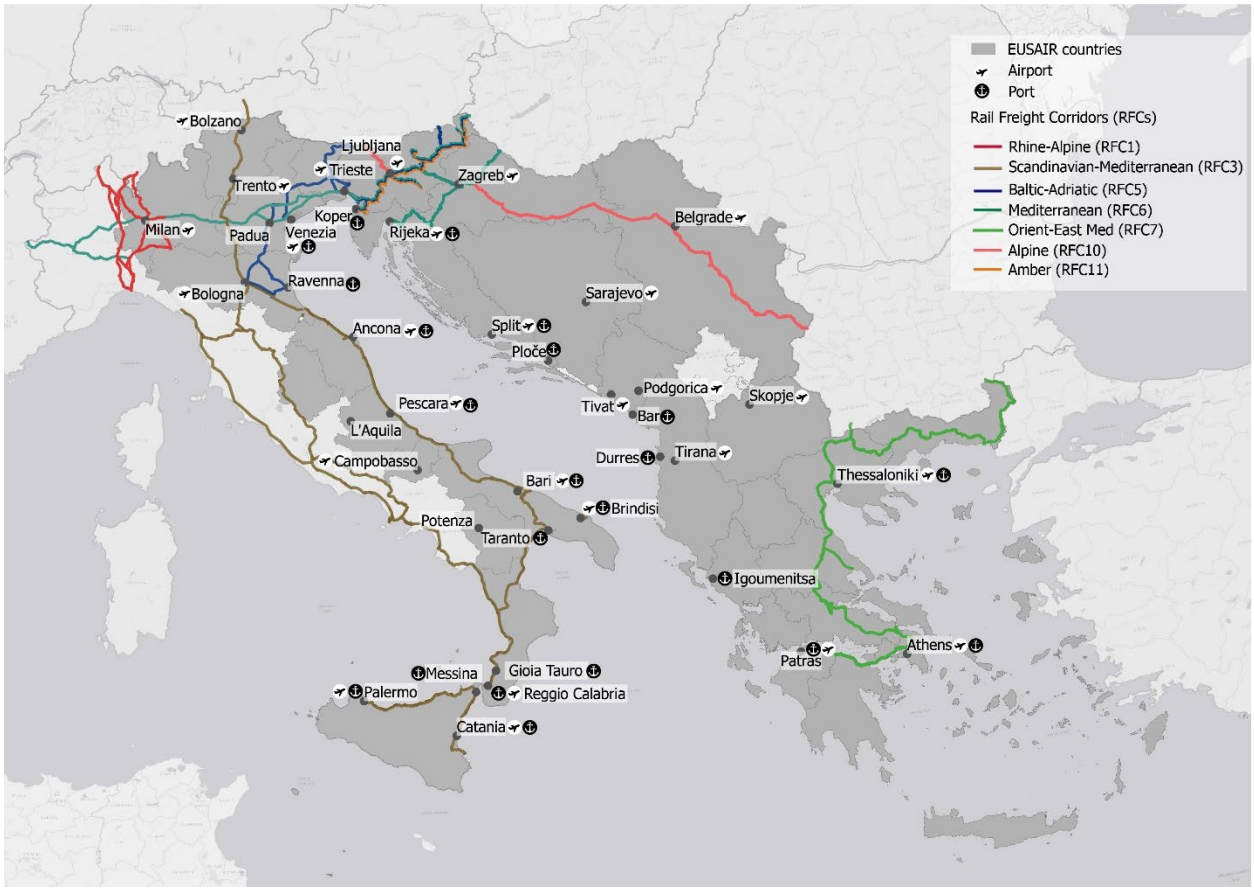


Figure 11 Level of interconnection by freight railway transport among selected major urban nodes of Adriatic-Ionian macro- region

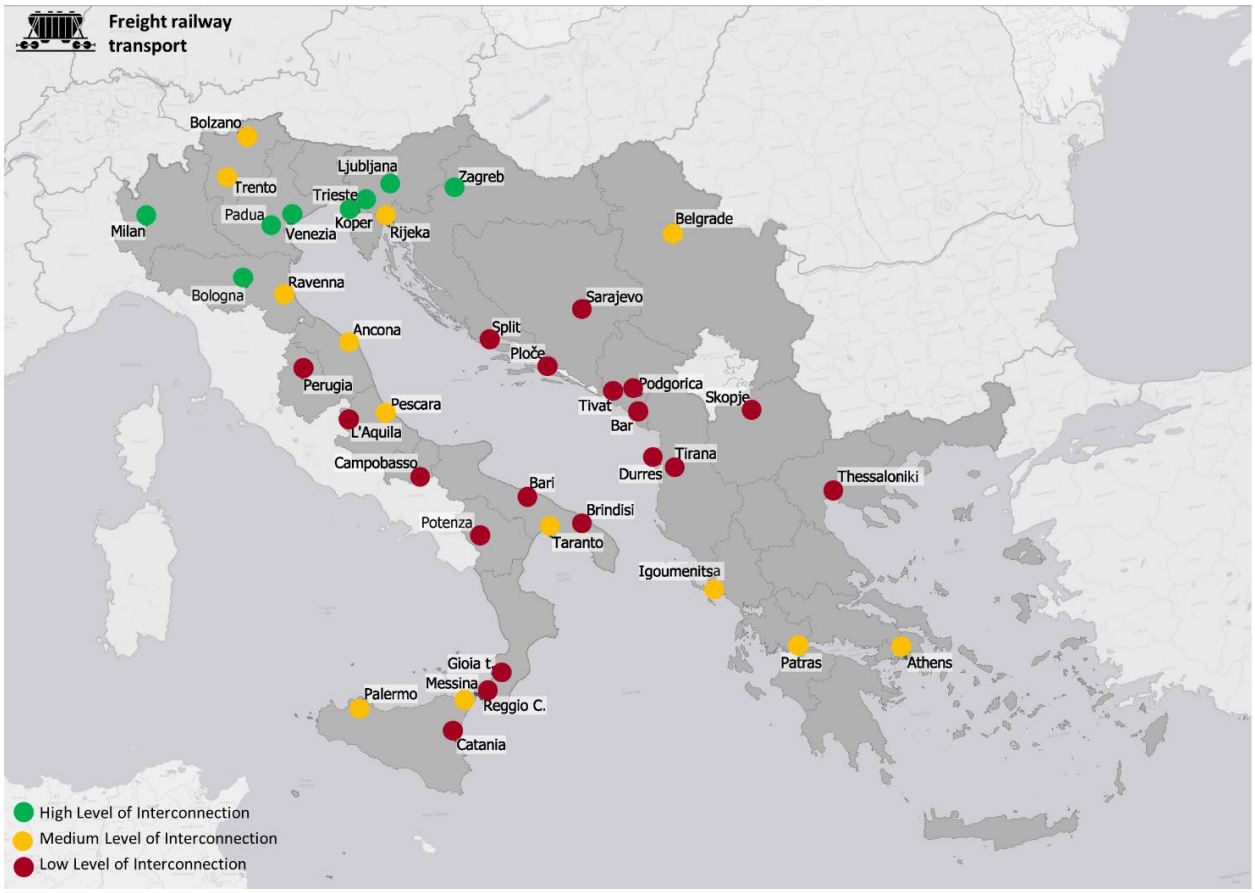


Figure 12 provides an overview of the current main road infrastructure within the Adriatic-Ionian macro-region, encompassing existing and under-construction roads. The map highlights planed and under construction Adriatic-Ionian corridor and the existing and under construction TENT network road corridors.

Figure 12 The main road infrastructure of the Adriatic-Ionian macro- region

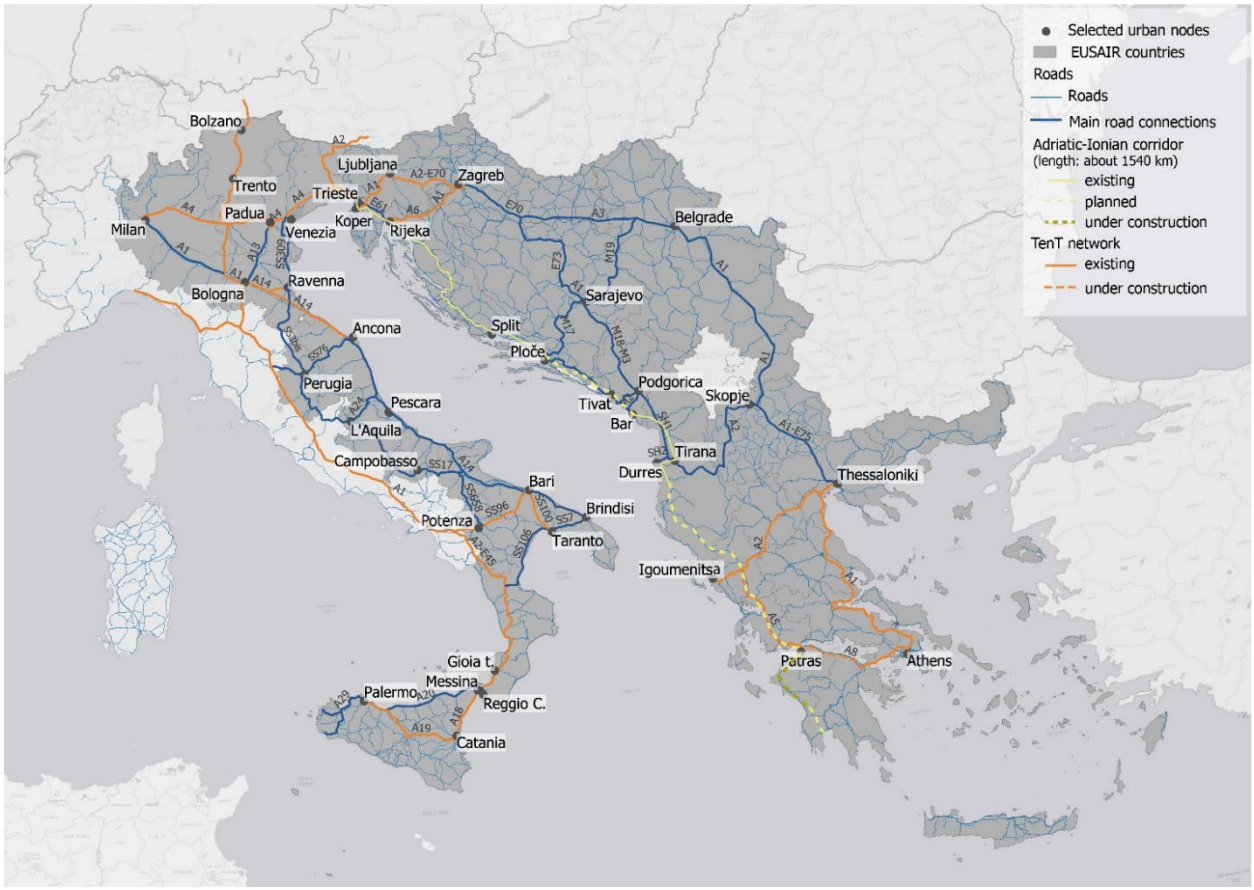


Figure 13 illustrates the condition and status of the road infrastructure of the Adriatic-Ionian macro- region, showing roads to be upgraded.

Figure 14 presents the level of interconnection achieved through road transport among selected urban nodes within the Adriatic-Ionian macro-region. The methodology applied for this map is cantered on assessing road transport. In particular, the level of interconnection is gauged based on the presence of motorway links to other nearby urban nodes. Availability of motorways for road transport is high in Northern Italian regions, Slovenia and Croatia in compare to the rest of the macro-region.

Figure 15 shows the planned regional cycling infrastructure (EuroVelo Lines) of the Adriatic-Ionian macro-region.

Figure 16 depicts the level of interconnection facilitated by cycling infrastructure among selected urban nodes within the Adriatic-Ionian macro-region. This map's methodology centers on evaluating cycling infrastructure, explicitly considering the availability and number of cycling corridors connecting the linked cities to determine the level of interconnection.

It is crucial to emphasize the significance of regional cycling as a sustainable mode of transportation that promotes sustainable tourism and enhances regional connectivity. The interconnectivity by cycling transport is mostly medium and low in the macro-region and require further investments to improve the situation.

Figure 13 The condition and status of the road infrastructure of the Adriatic-Ionian macro- region

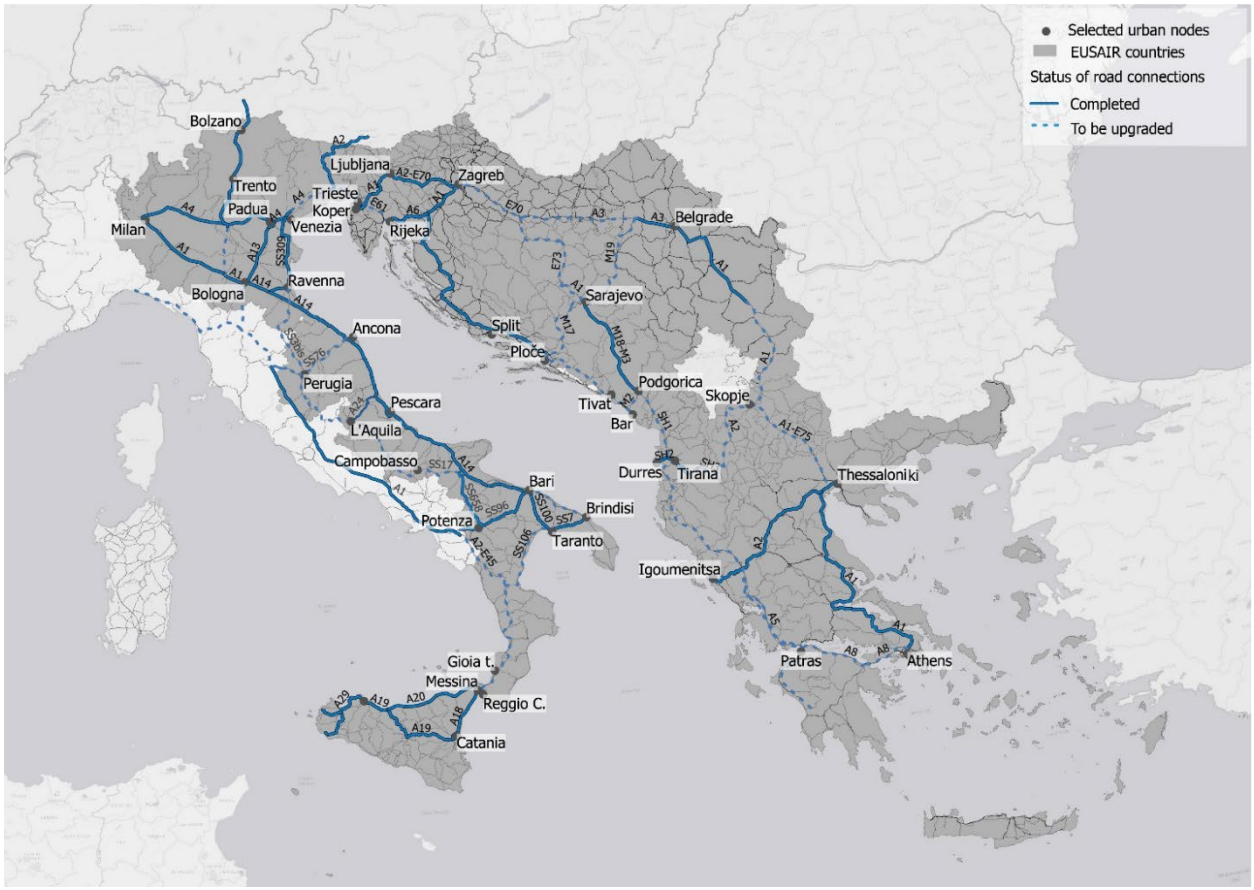


Figure 14 Level of interconnection by road transport among selected major urban nodes of Adriatic-Ionian macro- region

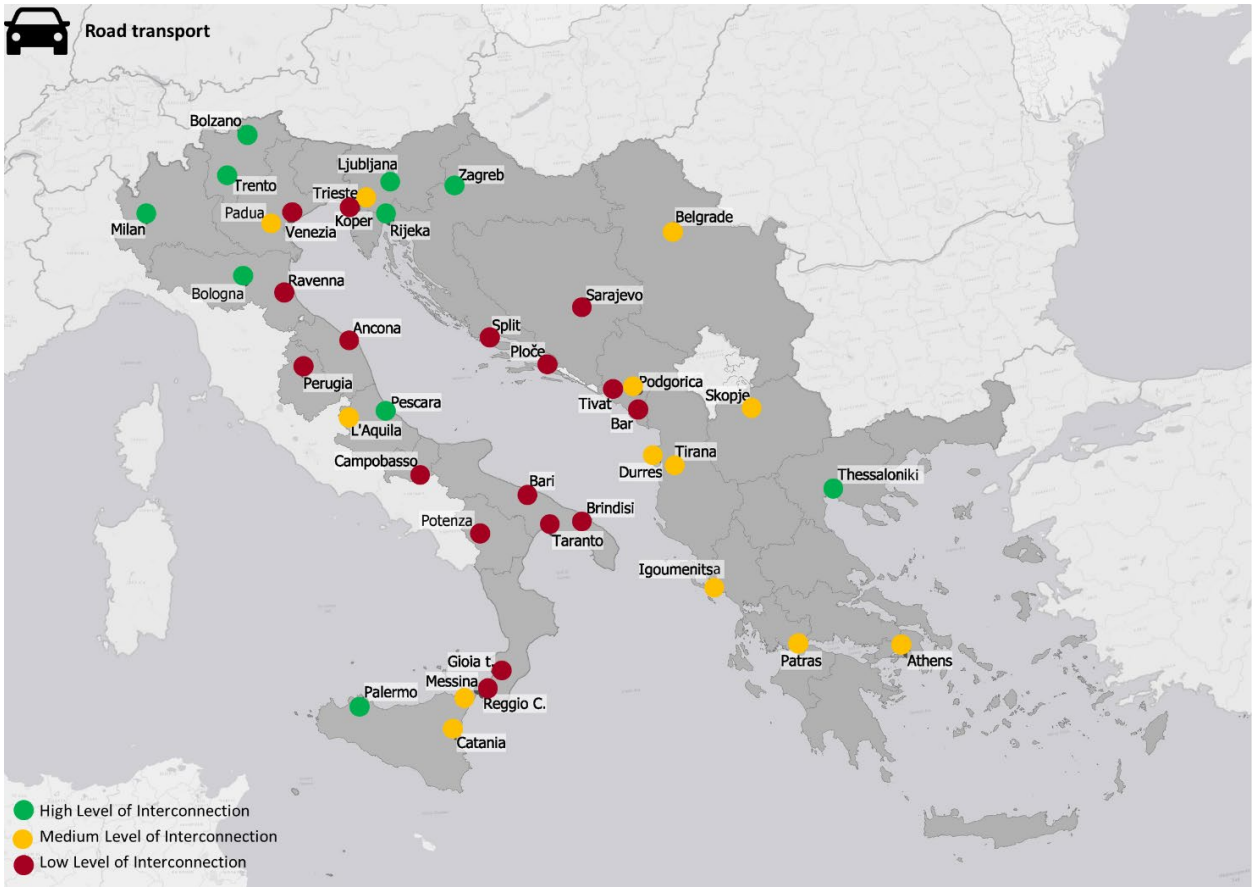


Figure 15 The planned regional cycling infrastructure (EuroVelo Lines) of the Adriatic-Ionian macro- region

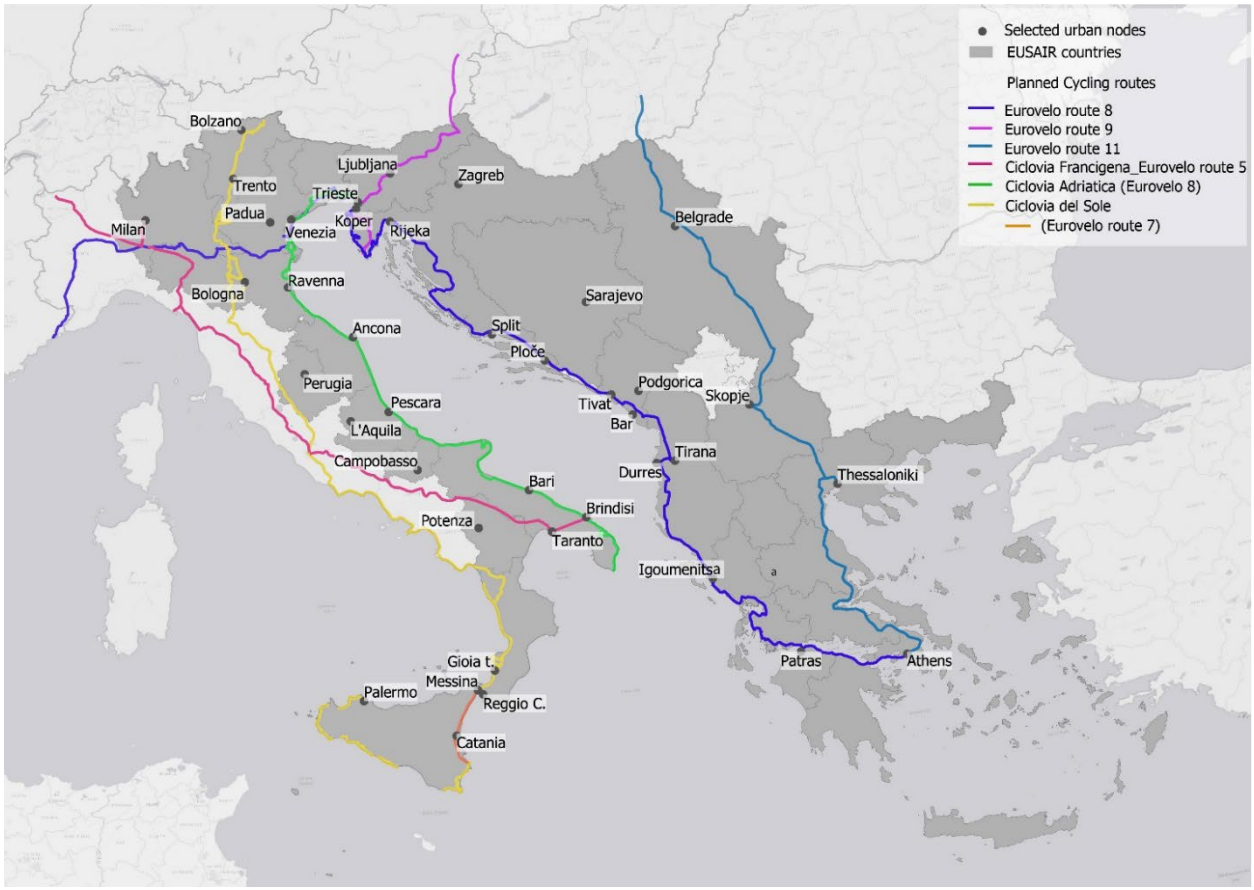
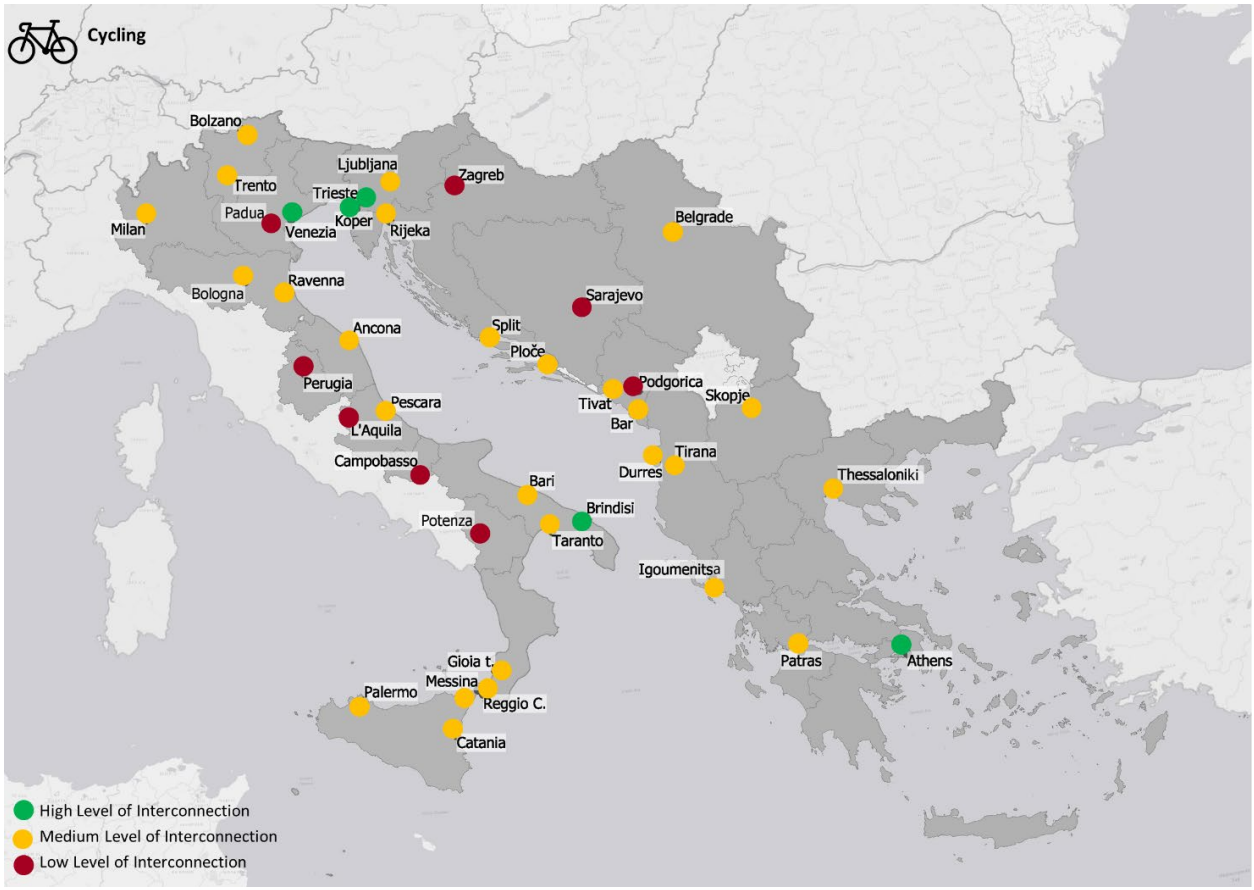


Figure 16 Level of interconnection by cycling infrastructure among selected major urban nodes of Adriatic-Ionian macro- region



1.10.2 Current level of availability and dissemination of sustainable, shared and innovative urban mobility and infrastructure in the main urban nodes

The following table shows the indicative level of availability and dissemination of public transport, electrifying strategies for public transport fleet and sustainable, shared and innovative urban mobility for passenger and urban logistics strategies in the major urban nodes. The levels of availability and extension is based on comparing the findings on the previous chapters.

Table 142 Current level of availability and dissemination of sustainable, shared and innovative urban mobility and infrastructure in the selected urban nodes

	Availability and Extension of Public Transport Infrastructure	Electrification of Public Transport Infrastructure & Use of Sustainable Fuels	Availability and Extension of Sustainable Shared Mobility	Availability of Innovative Urban Logistics Solutions
Albania				
Tirana	low	low	medium	low
Durrës	low	low	medium	low
Bosnia and Herzegovina				

Sarajevo	high	low	medium	high
Croatia				
Zagreb	high	high	high	medium
Rijeka	low	medium	high	medium
Split	high	low	medium	medium
Ploče	low	low	low	medium
Greece				
Athens	high	high	medium	medium
Thessaloniki	high	low	high	medium
Patras	high	low	medium	low
Igoumenitsa	low	low	medium	low
Italy				
Milan	high	high	high	high
Palermo	high	low	high	high
Bologna	high	high	medium	high
Bari	high	low	high	high
Catania	high	low	high	high
Venice	high	medium	medium	medium
Messina	medium	medium	medium	medium
Padua	medium	low	high	high
Trieste	medium	low	high	medium
Taranto	low	low	low	high
Reggio Calabria	low	low	high	medium
Perugia	medium	low	medium	high
Ravenna	low	low	medium	medium
Trento	high	medium	high	high
Pescara	medium	low	medium	medium
Bolzano	medium	medium	medium	medium
Ancona	medium	medium	low	high
Brindisi	low	medium	low	medium
L'Aquila	low	low	low	low

Potenza	low	low	low	medium
Campobasso	low	low	low	medium
Gioia Tauro	low	low	low	low
Montenegro				
Podgorica	low	low	low	medium
Tivat	low	low	medium	medium
Bar	low	low	low	medium
North Macedonia				
Skopje	low	medium	low	low
Serbia				
Belgrade	high	high	low	medium
Slovenia				
Ljubljana	low	medium	high	medium
Koper	low	low	low	medium

The following maps show the level of availability and dissemination on sustainable, shared and innovative urban mobility and infrastructure in the main urban nodes in each selected urban node in order to enable the comparison among the selected cities.

Figure 17 provides an overview of the level of availability and dissemination of public transport in selected urban nodes throughout the Adriatic-Ionian macro-region.

Public transport plays a pivotal role in urban mobility and is indispensable for cities' and residents' well-being. However, it's noteworthy that the findings from this map indicate a less favorable situation in Albania, Montenegro, and North Macedonia. Furthermore, several secondary urban nodes in South and Central Italy demonstrate room for improvement in public transport availability. On a more positive note, the availability of public transport is generally high in most of the selected primary urban nodes within the macro-region.

Figure 17 Level of availability and dissemination of public transport in the selected major urban nodes of Adriatic-Ionian macro-region

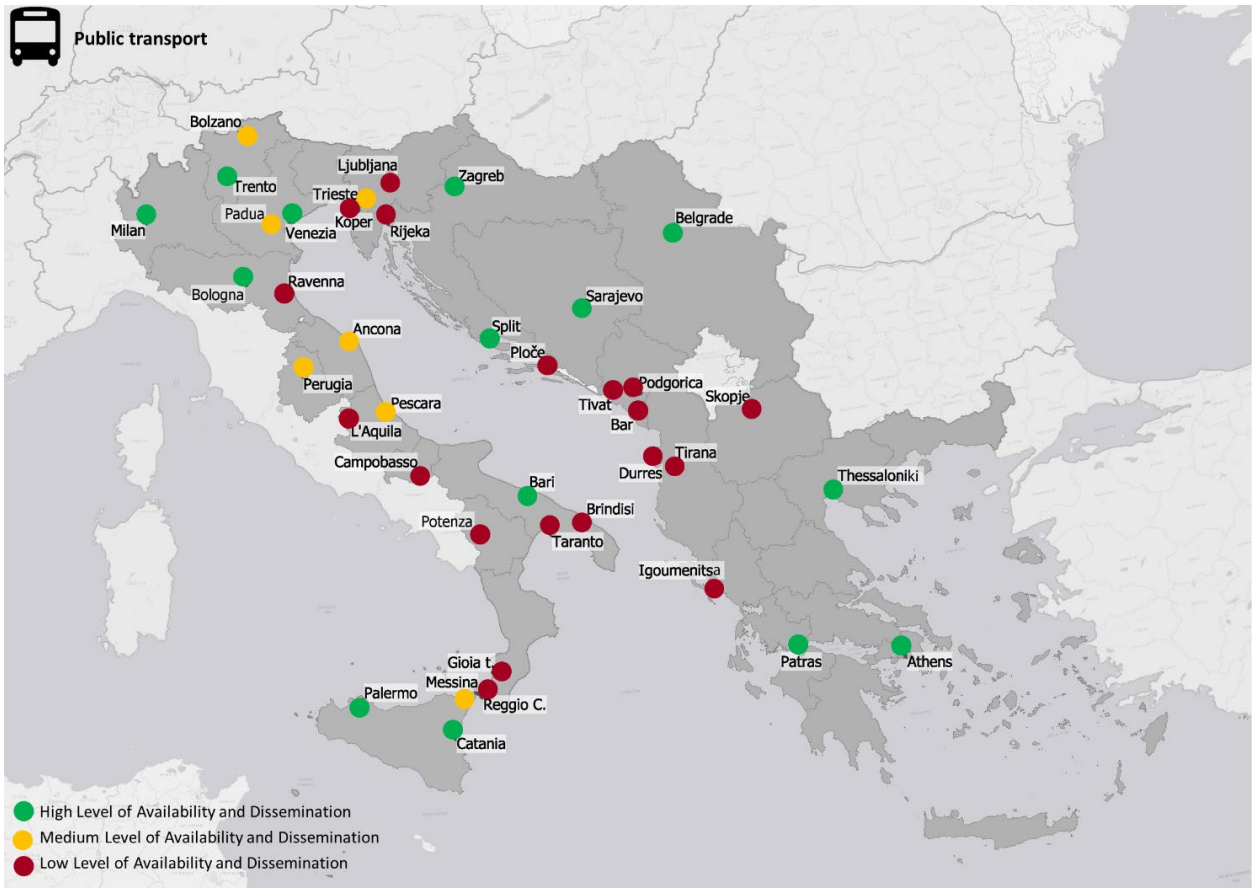


Figure 18 offers insights into the level of availability and dissemination of sustainable fuels within selected urban nodes across the Adriatic-Ionian macro-region. Sustainable fuels are pivotal for environmental well-being, and their availability significantly advances sustainable urban transportation. Notably, the findings reveal that cities such as Milan, Bologna, Zagreb, Belgrade, and Athens demonstrate high level of electrification of public transport and use of sustainable fuels. However, disseminattion is rated at a medium level in most primary nodes. Conversely, the situation is generally less favorable in secondary urban nodes, where availability tends to be low.

It's essential to underscore the importance of investments in electrifying public transport infrastructure and using sustainable fuels. These investments contribute to reducing greenhouse gas emissions and promote cleaner and more sustainable transportation options, thus fostering environmental and regional well-being.

Figure 18Level of availability and dissemination of sustainable fuels in the selected major urban nodes of Adriatic-Ionian macro-region

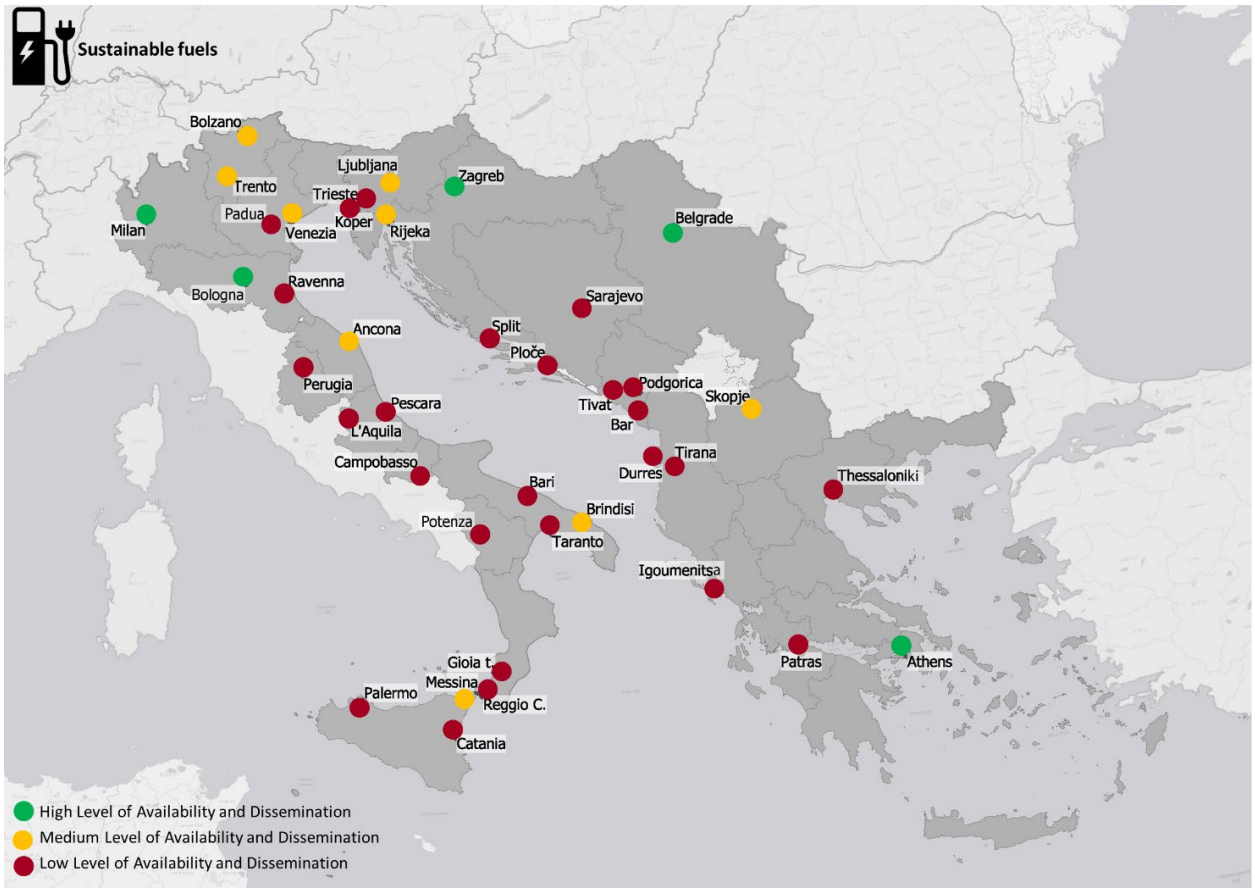


Figure 19 delves into the level of availability and dissemination of sustainable shared mobility options within selected urban nodes throughout the Adriatic-Ionian macro-region.

Sustainable shared mobility, encompassing bike sharing, e-bike and e-scooter sharing, and electric car sharing, plays a pivotal role in urban mobility by alleviating congestion and promoting cleaner modes of transportation. The findings from this map reveal that availability is generally high and medium in most primary urban nodes, with the notable exceptions of Belgrade and Skopje. However, there is significant room for improvement in most secondary nodes.

It's crucial to emphasize the importance of sustainable shared mobility in urban transportation. These options contribute to reduced urban congestion and facilitate a transition to more sustainable modes of transport, ultimately reducing emissions and fostering environmental friendliness in the cities.

Figure 19 Level of availability and dissemination of sustainable shared mobility in the selected major urban nodes of Adriatic-Ionian macro- region

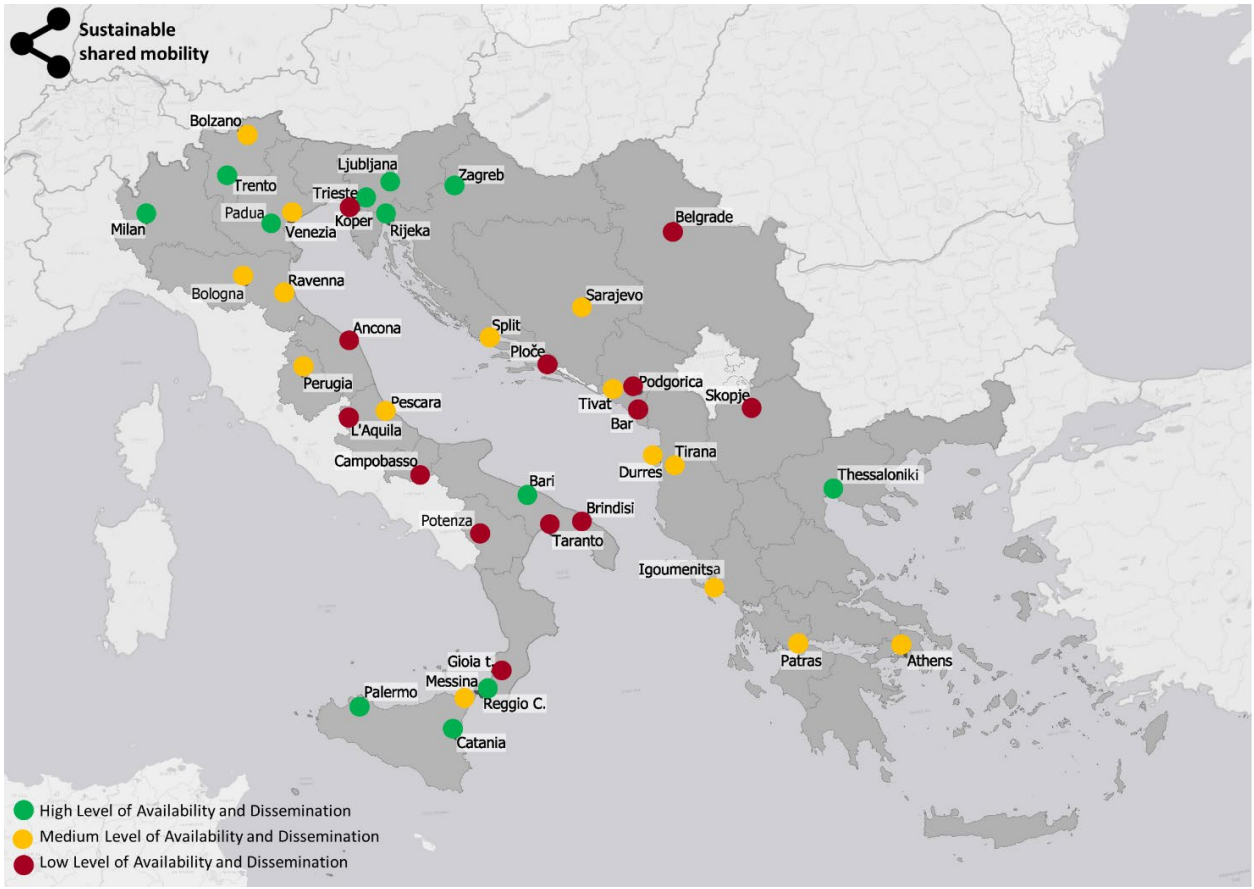
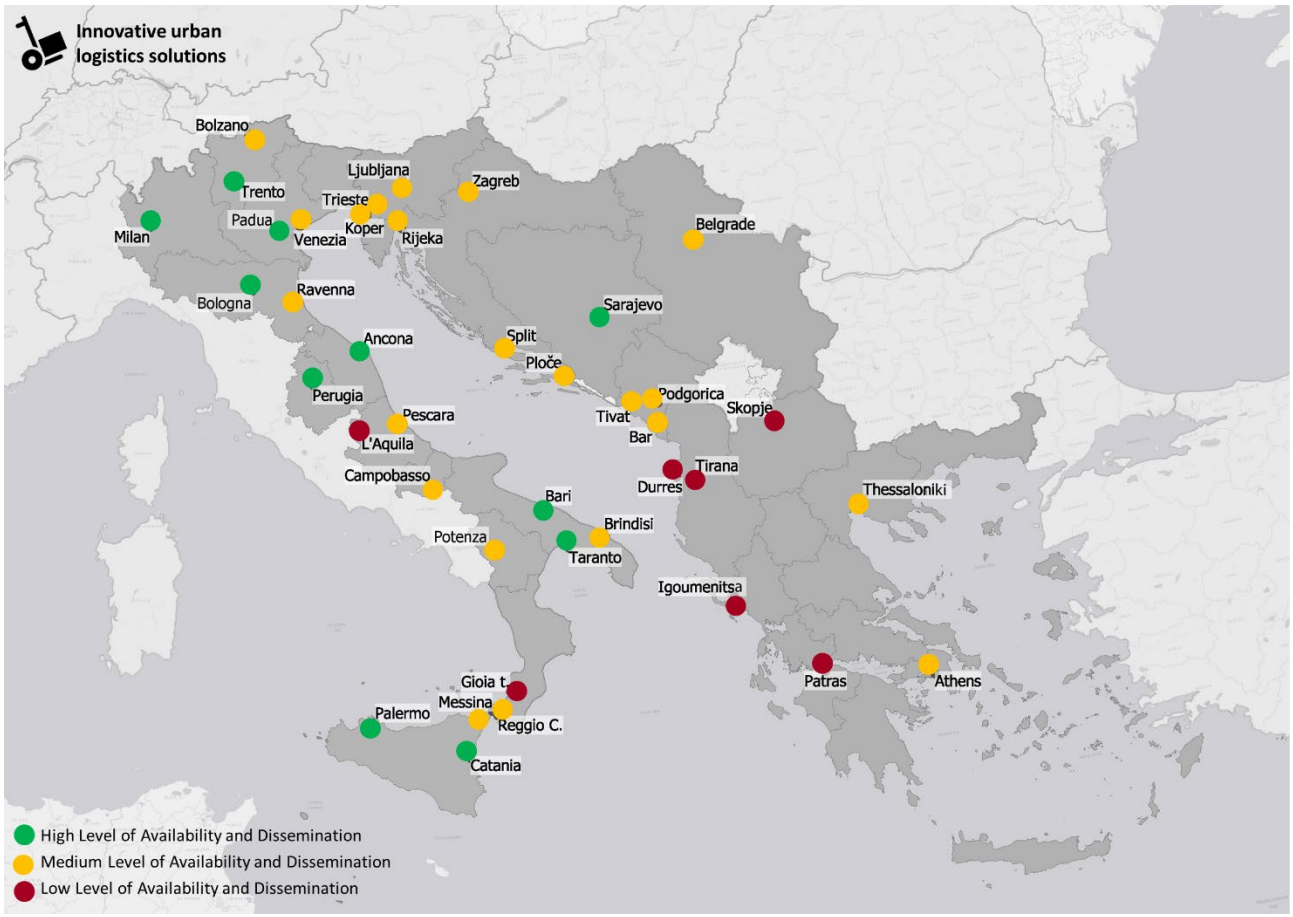


Figure 20 offers insights into the level of availability and dissemination of innovative urban logistics solutions within selected urban nodes across the Adriatic-Ionian macro-region. Innovative urban logistics solutions are instrumental in addressing critical challenges related to emissions and congestion in urban areas. The findings from this map indicate that the situation is generally favorable in the entire region, except for Albania and North Macedonia, where there is room for improvement.

It's essential to underscore the substantial contribution of urban and last-mile delivery to greenhouse gas emissions and city congestion. To combat these issues, it is crucial to implement strategies such as utilizing small electric vehicles and cargo bikes for delivery and establishing parcel lockers and urban consolidation centers at the neighborhood scale for last-mile delivery. These measures not only mitigate emissions but also enhance the efficiency of urban logistics while reducing congestion and environmental impact.

Figure 20 Level of availability and dissemination of innovative urban logistics solutions in the selected major urban nodes of Adriatic-Ionian macro- region



1.10.3 Sustainable Urban Mobility Plans (SUMP) in selected urban nodes

The need for more sustainable and integrative planning processes as a way of dealing with the complexity of urban mobility has been recognized since 2013 and new approaches to urban mobility planning are emerging. Due to people's willingness to use new modes of transport such as electric and shared mobility devices and Mobility as a Service (MaaS), the urban mobility is constantly evolving.

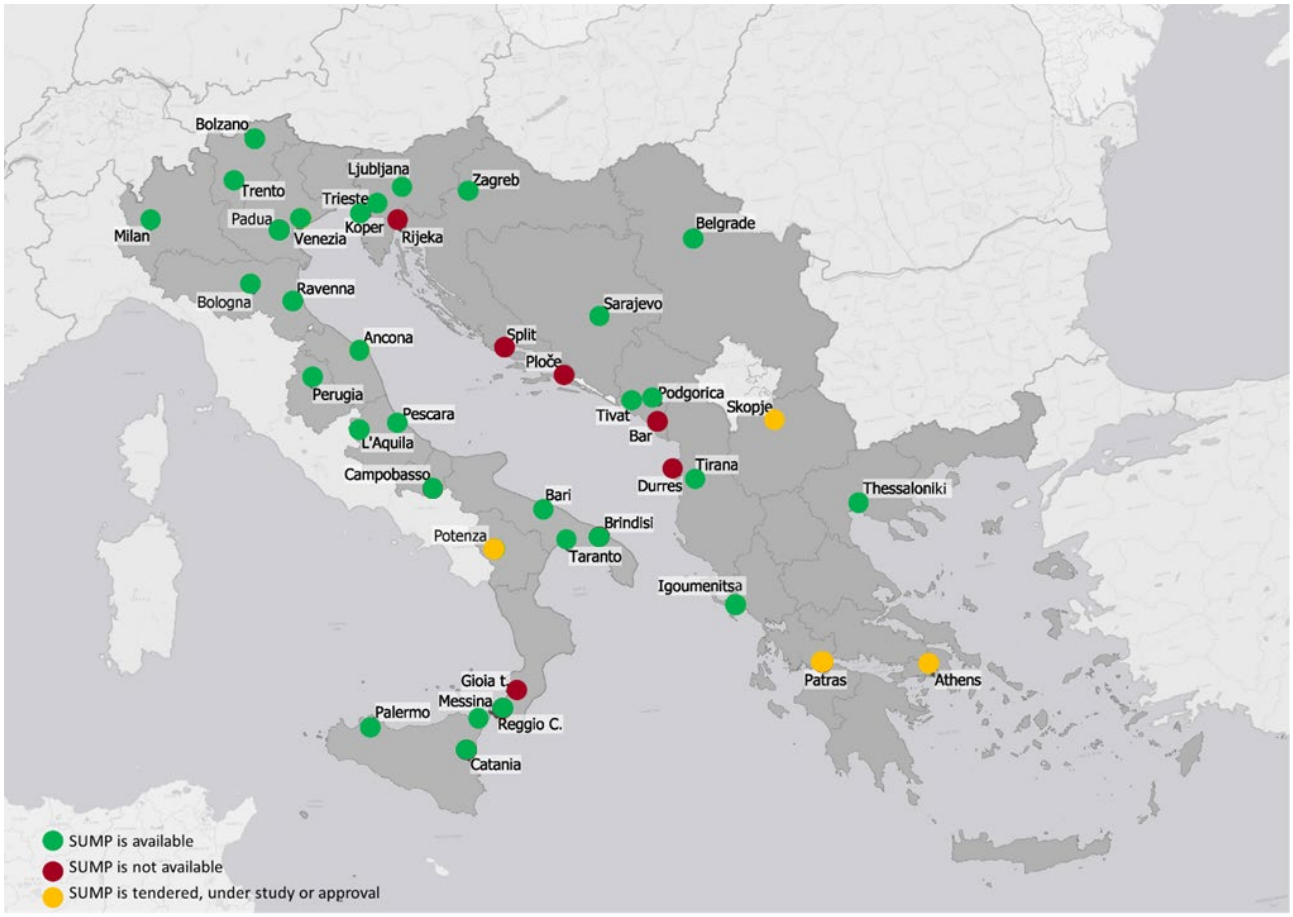
The 2013 Urban Mobility Package set out a concept for Sustainable Urban Mobility Plans (SUMPs) that emerged from a broad exchange between stakeholders and planning experts across the European Union.

The key SUMP principles describe the main features of a modern and sustainable urban mobility and transport plan.

The chapter two of volume 7, which is the next step of this project consist in analyzing the available SUMP for each selected urban node in order to understand the interventions and investment plans and planned and implemented urban mobility projects for each city.

The following map shows availability of SUMP in the selected major urban nodes as the first step for the coming study.

Figure 21 Availability of SUMP in the selected major urban nodes of Adriatic-Ionian macro- region



1.11 Key issues for each country

In addition to defining key issues for each selected urban nodes and providing high-level recommendations for them at the last section of each chapter, the following table shows the summary of identified key issues focused on urban mobility and city logistics services for each country based on the findings of the study.

The scale of importance is given for each of the identified issues from very relevant to relevant and mainly improvements.

The regional interconnections by modes of transport are not considered here since it overlaps with other volumes of the project where each mode of transport is studied in details.

In case there are several nodes selected, the issues are considered separately for primary and secondary nodes as identified in the chapter 2 of this report (Selection methodology for the main urban nodes and tourist attractions in the Adriatic-Ionian macro- region).

All the identified issues will be considered for defining strategies in the following steps of this study.

Table 143 Identified key issues in each country of macro-region

	Albania	Bosnia & Herzegovina	Croatia	Greece	Italy	Montenegro	North Macedonia	Serbia	Slovenia
Extension of public transport network in the selected urban nodes	Very relevant	Mainly improvements	Relevant for secondary nodes	Relevant for secondary nodes	Relevant for secondary nodes	Very relevant	Very relevant	Mainly improvements	Very relevant
Electrification and use of alternative fuels in public transport fleet in the selected urban nodes	Very relevant	Very relevant	Relevant for secondary nodes	Very relevant for secondary nodes	Very relevant for secondary nodes	Very relevant	Relevant	Mainly improvements	Relevant
Dissemination of sustainable and shared mobility in the selected urban nodes	Relevant	Relevant	Mainly improvements	Relevant	Relevant for secondary nodes	Very relevant	Very relevant	Very relevant	Very relevant for secondary nodes

Availability of sustainable and innovative urban logistics solutions in the selected urban nodes	Very relevant	Mainly improvements	Relevant	Relevant for primary nodes	Relevant for secondary nodes	Relevant	Very relevant	Relevant	Relevant

2 Planned projects in the macro-region

2.1 Summary of the investment plans and drafting of the sector programmatic framework

In order to provide the details of planned projects, investment plans and drafting the urban mobility sector programmatic framework the following national transport plan and EU investment plans and strategies are studied based on availability and included for selected main urban nodes of the member state of the EUSAIR region:

- The Sustainable Urban Mobility Plan (SUMP)
- The Sustainable Urban Logistics Plan (SULP)
- The National Recovery and Resilience Plan (NRRP)

The following provides an introduction to the above-mentioned plans of SUMPs, SULPs and projects are the provided on for each selected urban node on each countries chapter.

In addition, the status of EuroVelo Network is studied for the countries that are part of the long-distance cycling network and EU policies on urban mobility including the development of indicative TEN-T extensions of the Comprehensive and Core Network in Western Balkans and the New EU Urban Mobility Framework are studied to provide details of urban mobility and transportation related projects and policies for the region.

2.1.1 The Sustainable Urban Mobility Plan (SUMP)

The Sustainable Urban Mobility Plan (SUMP) plays a crucial role in advancing the European Union's climate and energy objectives. SUMP represents an integrated planning approach aimed at addressing transportation challenges in a more sustainable manner. Unlike conventional transport planning methods, SUMP prioritizes the needs of users and citizens over vehicles and traffic. This approach seeks to strike a balance between urban mobility and quality of life, emphasizing public health, climate change, oil dependency, as well as noise and air pollution. The primary goals of SUMP include:

1. Providing transport options that ensure access to key destinations and services for all citizens.
2. Enhancing safety and security in transportation.
3. Mitigating air and noise pollution, reducing greenhouse gas emissions, and minimizing energy consumption.
4. Improving the efficiency and cost-effectiveness of both passenger and freight transportation.
5. Contributing to the enhancement of the urban environment and design, thereby benefiting citizens, the economy, and society as a whole.

The foundational principles of SUMP outline the key attributes of a contemporary and sustainable urban mobility and transport plan, encompassing the following key elements[3]:

[3] ELTIS, Guidelines for developing and implementing a Sustainable Urban Mobility Plan (2nd edition), 2019. See https://www.eltis.org/mobility-plans/sump-concept

Figure 22 Main Principles for Successful SUMP

The following figure illustrates the principle driving the development of the SUMP (source: Rupprecht Consult, 2019).

Figure 23 SUMP Cycle

2.1.2 Sustainable Urban Logistics Plan (SULP)

The Guidelines for Sustainable Urban Logistics Plans (SULP) serve as a policy support tool targeting numerous small and medium-sized cities across Europe. These cities often lack the resources needed for extensive policy assessments and modeling related to sustainable urban logistics. The SULP methodology is closely aligned with that of a Sustainable Urban Mobility Plan, adopting and expanding upon the city logistics components within such a framework.[4]

Sustainable Urban Logistics Plan (SULP)[5] proves to be a valuable instrument for assisting local public decision-makers and stakeholders in effectively overseeing city logistics measures. It contributes to the improvement of freight distribution processes with a focus on economic, social, environmental sustainability, and efficiency. This plan encompasses a range of strategies, measures, and regulations that can be implemented through a collaborative approach among various stakeholders. This cooperative effort aims to achieve shared objectives, ultimately contributing to comprehensive urban sustainability. A Sustainable Urban Logistics Plan is a strategic framework crafted to address the freight mobility requirements of both residents and businesses within cities and their neighboring areas. The primary goal is to enhance the overall quality of the environment and life. Drawing from established planning practices, this plan places significant emphasis on principles of integration, participation, and evaluation.

The SULP should be recognized as a key component of the Sustainable Urban Mobility Plan (SUMP), specifically dedicated to integrating urban logistics schemes, services, and regulations into comprehensive mobility strategies and solutions. Through the ENCLOSE initiative and the practical implementation by partner cities, the SULP has demonstrated its effectiveness in addressing various challenges. This includes managing freight distribution processes and devising solutions to meet the mid-term urban freight mobility needs of both residents and businesses. The SULP's role extends to establishing a shared vision and prioritizing city goals, analyzing and identifying optimal solutions, assessing associated impacts, fostering consensus among diverse stakeholders and local authorities engaged in City Logistics processes, and outlining an institutional-level roadmap for plan adoption.

The following table provides the list of the specific steps related to each methodology elements:

- E0: Setting the objective and target
- E1: Urban mobility scenario and priorities
- E2: Analyze the logistics context and processes
- E3: Setting requirements and logistics baseline
- E4: Identified measures and services vs. requirements
- E5: Service design
- E6: Organization, business model and contracting
- E7: Assessment and impacts evaluation
- E8: roadmap di adopt the SULP

[4] https://www.eltis.org/resources/tools/planning-sustainable-urban-logistics
[5] https://www.eltis.org/sites/default/files/trainingmaterials/enclose_d5_2_sulp_methodology_final_version_0.pdf

- E9: Responsibilities and implementation/ monitoring plan
- E10: Promotion and Communication Plan

The approach for SULP development follows the same cycle as the SUMP process shown in the previous paragraph; the following table matches this lean process steps with the full SUMP process[6].

Table 144 SUMP Step Aggregated Approach for SULP Development[7]

Step 1	Step 2	Step 3
• The inter-departmental team formulated City's UFT stakeholders identified • Multi-Stakeholder Platform/Freight Quality Partnership created • Capacity of resources defined and available • Tools availability ensured • Legal framework and interrelation to the SUMP defined • MOU/ Partnership agreement among the MSPs participants has been signed.	• Geographic scope defined • Relevant policy linkages identified (synergies and conflicts). • Initial options for policy integration assessed. • Initial prioritisation of integration options decided. • Consensus building activities implemented • Work plan and time plan agreed	• City's minimum UFT dataset formulated • Data collected • City's UFT characteristics & Influencing Factors defined • UFT problems and opportunities defined
Step 4	**Step 5**	**Step 6**
• Future UFT scenarios co-created with stakeholders • Scenarios validated by MSP's participants	• SULP objectives defined and agreed with stakeholders	• Measurable targets and assessment indicators defined • Evaluation Frameworks defined
Step 7		**Step 8**
• Relevant past experiences considered • Supporting tools for potential UFT measures identification available and used • Package of measures defined & agreed with the MSPs stakeholders • Suitable set of measure indicators selected. • Monitoring and evaluation arrangements for all indicators developed.		• Responsibilities and budget for monitoring and evaluation agreed on. • All actions identified, defined, and described. • Relationships between actions identified. • Financial analysis and financial resources secured • Timeline defined • Political support ensured

The high Urban freight transportation (UFT) problem complexity is attributed to the existence of multiple industrial stakeholders and the fragmented environment of their business operation. Depending on each city's context particularities, i.e. magnitude of the problem, desired level of intervention (city holistic plan or area level action, available time until intervention implementation etc.) local authorities may find it useful or necessary to merge some SUMP activities when developing a SULP. In other cases, the priority in implementing the actions within a SUMP phase might need to change.

The following table shows the SULPs implementation steps comparison with the SUMP process[8].

[6] https://www.eltis.org/sites/default/files/sustainable_urban_logistics_planning_0.pdf
[7] Source: ELTIS, 2019
[8] https://www.eltis.org/sites/default/files/sustainable_urban_logistics_planning_0.pdf


EU Strategy for the
Adriatic and Ionian Region
EUSAIR


Interreg
EUROPEAN UNION
ADRION
ADRIATIC-IONIAN
European Regional Development Fund - Instrument for Pre-Accession II Fund
EUSAIR FACILITY POINT

Table 145 SULPs Implementation Steps. Comparison with the SUMP process 1/2[9]

[9] Source: ELTIS, 2019

SUMPs Implementation Steps	SULPs Implementation Steps - in relation to the SUMP Methodology
Phase 1: Preparation & Analysis	
Step 1: Set up working structures	**Step 1: Set up working structures**
Activity 1.1: Evaluate capacities and resources	SULP 1.1.SUMP Activity 1.2.: Create inter-departmental core team & SUMP Activity 2.4. Consider getting external support
Activity 1.2: Create inter-departmental core team	SULP 1.2.- SUMP Activity 1.3. Ensure political and institutional ownership & SUMP Activity 1.4: Plan stakeholder and citizen involvement &
Activity 1.3: Ensure political and institutional ownership	SULP 1.3.-SUMP activity 1.1. Evaluate capacities and resources
Activity 1.4: Plan stakeholder and citizen involvement	
Step 2: Determine planning framework	**Step 2: Determine planning framework**
Activity 2.1: Assess planning requirements and define geographic scope (based on "functional urban area")	SULP 2.1.-SUMP Activity 2.1: Assess planning requirements and define geographic scope (based on "functional urban area")
Activity 2.2: Link with other planning processes	SULP 2.2. – SUMP Activity 2.2.: Link with other planning processes
Activity 2.3: Agree timeline and work plan	SULP 2.3.- New Activity: Involve the stakeholders in the planning process
Activity 2.4: Consider getting external support	SULP 2.4.-SUMP Activity 2.3: Agree timeline and work plan
Step 3: Analyse mobility situation	**Step 3: Analyse UFT situation**
Activity 3.1: Identify information sources and cooperate with data owners	SULP 3.1.- SUMP Activity 3.1. Assess & improve City's knowledge on its UFT profile
Activity 3.2: Analyse problems and opportunities (all modes)	SUMP 3.2.- SUMP Activity 3.2: Analyse problems and opportunities (all modes)
Phase 2: Strategy development	
Step 4: Build and jointly assess scenarios	**Step 4: Build and jointly assess scenarios**
Activity 4.1. Develop scenarios of potential futures	SULP 4.1.-Activity 4.1. Develop scenarios of potential futures
Activity 4.2. Discuss scenarios with citizens and stakeholders	SULP 4.2.-Activity 4.2. Discuss scenarios with citizens and stakeholders
Step 5: Develop vision and objectives with stakeholders	**Step 5: Develop vision and objectives with stakeholders**
Activity 5.1: Agree common vision of mobility and beyond	SULP 5.1.- SUMP Activity 5.1.- Agree common vision of mobility and beyond [39]
Activity 5.2: Co-create objectives for all modes with stakeholders	SULP 5.2.-SUMP Activity 5.2.- Co-create objectives for all modes with stakeholders

*The coloured circles show the interrelation among the SUMP and the SULP steps

[39] It is strongly recommended, that the SULP Activity 5,1 be based on the main outputs of the corresponding SULP Activity 5.1. in order to avoid any inconsistencies.

Table 146 SULPs Implementation Steps. Comparison with the SUMP process 2/2[10]

SUMPs Implementation Steps	SULPs Implementation Steps - in relation to the SUMP Methodology
Step 6: Set targets and indicators	**Step 6: Set targets and indicators**
Activity 6.1: Identify indicators for all objectives	SULP 6.1.-SUMP Activity 6.1: Identify indicators for all objectives
Activity 6.2. Agree measurable targets	SULP 6.1.-SUMP Activity 6.2. Agree measurable targets
Phase 3: Measure Planning	
Step 7: Select measure packages with stakeholders	**Step 7: Select measure packages with stakeholders**
Activity 7.1: Create and assess long list of measures with stakeholders	SULP 7.1. – SUMP Activity 7.1. & 7.2.: Create and assess long list of measures with stakeholders & Define integrated measure packages
Activity 7.2: Define integrated measure packages	SULP 7.2.- SUMP Activity 7.3., Plan measure evaluation and monitoring
Activity 7.3: Plan measure evaluation and monitoring	
Step 8: Agree actions and responsibilities	**Step 8: Agree actions and responsibilities**
Activity 8.1: Describe all actions	SULP 8.1.-SUMP Activity 8.1. Describe all actions (Follow the instructions of SUMP Guidelines)
Activity 8.2: Estimate costs and identify funding sources	SULP 8.2. –SUMP Activity 8.2., Estimate costs and identify funding sources
Activity 8.3: Agree priorities, responsibilities and timeline	SULP 8.3.- SUMP Activity 8.3. Agree priorities, responsibilities and timeline
Activity 8.4: Ensure wide political and public support	SULP 8.4.-SUMP Activity 8.4.: Ensure wide political and public support
Step 9: Agree actions and responsibilities *Follow the instructions and recommendations mentioned in the updated SUMP Guidelines*	
Phase 4: Implementation and monitoring *Follow the instructions and recommendations mentioned in the updated SUMP Guidelines*	

In the following chapters details of urban mobility related investments and plans from the national recovery and resilience plans for each country of EUSAIR region is provided.

2.1.3 EuroVelo Network

The EuroVelo network comprises 17 extensive itineraries that span across the entire European continent. The information presented in this report is extracted from the EuroVelo Routes Development Status - Route Development Report 2021. This report relies on data supplied by the network of National EuroVelo

[10] Source: ELTIS, 2019

Coordination Centres and Coordinators (NECC/Cs), as well as national contact points in countries where no NECC/Cs have been established. As of 2021, there are 22 NECC/Cs, tasked with ensuring the national-level implementation, operation, and quality assurance of EuroVelo.

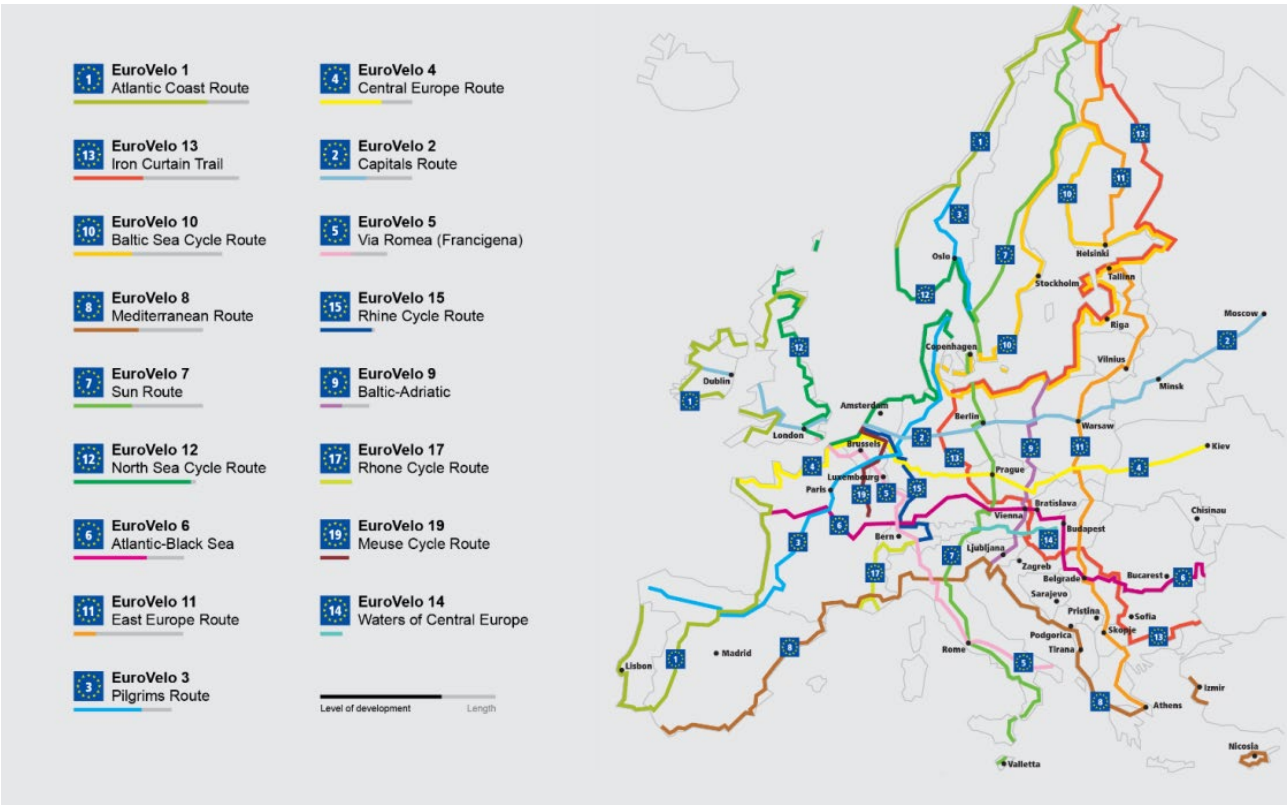
The data, published in April 2021, indicates a continuous expansion of our network since 2019, solidifying EuroVelo's position as the largest cycle route network globally.[11]

The EuroVelo network currently comprises 17 routes, covering a total distance of 95,959 km (85,328 km when excluding overlapping sections), as outlined in the inaugural EuroVelo Route Development Report. The data for this year indicates that 60% of the network, equivalent to 51,538 km, has achieved various levels of development. This includes routes that are either fully developed (21%), featuring signage in accordance with national standards and a dedicated website; developed with EuroVelo signs (36%), incorporating EuroVelo route information panels; or certified (3%), having successfully undergone the certification process based on the European Cyclists' Federation's (ECF) European Certification Standard. Notably, EuroVelo 15 – Rhine Cycle Route stands out as the first certified EuroVelo route.

Conversely, 40% of the EuroVelo network is still in the process of development or at the planning stage. Enhancing these segments is a key priority for the ECF, aiming to achieve a high-quality EuroVelo network by 2030. While this objective is ambitious, collaborative efforts with the network of National EuroVelo Coordination Centres and Coordinators across Europe, along with improvements through European projects and Long-Term Management Agreements, can pave the way to its realization.

[11] https://en.eurovelo.com/news/2021-05-12_first-ever-eurovelo-route-development-report-is-published

Figure 24 Map of the EuroVelo Network with a visual representation of development levels[12]



Another third of the network, about 33,000 km of cycle routes, still needs some improvements. Over a quarter of the network still remains under development, meaning that it is possible to follow the route either by signage or detailed information publicly available on the internet, but some sections may need further development. 12% of the network is at the planning stage. In this last category, the routes are not signposted and there is no detailed information publicly available on the internet. The proposed itinerary communicated shows the best option currently available but may also contain dangerous sections.

Figure 25 EuroVelo Development Status Distribution Across the Network

	Routes at the planning stage	Routes under development	Developed routes	Developed routes with EuroVelo signs	Certified routes
Number of kilometers	9895	23,894	18,306	31,096	2136
Percentage of the whole network	12%	28%	21%	36%	3%

The following table shows the EuroVelo routes passing through EUSAIR region per levels of development.

[12] Source: Eurovelo.com

Table 147 EuroVelo Routes per Levels of Development

EuroVelo Route[13]	Length in KM	Planning stage	Under development	Developed	Developed with EV signs	Certified[14]	Developed, with EV signs, and Certified
EuroVelo 6 Atlantic-Black Sea	6637	0%	33%	5%	62%	0%	67%
EuroVelo 8 Mediterranean Route	7639	13%	37%	28%	22%	0%	50%
EuroVelo 5 Via Romea (Francigena)	3204	47%	6%	20%	27%	0%	47%
EuroVelo 9 Baltic-Adriatic	2204	8%	48%	9%	35%	0%	44%
EuroVelo 7 Sun Route	7639	23%	34%	31%	12%	0%	43%
EuroVelo 13 Iron Curtain Trail	10,433	0%	58%	12%	30%	0%	42%
EuroVelo 11 East Europe Route	6610	38%	43%	9%	10%	0%	19%

*¡

The following chapters provide details of the development of routes passing through each country of EUSAIR region.

[13] The classification of EuroVelo routes was done according to the following logic:
- Highest percentages of certified routes
- Highest percentages of routes either developed or developed with signs
- Highest percentages of routes developed with signs
- Highest percentages of routes developed
- Highest percentages of routes under development
- Highest percentages of routes at the planning stage

When levels of development were the same for two routes, then the longest route was put first.

[14] A EuroVelo Route, or a section of min. 300 km of a EuroVelo Route, can be certified if it has been surveyed and fulfils the relevant criteria according to the European Certification Standard (ECS) methodology, developed by the ECF. The certification label ensures a high-quality level for the route, as well as good public transport connections and availability of information both online and in paper format.

2.2 Albania

In order to provide details of the interventions for the integration of urban nodes and tourist centers in the main EUSAIR networks the Sustainable Urban Mobility Plan (SUMP) and Sustainable Urban Logistics Plan (SULP) for selected main urban nodes and National Transport Plan of Albania based on their availability are studied. In addition, the status of EuroVelo Network is studied.

Table 148 Available strategic documents per city

	SUMP	SULP
Tirana	✓	n.a.
Durrës	n.a.	n.a.

2.2.1 Tirana

2.2.1.1 SUMP for the city of Tirana

Tirana, the capital city of Albania, has undergone rapid urban growth and uncontrolled urbanization in recent decades. However, the city's leadership has now recognized the critical importance of sustainable urban mobility, leading to the implementation of various measures to enhance mobility within the city.

In the spring of 2019, Tirana initiated the development of its first Sustainable Urban Mobility Plan (SUMP)[15] with the support of the 'Sustainable Urban Mobility in South-East European Countries II' (SUMSEEC II) project, funded by the Open Regional Fund for South-East Europe (SEE) - Energy Efficiency (ORF-EE). This project is executed by the German international development agency (GIZ) and financed by the German Federal Ministry for Economic Cooperation and Development (BMZ).

The process commenced with the signing of a Memorandum of Understanding (MoU) between GIZ and the Municipality of Tirana in June 2019. The SUMP's development aligned with the recently updated EU Guidelines for SUMPs and the SUMSEEC II roadmap, which consolidates knowledge and policy tools to support sustainable urban mobility development in SEE countries.

The preferred scenario for the SUMP was structured around six key strategies, identified as foundational policy pillars to address Tirana's unique mobility challenges and achieve the vision and objectives of the plan:

1. Enhancing public transport to be more extensive, efficient, integrated, attractive, and inclusive.

2. Promoting cycling and micro-mobility as viable alternatives to private motorized transport.

3. Implementing 'Mobility Resilient Tirana,' combining infrastructure investments and soft policies to optimize resource utilization and increase the flexibility and responsiveness of the mobility system.

4. Managing parking supply, logistics, and pricing to influence modal choice.

[15] Source: ELTIS, 2019.

5. Fostering a child-centered design, utilizing the city's streets and urban spaces to enhance accessibility, attractiveness, and safety.

6. Applying intelligent transport system (ITS) technologies, digital solutions, and e-mobility for a smarter city.

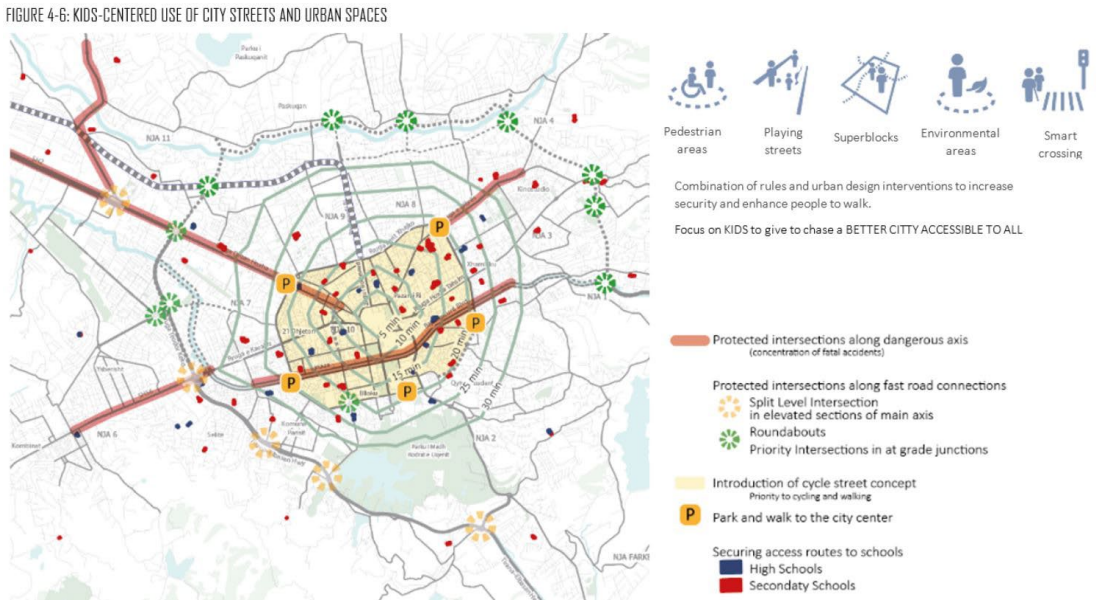
These strategies form a comprehensive framework to guide Tirana in creating a sustainable and efficient urban mobility system:

1) The **first strategy** looks at improving the quality of public transport in Tirana. It focuses on increasing the level of service (in terms of its quantity and quality). As public transport is the preferred modal choice of a large proportion of the population and, given its current limitations (particularly the absence of mass rapid transit and the current road capacity), the strategy seeks to reinforce the role of public transport and improve its performance, attractiveness and level of inclusivity.
2) The **second strategy** recognizes the fundamental role of cycling in covering short-to-medium range distances in a compact city such as Tirana and adds an important (and still absent) element – the use of electric scooters and other devices such as hoverboards, monowheels and two-wheeled electric vehicles. Hence, the strategy works on all micro-mobility options and targets car users primarily to encourage them to shift to these modes. Increasing the use of bikes and other active mobility modes is also crucial in delivering the health-related benefits of sustainable mobility for residents.
3) Resilience should be a strong element of all city strategies and Tirana has largely demonstrated its capacity to act in a fast-changing environment and to react to unexpected shocks. The SUMP working group realized that numerous infrastructure interventions have already been planned to give the city a robust and more hierarchical road network. These interventions were prioritized in the **third strategy** in a timeframe that recognized the need to secure sufficient financial resources for this while supporting other policy measures, thus allowing a sufficient level of flexibility for the mobility system.
4) The **fourth strategy** aims at properly managing private motorized vehicles and urban freight traffic by using two main drivers:

- Pricing policy measures;
- The development of nodes where people can transfer from cars to buses or to micro-mobility options, and where freight can be transferred from trucks or diesel vans to cargo bikes and small electric vans. [16]

[16] https://www.eltis.org/resources/case-studies/sump-city-tirana

Figure 26 Kids-centered use of city streets and urban spaces[17]



5) The **fifth strategy** builds on the widespread local policy that focuses on the children and young residents of Tirana to foster social innovation and accelerate societal change. The SUMP integrates this approach and current initiatives in the mobility sector by putting together a large set of measures, from infrastructure and urban design interventions to more regulatory ones, that were conceived and implemented having children as the primary users and target group. The strategy embraces the overall theme of the **transformation of the city's streets into public places** allowing all types of users, including elderly people and people with reduced mobility, to walk throughout the city instead of using motorized vehicles. Applying a child-centered design means having a city that is accessible, safe and more livable.
6) The **sixth strategy** includes all of the different measures that are necessary to support the use of ITS, the introduction of digital solutions to allow residents to smoothly use and pay for different mobility options and services, and the **expansion and improvement of electric mobility in Tirana**.[18]

The SUMP would be of little use if proper tools and procedures were not put in place for its implementation. Furthermore, the progress of the measures being implemented and, importantly, their adherence to the overall objectives and evolving context, should be periodically assessed using a monitoring and evaluation process. This provides regular information to decision makers, potential funding bodies and local stakeholders to assess whether the SUMP has or will deliver benefits to the community, provides value for money, is worth continuing and/or requires modifications to be successful.

Table 149 Summary of SUMP for Tirana

SUMP Strategic objectives	-Fostering public transport to be more extensive, more efficient, integrated, attractive and inclusive;

[17] Source: ELTIS, 2019
[18] https://www.eltis.org/resources/case-studies/sump-city-tirana

	-Promoting cycling and micro-mobility as alternatives to private motorized transport; -Mobility Resilient Tirana', which combines infrastructure investments and soft policies, making the best use of resources (financial and spatial), and increasing the flexibility and reactiveness of the mobility system; -Managing parking supply, logistics and pricing to steer modal choice; -Fostering a child-centered design, and using the city's streets and urban spaces to increase accessibility, attractiveness and safety. -Applying intelligent transport system (ITS) technologies, digital solutions and e-mobility for a smart(er) city.
Maturity (ongoing, planned or financed)	ongoing
Team / stakeholders involved	• Tirana Municipality • RT Trasporti e Territorio (Italy) • SEE Change Net (Bosnia and Herzegovina) • local partner EDEN (for communication)
Cost	No final cost has been put.
Estimated end year	3 phasing of implementation: (short term (2022), medium term (2025) long term (to 2030)

2.2.1.2 SULP for the city of Tirana

There is no SULP available for the city of Tirana at the moment of drafting this report.

2.2.1.3 Albanian National Transport Plan

The Government of Albania adopted the Sectorial Strategy of Transport (SST) and Action Plan 2016- 2020[19] 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. According to the Second Five Years Review of the Albanian National Transport Plan (ANTP3)[20] the following investments are planned for urban transport in Tirana:

Table 150 Investment Plans for Urban Mobility Projects for Tirana from Albanian National Transport Plan

Type of investment	Budget (M€)	Timeframe	Level of priority	Sources of funding	Short term	Medium term	Long term	Stakeholders involved
New bus terminal in North West	18	Short term	High	State budget and Municipality budget	18			MIE, Tirana Municipality
New tramway in Tirana	30.112	Long term	High	EBRD and State budget	0.122		30	MIE, Tirana Municipality

[19] https://www.infrastruktura.gov.al/wp-content/uploads/2020/07/3rd-Monitoring-Report-of-Sectorial-Transport-Strategy-and-Action-Plan-2016-2020_June-2020.pdf
[20] https://www.arrsh.gov.al/te-ngarkuara/pdf/TR4689-FINAL-ANTP3-PART-I-ED1.pdf

The Action Plan has been also prepared. The Action Plan will constitute the roadmap of actions to be implemented in the next 20 years in the transport sector. As in the Investment Plan, the Action Plan includes their budget, the tentative time frame for the implementation, the level of prioritization (high, medium or low), possible sources of funding, stakeholders involved (stakeholders in charge of implementing the projects) and interdependence with other programmes or general comments.

2.2.2 Durrës

2.2.2.1 SUMP for the city of Durrës

There is no SUMP available for the city of Durrës at the time of drafting this report.

2.2.2.2 SULP for the city of Durrës

There is no SULPs available for the city of Durres at the time of drafting this report.

2.2.3 EuroVelo Cycling Routes Development Status for Albania

The following table shows the levels of development of the EuroVelo cycling routes crossing the country. EuroVelo 8 Mediterranean Route is passing through Albania.

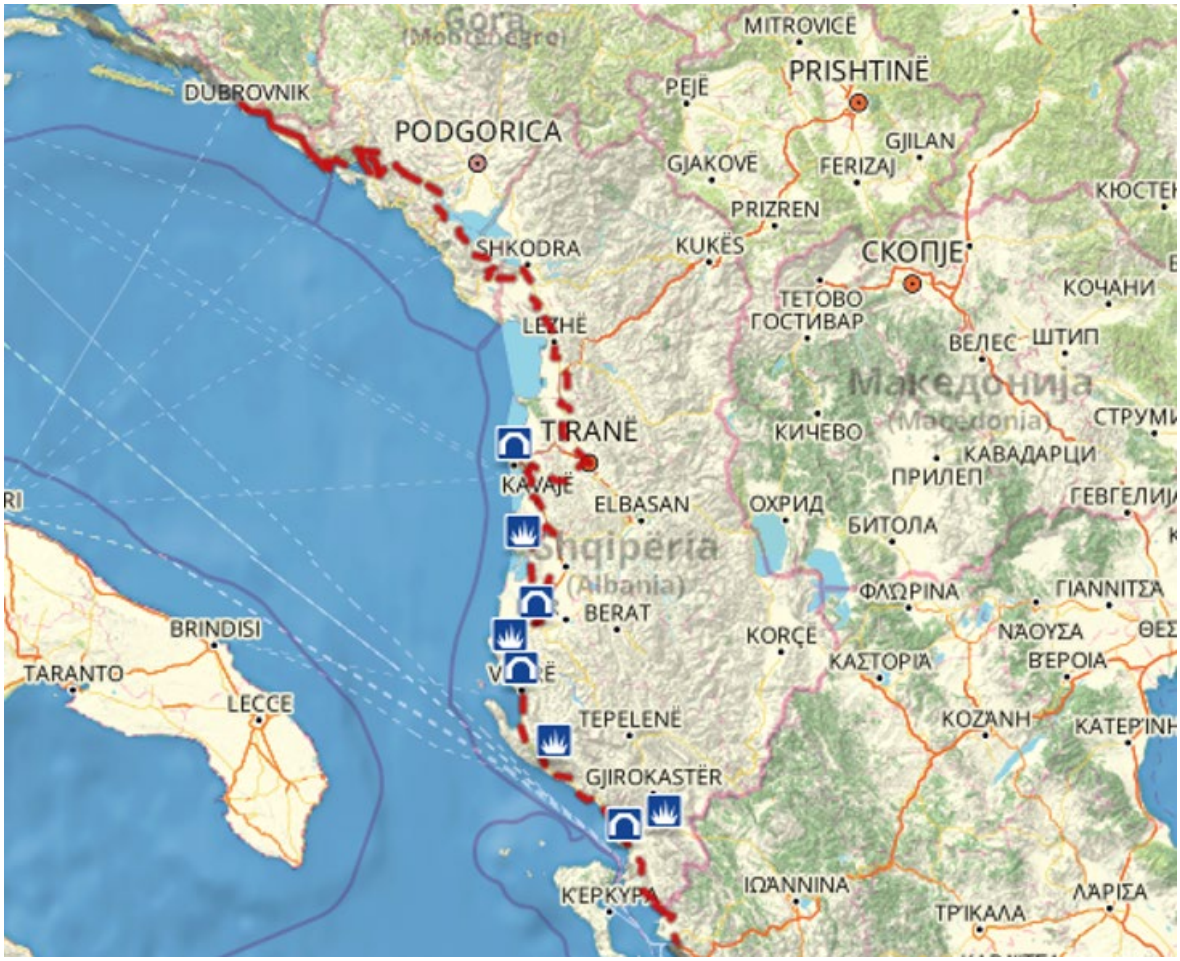
Table 151 EuroVelo Routes Development Status for Albania[21]

Country	EuroVelo km	Planning stage	Under development	Developed	Developed with EV signs	Overall Development Level
Albania	483	0%	100%	0%	0%	0%

The Albanian coast is characterized by fresh mountain air, mixing with the warm sea breeze. The climatic diversity of the country is matched by biological diversity and its forests are home to a wide range of mammals, including wolves, bears, wild boars and chamois. While the lynx, wildcats, pine martens and polecats are rarer, they can also be spotted in the landscape. Albania has an incredibly distinct history that gives it a fascinating modern-day cultural blend. Its language is unique, and while it has long been a secular state, it has the only majority Muslim population in Europe (excepting Turkey)[22].

[21] https://pro.eurovelo.com/download/document/EuroVelo%20Route%20Status%20Report_Final_20210520.pdf
[22] https://en.eurovelo.com/ev8/albania

Figure 27 EuroVelo 8 Mediterranean Route in Albania[23]



2.2.4 Summary of Urban Mobility and Transportation Projects and Strategic Actions

The following table shows the summary of all the previously mentioned planned and ongoing projects related to urban mobility and transportation for the selected urban nodes of Albania including project description, timeline, estimated costs and expected impacts.

Table 152 Summary of Planned and Ongoing Urban Mobility and Transportation Related Projects and Strategic Actions of Albania

Node or section	Project description	Costs (€)	Estimated end year	Impact
Tirana	New Bus terminal in North West entrance of Tirana	18 M	Short Term (2019-2023)	Improving public transport network to be more reliable and accessible
Tirana	New Tramway in Tirana	30.112 M	Long Term (2029-2038)	Improving public transport network to be more reliable and accessible

[23] Source: Eurovelo.com

Albania	Development actions to include urban transport as a key element of Albanian National Transport Plan. Improvements in data collection processes.	0.2 M	Medium Term (2024-2028)	Improving Urban Mobility
Albania	Benchmarking study, in order to make a possible a comparison between Albania and other countries and prepare guidelines to improve the sector based on successful experiences.	0.4	Medium Term (2024-2028)	Improving Urban Mobility

2.3 Bosnia and Herzegovina

In order to provide details of the interventions for the integration of urban nodes and tourist centers in the main EUSAIR networks the Sustainable Urban Mobility Plan (SUMP) and Sustainable Urban Logistics Plan (SULP) for selected main urban nodes based on their availability are studied. In addition, the status of EuroVelo Network is studied.

Table 153 Available strategic documents per city

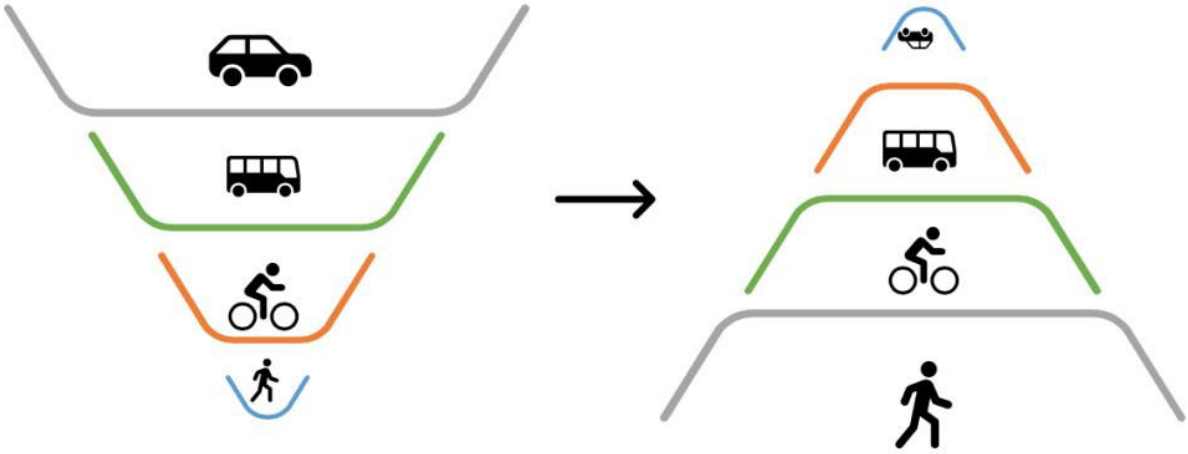
	SUMP	SULP
Sarajevo	✓	n.a.

2.3.1 Sarajevo

2.3.1.1 SUMP for the city of Sarajevo

Sarajevo as the capital of Bosnia and Herzegovina (BIH) is an administrative, economic, cultural, and academic center in whose metropolitan area live more than half a million inhabitants. The previous two decades have been characterized by significant migrations to Sarajevo, as well as the construction of residential zones and commercial facilities in the central area of the city. Previously, significant funds have been invested in the construction of communal and social infrastructure, as well as the renewal and modernization of infrastructure systems, including transport infrastructure with the goal to ensure uninterrupted motorization, increased population migration and tourism for uninterrupted functioning of the capital of Bosnia and Herzegovina. The Sustainable Urban Mobility Plan (SUMP) of Sarajevo Canton and the City of Sarajevo is a strategic plan designed to meet the mobility needs of people and businesses in Sarajevo and the surrounding area for a better quality of life. New approaches to urban mobility planning include developing a strategy that can encourage a shift to cleaner and more sustainable modes of transport, such as walking, cycling, public transport, new patterns of car use and ownership, the use of new technologies, and the adoption of new sustainable city logistics.

Figure 28 New approach to integrated spatial planning and urban mobility: sustainable modes first



By developing the Sustainable Urban Mobility Plan and selecting a Scenario shall raise the quality of urban mobility. Also, SUMP aims to contribute to build necessary infrastructure and enable walking, cycling, clean and safe public transport, energy efficient public transport vehicles, city logistics, benefits for people with disabilities and reduced mobility, intermodality, managed mobility, traffic, and transport planning and land use. During the development of the Sustainable Urban Mobility Plan of Sarajevo, several scenarios were considered with regards the strategic pillars, measures and activities arising from the time frames for the implementation of SUMP (2020-2025). From the observed scenarios, the following three scenarios have been singled out:

- Scenario 1 refers to the primary investment in the pillar public – Public transport
- Scenario 2 refers to the primary investment in the pillar for non-motorized transport and movement – Walking and cycling
- Scenario 3 refers to balanced investments in all strategic pillars (SUSTAINABLE SPATIAL PLANNING AND URBAN MOBILITY, WALKING AND CYCLING, PUBLIC URBAN TRANSPORT, INDIVIDUAL PERSONAL TRANSPORT, CITY LOGISTICS). It refers to balanced investment in all strategic pillars (SUSTAINABLE SPATIAL PLANNING AND URBAN MOBILITY, WALKING AND BICYCLING, PUBLIC TRANSPORT, INDIVIDUAL PERSONAL TRANSPORT, CITY LOGISTICS) proposed as the optimal scenario given that this is the first Sustainable Urban Mobility Plan for the Sarajevo area.[24]

Table 154 Summary of SUMP for Sarajevo

SUMP Pillars and Measures	1) SUSTAINABLE SPATIAL PLANNING AND URBAN MOBILITY • Implementation of SUMP • Monitoring and evaluation of SUMP

[24] SUSTAINABLE URBAN MOBILITY PLAN FOR SARAJEVO CANTON AND CITY OF SARAJEVO (SUMP) - SHORT VERSION, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, 2020

	• Strengthening and integrating the planning sector and management levels • Implementation of integrated measures in the field of mobility • Public participation and promotion of SUMP achievements • Traffic safety management in the Sarajevo Canton • Action / Disposal after a traffic accident in the Sarajevo Canton • Promotion, raising awareness of traffic safety and education • Establishing a safe traffic infrastructure • Support for innovative solutions in sustainable development and urban mobility • Monitoring of air pollution caused by traffic • Impact of natural hazards and risk management in urban mobility 2) WALKING AND CYCLING • Unobstructed movement of pedestrians in all parts of Sarajevo, specially marked and designated area intended exclusively for walking • Ensuring adequate space on existing streets and nominating new streets reserved exclusively for pedestrians or mixed with the timing of use rights • Improvement of bicycle traffic (establishment of interconnected and functional network of bicycle paths and parking lots, system of public bicycles) • Establishment of new areas of the city's zero-emission core, where the entry of nonmotorized vehicles and zero-emission vehicles would be allowed • Promotion and raising awareness among citizens • Development of improved safety standards for non motorized vehicles • Raising the level of safety of pedestrians and cyclists in traffic in the Sarajevo Canton • Safer non-motorized assets in the Sarajevo Canton Development and construction of horticultural arrangement of traffic infrastructure • Innovative renovation of city streets • Assessment of urban space with defined new zones of non-motorized movement 3) PUBLIC URBAN TRANSPORT • Adoption of a strategic, legal and regulatory framework at the Cantonal level in order to develop a better PT system through an integrated public transport service • Procurement of vehicles for the transport of persons with reduced mobility and persons with disabilities • Development of integrated public transport, all types of urban transport, including rail public passenger transport

	• Improving PT traffic and transport systems through the digitalization process • Expanding the network of zero-emission PT lines and improve the structure of public passenger transport vehicles in favor of electric buses and other zero-emission vehicles • Acceleration of the main lines of public urban passenger transport • Use of vertical transport as public passenger transport • Improving the quality of existing taxi transport • Promotional campaign and raising citizens' awareness of the need to increase the use of public passenger transport • Construction of a system of protection and safety of passengers 4) INDIVIDUAL PERSONAL TRANSPORT • Construction of primary city roads and creation of preconditions for sustainable mobility • Establishment at the entrances to the area of city municipalities, parking spaces with the function of Park and Ride systems • Efficient parking management and digitization of parking management systems • Construction of garages / reduction of the number of illegally parked cars • Construction of smart speed limit systems at 30 km / h • Restricting traffic in the inner city with the creation of infrastructural preconditions • Development of a strategic and legislative regulatory framework for electromobility • Use of e-vehicles through procurement for all municipal and cantonal e-vehicle services • Development of a sharing platform for e-vehicles • Establishment and provision of a network of e-charging stations and free parking for e-vehicle • Educating citizens about e-vehicles and low-emission transport • Safer traffic participants in the Sarajevo Canton • Insurance of safer vehicles in the Sarajevo Canton 5) CITY LOGISTICS • Adoption of a strategic regulatory framework for the establishment of city logistics in the Sarajevo Canton • Planning and construction of city logistics terminals • Introduction of electric vehicles for the needs of city logistics and services for zones with restricted or prohibited movement of motor vehicles
Maturity (ongoing, planned or financed)	ongoing

Team / stakeholders involved	• the city and the Canton of Sarajevo • GIZ Open Regional Fund for South-East Europe – Energy Efficiency (ORF-EE) • CEDES Consortium • SEE CHANGE NET • Ministry of Transport
Cost	741,115,000 Euro
Estimated end year	2025

2.3.1.2 SULP for the city of Sarajevo

There is no SULP available for the city of Sarajevo at the moment of drafting this report.

2.3.2 EuroVelo Cycling Routes Development Status for Bosnia and Herzegovina

Temporarily the itinerary of EuroVelo 8 - Mediterranean Route has been moved from the coast of Bosnia and Herzegovina to the Pelješac Peninsula in Croatia. This is because the conditions are currently better for cycling in that location. The situation will be monitored going forward and, in consultation with the relevant bodies in Bosnia and Herzegovina and Croatia, the route may be returned to Bosnia and Herzegovina in the future.[25]

2.3.3 Summary of Urban Mobility and Transportation Projects and Strategic Actions

The following table shows the summary of all the previously mentioned planned and ongoing projects related to urban mobility and transportation for the selected urban nodes of Bosnia and Herzegovina including project description, timeline, estimated costs and expected impacts.

Table 155 Summary of Planned & Ongoing Urban Mobility and Transportation Related Projects and Strategic Actions of Bosnia and Herzegovina

Node or section	Project description	Costs (€)	Estimated end year	Impact
Sarajevo	SUMP including a number of measures in the following pillars: 1) Sustainable spatial planning and urban mobility (10.0 M€) 2) Walking and cycling (6.6 M€) 3) Public Transport (281.2 M€) 4) Individual personal transport (435.1 M€)	741,115,000 €	2025	Improving public transport network, Enhancing active & soft mobility, Electrification, Increased Safety, Investment on Innovative Sustainable Mobility, Ensuring sustainable urban logistics & last mile delivery

[25] https://en.eurovelo.com/ev8/bosnia-and-herzegovina

	5) City logistics (8.3 M€)			

2.4 Croatia

In order to provide details of the interventions for the integration of urban nodes and tourist centers in the main EUSAIR networks the Sustainable Urban Mobility Plan (SUMP) and Sustainable Urban Logistics Plan (SULP) for selected main urban nodes and planned urban mobility related projects from the National Recovery and Resilience Plan (NRRP) of Croatia based on their availability are studied. In addition, the status of EuroVelo Network is studied.

Table 156 Available strategic documents per city

	SUMP	SULP
Zagreb	n.a.	n.a.
Rijeka	n.a.	✓
Split	n.a.	n.a.
Ploče	n.a.	n.a.

In Croatia, Sustainable Urban Mobility Plans (SUMPs) lack legal definition, national guidelines for preparation, and ties to national funding sources. Despite existing sustainability objectives and political backing for SUMPs, there are limitations in public participation and technical capabilities for their development.

A 2014 public consultation conducted by the Faculty of Transport and Traffic Sciences (FTTS) on SUMPs in Croatia revealed a lack of coordination among local, county, and national levels. Half of the respondents expressed the belief that their local communities lacked integrated planning for urban mobility. Regarding EU-level support for SUMP development, Croatian respondents prioritized financial assistance and the sharing of best practices in sustainable urban mobility.

Under the Adria.MOVE IT! project (2007-2013), SUMPs were formulated for Dubrovnik (42,615), Umag (12,901), and Novigrad (4,345). In 2015, the city of Koprivnica (30,854) developed a SUMP through the CIVITAS Dynamo project (2012-2016) and the CH4LLENGE project (2013-2016). The city of Zagreb (790,017) is planning an innovative, participative, and successful approach to sustainable urban mobility planning.

To modernize a portion of the bus fleet within the transport system framework, the city of Sisak (47,768) is developing a SUMP with the financial support of the European Bank for Reconstruction and Development (EBRD) to ensure optimal urban transport planning (2016).

The FTTS and the Department of Urban Transport completed three scientific research projects funded by the University of Zagreb: Development of Sustainable Urban Mobility Plans (2013-2014), Analysis of the Role of Public Transport in Sustainable Urban Mobility (2014), and Evaluation of the Impacts of Strategies and Measures for Sustainable Transport in Cities (2015)..[26]

[26] https://www.eltis.org/it/mobility-plans/member-state/croatia

2.4.1 Zagreb

2.4.1.1 SUMP for the city of Zagreb

Zagreb, the capital of the Republic of Croatia, is home to approximately 800,000 residents within the administrative boundaries of the City of Zagreb. Mobility stands out as a key strategic concern in Zagreb, and the incorporation of sustainable urban transport planning holds significant importance in pivotal documents like the City of Zagreb Development Strategy, the Zagreb City Master Plan, and the city's spatial plan.[27]

The city's strategic mobility projects and programmes focus on the modernization of public transport, prioritizing public transport in intersection management, energy-efficiency and car use rationalization measures, integration of public transport systems into a single tariff union (bus and tram network, regional train), better use of existing railway infrastructure by providing improved service and building new stops, introduction of a light rail system and the completion of the bicycle network within the city and in the region.

Among other activities, the City Office for Strategic Planning and Development is responsible for the coordination and encouragement of regional development with urban transport and mobility being one of the key elements. It is involved in shaping the city's strategic documents like the Zagreb Plan 2011-2013 and 2014-2020, a document that is based on partnership and participation. Further, the office is involved in EU projects such as CH4LLENGE, spatial data infrastructure, urban statistics and demography as well as in the coordination of efforts and cooperation at city, regional and national level. The management of public participation in city development processes is also one of the office's chief tasks.

The City of Zagreb is one of the five Advancing Cities in the CH4LLENGE project and is taking steps forward in sustainable urban mobility planning. It will review and analyze its existing participation strategies and building on that, develop a new strategy for engaging stakeholders and citizens. In a participatory approach, a common vision for mobility will be developed, mobility priorities and goals will be set and the SUMP key measures will be agreed on. Not only relevant local, regional and national stakeholders will be involved – also cross-sectoral cooperation between institutions and disciplines will play a major role in the planning processes.

2.4.1.2 SULP for the city of Zagreb

There is no SULP available for the city of Zagreb at the time of drafting this report.

2.4.2 Rijeka

2.4.2.1 SUMP for the city of Rijeka

There is no SUMP available for the city of Rijeka at the time of drafting this report.

2.4.2.2 SULP for the city of Rijeka

In terms of the concentration of industrial facilities, the primary city in the Functional Urban Area (FUA) is Rijeka. The Rijeka junction holds significant importance as one of the main traffic hubs in Croatia. Rijeka

[27] http://www.sump-challenges.eu/content/city-zagreb

serves as a key binding site where international maritime, road, and rail corridors intersect, giving the city an interregional character. The port of Rijeka is central to the Trans-European Transport Networks (TEN-T).

The hinterland of Rijeka features major road transport routes, including the A7 motorway connecting the A8 (the Istrian Y) and the A6 (Rijeka-Bosiljevo) highways. The Rijeka area houses substantial industrial, logistics, and transport facilities, such as shipyards, the Port of Rijeka, and the Adriatic Gate Container Terminal (AGCT).

Several shopping centers in the broader City of Rijeka area contribute to logistic chains, including large shopping centers like TCR (Tower Center Rijeka) and ZTC (Zapadni Trgovački Centar), as well as standalone stores like Lidl, Plodine, Department Store Ri, and Decathlon. Notably, the Industrial Zone of Kukuljanovo in the City of Bakar and the Commercial Zone Marinići in the Municipality of Viškovo host significant concentrations of commercial facilities.

Following surveys, roundtables, and research, key user requirements were identified in four main categories:

1. Technical aspect – focusing on technical and functional aspects of the logistics system.

2. Operational aspect - addressing requirements related to frequency, type of delivery, shipment weight, motivation, and control and management of the delivery system.

3. Commercial aspect - considering economic and commercial processes, service and supply quality, impact on customer satisfaction, competitive advantage, and the company's reputation.

4. Socio-economic aspect - evaluating the wider impact of the urban logistics system on the socio-economic needs of users.

Strategic goals (SG) aligned with the Master Plan for Developing the Traffic System of the Functional Region of Northern Adriatic include ensuring good traffic connections, improving transport accessibility, increasing urban and regional mobility, and enhancing the quality of transport services.

Operative goals (OG) aligned with the Master Plan focus on developing high-serviceability road infrastructure, improving the road network around urban areas, optimizing the transport system for efficiency and sustainability, and reducing motor vehicle traffic in urban areas to mitigate environmental impact.

Operative goals defined in the Sustainable Urban Logistics Plan (SULP) encompass defining access and transit for freight transport corridors, introducing low or zero-emission vehicles, implementing IT solutions for delivery system control, and harmonizing supply regulations with specific objectives and measures adopted by the City of Rijeka.

Figure 29 Proposal of off-street locations for the establishment of "Hot-Spot" places for the Implementation Plan on the proposed measures (SULPITER Project, 2019)

NB the map shows the addresses of 4 hot-spot locations for goods transshipment.

The first step in the dynamics of the implementation of the selected measures is to define a Plan of measures. The Plan defines measures that are related and valid for entire FUA area, and measures envisaged for certain narrow parts of FUA area. In particular, by analyzing the logistics process, by identifying the users and partner needs, the state of traffic infrastructure and according to results of the SWOT, a proposal for the measures is indicated in the table below. These measures reflect the need to take steps to improve the overall logistics of the situation.

Table 157 Summary of SULP for Rijeka

SULP Projects Summary	• Spatial planning of roads and corridors for logistics and freight transport -Land reserved for logistic purposes; defining freight routes and corridors in the FUA - Securing areas for logistics manipulation; relieve the city center of freight traffic; reducing traffic congestion and CO2 emissions • Organization of logistics processes - Connect all relevant stakeholders in the logistics process and establish the mutual coordination of all Activities - Optimal utilization of existing logistics resources; relieve the city center of freight traffic; delivery "on time"; reducing traffic congestion and deadlock

	• Harmonizing delivery regulations with other regulations related to traffic -Local authority decisions on traffic regulations must be coordinated with other local regulations on delivery - Ensuring sustainable development of the logistics system • Introducing low carbon emitting vehicles for Last Mile Delivery –By Introducing light electric vehicles in pedestrian zones and the zones of limited traffic (electric bicycles and tricycles) - Reduction of CO2 emissions in the city center; reducing the risk of cargo trucks interacting with foot traffic – increasing pedestrian safety • Delivery outside peak hours -Time limit for delivery vehicles at the city center; harmonization of delivery regulations and amendments to the Decision on the organization of traffic in the City of Rijeka - Reducing the number of supply vehicles in the city center; improving the life quality in the city center; CO2 reduction • Reservation of off-street areas for logistics operations - Introducing off-street location for transshipment to low carbon emitting vehicles in the city logistics system - Improving the urban delivery system; reducing traffic congestion; CO2 reduction; improving the life quality in the city center • Introducing IT solutions for control and management of the delivery system in the city - Improving delivery system in the city center - Raising the quality of the delivery system in the city; stimulating delivery at a time of reduced traffic intensity; reducing traffic congestion
Maturity (ongoing, planned or financed)	ongoing
Team / stakeholders involved	• Faculty of Maritime Studies of the University of Rijeka • Municipality of Rijeka • Dept. of Urban planning and Traffic wardens • the municipal private company of Rijeka • Regional and local authorities • Representatives of higher research • Members of the traffic police • Private companies
Cost	37 million €
Estimated end year	2030

2.4.3 Split

2.4.3.1 SUMP for the city of Split

There is no SUMP available for the city of Split at the moment of drafting this report.

2.4.3.2 SULP for the city of Split

There is no SULP available for the city of Split at the moment of drafting this report.

2.4.4 Ploče

2.4.4.1 SUMP for the city of Ploče

There is no SUMP available for the city of Ploče at the moment of drafting this report.

2.4.4.2 SULP for the city of Ploče

There is no SULP available for the city of Ploče at the moment of drafting this report.

2.4.5 The National Recovery and Resilience Plan (NRRP) of Croatia

The NRRP of Croatia[28] consists of 146 investments and 76 reforms. They will be supported by €6.3 billion in grants. 40.3% of the plan will support climate objectives and 20.4% of the plan will foster the digital transition. The following investments relate to local public transport:

- **C1 .4. R4 Improving the public transport system**. The objectives are: cleaner, safer and more sustainable public line transport of passengers in the Republic of Croatia. The investment includes Continuation of the reform which will enable the implementation of the PSO contract in the Republic of Croatia includes the following activities: (i) drawing up a precise and detailed plan for the implementation of the PSC Treaty, which should include a financial analysis. The plan should provide clear guidelines for each participant participating in the implementation of the PSO Agreement (LSGU/MRS, operators, MMPI, MINISTRY of Finance, Government of the Republic of Croatia). The plan should include both a clear timetable and a KPI (Key performance indicators) to enable monitoring of the implementation of the plan. (ii) developing an Action Plan for communication and promotion of PSO contracts in order to inform and sensitize all stakeholders. All stakeholders, including citizens, should receive information about the new system, which are advantages of the system for each stakeholder and what is the implementation plan for the PSO agreement. It is proposed to consider the implementation of workshops, lectures, web site development, information Centre, promotional materials and everything else necessary to provide stakeholders with information on PSO contracts. The Action Plan will facilitate the introduction of PSO contracts and increase transparency. Estimated cost: HRK 1,550,000,000 (investment). Implementation period: 1Q/2021.-2Q/2026.
- **C1 .4. R2-I6 Modernization of the Zagreb node**. The objectives of the projects for modernization and development of the railway node Zagreb are improving local and regional railway passenger transport, better integration of railways into the public transport system of the City of Zagreb, improvement of availability of railway and local public transport and increasing the share of railway and local public transport in the total transport in the wider area of Zagreb. The barrier between the part of the city situated on the two sides of the railway will be solved. Estimated cost 750,000,000 HRK. Implementation period 6/2021.-12/2025.
- **C1 .4. R4-I1 Purchase of alternative-powered vehicles**. The aim is to modernize the public urban, suburban and interurban line bus transport of passengers through the procurement of new electric

[28] https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility/croatias-recovery-and-resilience-plan_en

vehicles and the installation of the necessary infrastructure to promote the use of zero emission factor vehicles and reduce CO2 emissions of existing motor parks. The investment includes the urban, suburban and interurban passenger line traffic, which relates to an environmentally friendly motor pool (buses) and the related modernized infrastructure, which are the basis for fast and accessible public (urban, suburban, interurban) transport. Estimated cost HRK 700,000,000. Implementation period 3/2021.-12/2025.

- **C1 .4. R4-I2 Modernization of tram infrastructure**. The aim is to modernize the tram infrastructure in Osijek and Zagreb, in order to provide a better and faster public transport service and increase the number of passengers using public urban transport, which will ultimately result in a reduction of CO2 emissions in traffic. The investment includes the modernization of the tram system by expanding the tram line by 1.2 km and building a new remize for accommodation and maintenance of trams and buses in Osijek. The second part of the investment relates to the purchase of a minimum of 30 modern low floor trams in the City of Zagreb. Estimated cost HRK 700,000,000. Implementation period 3/2021.-12/2025.
- **C1 .4. R4-I3 Modernization and construction of bus stations**. The objective of this investment is the modernization and construction of public transport bus stations owned by local/regional self-government, which would provide better quality public transport services and increase the number of passengers using public urban transport, which will ultimately result in a reduction of CO2 emissions in transport. The investment encompasses the construction of 2 new and modernization of the existing 7 bus stations with the aim of increasing the energy efficiency of the terminals, digitizing existing services and increasing the accessibility of infrastructure for persons with reduced mobility. The investment will include investments in the modernization of the following bus stations: AK Benkovac, AK Ploče, AK Biograd na moru, AK Zadar, AK Sibenik, AK Vinkovci, AK Sisak, while two new constructed stations will include AK Pazin and AK Virovitica. Estimated cost HRK 150,000,000. Implementation period 9/2021.-12/2025.
- **C1 .4. R5-I4 Co-financing programme for the purchase of new alternative fuels vehicles and the development of alternative fuels infrastructure in road transport**. The measure consists of two components: (i) co-financing the purchase of new alternative fueled vehicles and (ii) the development of alternative fuel infrastructure. Under Component I, MMPI will develop a state aid scheme and implement a grant procedure to co-finance the purchase of new electric and hybrid vehicles, namely the following categories: L1, M1, M2, M3, N1, N2 and N3. The procedure will co-finance the purchase of vehicles with the following types of propulsion technology: electric, plug-in hybrid, compressed natural gas propulsion, liquefied natural gas and hydrogen propulsion. The documentation of the award procedure will further define technical conditions for vehicles, eligibility criteria for applicants and maximum allowable aid intensity. It is planned to co-finance the purchase of at least 500 alternative-powered vehicles through this component. Special focus of activities will be on users from industry sector given the time transport vehicles from this sector spend in traffic. Under the second component (ii), MMPI will implement the allocation procedure for the construction of bottlers for alternative-driven vehicles. Documentation of the award procedure will further define eligibility criteria for applicants and maximum allowable support intensity. It is planned to co-finance the construction of 500 bottlers for alternative vehicles throughout the Republic of Croatia within the framework of the allocation procedure. This component is complementary to measure C1 .2. R1-I3 use of hydrogen and new technologies, within which at least 6 hydrogen bottlers regionally

distributed throughout the Republic of Croatia will be established by 2026. Estimated cost HRK 1,580,000,000 (of which HRK 1,200,000,000 for component (i) and HRK 380,000,000 for component (ii))) . Implementation period 10/2021.-6/2026.

2.4.6 EuroVelo Cycling Routes Development Status for Croatia

The following table shows the levels of development of the EuroVelo cycling routes crossing the country. EuroVelo 6 Atlantic-Black Sea, EuroVelo 8 Mediterranean Route, EuroVelo 9 Baltic-Adriatic and EuroVelo 13 Iron Curtain Trail are passing through Croatia.

Table 158 EuroVelo Routes Development Status for Croatia[29]

Country	EuroVelo km	Planning stage	Under development	Developed	Developed with EV signs	Overall Development Level
Croatia	1548	0%	0%	79%	21%	100%

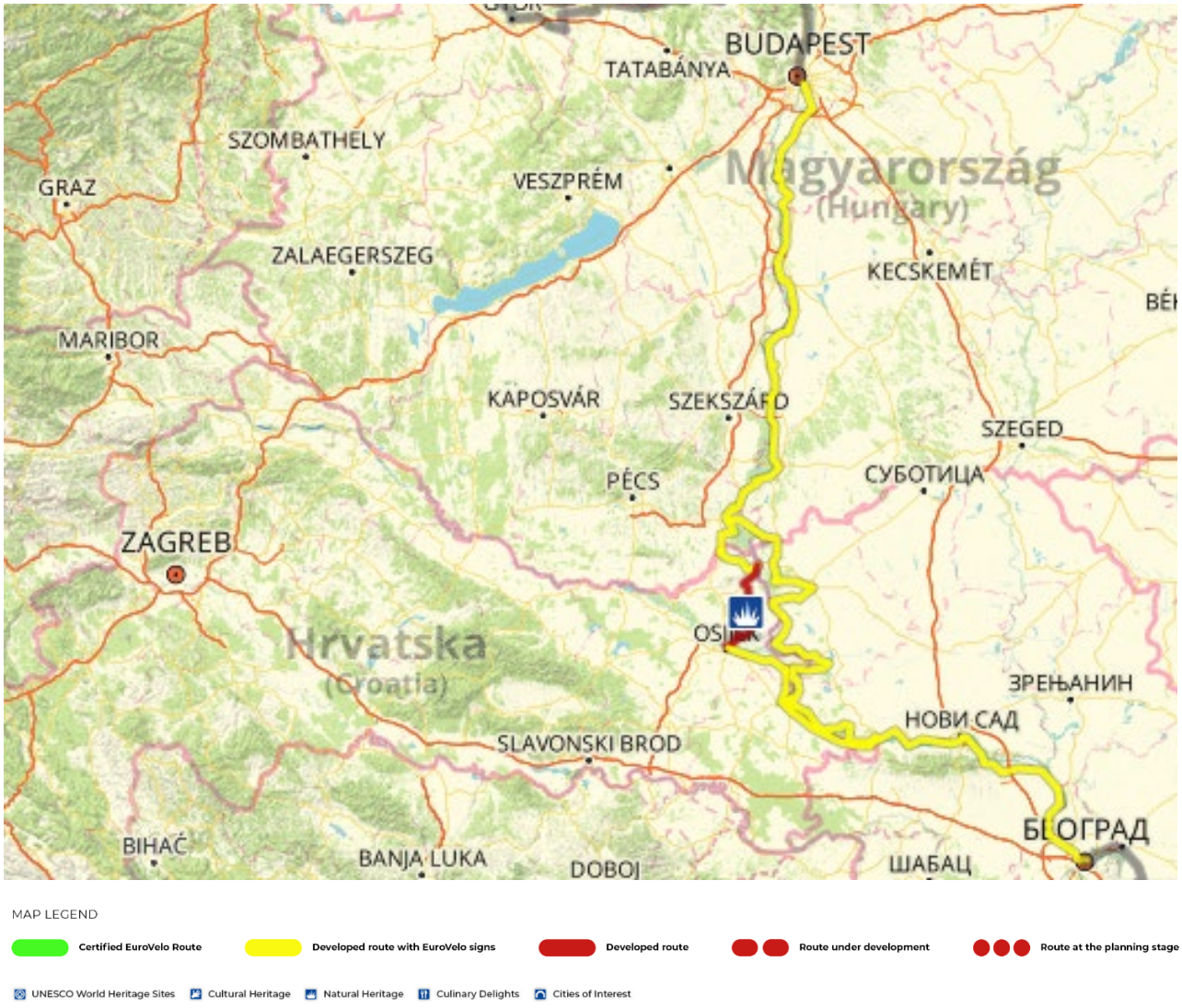
Figure 30 EuroVelo Routes Passing through Croatia[30]

EuroVelo 6 route in Croatia passes through the region of eastern Croatia along the Danube and Drava Rivers. It enters through the area of Baranja and the nature park of Kopački Rit, one of the most important, largest

[29] https://pro.eurovelo.com/download/document/EuroVelo%20Route%20Status%20Report_Final_20210520.pdf
[30] https://en.eurovelo.com/croatia

and most attractive preserved intact wetlands in Europe. The route also passes through major cities Osijek with the preserved old core Tvrdja and Vukovar with the famous prehistoric site of Vučedol.[31]

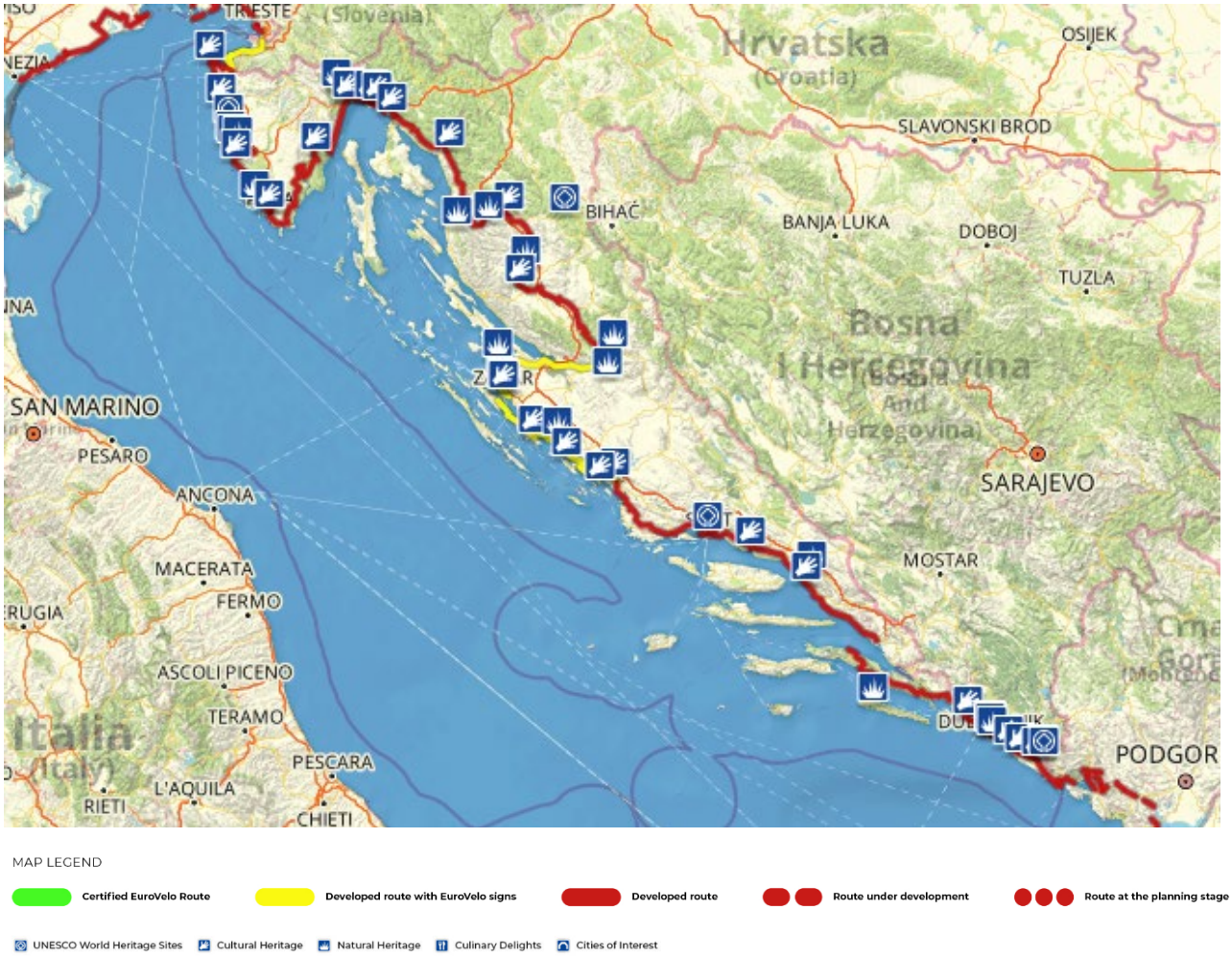
Figure 31 EuroVelo 6 Atlantic-Black Sea in Croatia



EuroVelo 8 passes through the most beautiful parts of the Croatian Mediterranean coast and hinterland. Large parts of the route pass directly along the coast, and the most attractive parts in the hinterland through the virgin areas of the most beautiful Croatian mountain and UNESCO biosphere reserve Velebit.[32]

[31] https://en.eurovelo.com/ev6/croatia
[32] https://en.eurovelo.com/ev8/croatia

Figure 32 EuroVelo 8 Mediterranean Route in Croatia



The EuroVelo 9 route passes through the Istrian peninsula. Among towns and cities on the route stands out Buzet, the capital of the Istrian County Pazin located above the terrifying abyss that inspired Jules Verne for the novel Mathias Sandorf, and the largest Istrian city of Pula, whose history goes back to ancient times.[33]

[33] https://en.eurovelo.com/ev9/croatia

Figure 33 EuroVelo 9 Baltic-Adriatic Route in Croatia

Croatia's northern border with Hungary is one of the lesser-known corners of the country. The EuroVelo 13 Iron Curtain Trail takes cyclists through villages and nice cities, among which stands out Koprivnica, often called the cycling capital of Croatia due to the largest share of bicycles per capita in Croatia. Most of the route passes through the UNESCO Biosphere Reserve Mura-Drava-Danube, known also as 'Amazon of Europe', because Drava stands out as one of the few major European rivers with preserved original course.[34]

[34] https://en.eurovelo.com/ev13/croatia

Figure 34 EuroVelo 13 Iron Curtain Trail in Croatia

2.4.7 Summary of Urban Mobility and Transportation Projects and Strategic Actions

The following table shows the summary of all the previously mentioned planned and ongoing projects related to urban mobility and transportation for the selected urban nodes of Croatia including project description, timeline, estimated costs and expected impacts.

Table 159 Summary of Planned & Ongoing Urban Mobility and Transportation Related Projects and Strategic Actions of Croatia

Node or section	Project description	Costs	Estimated end year	Impact
Rijeka	"• Spatial planning of roads and corridors for logistics and freight transport -Land reserved for logistic purposes; defining freight routes and corridors in the FUA - Securing areas for logistics manipulation; relieve the city center of freight traffic; reducing traffic congestion and CO2 emissions • Organization of logistics processes - Connect all relevant stakeholders in the logistics process and establish the mutual coordination of all Activities - Optimal utilization of existing logistics resources; relieve the city center of freight traffic; delivery ""on time""; reducing traffic congestion and deadlock • Harmonizing delivery regulations with other regulations related to traffic -Local authority decisions on traffic regulations must be coordinated with other local regulations on delivery - Ensuring sustainable development of the logistics system • Introducing low carbon emitting vehicles for Last Mile Delivery – By Introducing light electric vehicles in pedestrian zones and the zones of limited traffic (electric bicycles and tricycles) - Reduction of CO2 emissions in the city center; reducing the risk of cargo trucks interacting with foot traffic – increasing pedestrian safety • Delivery outside peak hours -Time limit for delivery vehicles at the city center; harmonization of delivery regulations and amendments to the Decision on the organization of traffic in the City of Rijeka - Reducing the number of supply vehicles in the city center; improving the life quality in the city center; CO2 reduction • Reservation of off-street areas for logistics operations - Introducing off-street location for transshipment to low carbon emitting vehicles in the city logistics system - Improving the urban delivery system; reducing traffic congestion; CO2 reduction; improving the life quality in the city center • Introducing IT solutions for control and management of the delivery system in the city - Improving delivery system in the city center - Raising the quality of the delivery system in the city; stimulating delivery at a time of reduced traffic intensity; reducing traffic congestion "	37 M €	2030	Ensuring sustainable urban logistics & last mile delivery, Digitalization, Increased Safety
Croatia	Croatia NRRP / C1 .4. R4 Improving the public transport system / Cleaner, safer and more sustainable public line transport of passengers in the Republic of Croatia. A sustainable public transport system developed and the integrated transport of passengers with rail as the main backbone of the network are the main objectives of this measure.	HRK 1,550,000,000	3/2021.-6/2026	Improving public transport network
Zagreb	Croatia NRRP / C1 .4. R2-I6 Modernization of the Zagreb node / The objectives of the projects for modernization and development of the railway node Zagreb are improving local and regional railway passenger transport, better integration of railways into the public transport system of the City of Zagreb, improvement of availability of railway and local public transport and increasing the share of railway and local public transport in the total transport in the wider area of Zagreb. The barrier between the part of the city situated on the two sides of the railway will be solved.	HRK 750,000,000	6/2021.-12/2025	Improving public transport network
Croatia	Croatia NRRP / C1 .4. R4-I1 Purchase of alternative-powered vehicles / The aim is to modernize the public urban, suburban and interurban line bus transport of passengers through the procurement of new electric vehicles and the installation of the necessary infrastructure to promote the use of zero emission factor vehicles and reduce CO2 emissions of existing motor parks.	HRK 700,000,000	3/2021.-12/2025	Electrification of public transport
Osijek and Zagreb	Croatia NRRP / C1 .4. R4-I2 Modernization of tram infrastructure / The aim is to modernize the tram infrastructure in Osijek and Zagreb, in order to provide a better and faster public transport service and increase the number of passengers using public urban transport, which will ultimately result in a reduction of CO2 emissions in traffic.	HRK 700,000,000	3/2021.-12/2025	Improving public transport network
Croatia	Croatia NRRP / C1 .4. R4-I3 Modernization and construction of bus stations / The objective of this investment is the modernization and construction of public transport bus stations owned by local/regional self-government, which would provide better quality public transport services and increase the number of passengers using public urban transport, which will ultimately result in a reduction of CO2 emissions in transport.	HRK 150,000,000	9/2021.-12/2025	Improving public transport network
Croatia	Croatia NRRP / C1 .4. R5-I4 Co-financing programme for the purchase of new alternative fuels vehicles and the development of alternative fuels infrastructure in road transport / The programme aims to increase the energy efficiency of road transport by reducing dependence on fossil fuels. The focus of the activities will be to increase the number of vehicles using alternative fuels registered in the Republic of Croatia and to build a network of bottlers for alternative-powered vehicles. These activities will contribute to reduction of total emissions of CO 2 and other harmful gases, creation of new jobs in production and installation of infrastructure for alternative fuels and increase development and competitiveness of Croatian and European economy.	HRK 1,580,000,000	10/2021.-6/2026	Investment on use of sustainable and alternative fueled vehicles, Electrification

2.5 Greece

In order to provide details of the interventions for the integration of urban nodes and tourist centers in the main EUSAIR networks the Sustainable Urban Mobility Plan (SUMP) and Sustainable Urban Logistics Plan (SULP) for selected main urban nodes and planned urban mobility related projects from the National Recovery and Resilience Plan (NRRP) of Greece based on their availability are studied. In addition, the status of EuroVelo Network is studied.

Table 160 Available strategic documents per city

	SUMP	SULP
Athens	✓	n.a.
Thessaloniki	✓	n.a.
Patras	n.a.	n.a.
Igoumenitsa	n.a.	n.a.

In recent years, a limited number of Sustainable Urban Mobility Plans (SUMPs) were developed on a voluntary basis in Greece, despite the fact that local authorities had not been obliged by a mandatory legal framework to design and implement such plans.

In view of ensuring a common framework for the development of SUMPs by Greek local authorities, the Hellenic Ministry of Infrastructure and Transport established a diverse working group composed of experts from the Ministry of Environment and Energy and the Ministry of Interior, as well as experts from Transport Associations/Institutes - reflecting the multifaceted legislative framework (ex: Land Use, Transport Planning, Road Safety) that mobility initiatives must adhere to.

This working group developed a report as a result of which the SUMP guidelines were the baseline for introducing Greece's legal framework for SUMPs. The Ministry of Infrastructure & Transport also established a unit of Sustainable Urban Mobility.

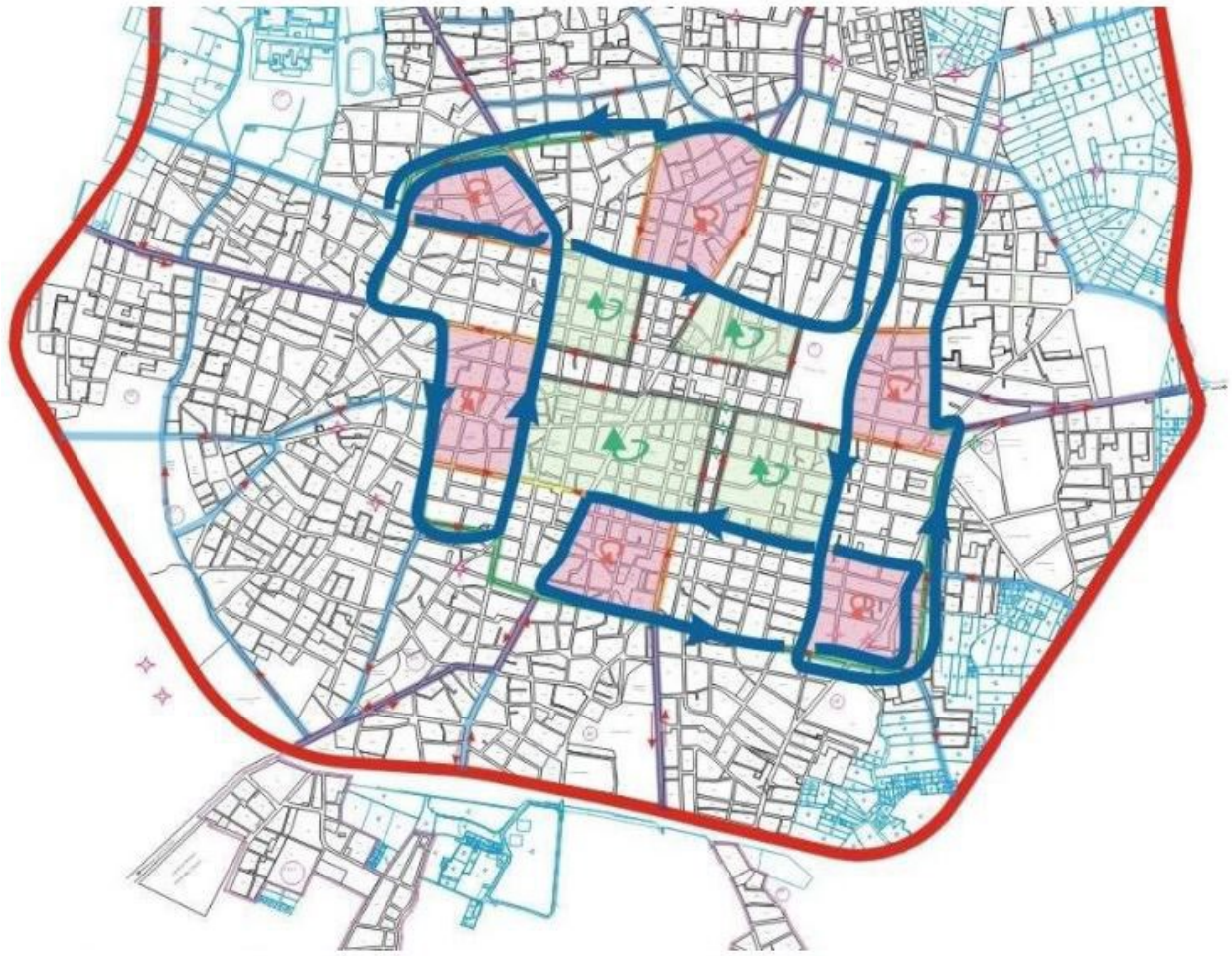
It is noteworthy that Patras, Igoumenista, don't have a complete SUMP project yet.

2.5.1 Athens

2.5.1.1 SUMP for the city of Athens

The SUMP of Athens is still under study. The process of setting smart goals for SUMP is based on the priorities that compose the broader strategy of SUMP as described in the previous chapter.

Figure 35 The planned transport service in Athens



The priorities as highlighted by the Second Consultation according to the previous procedures in order of priority are:

1. Ensuring safe and comfortable walking, with special emphasis on meeting the needs of vulnerable categories of people and people with mobility problems
2. Improving the level of service from MMM
3. Improving existing and increasing free spaces and green spaces
4. Improving road safety and protection of commuters by any means
5. More efficient management of parking (private and public vehicles, with particular emphasis on tackling the issue of illegal parking
6. Better management of motor vehicle traffic and reduction of speeds in residential areas in order to establish safer conditions for all road users
7. Enhance the use of the bicycle, ensuring infrastructure and conditions for safe and comfortable movement
8. Protection of the center and neighborhoods from through motorized crossings

9. Pursue policies to discourage misuse of the car in favor of more sustainable modes of transport
10. Promotion of "clean" vehicles

The above priorities / axes of strategy are a product of the process of evaluating the existing mobility conditions of the city, the policy texts at European, national and regional level as well as the directions given through the consultation with the city bodies. Each of the above priorities is related to the respective strategic objectives and implementation objectives and then the objectives are related to the categories of measures.

Table 161 Summary of SUMP for Athens

SUMP Projects Summary	• Ensuring safe and comfortable walking with special emphasis on meeting the needs of vulnerable groups of travelers • Protection and improvement of pedestrian infrastructure through proper lighting, cleanliness and maintenance • Proposal for school routes (e.g connection of schools of Arditto neighborhood with Zappeion) • Identification of Standard Walking Routes with emphasis on disabled people and their access to existing public transport stops • Utilization of galleries in the city, by upgrading the public space (eg to clean the graffiti) • Serving vulnerable groups with mobility difficulties, 3rd age and the disabled • Development of a plan for the organization of mobility in areas with high traffic and housing such as Plaka • Improving the level of service from MMM • Public Transport operation that serves the connection of the individual neighborhoods • Identification of Standard Walking Routes with emphasis on people with disabilities for their access to the existing public transport stops • Thickening of MMM itineraries and strengthening of their fleet to meet the increased needs. • Expansion of TRAM to improve urban planning issues • Protection and improvement of MMM infrastructure through proper lighting, cleanliness and maintenance • Extending the schedule (night traffic) to make peripheral parking and transfer areas in the MMM fixed track • Improving existing and increasing free spaces and green spaces • Improving the connection of the Municipality with the other areas of the basin and its suburbs with alternatives of I.X. car and mech. two-wheeler inside • Promoting the use of MMM mainly to those who travel today by car. • Removal of temporary parking by creating off-road spaces. • Maintenance and improvement of marking / signaling.

	• Car infrastructure supply management cars (parking) for those who are not residents of the Municipality • Car infrastructure supply management cars (traffic) for those who are not residents of the Municipality • Implementing Shared bicycle systems • Conventional and electric city car sharing systems • Incentives for upgrading the fleet for public and professional use (buses, TAXI, vans, etc.) • Green Areas: Creation, expansion, maintenance of green spaces, classics such as parks but also new forms, such as vertical plantings • Integration of water elements • Public spaces designed appropriately, with shading, cold materials, priority in mild forms of movement • Information, awareness, education of citizens and services of the Municipality • Increase of greenery by at least 10% in all renovations of common areas & intensification of planting of green areas • Creation of Urban Vegetable Gardens • Pocket parks
Maturity (ongoing, planned or financed)	ongoing
Team / stakeholders involved	• Municipality of Athens • Private companies • C40 Network of Climate Change • 100 Resilient Cities
Cost	At the time of drafting this report no cost has been put to the SUMP of Athens
Estimated end year	2030

2.5.1.2 SULP for the city of Athens

There is no SULP available for the city of Athens at the moment of drafting this report.

2.5.2 Thessaloniki

2.5.2.1 SUMP for the city of Thessaloniki

Despite undergoing a severe economic recession, Thessaloniki has prioritized the development of a Sustainable Urban Mobility Plan (SUMP). By engaging all key stakeholders, the Thessaloniki Public Transport Authority (ThePTA) successfully implemented a SUMP covering the entire metropolitan area, with a focus on public transport and utilizing limited financial resources. The Thessaloniki SUMP now serves as a model for other cities in Greece and across South Eastern Europe facing similar challenges.

Thessaloniki has been involved in mobility planning since the early 70s, collaborating closely with various local authorities and stakeholders over the past two decades. Historically, transport efforts concentrated on road works. However, in recent times, Thessaloniki has encountered challenges associated with the population's heavy reliance on private transport. Additionally, complex administrative structures and the ongoing economic and social crisis in Greece have added complexity to mobility planning in Thessaloniki. Through its new SUMP, Thessaloniki aims to achieve four primary objectives: an increase in public transport

usage, a reduction in car flows in the central area, a boost in active transport, and a decrease in pollution emissions.

The outcomes of the evaluation process implemented in Thessaloniki are exemplified through the investigation conducted for the potential introduction of a tram network in the Greek city. A preliminary feasibility study was carried out, focusing on the Thessaloniki Metropolitan area, assessing the overall external costs and land use impacts of introducing a tramway network.

Key features of the proposed network include:

- A length of 24 kilometers, with prioritized intersections.

- The network's development is planned in three phases, encompassing a total of 43 stops and an estimated daily service for 172,700 passengers.

An assessment of the project's socio-economic and financial feasibility, including metrics such as Internal Rate of Return (IRR) and Cost-Benefit Analysis (CBA), was conducted. Additionally, new financing schemes were explored.

The evaluation results indicated significant reductions in private car usage in specific corridors where the proposed tram network was introduced, as revealed by the assessment of modal split effects. The analysis considered social costs and benefits, encompassing aspects such as the reduction of road accidents and external transport costs, the impact on urban regeneration and increased urban attractiveness, reduced travel times, and an elevated share of public transport. The total implementation cost was estimated at €515.7 million. The proposal by the Thessaloniki Public Transport Authority (THEPTA) and the prefeasibility study have been submitted to the Ministry of Transport and the Municipality of Thessaloniki.[35]

To address the mobility challenges within the city and develop a Sustainable Urban Mobility Plan (SUMP) during times of financial constraint, ThePTA leveraged its participation as a partner in the Attractive Urban Public Transport for Accessible Cities (ATTAC) project under the SEE programme. This project, which ran from January 2011 to December 2013, received 85% co-financing from the European Commission's ERDF. It involved urban areas from eight partners, collaborating with a total of 11 partners across seven southeastern EU member states (HU, IT, GR, SK, SL, RO, BG). The overall budget for the project was €2.45 million, with ThePTA receiving €260,000.[36]

[35] https://www.eltis.org/discover/case-studies/monitoring-and-evaluation-very-core-thessalonikis-sump-greece
[36] https://www.eltis.org/discover/case-studies/monitoring-and-evaluation-very-core-thessalonikis-sump-greece

Figure 36 Rendered view of the SUMP Figure 5 intervention project in Thessaloniki

Less than half was allocated to composing a strategic SUMP, requiring ThePTA to produce its plan with a limited budget of roughly € 125 000. It used this sum to pay for consultants, experts, data collection, consultations with stakeholders and promotional materials. The mobilization and commitment from a wide range of stakeholders (including central government ministries, regional authorities, municipalities, trade unions, and passenger and cycling associations, transport institutes and the university) and an emphasis on the better use of public transport were key elements of the planning process.

Table 162 Summary of SUMP for Thessaloniki

SUMP Projects Summary	• Introduction of a tram network in the city. The proposed network has a length of 24 m, with priority at intersections. • The development of the network will be realized in three phases, covering an area of 43 stops in total and estimated to serve 172 700 passengers per day • Creating a smart and integrated ticketing and payment system; • Allowing rapid bus transit, including bus priority at traffic lights; • Using awareness campaigns to discourage the use of private cars and promote the use of sustainable mobility modes (such as public transport, cycling and walking); • Promoting the tram system, complementary to the metro, and new ways of financing and restructuring bus routes and accompanying urban regeneration; • Ensuring intermodality between the metro, trams and buses • Creating a seaborne transport system in the Thermaikos Gulf;

	• Providing flexible transit systems including the restructuring of taxi services; • Integrating parking policy (joining together Park and Ride and a controlled street-parking system, with parking fees as deterrent to car use and a revenue stream); • Pedestrianizing and regenerating public spaces; • Planning cycle lanes; • Creating a city bike-sharing scheme; Pricing policies: Applying a congestion charge and controlling access to the city center.
Maturity (ongoing, planned or financed)	ongoing
Team / stakeholders involved	• the Mobility Forum • Thessaloniki Public Transport Authority – THEPTA • traffic management organization • regional authorities and the nine Municipalities of the metropolitan area) • transport professionals • scholars and user-oriented stakeholders
Cost	€ 515.7 million
Estimated end year	2030

2.5.2.2 SULP for the city of Thessaloniki

There is no SULP available for the city of Thessaloniki at the moment of drafting this report.

2.5.3 Patras

2.5.3.1 SUMP for the city of Patras

There is no SUMP available for the city of Patras at the moment of drafting this report.

2.5.3.2 SULP for the city of Patras

There is no SULP available for the city of Patras at the moment of drafting this report.

2.5.4 Igoumenista

2.5.4.1 SUMP for the city of Igoumenista

There is no SULP available for the city of Igoumenista at the moment of drafting this report.

2.5.4.2 SULP for the city of Igoumenista

There is no SULP available for the city of Igoumenista at the moment of drafting this report.

2.5.5 The National Recovery and Resilience Plan (NRRP) of Greece

The NRRO for Greece[37] consists of 106 investment measures and 68 reforms. They will be supported by €17.77 billion in grants and €12.73 billion in loans. 37.5% of the plan will support climate objectives

[37] https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility/greeces-recovery-and-resilience-plan_en

and 23.3% of the plan will foster the digital transition. The following investments are related to urban mobility and transportation[38]:

- Installation of more than 8 000 charging points for electric vehicles
- Replacement of 2 000 taxis and 220 public transport buses with electric vehicles

Greece's recovery and resilience plan include measures aiming to make mobility cleaner, smarter, safer and fairer. It includes a reform aiming to establish a conducive legal framework to organise Greece's emerging electric vehicles' market and to provide appropriate incentives. This reform is complemented by an investment in the installation of more than **8,000 electric charging stations in key urban and locations and points of interest, such as airports, motorways, ports and in parking areas, across Greece**.

The Green Transport program provides specifically for the replacement of 2,000 old taxis with 2,000 new battery electric vehicles (BEV) around the country; the replacement of 220 old buses (including 175 in Athens and 63 in Thessaloniki) with electric ones.[39] The reason for the focus on replacing taxis and buses is that their replacement will result in a greater benefit in comparison with the replacement of conventional private cars. A recent study has shown that replacing a taxi with an electric vehicle can fetch a benefit up to three times as high as the replacement of a private car, as it will save 85 tons of carbon dioxide in its life span against 30 tons in the case of a private car. Eligible for entering the replacement program are taxis 18 years or older in Athens and 21 years or older in Thessaloniki, and those dating from 1997 in the rest of the country, and about to be withdrawn anyway by December 31. That will mean 6% of the existing taxi fleet will be replaced with BEVs, with the subsidy having as a necessary condition the scrapping of the old vehicle.

2.5.6 EuroVelo Routes Development Status for Greece

The following table shows the levels of development of the EuroVelo cycling routes crossing the country. EuroVelo 8 Mediterranean Route, EuroVelo11 East Europe Route and EuroVelo 13 Iron Curtain Trail are passing through Greece. Although the 3 EuroVelo routes that cross Greece are not completely signposted yet, infrastructure has developed and rural roads with low traffic provide great opportunities for cycle touring. Furthermore, more and more cities are building cycle paths and operating public bike-sharing schemes.[40]

Table 163 EuroVelo Routes Development Status for Albania[41]

Country	EuroVelo km	Planning stage	Under development	Developed	Developed with EV signs	Overall Development Level
Greece	1482	1%	99%	0%	0%	0%

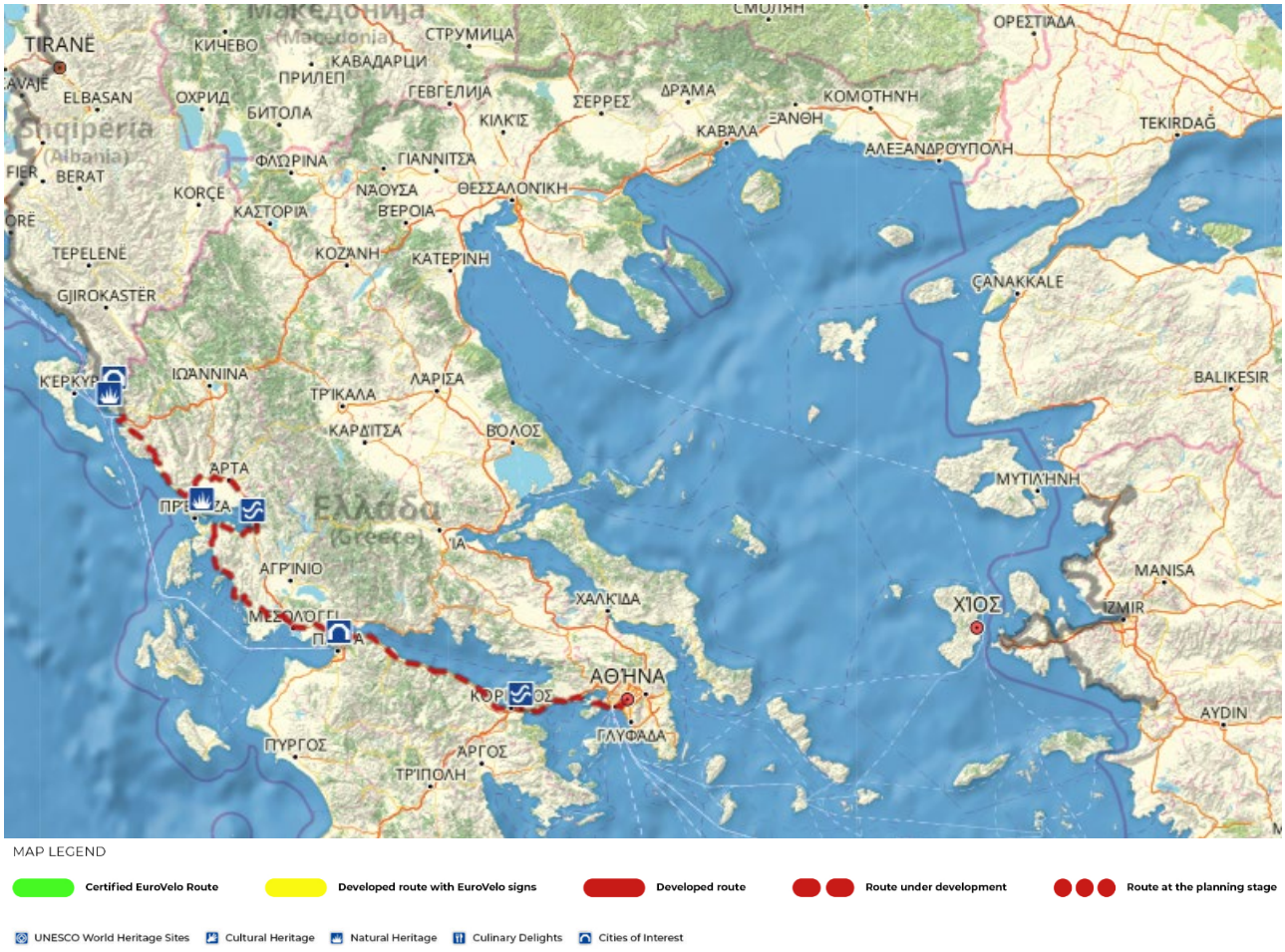
[38] https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729366/EPRS_BRI(2022)729366_EN.pdf
[39] https://www.greece-is.com/news/green-transport-plan-begins/
[40] https://en.eurovelo.com/greece
[41] https://pro.eurovelo.com/download/document/EuroVelo%20Route%20Status%20Report_Final_20210520.pdf

Figure 37 EuroVelo Routes Passing through Greece[42]

EuroVelo 8 enters Greece in the Epirus Region, cycling south it will reach the National Parks of Messolonghi-Etoliko Lagoons, the Acheloos and Evinos rivers delta and the Echinades islands. Cycling by the sea from Xylokastro towards Korinthos it will arrive Loutraki, a coastal town internationally known for its thermal springs. Still entering the Attica Region, it will reach the UNESCO World Heritage Sites of the medieval Daphni Monastery and the Acropolis of Athens.[43]

[42] https://en.eurovelo.com/greece
[43] https://en.eurovelo.com/ev8/greece

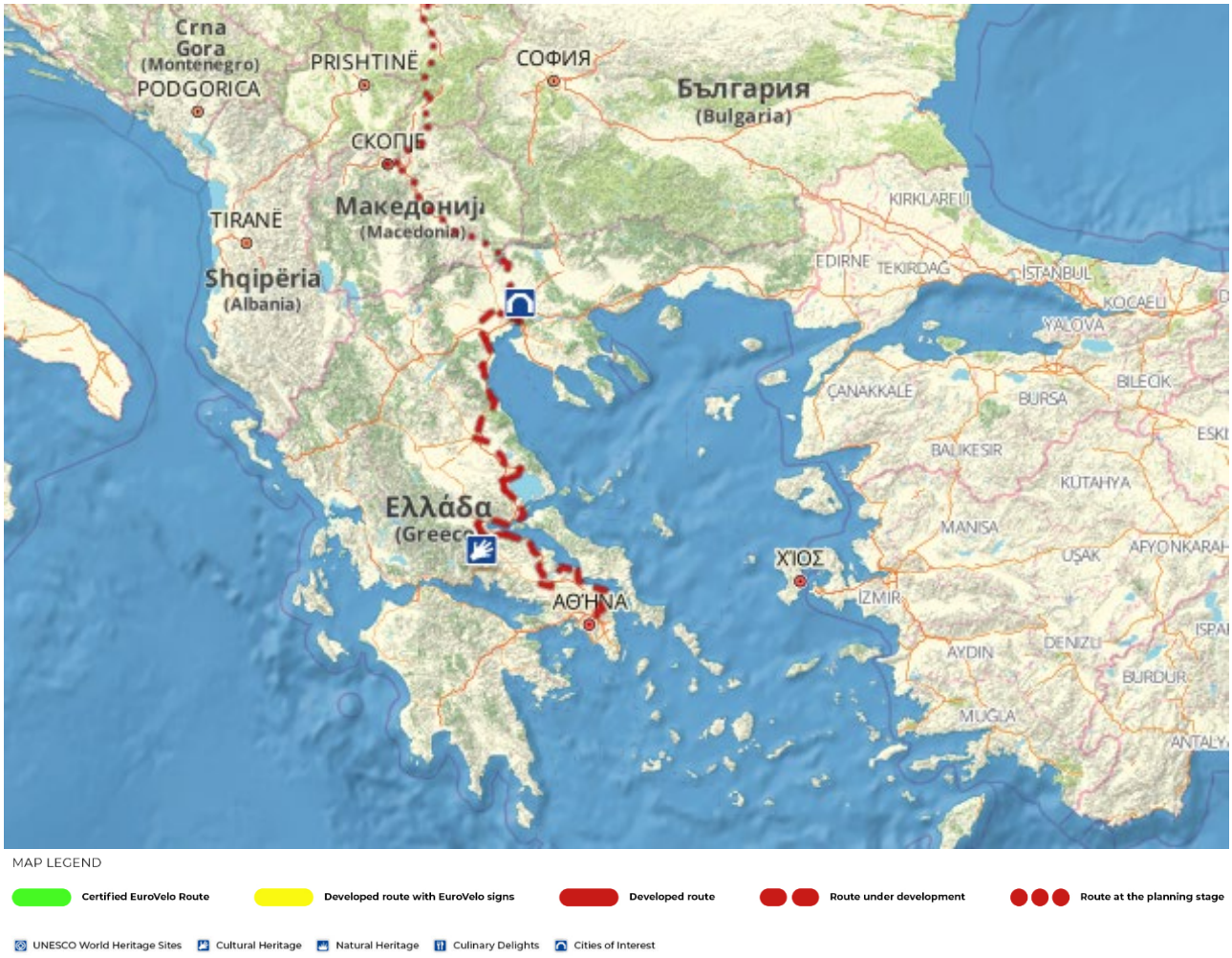
Figure 38 EuroVelo 8 Mediterranean Route in Greece



EuroVelo 11 enters Greece cycling around Doirani Lake, a unique wetland, where Greece shares borders with the Republic of North Macedonia. First city on the way south, the modern metropolis of Thessaloniki. The route follows the east coast and offers superb views of Mount Olympus and Mount Pelion, passing through the city of Volos and the historical cities of Thebes and Chalkis. Finally, it enters the Attica Region to Athens.[44]

[44] https://en.eurovelo.com/ev11/greece

Figure 39 EuroVelo 11 East Europe Route in Greece



Even if the Greek section of the Iron Curtain Trail is short, cyclists have the opportunity to cycle through the former "ΕπιτηρούμενηΖώνη" ("Surveillance Area"), a highly-militarised area along the Bulgarian-Greek border. During the Cold War, owning land or driving a car in this area was forbidden and passing through this 25 km wide strip of land was only possible upon the presentation of a special military passport. After crossing this former border – where access is of course now allowed – EuroVelo 13 enters Greece near the Roupel fortress, famous for its defence during the German invasion in Greece in April 1941. The route re-enters Greece where Ardas river flows along the Greek - Bulgarian border, passes through the village of Petrota, follows along the Evros river and enters Turkey after the town of Kastanies, in the low plains near the confluence of Evros and Ardas rivers.[45]

[45] https://en.eurovelo.com/ev13/greece

Figure 40 EuroVelo 13 Iron Curtain Trail in Greece

2.5.7 Summary of Urban Mobility and Transportation Projects and Strategic Actions

The following table shows the summary of all the previously mentioned planned and ongoing projects related to urban mobility and transportation for the selected urban nodes of Greece including project description, timeline, estimated costs and expected impacts.

Table 164 Summary of Planned & Ongoing Urban Mobility and Transportation Related Projects and Strategic Actions of Greece

Node or section	Project description	Costs (€)	Estimated end year	Impact
Athens	• Ensuring safe and comfortable walking with special emphasis on meeting the needs of vulnerable groups of travelers • Protection and improvement of pedestrian infrastructure through proper lighting, cleanliness and maintenance • Proposal for school routes (e.g connection of schools of Arditto neighborhood with Zappeion) • Identification of Standard Walking Routes with emphasis on disabled people and their access to existing public transport stops • Utilization of galleries in the city, by upgrading the public space (eg to clean the graffiti) • Serving vulnerable groups with mobility difficulties, 3rd age and the disabled • Development of a plan for the organization of mobility in areas with high traffic and housing such as Plaka • Improving the level of service from MMM • Public Transport operation that serves the connection of the individual neighborhoods • Identification of Standard Walking Routes with emphasis on people with disabilities for their access to the existing public transport stops • Thickening of MMM itineraries and strengthening of their fleet to meet the increased needs. • Expansion of TRAM to improve urban planning issues • Protection and improvement of MMM infrastructure through proper lighting, cleanliness and maintenance • Extending the schedule (night traffic) to make peripheral parking and transfer areas in the MMM fixed track • Improving existing and increasing free spaces and green spaces • Improving the connection of the Municipality with the other areas of the basin and its suburbs with alternatives of I.X. car and mech. two-wheeler inside • Promoting the use of MMM mainly to those who travel today by car. • Removal of temporary parking by creating off-road spaces. • Maintenance and improvement of marking / signaling. • Car infrastructure supply management cars (parking) for those who are not residents of the Municipality • Car infrastructure supply management cars (traffic) for those who are not residents of the Municipality • Implementing Shared bicycle systems • Conventional and electric city car sharing systems • Incentives for upgrading the fleet for public and professional use (buses, TAXI, vans, etc.) • Green Areas: Creation, expansion, maintenance of green spaces, classics such as parks but also new forms, such as vertical plantings • Integration of water elements • Public spaces designed appropriately, with shading, cold materials, priority in mild forms of movement • Information, awareness, education of citizens and services of the Municipality • Increase of greenery by at least 10% in all renovations of common areas & intensification of planting of green areas • Creation of Urban Vegetable Gardens • Pocket parks	At the time of drafting this report no cost has been put to the SUMP of Athens	2030	Enhancing active & soft mobility, Improving PRM mobility service offers, Improving public transport network, Upgrading parking policies to reduce car dependency, Investments on shared & sustainable mobility
Thessaloniki	• Introduction of a tram network in the city. The proposed network has a length of 24 m, with priority at intersections. • The development of the network will be realized in three phases, covering an area of 43 stops in total and estimated to serve 172 700 passengers per day • Creating a smart and integrated ticketing and payment system; • Allowing rapid bus transit, including bus priority at traffic lights; • Using awareness campaigns to discourage the use of private cars and promote the use of sustainable mobility modes (such as public transport, cycling and walking); • Promoting the tram system, complementary to the metro, and new ways of financing and restructuring bus routes and accompanying urban regeneration; • Ensuring intermodality between the metro, trams and buses • Creating a seaborne transport system in the Thermaikos Gulf; • Providing flexible transit systems including the restructuring of taxi services; • Integrating parking policy (joining together Park and Ride and a controlled street-parking system, with parking fees as deterrent to car use and a revenue stream); • Pedestrianizing and regenerating public spaces; • Planning cycle lanes; • Creating a city bike-sharing scheme; • Pricing policies: Applying a congestion charge and controlling access to the city center.	515.7 M	2030	Improving public transport network to be more reliable and accessible, Digitalization, Integrated ticketing strategy, Enhancing active & soft mobility, Increasing multimodality

Athens and Thessaloniki	Greece NRRP / Installing more than 8,000 charging points for electric vehicles and replacing 220 urban transport busses in Athens and Thessaloniki with electric vehicles. Creating cycling and pedestrian pathways to create an “urban promenade” along the Athens Riviera.	264 M	Aug-26	Electrification, Electrification of public transport, Enhancing active & soft mobility

2.6 Italy

In order to provide details of the interventions for the integration of urban nodes and tourist centers in the main EUSAIR networks the Sustainable Urban Mobility Plan (SUMP) and Sustainable Urban Logistics Plan (SULP) for selected main urban nodes and planned urban mobility related projects from the National Recovery and Resilience Plan (NRRP) of Italy based on their availability are studied. In addition, the status of EuroVelo Network is studied.

Table 165 Available strategic documents per city

	SUMP	SULP
Milano	✓	✓
Palermo	✓	n.a.
Bologna	✓	✓
Bari	✓	n.a.
Catania	✓	✓
Venice	✓	n.a.
Messina	✓	✓
Padua	✓	n.a.
Trieste	✓	n.a.
Taranto	✓	n.a.
Reggio Calabria	✓	✓
Ravenna	✓	n.a.
Trento	✓	n.a.
Pescara	✓	n.a.
Bolzano	✓	n.a.
Ancona	✓	n.a.
Brindisi	✓	n.a.
L'Aquila	✓	n.a.
Potenza	n.a.	n.a.
Campobasso	✓	✓
Gioia Tauro	n.a.	n.a.
Perugia	✓	✓

In Italy, the concept of SUMP officially arrived in 2017, with the publication in the Official Journal of the Decree of the Ministry of Infrastructure and Transport containing the "Identification of guidelines for urban sustainable mobility plans", subsequently updated with a Decree of 'August 2019

The Decree made the adoption of the SUMP mandatory for all municipalities with more than 100,000 inhabitants - with the exception of those that fall within a metropolitan city that has already defined its own plan - under penalty of exclusion from state funding for new interventions for fast mass shipping.

2.6.1 Milan

2.6.1.1 SUMP for the city of Milan

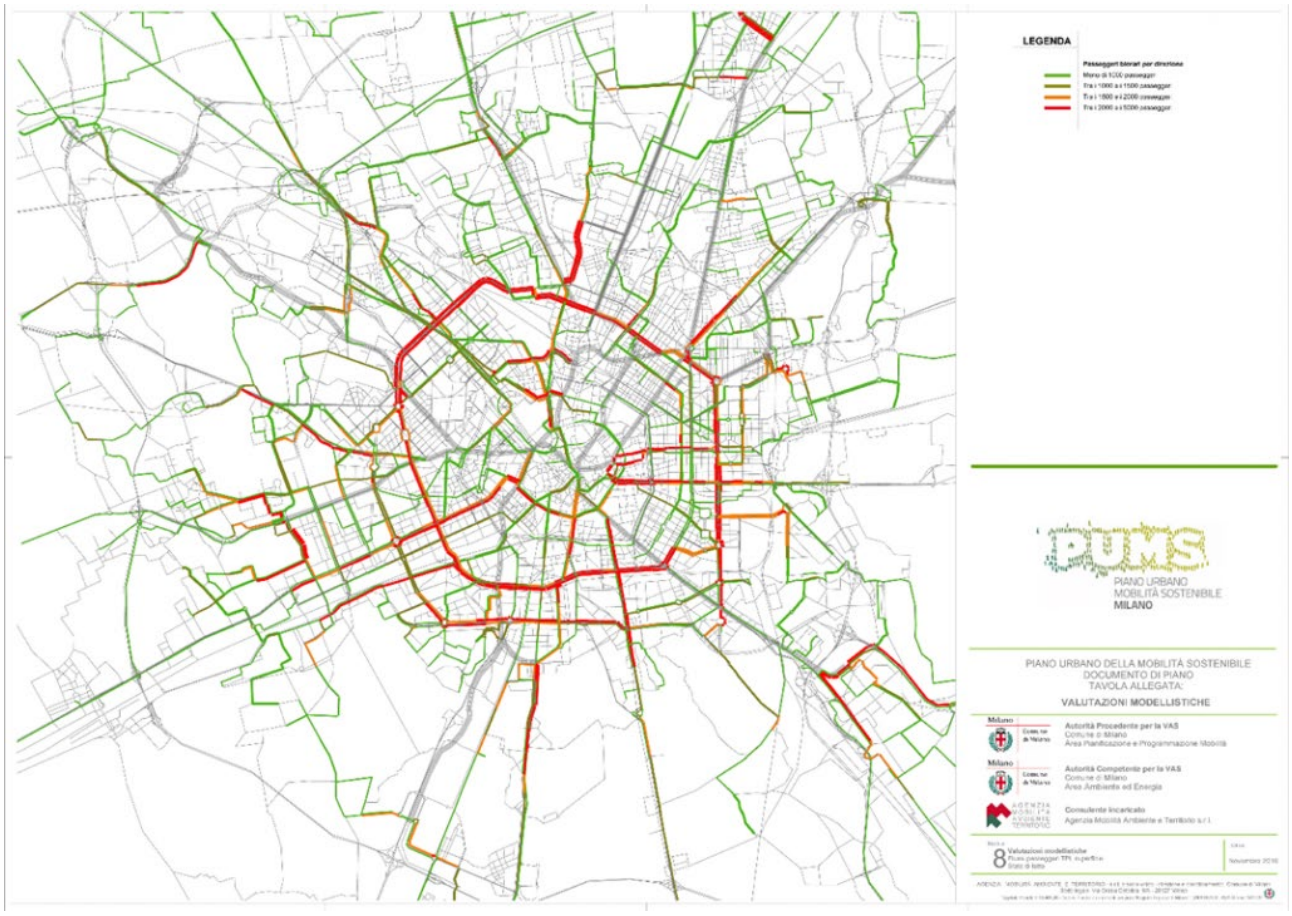
Milan is the second-most populated Italian city, with 1.35 million people in the city (about 7400 habitants per km²) and about 3.2 million in its metropolitan area (about 2000 habitants per km²).

Every day 850 000 people enter Milan and 270 000 exit the city – resulting in 5.3 million trips per day. Inside the city, 37 per cent of trips are made by car (car ownership is 0.52 cars per inhabitant) or motorcycle and 57 per cent use public transport (PT), but the share of car trips rises to 62 per cent when the exchange trips between the city and the external areas are considered.

The PT transport network consists of four underground lines and 154 surface lines for a total of 1 286 km, producing about 120 million vehicle km/year. The problems of Milan's mobility and transport system are the increase in private transport demand due to the functional separation between the city center and the hinterland; the lack of planning of goods transport and logistics activities; road congestion; and inefficient allocation of public space.

The Milan SUMP arose from the decision of the City Council Committee to update the Milan PUM (Urban Mobility Plan) and carry out a VAS (Strategic Environmental Evaluation). In addition to the consultation process envisaged by the VAS, the SUMP has been developed through a participation process which has involved public authorities (the Municipality, the Mobility Agency, PT operators), stakeholders (professional associations, local associations, companies, residents' associations) and citizens, who contributed to the identification of agreed strategies and actions of the plan.

Figure 41 Modeling Evaluations for the city of Milan



The participation process consisted of an information campaign (to inform the public on the process for the development of the plan and its main themes), thematic meetings with authorities, stakeholders and citizens, and the publication on the municipality's and mobility agency's website of the presentations held during the meetings and their minutes and reports.

Thanks to a deep analysis of the current situation and trends as well as the consultation process, four mobility strategies were identified:

- a shared mobility governance with coordinated strategies and tools;
- urban accessibility using PT;
- urban space as common good;
- Passenger and freight mobility demand management.

Starting from the analysis of the current transport situation in Milan, projections to 2024 of the main transport variables have been made in order to evaluate the SUMP's planned measures against a reference (trend) scenario 2024 (which only includes measures already approved or in progress using a multimodal transport modelling tool developed by AMAT (Environment and Territory Mobility Agency).

On Mobility:

- The PT modal share is expected to grow up to 63 per cent inside the city, while car share is expected to decrease by 24 percentage points.
- The cycling network, which currently accounts for 9 per cent of the urban road network, will cover 25 per cent.
- The average trip time is expected to decrease by 8.3 per cent (by 9.5 per cent inside the city) and road congestion, measured according to suitable network indicators [1], by 10 per cent.
- The PT service offer (seat-km) is expected to increase by 20 per cent and PT commercial speed by 17.5 per cent.[46]

Table 166 Summary of SUMP for Milan

SUMP Projects Summary	• Decouple mobility needs and the use of private cars. • Preparation of a "pilot project" on the theme of cycling development (Biciplan of Homogeneous Zone). • Diffusion of bike-sharing, favoring more attractive methods / acceptable to users. • Diffusion of bike + train intermodality. • Incentives for the use of pedal assisted bicycles. • Promotion of changes to the Highway Code, starting from the first indications deriving from the "DL Relaunch". • Improve the quality of public space by reducing the share allocated to infrastructure; • Ensure proper safety levels for pedestrians, cyclists and vehicles; • Encourage, integrate and innovate low-impact transport services and modes;

[46] https://www.eltis.org/discover/case-studies/milans-plan-sustainable-efficient-and-innovative-mobility-italy

	• Encourage to share virtuous choices and behavior; • Develop practices of sustainable mobility and efficient use of energy resources; • Diffusion of car-sharing, with the commitment of the Municipalities to make parking spaces available for dedicated stops in their territory. • ensure high accessibility to the city by optimizing the offer and integrating the various public and / or private transport systems; • reduce dependence on private motorized vehicles in favor of modes of transport with a lower impact (with particular attention to the MI / urban area exchange movements and freight transport), • guaranteeing adequate mobility networks and services; • rebalance and recover shares of the road network and public spaces in favor of their better usability and sharing by pedestrians, cyclists and LPT users, improve their quality and optimize their management, especially in areas with a high density of residence or services attractants;
Maturity (ongoing, planned or financed)	Ongoing
Cost	2.555,35 million €[47]
Estimated end year	2024

2.6.1.2 SULP for the city of Milan

The SULP of the city of Milan is part of the SUMP Sustainable urban mobility plan of the city, and is linked to the surrounding cities' plans as they are all inter-connected and contribute to the economy of the Lombard region.

The transport of goods:

To consider actors, nodes and flows in the field of logistics, it is necessary to consider an area (Milanese Logistics Region) which includes the provinces of Milan, Monza and Brianza, Lodi, Pavia and partially those of Como, Varese and Bergamo, extending beyond the regional administrative borders including Novara and Piacenza, territories whose logistic activities are strictly connected to the Lombard economic system.

From a purely geographical point of view, the extended Milanese Logistics Region is directly connected with international markets through a network of gateways located along the borders of the area itself and near the road and railway axes that cross Northern Italy: to the west, the Interporto di Novara, to the north-west the airport of Malpensa, to the north the borders with Switzerland and the Gotthard and San Bernardino crossings, to the east the Orio al Serio airport, even more to the east the interport of Verona, to the south the ports of Genoa and La Spezia which represent the connection points to overseas markets.

The Lombardy area is the main origin / destination for the transport of goods in Italy: the volume of goods transported amounts to approximately 400 million tons per year, divided almost equally between internal

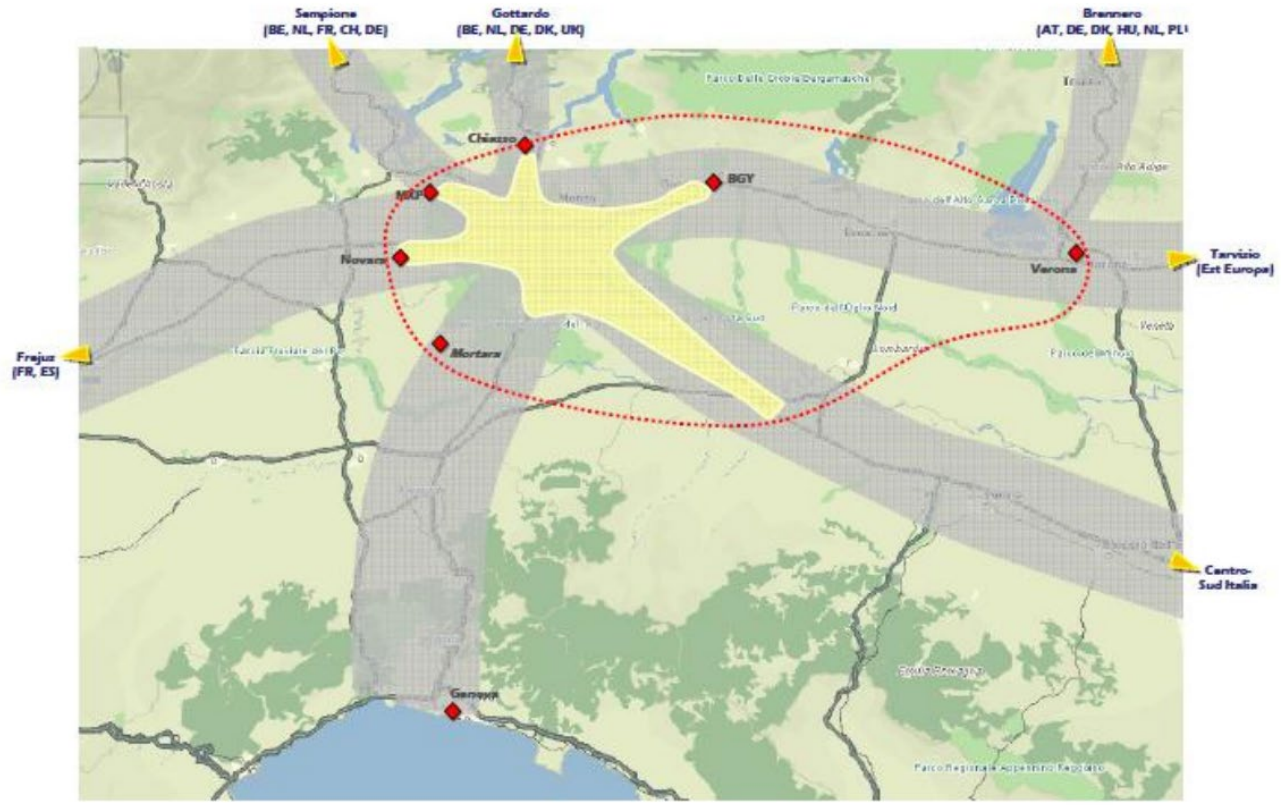
[47] PIANO URBANO DELLA MOBILITÀ, Comune di Milano, 2015

traffic and that originating or directed to / from other foreign regions or states; about 90% of the goods are transported by road.[48]

Logistic infrastructures:

Logistic infrastructures tend to gather around the Lombard metropolis and radiate from it along the main road axes. Within a radius of 45 km from the center of Milan, more than 90% of the surfaces for logistic use on behalf of third parties are concentrated, due to the strategic nature of the location in terms of an accessible market and in terms of proximity to the main communication arteries. Among these, there are over 100 distribution centers belonging to commercial companies and large-scale distribution, which very often they resort to logistic outsourcing to effectively manage the large quantities of incoming and outgoing material flows to the network of their stores scattered throughout the territory.

Figure 42 Logistics distribution centers



As far as air traffic is concerned, the airports of Malpensa, Linate and Orio al Serio handle approximately 620 thousand tons of goods, 72% of which pass through Malpensa.

[48] https://www.eltis.org/sites/default/files/case-studies/documents/ddp_01.pdf

The other Lombard airports cater to various market segments, in particular Linate for national and continental passenger traffic, Bergamo Orio al Serio for low-cost flights and for freight and postal traffic managed by large couriers.[49]

As far as rail traffic is concerned, various crossing lines converge on the Milan junction, afferent to the Gotthard and Simplon transits, while other transit lines make it possible to reach the Frejus, Brenner and Tarvisio crossings; over the entire Alpine arc, the potential of the lines is 220 trains / day, except on the stretch from Milan to the Gotthard (190).

Intermodal equipment

As regards the intermodal equipment, in the Milanese logistics region there are 16 intermodal terminals. The development of intermodal traffic has led to the need to upgrade the existing plants in Busto Arsizio / Gallarate, Segrate and Mortara. There are also terminals dedicated to international container traffic, with regular connections to the ports of Northern Europe; among these are Desio, for Hamburg and Brescia, for Rotterdam.

Regione Lombardia11 is also involved in supporting the development - already in the short term - of the intermodal plants of Sacconago, Milan Segrate, where a new road network is planned to maximize their potential, Melzo where an extension of 100,000 square meters is underway which will allow pass from 5,500 to 9,000 trains per year and Milano Smistamento.

Actions:

A set of actions for urban freight logistics - City logistics involve:

- Access rules: control and management system of loading and unloading areas
- Control and tracking of dangerous goods
- Pilot projects
- Integrated system for the management of freight transport in urban areas
- Urban freight distribution centers

Table 167 Summary of SULP for Milan

SULP Projects Summary	• Access rules: control and management system of loading and unloading areas
	• Control and tracking of dangerous goods
	• Pilot projects:
	  ○ "Smart Delivery": expansion of self-service stations for the pickup of remotely purchased goods
	  ○ "FR-EVUE": demonstration of a new method for the delivery within Area C of pharmaceutical supply chain goods, through the rationalization of logistics flows and the preparation of dedicated facilities and vehicle fleets

[49] https://www.eltis.org/sites/default/files/case-studies/documents/ddp_01.pdf

	○ "Cyclelogistics Ahead – Moving Europe forward": Analysis of the best strategies to adopt a goods distribution model in line with the concept of sustainable city. • Integrated system for the management of freight transport in urban areas: creation of a Restricted Traffic Zone for Goods with controlled access. • Urban freight distribution centers: Promotion of private initiatives aimed at the establishment and management of urban goods distribution centers.
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	2030

2.6.2 Palermo

2.6.2.1 SUMP for the city of Palermo

The main strategy of the SUMP is to induce a rebalancing of the demand for transport between collective and individual, in order to reduce the congestion and improve accessibility to and from urban suburbs. The pursuit of this "modal split" rebalancing strategy involves an incisive mobility policy that favors the use of collective transport and in particular of tramlines.

A Scenario that contains the planned and planned interventions regardless of the SUMP has been studied;

The following interventions are already part of the reference scenario scheduled by the municipal administration of the city of Palermo:

- NEW TRAM SYSTEM
- THE RAILWAY PASSER
- THE RAILWAY RING
- THE LIGHT AUTOMATIC UNDERGROUND (MAL)
- THE NEW CYCLE PATHS AND MICROMOBILITY
- THE NEW ROAD INFRASTRUCTURE
- THE ENHANCEMENT OF URBAN PUBLIC TRANSPORT

The reference scenario:

- SECTION "A" (VIA BALSAMO / VIA CROCE ROSSA)
- SECTION "B" (F.S NOTARBARTOLO STATION / GIACHERY)
- SECTION "C" (C.so CALATAFIMI / V. BASILE / S. F.S. ORLEANS)
- SECTION "D" (F.S. ORLEANS / BONAGIA STATION)
- SECTION "E" (VIA CROCE ROSSA / MONDELLO)
- SECTION "F" (GIACHERY / RAILWAY STATION VIA BALSAMO)
- SECTION "G" (VIA LANZA DI SCALEA / SFERRACAVALLO)

The works for the expanding of three sections are nearing completion:

- Section A: Palermo Centrale / Brancaccio - Notarbartolo;
- Section B: Notarbartolo - La Malfa;

- Section C: La Malfa - Carini

The completion intervention, divided into two sections:

1st excerpt, currently being defined, provides for an extension of the railway line up to piazza Castelnuovo, with the construction at the "Libertà" stop (at the intersection between via Lazio and via Sicily).

At the "Porto" stop (at the "Santa Lucia ") and the" Politeama "station (at the height of the homonymous square).

2nd section provides for the closure of the railway ring from the station "Politeama" at the "Notarbartolo" station with the construction of the "Malaspina" stop.[50]

Actions planned:

- Increase of the actions chosen in the participatory process of one measure that corresponds to 50% of the incremental value of reference scenario with respect to the corresponding base value of 2019
- 50% increase in charging stations for electric cars

Actions in the enhanced SUMP Scenario

- Viale Francia-Cep tram line 3.5 km
- Politeama-Emiri tram line 2.35 km;
- Via M.se di Villabianca-Arenella tramway line 3.60 km
- Implementation of a single integrated metro train / bus-tram ticket;
- The implementation of promotion, awareness and marketing.
- Additional installation of 100 units compared to the basic SUMP charging stations for electric cars.

Table 168 Summary of SUMP for Palermo

SUMP Projects Summary	1) new tram system 2) new railway system 3) improvement of railway ring 4) creation of a light metro underground 5) creation of a new cycle paths and micro-mobility 6) creation of a new road infrastructure 7) enhancement of urban public transport ACTIONS IN THE ENHANCED SUMP SCENARIO 1. Viale Francia-Cep tram line 3.5 km; 2. Politeama-Emiri tram line 2.35 km; 3. Via M.se di Villabianca-Arenella tramway line 3.60 km. 4. Implementation of a single integrated metro train / bus-tram ticket; 5. The implementation of promotion, awareness and marketing. 6. Further enhancement to the extent of 2% of those shares that citizens and stakeholders have assessed how “Indispensable” in the participatory process.

[50] SUMP Palermo, 2021

	7. Additional installation of 100 units compared to the basic SUMP charging stations for electric cars The completion intervention, divided into two sections: 1st excerpt, currently being defined, provides for an extension of the railway line up to piazza Castelnuovo, with the construction at the "Libertà" stop (at the intersection between via Lazio and via Sicily), at the "Porto" stop (at the "Santa Lucia ") and the" Politeama "station (at the height of the homonymous square) 2nd section provides for the closure of the railway ring from the station "Politeama" at the "Notarbartolo" station with the construction of the "Malaspina" stop near the street of the same name.
Maturity (ongoing, planned or financed)	ongoing
Cost	A total of 1,893,233,169 €
Estimated end year	first phase by 2024 second phase by 2030

2.6.2.2 SULP for the city of Palermo

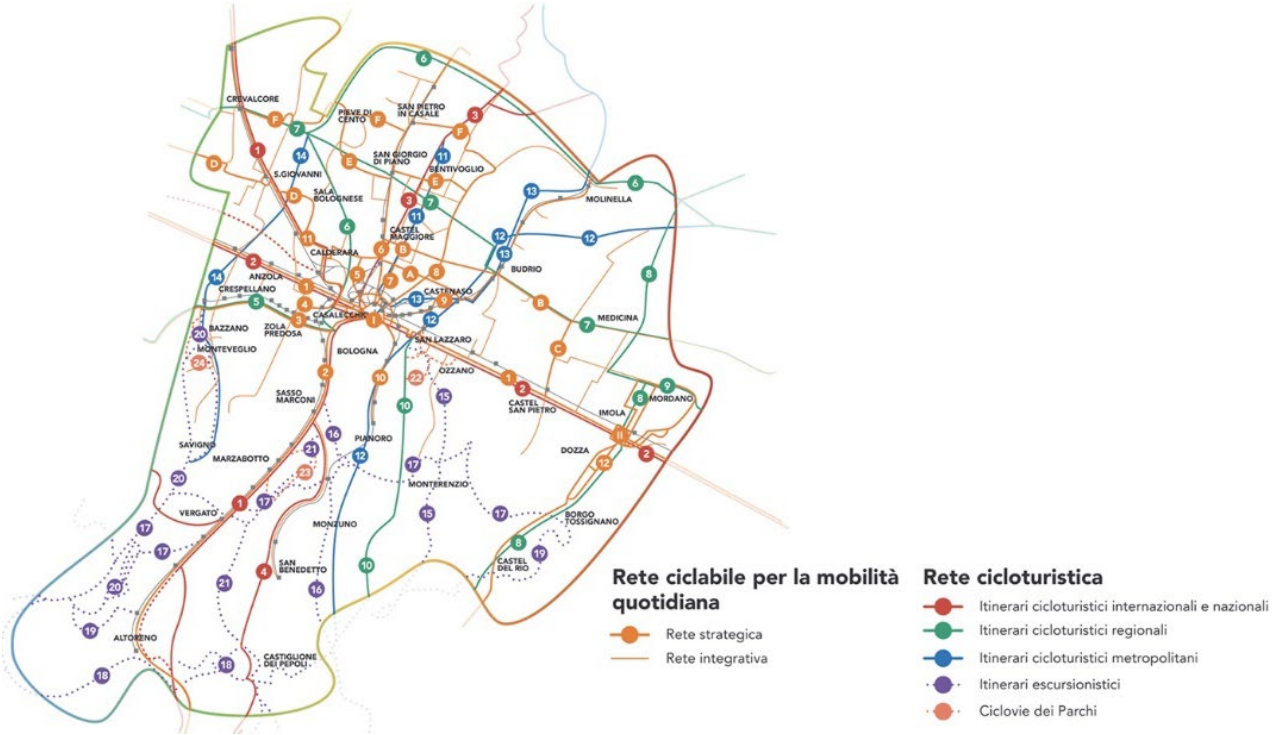
There is no SULP available for the city of Palermo at the moment of drafting this report.

2.6.3 Bologna

2.6.3.1 SUMP for the city of Bologna

The fundamental strategy for grasping the general objectives of the SUMP is the definition of a new backbone network of Metropolitan Public Transport (TPM), capable of overcoming the capacity limits of the current public transport offer and offering a competitive alternative to use private car also for journeys other than home-school and home-work - to complete the underground carrier network, all in a single integrated metropolitan fare system and with a clear recognition of the Public Transport service as a whole for citizens , city users and tourists. With the SUMP, therefore, the Metropolitan Public Transport (TPM) was born with a connected and integrated carrier network, which goes beyond the concept of urban, suburban and extra-urban networks.

Figure 43 Proposed cycling plan in Bologna



The SUMP structures the collective transport network in three components:

Metropolitan carrier network - consisting of the SFM (Servizio Ferroviario Metropolitano – metropolitan railway system), the new Bologna tram network and the extra-urban / suburban lines with high traffic - METROBUS (level I network) which proposes to serve with systems similar to Bus Rapid Transit (BRT).

Complementary network - consisting of an urban bus network in Bologna and Imola and suburban buses and an II and III level extra-urban network.

Integrative network - constituted by the local network, that is, by local low frequency or targeted and / or flexible services (level IV network).

The Mobility Centers are included in the TPM network as places par excellence where the concept of intermodality is expanded, connecting different transport modes in a single node and offering a range of services and equipment spread throughout the territory. They are mainly located in correspondence with the SFM stations that have a service frequency of 15 '(with the exception of the S2 line where this service is not provided), where several public transport services by road converge (with priority to the I ° and II network Level) or provide interchange with the Bologna tram lines and with private vehicles.[51]

Table 169 Summary of SUMP for Bologna

SUMP Projects Summary	-160km funded cycling lanes with 538km -2million km increase in the distance travelled by tram, bus and train

[51] https://pumsbologna.it/Consulta_il_piano

	-167,000 increase in the number of journeys made by public transport -90,900 of daily passengers of the red tram line by 2030 -introduction of parking and assistance (charging, repairing and washing area) -multi/inter-modality -mobility on demand (investing in apps and shared mobility)
Maturity (ongoing, planned or financed)	ongoing
Team / Stakeholder involved	• Municipality of Bologna • Città metropolitana di Bologna • SRM – Metropolitan Agency for Mobility and Transport • TPS, GO-Mobility, Airis, SCRAT, CTL, TEMA, LABNORMAL, ISFORT: research and consulting companies
Cost	+ 145 Mln €/year until 2030
Estimated end year	2030

2.6.3.2 SULP for the city of Bologna

The Sustainable Urban Logistics Plan (SULP) was developed in a coordinated and integrated manner with the SUMP, which identifies the strategies for the sustainable mobility of goods both for distribution logistics in urban areas and for industrial logistics.

The SULP aims to achieve a freight transport system capable of responding to the widespread needs of the metropolitan city, while increasing the sustainability of logistics and transport activities, in particular for the main urban areas starting from the capital (carbon free objective by 2030 for urban distribution).

The industrial logistics functions have been located by the SUMP, as well as at Interporto, in the four specialized areas for production activities of supra-municipal importance with development potential (as already defined by the PTCP) a precise functional logic, of accessibility and sustainability, in order to guarantee the lowest environmental and transport impact of the various logistics functions. Last but not least, the level of accessibility of employees to reach the workplace was considered, selecting locations that allow access to the access nodes of metropolitan public transport, first of all the regional railway system.

Figure 44 Identified areas for production areas (SULP of Bologna)

The areas identified are shown in the map below and correspond, in addition to Interporto, to the production areas of: Martignone in the municipalities of Valsamoggia and Anzola dell'Emilia, San Carlo in the municipalities of Castel San Pietro and Castel Guelfo, Imola and Altedo in the municipalities of Malalbergo, San Pietro in Casale and Bentivoglio which are located near the toll booths of the motorway network and the railway system. These areas, suited to medium-large logistics, in order to be sustainable and guarantee

minimum services to employees, must be connected through a cycle network to the TPM and the nearest inhabited center.[52]

Table 170 Summary of SULP for Bologna

SULP Strategic Objectives Summary	• Incentive and promotion of the use of electric vehicles; • Upgrading of charging points for electric vehicles; • Incentives for the renewal of the vehicle fleet and limitation of vehicle access to urban centers more polluting commercials; • Management of freight transport in the last mile and in the ZTL with low environmental impact vehicles; • Promotion of sustainability and optimization of short sea freight logistics; • Promotion of sustainability and optimization of freight logistics in the districts industrial / artisanal; • Modal shift of freight transport from road to train. • Double the quantities of goods (+ 135%) currently traveling by rail. • Triple the percentage points of the modal split on rail. • Reduce polluting CO2 emissions by 15%; • Reduce freight traffic congestion (-15% VehKm / d).
Maturity (ongoing, planned or financed)	ongoing
Team / Stakeholder involved	• Municipality of Bologna • Città metropolitana di Bologna • SRM – Metropolitan Agency for Mobility and Transport • TPS, GO-Mobility, Airis, SCRAT, CTL, TEMA, LABNORMAL, ISFORT: research and consulting companies
Cost	The cost of the SULP of Bologna is included and related to the cost of the SUMP plan of bologna previously mentioned
Estimated end year	2030

2.6.4 Bari

2.6.4.1 SUMP for the city of Bari

The Urban Plan for Sustainable Mobility drawn up by the Metropolitan City of Bari stems from the need to place all the actors of the 41 municipalities that make up the Bari hinterland at the center of the mobility system, in order to develop innovative, sustainable and integrated, to address and solve the criticalities of the mobility system of people and goods in the area and improve the quality of life in the Metropolitan City of Bari.

[52] https://pumsbologna.it/Consulta_il_piano/Logistica

Table 171 Summary of SUMP for Bari

SUMP Main Actions Summary	1. Renewal and upgrading of the fleet 2. Electronic ticketing 3. info-mobility 4. Restyling of the stops 5. Extension of preferential lanes and traffic light priority 6. Complete reorganization of the program with: • Creation of high frequency carrier lines • Creation of neighborhood circulars coordinated with Metropolitan Railway Service. • Creation of P&R shuttles
Maturity (ongoing, planned or financed)	ongoing
Cost	700,000 €
Estimated end year	2026

2.6.4.2 SULP for the city of Bari

There is no SULP available for the city of Bari at the moment of drafting this report.

2.6.5 Catania

2.6.5.1 SUMP for the city of Catania

The SUMP of Catania was adopted, but not yet approved, at the time of drafting this report. The adopted SUMP. The key elements identified to define the scope of action of the Sustainable Urban Mobility Plan of the Metropolitan City of Catania are mainly the following: (i) Sustainability; (ii) Equity; (iii) Safety; (iv) Social Inclusion; (v) Economic Efficiency.

In the Plan, three “scenarios” or hypotheses are proposed— not in conflict with each other but rather complementary and progressive. However, these scenarios require different levels of financial commitment.

The PUMS takes into account interventions planned for road infrastructure, with particular emphasis on the third lane of the ring road and the second ring road, as well as on parking lots and modal exchange areas. Noteworthy are the third lane of the ring road and the second ring road, although the parking lot of San Nullo is not mentioned, while the long-awaited multi-story Republic parking lot is included. The plan also addresses interventions on the RFI railway network, the metropolitan and extra-urban railway network FCE, public road transport, the port and airport system, and finally, interventions on cycling paths and pedestrian areas in the perspective of "urban redevelopment and green transition," as well as naturalistic itineraries.

Table 172 Summary of SUMP for Catania

SUMP Strategic Objectives Summary	Strategy 1 - Integration between transportation systems (including mass rapid transit systems) and policies aimed at limiting private traffic and rationalizing parking: Organizational and management actions and infrastructure to promote modal interchange and measures for the rationalization of the parking system and interchange parking. Strategy 2 - Development of collective mobility: Interventions on urban and interurban public transport networks, in terms of infrastructure and service, taking

	into account accessibility for people with disabilities, improving service quality, and increasing the commercial speed of public transport vehicles. Strategy 3 - Development of pedestrian and cycling mobility systems: Infrastructure interventions and organizational and management actions supporting cycling mobility, interventions and actions on urban roads supporting pedestrian mobility, including those with disabilities, to consider cycling and pedestrian movements as an integral and fundamental part of urban mobility, not as a residual quota. Strategy 4 - Implementation of shared mobility systems (motorized and non-motorized) throughout the metropolitan area: Increase in infrastructure and services related to car sharing, bike sharing, van sharing, and carpooling. Strategy 5 - Renewal of the vehicle fleet with the introduction of low-polluting vehicles in public and private areas: Incentive measures for the use of low-polluting and highly energy-efficient vehicles and the construction of supporting infrastructure. Strategy 6 - Rationalization of urban logistics in terms of infrastructure and management to balance the needs of goods supply and the quality of life in urban centers. Strategy 7 - Measures to adapt the capacity and safety of the road network in the territory and spread awareness of safety and sustainable mobility: Infrastructure, organizational, and management interventions to address critical issues, reduce the risk of accidents and/or mitigate the consequences of accidents, and awareness campaigns on sustainable mobility. Strategy 8 - Coordination of mobility measures at the metropolitan level: Single coordination in the field of metropolitan mobility, coordination of mobility managers in the territory.
Maturity (ongoing, planned or financed)	Ongoing
Cost	583 M€ - 2900 M€ depending on the scenario
Estimated end year	2033

2.6.5.2 SULP for the city of Catania

The SUMP includes a strategy dedicated to urban logistics (see above)

2.6.6 Venice

2.6.6.1 SUMP for the city of Venice

At the time of drafting this report, no specific set of actions were defined for the SUMP of Venice. However, The SUMP is articulated through strategies and actions aimed at responding to the needs of individual citizens and users of the city and is divided into SUMP for commuters, for students and for tourists.

The **SUMP for commuters** pays attention to the needs of people who move to the city every day to go to work, with the aim of making the transport system more efficient and reducing the impact on the environment and social life.

For home-work commuting, the SUMP hopes for a change of gear: that is, the reduction of the number of private cars in circulation to get to the workplace and, the consequent, diffusion of forms of sustainable mobility (cycling-pedestrian mobility, use of local public transport and shared use of the car) in order to reduce city traffic and pollution.

To achieve this goal, the subjects called into question in the design of the SUMP are individual workers: who live and work in Venice, who live in Venice and move out of the ordinary to go to the workplace, who live out of the ordinary and come to work in Venice; in addition to the associations of the sector categories, the trade unions, the mobility managers of large companies, large public bodies.

The **SUMP for students** looks with interest at the youngest, considering them fully citizens. Home-to-school mobility involves students, parents, teachers, school collaborators and people who move out of school areas.

To give an effective response to travel to schools, elementary and nursery schools, it is necessary to involve all the actors that gravitate around the world of school, both directly and indirectly. For this issue, the SUMP builds its strategic vision starting from sustainable school mobility projects already activated in some schools with the aim of expanding the good practices and positive experiences set in motion to the whole territory.

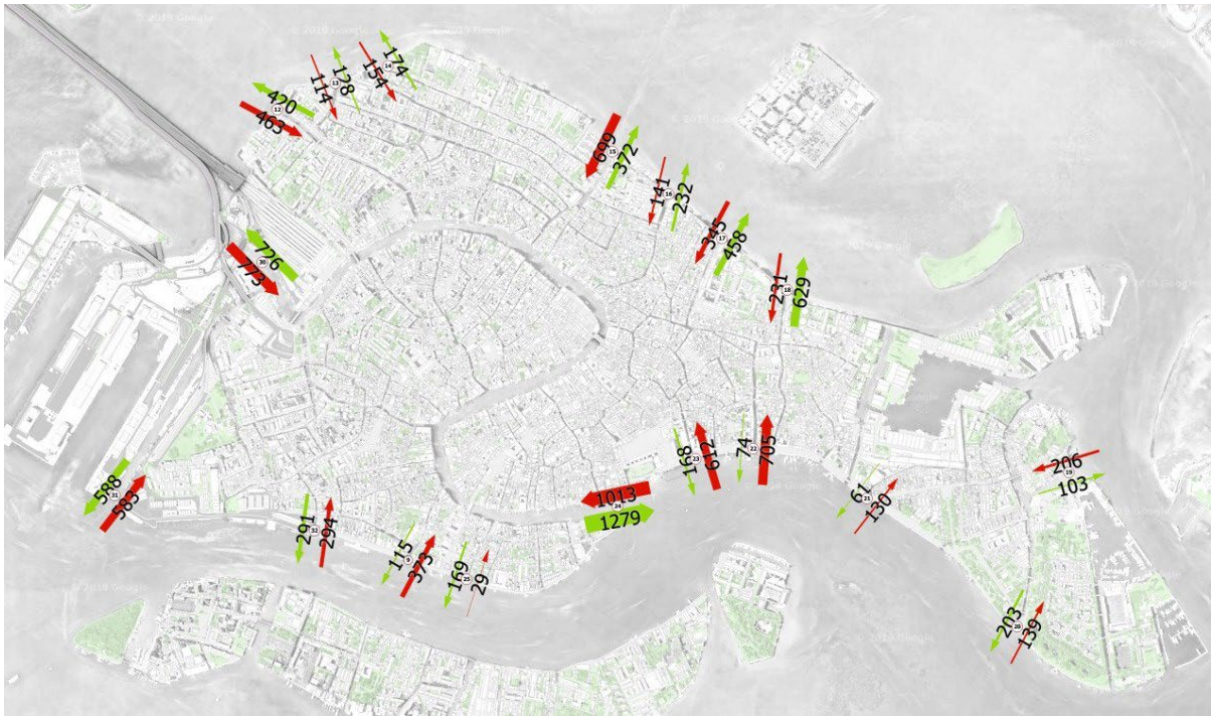
As concerns, the **SUMP for tourists**, due to its urban peculiarities and its artistic heritage, Venice is one of the most visited cities in the world and for this reason; it needs mobility policies that are able to combine the principle of sustainability and that of enhancing the territory.
The objective of the Plan is to provide tourists with a hospitable, clear and efficient mobility system to make their stay pleasant and satisfying, even for a short time. Multimodality and intermodality are considered among the priorities to be met in the main nodes (railway stations, airport and port), from which to develop transport services capable of harmoniously satisfying the travel needs of residents and workers. [53]

The strategies are created of a plurality of actions that develop in the short, medium and long time. The plan pursues the following objectives:

- effectiveness and efficiency of the mobility system;
- energy and environmental sustainability;
- road mobility safety;
- Socio-economic sustainability.

[53] https://www.comune.venezia.it/content/strategie

Figure 45 Daily traffic flows of boats in the historic city



SUMP for transporters / Logistics

The traffic generated by the movement of goods represents a significant component of mobility and needs to be regulated to improve delivery services and reduce negative impacts on circulation both on an urban and extra-urban scale.

Logistics plays an increasingly important role in the competitiveness of the territories and in the purchasing habits of citizens, especially in recent years in which there has been an exponential increase in e-commerce. The SUMP of Venice wants to minimize conflicts and interference between the mobility of goods and people both at a territorial and urban level. In its consultation process, the Plan may involve public and private entities that deal with the mobility of goods and that provide services to the city and to the person (shippers, couriers and transport companies) to facilitate understanding of specific needs and agree on strategies and actions to calm conflicts with the mobility of citizens.

Table 173 Summary of SUMP for Venice

SUMP Strategy Summary	**At the time of drafting this report, no specific set of actions were defined. However the strategy of the SUMP in Venice is currently under study and divided into several categories**: -for commuters ; (cycling-pedestrian mobility, use of local public transport and shared use of the car) -for students; -for families; -for transporters; -for tourists
Maturity (ongoing, planned or financed)	ongoing

Cost	At the moment of drafting this report no cost was officially set yet.
Estimated end year	2030: FIRST PHASE: Launch of the Plan and identification of general objectives; SECOND PHASE: Reconstruction of the cognitive framework; THIRD PHASE: Model building / updating; FOURTH PHASE: Definition of policies and actions; FIFTH PHASE: Definitions of scenarios, modeling and evaluation with respect to objectives; SIXTH PHASE: Definition of indicators and monitoring system

2.6.6.2 SULP for the city of Venice

There is no SULP available for the city of Venice at the moment of drafting this report.

2.6.7 Messina

2.6.7.1 SUMP for the city of Messina

The SUMP of Messina pursues the following general objectives:

- effectiveness and efficiency of the mobility system;
- energy and environmental sustainability;
- road mobility safety;
- Socio-economic sustainability.[54]

The Guidelines report the projects under development ("E-Bike O" experimental project, "Laguna di Capo Peloro "cycle-pedestrian track, National experimental program of sustainable home-school and home-work mobility) and identify guidelines for extension of the cycle network and the spread of bicycle mobility.

The City of Messina wants to pursue policies aimed at safeguarding and increasing pedestrian mobility spaces; on the other hand, there is no doubt that traveling on foot or with a combination of ecological ways (e.g. feet + bus) results in less presence of motor vehicles on the road and, consequently, in fewer externalities on the urban environment: less pollution atmospheric and acoustic, less risk of accidents, less congestion. Ultimately in an improvement of the quality of community life.

A. Effectiveness and efficiency of the mobility system;

- Improvement of the LPT;
- Modal rebalancing of mobility;
- Reduction of congestion;
- Improvement of the accessibility of people and goods;
- Improvement of accessibility for people with disabilities,
- Development of pedestrian and cycling transport;
- Efficiency of urban logistics.

B. Energy and environmental sustainability

[54] https://comune.messina.it/pums/pums-messina-2030/

- Reduction of the consumption of fuels from fossil sources;
- Reduction of atmospheric pollution;
- Reduction of noise pollution;
- Promotion of low-polluting vehicles.

C. Road safety

- Reduction of road accidents;
- Reduction of social costs.

D. Socio-economic sustainability

- Improvement of social inclusion;
- Raising the degree of citizenship satisfaction;
- New employment opportunities.

To address the outlined objectives and potential ones, specific actions are required for constructing Plan scenarios, addressing emerging issues from the cognitive framework analysis. Key strategies include Integration of Transport Systems, Development of Collective Mobility (to enhance service quality and increase commercial speed of public transport), Pedestrian and Cycling Mobility Systems Development, Introduction of Shared Motorized Mobility Systems (including car-sharing and bike-sharing), Renewal of Vehicle Fleet (to introduce low-polluting, energy-efficient vehicles), Rationalization of Urban Logistics (balancing supply needs for urban economic and social vitality), Safety Culture Dissemination (to reduce accidents and their consequences), and Rationalization and Integration of Transport Infrastructure Network (meeting standards and closing significant links).

These strategies will be realized through short-term implementation plans, linked to the municipal administration budget planning. They form an integral part of the Sustainable Urban Mobility Plan (SUMP) and will undergo short-term cycles and updates.

For the city of Messina, seven implementation plans are proposed: Integration Plan between Transport Systems, Public Transport Development Plan, Pedestrian and Bicycle Mobility Development Plan, Shared Mobility Plan and Low-Impact Vehicle Diffusion, Urban Logistics Plan, Road Safety Plan, and Infrastructure Network Plan.

The SUMP will strongly prioritize promoting pedestrian mobility, including the expansion of the urban pedestrian network, development of suburban pedestrian networks, path network development in hilly and rural areas, measures for the mobility of vulnerable users, designated spaces for children, neighborhood-scale "Piedibus" initiatives, promotion of walking and running for exercise, development of tourist routes, and social and political promotion of pedestrian mobility through awareness campaigns.

Table 174 Summary of SUMP for Messina

SUMP Projects Summary	The Urban Sustainable Mobility Plan will be strongly oriented towards the promotion of cycle mobility in its various forms; and in particular the following will be considered among the interventions: a) Extension of the cycle network in the urban area (paths and cycle paths); b) Extension of the cycle network in the suburban area;

	c) Mountain-bike network development in hilly and rural areas; d) Development of Bike sharing and promotion of the electric bike; e) Spaces for children (areas dedicated to cycling); f) Bicibus initiatives; g) Promotion of sporting practice; Hypothesis of new interventions: • Extension of the cycle network in an extra-urban area; • Cycle routes in hilly and outlying areas, • Development of Bike sharing and promotion of the electric bike; • Promotion of sports practice; • Social and political promotion of cycling, through dissemination actions. The SUMP will be strongly oriented towards the promotion of pedestrian mobility in its various forms; and in particular the following will be considered among the interventions: a) Extension of the pedestrian network in the urban area (sidewalks, paths and pedestrian areas); b) Extension of the pedestrian network in the suburban area (provision of sidewalks for traffic of suburban neighborhoods or villages, pedestrian spaces at the edge of roadways); c) Development of the path network in hilly and rural areas; d) Specific measures for the mobility of weak users, starting from pedestrian areas and paths; e) Spaces for children (protected roads, appropriately furnished dedicated areas); f) Piedibus initiatives (on a neighborhood scale); g) Promotion of the sporting practice of walking and running; h) Development of tourist routes (eg Via Dromo, along the Ionian coast); i) Social and political promotion of pedestrian mobility, through dissemination actions.
Maturity (ongoing, planned or financed)	ongoing
Cost	337,888,274 €
Estimated end year	NA

2.6.7.2 Logistic plan for the city of Messina

Context and criticalities emerged from the cognitive investigations, both technical and social traffic surveys showed that freight traffic in 2021, compared to 2018 on 14 directly comparable intersections, increased by 13.4% for light commercial vehicles, heavy isolated vehicles by 2.1% and heavy combined vehicles by 11.3%. This variation, appreciable because it refers to an interval of less than 3 years, highlights new phenomena underway in the logistics sector. In particular, it is also evident from the point of view of the economic distribution between the different ways of retailing goods with a significant increase in goods purchased on the internet, the greater quantity of goods distributed by couriers on light commercial vehicles. This trend, which analysts indicate is still growing and far from having reached new equilibriums, highlights the need to

keep the urban distribution of goods under control by making the presence in the urban area of the increasingly numerous circulating LCVs as compatible as possible. On the front of heavy vehicles, the latter, both isolated and combined, are absolutely inappropriate in central areas due to the significant impact that characterize them both in circulation and in the eventual stop. The central location of still active city embarkations, such as the San Francesco harbor and the Nuremberg wharf, attract heavy traffic in the central areas: this aspect should improve considerably with the completion of the upgrading of the port of Tremestieri where all vehicular traffic will be concentrated with the continent.[55]

The city of Messina clarifies that the logistics plan for the city of Messina is clearly to be executed in the near future

The strategies and objectives to which the action refers

The general objectives that fulfill this action are:

- Improve urban and city traffic;
- Improve environmental quality, making the city person-friendly.

At the same time, this action, at the various stages proposed, responds to the following strategies:

- reduction of road congestion in the access roads to the historic center and in the areas of merit;
- Decrease in noise and atmospheric pollution.

The description of the nature and main characteristics of the action

The SUMP provides a set of four limitations within the ZTL for goods and logistics, whose extension proposal is already contained in the PGTU proposal and herein integrally re-taken:

- limitation of freight vehicles by weight
- limitation of goods vehicles by motorization
- limitation of freight vehicles for timetables
- Lockers installation

Table 175 Summary of Logistic Plan for Messina

Logistic Plan Objectives Summary	• Reduction of road congestion in the access roads to the historic center and in the areas of merit; • Decrease in noise and atmospheric pollution. • Limitation of freight vehicles by weight • Limitation of goods vehicles by motorization • Limitation of freight vehicles for timetables • Lockers installation
Maturity (ongoing, planned or financed)	Ongoing
Cost	1,531,240 € of 337,888,274 € (the general cost of the SUMP)
Estimated end year	NA

[55] TPS PRO, PUMS Messina 2030, August 2021

2.6.8 Padua

2.6.8.1 SUMP for the city of Padua

The SUMP Padua Metropolitan Conference (CoMePa) takes guidance from the Guidelines for the preparation of Urban Plans for Sustainable Mobility (DM 4 August 2017). Seven strategies, tailored to specific territories, offer a foundation for SUMP choices: Integration between transport systems, Development of collective mobility, Pedestrian and cycling mobility systems, Shared motorized mobility systems (sharing), Renewal of the park with low-polluting, energy-efficient vehicles, Rationalization of urban logistics, and Dissemination of culture related to the safety of mobility.

The strategic plan considers territorial and time references, encompassing the urban area of Padua, neighboring municipalities, and the municipality of Vigonovo. It aims for a ten-year horizon with a focus on environmental sustainability and efficient mobility.

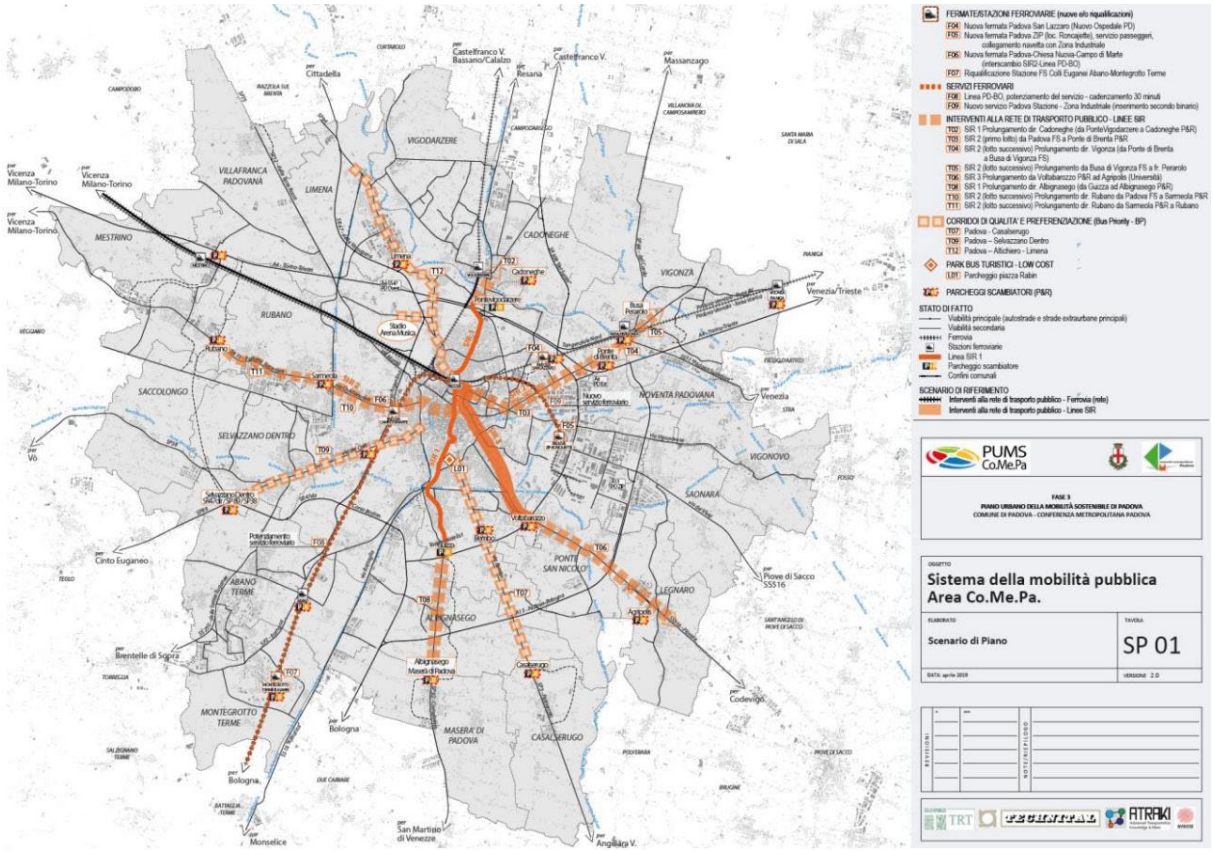
The SUMP targets a shift from car-centric to sustainable mobility models, aligning with environmental sustainability goals. The plan acknowledges the mature urban area's characteristics and emphasizes the interdependence of environmental sustainability and efficient mobility.

Interventions are categorized into short-medium term (2025) and medium-long term (2030). The plan addresses public mobility, road infrastructures, public space management, cycling, mobility demand management, urban logistics, and electric mobility.

Collective mobility development requires a strategic and effective use of public resources, a choice endorsed by local decision-makers. Proposed interventions include strengthening rail links, expanding the intermediate network system, integrating road-rail services, and introducing innovative factors in public transport services.

In summary, the Plan scenario aims to strengthen rail links, develop the network of urban and wide area transport, integrate road-rail services, and introduce innovations in public transport services, aligning with a shift towards sustainable and efficient mobility.

Figure 46 Example of illustration of a Plan Scenario - Public mobility system



In terms of the cycle network, the Plan Scenario's choice is based on four pillars:

1. Establishing a power relationship scheme for cycle routes in the CoMePa area, ensuring continuity and completing existing paths.

2. Adopting the advanced network design from the Bici Master Plan 2018-2022 of the Municipality of Padua as a sector implementation tool.

3. Integrating the carrier cycle network with the "widespread cycling" proposed by the SUMP, incorporating actions from the Vision Zero-City 30 approach, including speed moderation areas (Roads 30) and shared public spaces (Zone 30).

4. Completing the cycle network of territorial value for recreational use, connecting with national cycle routes such as the Ciclovia Adriatica and Ciclovia VENTO along rivers, canals, and the province of Padua.

The Plan Scenario outlines interventions in two time phases:

Short-Medium Term (2025):

- 31 interventions to complete radial itineraries within the Municipality of Padua, extending them to the Co.Me.Pa.

- Focus on implementing speed moderation (30 km/h) interventions in central CoMePa areas and near schools.

- Specific interventions facilitate the creation of a first ring road outside Padua, connecting municipalities in the first belt.

Medium-Long Term (2030):

- 27 interventions for a ring road between the outermost Co.Me.Pa municipalities, forming an integrated cycle network with existing paths and 30 km/h roads.

- These interventions, requiring dedicated infrastructure, are financially more significant.

The second line of actions relating to the cycling of the SUMP, concerns the development of services to support cycling. These are services that must be integrated with urban functions (residential areas, intended for educational and commercial services, workplaces, etc.) and with the nodes of public-private mobility. In particular, the SUMP proposes:

- The construction of new railway stations to service the new railway stops in Padua (San Lazzaro, Campo di Marte and industrial area) and at the railway station of Vigodarze, Colli Euganei Abano Montegrotto Terme and Vigonza;
- Parking areas equipped and equipped with cycling services (see repair of bicycles, public pumps) to be located in the interchange nodes of public and private Park & Ride transport whose location is shown in the table referred to in the previous paragraph of public transport;
- Enhancement of shared cycle mobility services (bike sharing) according to free-flow (and / or traditional) management models both in the urban area of Padua and at the most external attraction

poles significant such as: the university campus of Agripolis, the spa towns of Abano and Montegrotto Terme (tourist demand);

- Widespread bicycle parking, making the necessary increases in the offer where there are particularly attractive functions and services (schools, universities, public services, shops, plants sports, theaters, cinemas, exhibition-cultural spaces, etc.) to be created with a modular system

Figure 47 Example of illustration of a Plan Scenario - Cycling plan

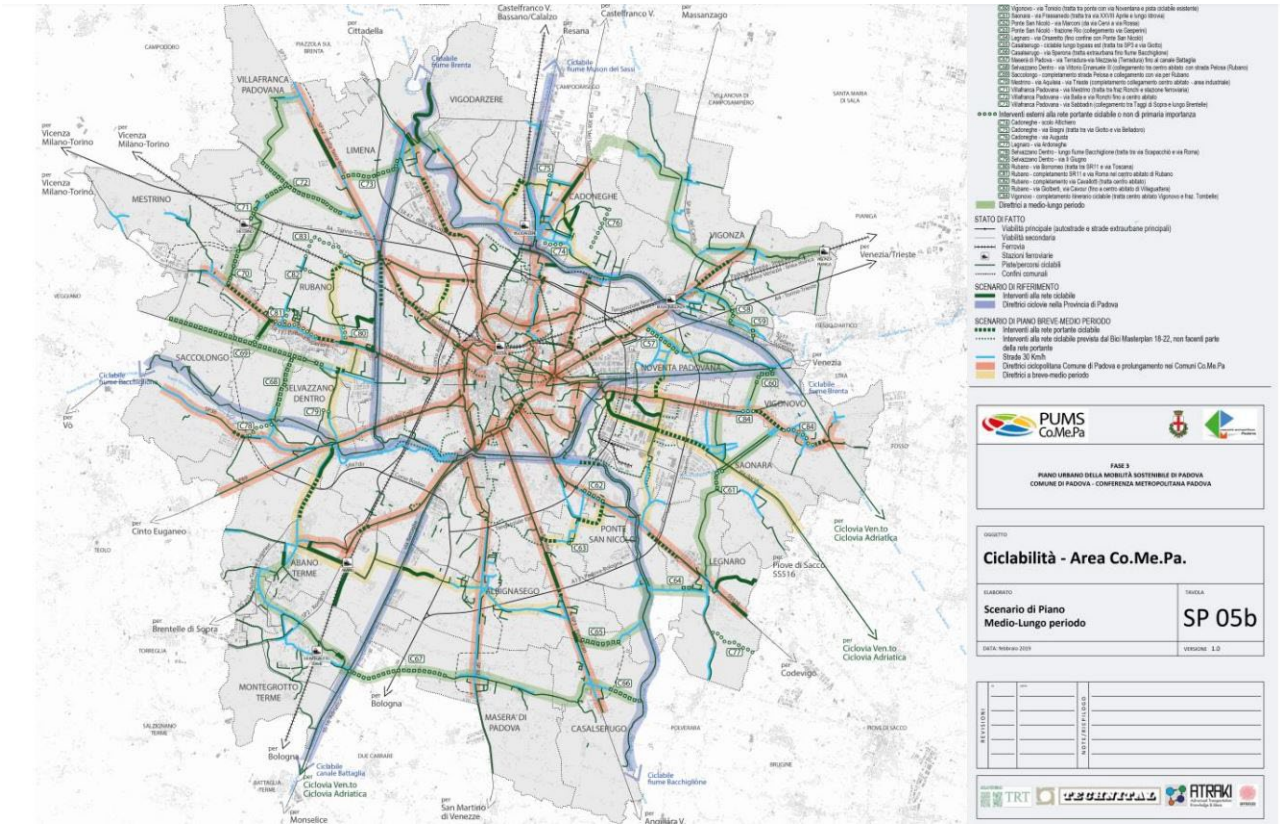


Table 176 Summary of SUMP for Padua

SUMP Projects Summary	• New Padua San Lazzaro railway stop • New Padua ZIP railway stop (Roncajette locality) • New Padua Chiesanuova-Campo di Marte railway stop • Redevelopment of the Montegrotto Terme Euganee railway station • Strengthening of railway services along the Padua-Montegrotto-Monselice line (service at 30 'intervals) • Extension northwards from • Pontevigodarzere in Cadoneghe (interchange parking) Padua - Industrial area • Extension in a southerly direction from Guizza to Albignasego / Maserà (interchange parking)

	• South extension: Padua Voltabarozzo - Ponte San Nicolò-Legnaro / Agripolis University • Extension from Ponte di Brenta to Busa di Vigonza FS • Extension from Busa di Vigonza FS a Perarolo • Extension - from Padova FS to Chiesa New in Sarmeola • Extension from Sarmeola to Rubano X • Connection between via Genova and via De Gasperi 180 • Completion of the connection along the SP12 “della Terra Rossa” between the urban center and the hamlet of Taggì di Sopra • Remaking of the "Peschiera" 360 route • Lungo fiume Brenta dal ponte con Limena (via Manetti) alla frazione Tavo • Along the Brenta river from the bridge with Limena (via Manetti) to the hamlet of Tavo Cycling plan – increasing and enhancing the cycling network: • 2.8km Abano terme • Albignasego: Inteventions in the requalifications of the 30km/h streets • 2.6km Cadoneghe • 3.5km Casalserugo • 4.0km in Legnaro • 0.6km in Limena • 4.5km in Masera di Padova • 2.9km in Mestrino • Montegrotto: previewed interventions in the requalification of the 30km/h street • 2.5km in Noventa Padovana • 4.1km in Ponte San Nicolo • 8.3km in Rubano • 2.0km in Saccolongo • 3.1km in Saonara • 3.7km in Selvazzano dentro • 1.1km in vigodarzere • 3.0km Vigonovo • 2.6km Vigonza • 8.9km Villafranca Padovana • Total of 60 km of extension of the cycling network
Maturity (ongoing, planned or financed)	ongoing
Cost	310,600,000 €
Estimated end year	NA

In terms of logistics and urban logistics, the Paduan reality represents one of the main and significant presences of the country.

The role of the Padua freight port and its ability to innovate the offer of integrated logistics services are an important element on the national scene. The liveliness of the structure is confirmed by the investments made and in progress also through the European co-financing (CEF Connecting Europe Facility program, see Box).

2.6.8.2 SULP for the city of Padua

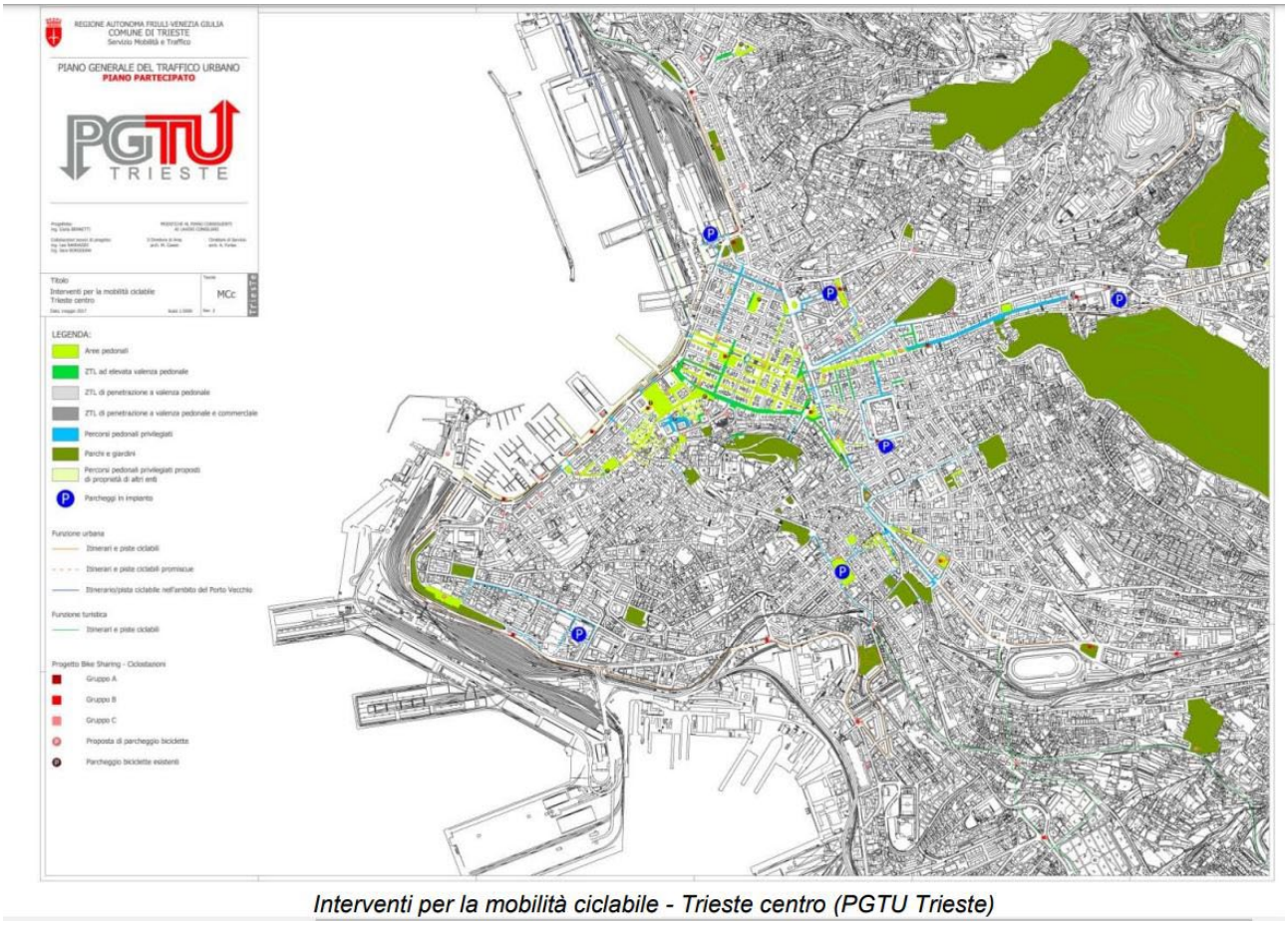
There is no SULP available for the city of Padua at the moment of drafting this report.

2.6.9 Trieste

2.6.9.1 SUMP for the city Trieste

The Sustainable Urban Mobility Plan (SUMP) for the City of Trieste and surrounding municipalities aims to create a comprehensive transport system, addressing objectives such as ensuring access to key destinations, improving travel safety, reducing pollution and energy consumption, optimizing modal choices, and enhancing the overall attractiveness of the region. City Council Resolution n.707 outlines guidelines for the SUMP, emphasizing stakeholder and citizen participation, promoting pedestrian and cyclist mobility, studying intermodal solutions, reviewing road networks, enhancing road safety, rationalizing freight transport, implementing user information systems, optimizing existing infrastructures, and contributing to the revitalization of the Old Port. The plan categorizes cycle mobility into urban and tourist/extrarural use, with proposals for bicycle transport projects in the urban area.

Figure 48 Illustration of the interventions for Cycling Mobility



Interventi per la mobilità ciclabile - Trieste centro (PGTU Trieste)

In light of this, the guidelines and objectives outlined above are placed in distinct time horizons in the short, medium and long term, also by virtue of whether or not they involve "unaltered infrastructure resources" (short term) or "altered" (medium and long term) period "). The times identified are:

- Short term: 2 years from the approval of the SUMP in the City Council, by 2022;
- Medium term: 5 years from the approval of the SUMP in the City Council, by 2015);
- Long term: 10 years from the approval of the SUMP in the City Council, by 2030.[56]

Table 177 Summary of SUMP for Trieste

SUMP Strategic Objectives Summary	- A better connection with the Triestina - Great Viability of the developing sectors of the port (pier VIII and neighboring areas); - a new viability inside the Porto Vecchio; - as regards the Ezit area, the redesign of via Flavia and the major one's intersections - Expand the areas of high pedestrian traffic in the center;

[56] COMUNE DI TRIESTE, Documento di fase 1, Gennaio 2019

	- Connect the historic center with the main parking systems by footpaths crowning the Borgo Teresiano; - Connect existing pedestrian paths; - Identify areas that may be subject to good pedestrian usability in the suburbs.
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	short term: 2 years from the approval of the SUMP in the City Council, by2022; -medium term: 5 years from the approval of the SUMP in the City Council, by2015); -long term: 10 years from the approval of the SUMP in the City Council, by 2030.

2.6.9.2 SULP for the city of Trieste

There is no SULP available for the city of Trieste at the moment of drafting this report.

2.6.10 Taranto

2.6.10.1 Sump for the city of Taranto

In Taranto, pedestrian mobility constitutes 28.25% of total journeys, with a focus on student movement. Proposed strategies include improving street furniture, investing in urban regeneration, selectively reducing car traffic, promoting competitive public transport, and encouraging active mobility.

For cycling, the plan suggests a prototype cycle path and the creation of velo-stations, establishing a main cycling network, and integrating cycle paths into urban regeneration projects.

Regarding local public transport, Taranto aims for full integration of the Paolo VI district and considers transforming the car carrier network into a tramway. The Nasisi station plays a crucial role in facilitating rail-road interchange.

Challenges in the current public transport system include an aging fleet, lower-than-planned production, a complex network, high incidence of long lines, and inadequate integration with suburban rail and car services.

Table 178 Summary of SUMP for Taranto

SUMP Projects Summary	-Pedestrian Mobility: Investing in the quality of street furniture and on Wayfinding (spatial cognition). - creation of a competitive public transport system: reorganization of the 400 suburban buses that daily serve the city of Taranto, eliminating, in particular, the transit on the viability of the Old Town. -Enhancing and creating two circuits for the bike lines coming from the west would take place respectively: 1. at the entrance from via Magnaghi up to the height of via Leonida da Taranto where there is an equipped stop to then come out of the city through via Cesare Battisti which would be relieved from the current transit of city buses;

	2. at the entrance from viale Trentino continuation on via Umbria and abutment on viale Virgilio at the height of via Rizzitelli and then succeeding on viale Virgilio towards the south. 3.Creating a cycle path to connect the Maritime Station and the Railway Station to the Center, through the Old Town mixed within ZONE 30 and ZTL and supported by a Bike Sharing service. 4.Create a network of velostations at public and private attraction poles and all over the city for students and workers 5.Identify a structure of the main network for cycling based on the contextualization of the intervention methods (Routes in a dedicated site, Zone 30, ZTL and circulation on low-traffic roads in rural areas in accordance with the Public Administration) 6.Provide for the possibility of transporting bicycles on the main lines of public car transport and on the waterway network
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	NA

2.6.10.2 SULP for the city of Taranto

There is no SULP available for the city of Taranto at the moment of drafting this report.

2.6.11 Reggio Calabria

2.6.11.1 SUMP for the city of Reggio Calabria

The SUMP of Reggio Calabria has been adopted, but not yet approved at the time of drafting this report.

The Plan is aimed at building a new vision for metropolitan urban mobility. The strategies encompass a variety of actions to be implemented in the short, medium, and long term. These include enhancing the attractiveness of collective and shared mobility, improving the economic performance of public transport, ensuring the safety and equal status of pedestrian and cycling transport, reducing road congestion, promoting low-impact environmentally friendly vehicles, optimizing urban logistics, enhancing the energy and environmental performance of passenger and freight vehicles, ensuring accessibility for individuals with reduced mobility, providing affordable mobility for low-income individuals, addressing the transportation needs of the elderly and children/youth, improving traffic safety, and increasing modal choices for citizens.

Table 179 Summary of SUMP for Reggio Calabria

SUMP Strategies Summary	Strategy “People”.1 – Implement measures for the reduction of accidents Strategy “People”.2 – Ensure better accessibility to health centers Strategy "People”.3 – Develop planning and design for the elimination of architectural barriers Strategy “People”.4 – Enhancement and rationalization of school transportation Strategy “People”.5 – Investments in favor of social inclusion Strategy “City”.1 – Enhancement of urban public transportation Strategy “City”.2 – Discouraging the use of cars in the city Strategy “City”.3 – Promoting the integration of different modes of transportation

	Strategy "City".4 – Rationalizing urban freight logistics. Strategy "Mountain".1 – Enhancement of extra-urban road public transportation in a comb structure Strategy "Mountain".2 - Enhancement and promotion of service networks, both public and private, related to slow tourism Strategy "Mountain".3 – Reduction of the digital divide and increase in connectivity Strategy "Mountain".4 – Improvement of the conditions of the road network between the coast and the mountains Strategy "Sea".1 – Harness the potential of cycle tourism Strategy "Sea".2 – Integration of the Strait Strategy "Sea".3 – Enhancement of public transportation services by rail Strategy "Sea".4 – Requalification of waterfronts in favor of active mobility and social interaction Strategy "Sea".5 – Construction of a network of small ports Strategy "Sea".6 – Adaptation of coastal routes
Maturity (ongoing, planned or financed)	Ongoing
Estimated costs	400+ M€
Estimated end year	2032

2.6.11.2 SULP for the city of Reggio Calabria

The SUMP includes a section dedicated to urban logistics (Strategy "City".4)

2.6.12 Ravenna

2.6.12.1 SUMP for the city of Ravenna

The Municipality of Ravenna, guided by Council resolution 465/2014, embraces the ELTIS Guidelines for the Sustainable Urban Mobility Plan (SUMP). The SUMP represents a shift from traditional urban mobility planning, focusing on long-term strategic goals and encompassing the short-term Urban Traffic Plan (PUT). It emphasizes accessibility, safety, environmental quality, efficiency, and the city's attractiveness. The plan aligns with the General Transport Plan (P.G.T.) and the National Logistics Plan, addressing issues like rail freight infrastructures in Ravenna. Mobility measures include urban management, circulation limitations, fleet renewal, public transport enhancement, and sustainable mobility initiatives. The plan also covers railways, waterways, road infrastructures, provincial cycle route networks, and guidelines for efficient and sustainable urban mobility.[57]

Table 180 Summary of SUMP for Ravenna

SUMP Projects Summary	• Resolution of interference between rail and road traffic at the Ravenna junction, through the construction of road underpasses / overpasses; • Increase in the number of tracks available in the new yard to at least 6 electrified and two non-electrified

[57] Commune di Ravenna, PIANO URBANO DELLA MOBILITA' SOSTENIBILE, APRILE 2016

	• limitation of private circulation with extension to the entire town (from 1 October to 31 March from Monday to Friday from 8.30 to 18.30) • renewal of the bus fleet with replacement of vehicles <= euro 2 in urban areas by 2020 • upgrading and strengthening of public transport services to improve the modal alternative to private vehicles, through: 10% increase in local public transport services and 20% increase in rail transport; • construction of infrastructures for the improvement of the rail-road-bike modal interchange in public transport stations / stops • Completion of the integrated railroad tariff system (Mi Muovo), to be extended to become a "regional mobility card" (eg for bike and car sharing services, parking, electric recharging…); • extension of the Pedibus / bicibus to the majority of primary schools in urban areas of municipalities with a population greater than 30,000 inhabitants; • promotion of company or industrial district agreements to optimize employee travel from home to work (district Mobility manager) and inclusion in calls for tenders for companies to implement Mobility management policies; • regulation of the distribution of goods in urban areas through: o limiting access to urban centers to the most polluting commercial vehicles; o updating of the agreement for the access of commercial vehicles to the LTZ, development of projects for the distribution of goods in the last km and in the LTZ with vehicles with very low environmental impact; •
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	2032

2.6.12.2 SULP for the city of Ravenna

There is no SULP available for the city of Ravenna at the moment of drafting this report.

2.6.13 Trento

2.6.13.1 SUMP for the city of Trento

In Trento, the development of Pums and Biciplan (Cycling Plan) started at the end of 2020 and involves a detailed progression in distinct phases. Beginning with the identification of objectives and the analysis of the so-called "knowledge framework" – essentially a snapshot of the current state – it has led to the formulation of a planning proposal.

The SUMP addresses the issue of energy transition through actions and policies structured over two time horizons: short-medium term (2026-2027) and medium-long term (2030-2031).

From the analysis of the current state and the definition of objectives emerge the plan's actions, which belong to a common strategy: Trento Sustainable City. The theme of networks, at various levels, and their connections is central in the new Pums, considering the significant opportunities of the railway bypass, the burying of the Brenner railway within the urban context, the central station, and the lowering of the Trento-Malè railway.

The complex set of actions and policies outlined by the plan aims to achieve a new modal distribution among cars, soft mobility, and public transport. The ambitious goal, in the medium to long term, is to gain at least 10-14 percentage points toward sustainability..

Table 181 Summary of SUMP for Trento

SUMP Projects Summary	• creating infrastructures for intermodality (attestation, interchange), • reduction of parking in the ZTL, reserve parking for residents around the ZTL or in the environmental islands peripherals • PUBLIC TRANSPORT: increase the efficiency of public transport (lanes preferential routes, backbone line, provincial rail network) • CYCLING: create a cycle transport system (transport, signage, marketing) • FOOTWALKING: creating a complete, safe, barrier-free network, also assisted • CAR: contain congestion, the cause of the greatest pollution, with a network hierarchical but homogeneous on the territory for each level • GOODS: define solutions for the logistics and distribution of goods • SAFETY: improve the critical points of the network, create environmental islands • promoting the street as a shared space • MOBILITY MANAGEMENT: define mobility management actions (on a large scale) • COMMUNICATION: push for a culture of sharing (car sharing, car • pooling) and respect for the environment (low-impact vehicles), with TV, radio, internet, etc. • TECHNOLOGY: promoting advanced technological systems for system control, data processing and immediate communication for addressing the application RAIL PUBLIC TRANSPORT • Brenner Tunnel (with freight traffic movement) • Provincial public rail transport system (METROLAND): • Brenner axis (new stations) • Trento Malè (new Roncafort station) • Valsugana (direct connection Pergine - Trento) CYCLING NETWORK: • Network construction • Cycle parking + last mile • Introduction of Bike Sharing

	PEDESTRIANITY • Limited Traffic Zones • Traffic moderation and Environmental Islands • Urban axes equipped for cycling and walking • Urban redevelopment and furniture • Sidewalks and tactile paths Main medium term planned interventions: • New exit A22 TN south • Downgrading via Brennero • Possible burial of a section of via Bolzano • Viability N.O.T. and new bridge over the Fersina • Burial via Ventuno - Via Clesio • Burial of the viability wide porta Nuova • New road network in Meano Main long-term interventions: • A22: movement in the tunnel (safety, gas treatment of 30 million km / year) • PRIMARY VIABILITY: shift to current A22 (capacity increase) • URBAN VIABILITY: movement on the current ring road (fewer cars in the city)
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	Short term: 2013 Medium term: 2018 Long term: 2028

2.6.13.2 SULP for the city of Trento

There is no SULP available for the city of Trento the moment of drafting this report.

2.6.14 Pescara

2.6.14.1 SUMP for the city of Pescara

In 2006, the Pescara-Chieti area was identified as a "strategic for the development of national competitiveness" supra-municipal urban system. This led to the creation of the PUMAV (Urban Mobility Plan of the Vast Area). The PUMAV focused on the intertwining of settlement policies and infrastructural reinforcement, aiming to reorganize the strategic vision of territorial transformation. It covered nine municipalities and addressed collective transport services, proposing interventions in the regional railway service, reorganization of automotive services, airport system upgrades, inter-ports and logistics, and port system specialization.

The PUMAV area included Pescara, Montesilvano, Città Sant'Angelo, Spoltore, Manoppello, Chieti, San Giovanni Teatino, Ortona, and Francavilla a Mare. The plan aimed at achieving a new modal distribution among cars, soft mobility, and public transport. The SUMP of Pescara, building on the PUMAV, addressed

issues of coherent development of the infrastructural network and coordinated management of Local Public Transport (LPT).

Current initiatives include ongoing works to complete the trolleybus structure, expansion of the road infrastructural network, and progress in the Regional Metropolitan Railway Service (SFMR). Additionally, the "POLARIS" project focuses on creating a direct connection between the hills and the city center using ecological vehicles and cycling services to promote sustainable transport.

The project involves the installation of ten stations (eco-mobility points), equipped with electric recharging, located in strategic points of the city at the service of an organized path that meets the needs of sustainable mobility. The eco-mobility points, in addition to being self-powered pens with photovoltaic panels, are equipped with devices for charging electric vehicles, bicycle racks, rental points and rest areas where you can find useful information to learn about the possibilities offered by the heritage natural artistic-cultural heritage of the city. This is made possible through an integrated system of technologies that act both as information hubs (such as Wi-Fi connection, broadband connection systems, etc.) and as "service supplies" (assistance and surveillance).[58]

The "Suburbs" project aims to redevelop peripheral urban areas, focusing on sustainable mobility. Key initiatives include improving north/south road viability with the completion of the "Pendolo" road, creating new cycle paths, ensuring access to the city center from peripheral areas, and constructing protected sections for public transport. The project includes completing three sections of the "Pendulum Road" for vehicular mobility, developing the linear park and south promenade cycle paths, implementing the "Bici in Rete" project to connect various routes in the northern area, and expanding the cycle path network along existing roads. Additionally, three portions of the public transport route will be created in dedicated areas through collaboration with private operators.

The SYMPE (Share Your Mobility in Pescara) project, part of the European call UIA (Urban Innovative Actions), aims to develop a new mobility scheme in Pescara. The project focuses on creating an integrated ecosystem that encourages sustainable behaviors and the growth of shared services. The specific goal is to establish a network of virtuous relationships, connecting resources and services with compatibility and sustainability criteria. Four multiservice hubs, located in key mobility points, form the basis for a shared mobility system incorporating various vehicles and redefining public transportation lines. The project includes both physical and digital infrastructures, providing an integrated travel planning system accessible via smartphone and at hubs throughout the municipal area.

The "Bici in Rete" project aims to connect and integrate all existing cycling tracks in Pescara. The Municipality plans to allocate 500,000 € in 2017-2018 for city cycling interventions. The goal is to establish a comprehensive urban cycling network, addressing continuity issues by networking the current 21 kilometers of cycle paths through specific interventions. The project includes areas such as the central zone, historic center, north-south axis, university area, and Ponte della Libertà, focusing on reconnections and creating a more cohesive cycling infrastructure.

[58] Comune di Pescara, PIANO URBANO DELLA MOBILITÀ SOSTENIBILE, 2017

The "sustainable mobility" project, aligned with Law no. 221/2015, focuses on promoting environmentally friendly commuting in the municipal area of Pescara. Targeting work-related journeys, the project aims to encourage the use of low-impact transportation modes, enhance road safety for pedestrians and cyclists, and establish a sustainable framework for home-to-work mobility. The initiative involves integrated actions and services, providing workers with diverse and interconnected options, such as bike trials, designated cycle-parking lots, interconnected bike paths, car sharing, and eco-driving courses. The project seeks to instill sustainable commuting habits beyond its duration, fostering a long-term impact on the community.[59]

Table 182 Summary of SUMP for Pescara

SUMP Projects Summary	-Enhancing The POLARIS project that is aimed at creating a direct connection service hills-city center which, through the use of ecological vehicles and bicycle mobility services, encourage the transport of people and bicycles from the upper to the lower part of the city and viceversa - The project involves the installation of ten stations (eco-mobility point), equipped with recharging electric, placed in strategic points of the city at the service of an organized route that meets the needs of sustainable mobility. -Improvement of the north / south crossing viability is envisaged through the completion of the road called "pendulum", the creation of new cycle paths that will connect the existing sections and allow access to the urban center from the peripheral areas, the construction of two sections of the route of the public transport route in a protected area: - Vehicular mobility, completion of three sections of the "pendulum road"; - Cycling mobility, completion of linear park and south promenade cycle paths, “Bici in Rete” project, which involves the construction of three cycle paths that will connect various routes in the northern area of the city; - Cycle mobility, completion of the network of cycle paths along existing roads; - Public transport in its own headquarters, as part of the program, three portions of the public transport route will be created in its own headquarters, through the involvement of private operators • creating infrastructures for intermodality (attestation, interchange), • reduction of parking in the ZTL, reserve parking for residents around the ZTL or in the environmental islands peripherals • PUBLIC TRANSPORT: increase the efficiency of public transport (lanes preferential routes, backbone line, provincial rail network) • CYCLING: create a cycle transport system (transport, signage, marketing) • FOOTWALKING: creating a complete, safe, barrier-free network, also assisted • CAR: contain congestion, the cause of the greatest pollution, with a network hierarchical but homogeneous on the territory for each level • GOODS: define solutions for the logistics and distribution of goods • SAFETY: improve the critical points of the network, create environmental islands

[59] Comune di Pescara, PIANO URBANO DELLA MOBILITÀ SOSTENIBILE, 2017

	• promoting the street as a shared space • MOBILITY MANAGEMENT: define mobility management actions (on a large scale) • COMMUNICATION: push for a culture of sharing (car sharing, carpooling) and respect for the environment (low-impact vehicles), with TV, radio, internet, etc. • TECHNOLOGY: promoting advanced technological systems for system control, data processing and immediate communication for addressing the application RAIL PUBLIC TRANSPORT • Brenner Tunnel (with freight traffic movement) • Provincial public rail transport system (METROLAND): • Brenner axis (new stations) • Trento Malè (new Roncafort station) • Valsugana (direct connection Pergine - Trento) CYCLING NETWORK: • Network construction • Cycle parking + last mile • Introduction of Bike Sharing PEDESTRIANITY • Limited Traffic Zones • Traffic moderation and Environmental Islands • Urban axes equipped for cycling and walking • Urban redevelopment and furniture • Sidewalks and tactile paths
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	NA

2.6.14.2 SULP for the city of Pescara

There is no SULP available for the city of Pescara at the moment of drafting this report.

2.6.15 Bolzano

2.6.15.1 SUMP for the city of Bolzano

The project scenario of the SUMP of Bolzano starts from the infrastructural structure resulting from the set of infrastructural interventions included in the programming tools (PUM 2010-2020 and Planning of the railway and road infrastructures of the Autonomous Province of Bolzano and from the further ones included in the Protocol for strategic interventions signed in September 2018 between the Province and the Municipality of Bolzano. These interventions, in accordance with the ministerial guidelines, contribute to defining the Reference Scenario which constitutes the basis against which to build the SUMP scenario and evaluate its effectiveness and efficiency in achieving the set objectives.

The Plan scenario has as its main and priority objective the reduction of private car mobility and the related polluting emissions, between the capital city and the extra-urban area, with an integrated strategy consisting of strengthening the interconnection viability between the main extra-urban traffic routes. , including the

motorway, in order to relieve the purely urban road network of traffic components, even heavy ones, when crossing the city.

The reduction of traffic flows on the urban road network is essential to reserve capacity for public transport on the roads affected by the routes of the urban public transport network of the new Metrobus lines from the center to the hospital and Ponte Adige, in addition to the one that will connect the Bolzano railway station to the production area with continuation to the Municipality of Laives.

The main and supporting network of urban public transport must be connected in several points with the railway network and therefore provide for the urban distribution of flows coming from the provincial territory from several points, avoiding the current concentration on the Bolzano railway station. The interchange points other than the Bolzano railway station are: Ponte Adige, Bolzano Sud Fiera, the new S. Giacomo stop and the valley stations of the San Genesio and Colle cable cars.

The potential of the public transport carrier network will be enhanced by a timely integration with the cycle network and the Bike Sharing service and of which the SUMP provides for a progressive expansion, to allow for the expansion of the coverage guaranteed by this multimodal network within the city.

In terms of cycle and pedestrian mobility, in addition to completing, as a priority, the provision of cycle paths to serve the neighborhoods, the SUMP has envisaged the creation of a network of controlled access bicycle parking spaces. These infrastructures, in addition to accommodating the bicycles of employees and visitors / users, are aimed at providing City Users who make chains of movements within the city, a network of safe places to park their bicycles, especially if in assisted pedaling.

The SUMP assigns particular importance to the redevelopment of public space and the improvement of the safety of the mobility of weak users (children and the elderly) by extending and systematizing the numerous projects already financed by the Administration.[60]

The SUMP has indicated the principles and general strategies for the reorganization of motorized accessibility, and therefore also of parking on the road, whose design and practical implementation will be fully delegated to the Urban Traffic Plan (PUT) which, in accordance with the Directives Ministerial, it will have to constitute one of the Implementation Plans of the SUMP scenario.

The expansion and safety of pedestrian paths will be addressed, as a matter of priority, in favor of school mobility and, in this direction, by providing for infrastructural interventions, temporary pedestrianization, the establishment of further Piedibus services and the realization of school projects for the education for sustainable mobility.

In the urban logistics sector, intervention strategies are defined and pilot projects are proposed that can offer diversified responses to the needs of both production and commercial activities and logistics companies.

Through the traffic monitoring systems that support info-mobility it will be possible to evaluate the autonomous capacity of the supply system to achieve the objectives of reducing polluting emissions that are the basis of the SUMP and to implement any corrective measures to orient and govern the demand.

[60] https://www.comune.bolzano.it/mobilita_context02.jsp?ID_LINK=5318&area=122

Table 183 Summary of SUMP for Bolzano

SUMP Measures Summary	-completing, as a matter of priority, the provision of cycle paths serving the neighborhoods, -creation of a network of controlled access bicycle parking spaces. These infrastructures, in addition to accommodating the bicycles of employees and visitors / users, are aimed at providing City Users who make chains of movements within the city, a network of safe places to park their bicycles, especially if in assisted pedaling. -The expansion and safety of pedestrian paths will be addressed, as a matter of priority, in favor of school mobility and, in this direction, by providing infrastructural interventions, temporary pedestrianization, the establishment of further Piedibus services and the realization of school projects for the education for sustainable mobility. -In the urban logistics sector, intervention strategies are defined and pilot projects are proposed that can offer diversified responses to the needs of both production and commercial activities and logistics companies.
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	2030

2.6.15.2 SULP for the city of Bolzano

There is no SULP available for the city of Bolzano at the moment of drafting this report.

2.6.16 Ancona

2.6.16.1 SUMP for the city of Ancona

The urban mobility system must ensure that everyone can exercise their right to move without burdening the community, as far as possible, in terms of air pollution, noise, congestion and accidents.

At the same time, especially in a city with a strong commercial and tertiary vocation with an important port such as Ancona, the organization of mobility must take into account the new accessibility, movement needs due to economic, and production activities.

The organization of this system is delegated to the SUMP - the Urban Sustainable Mobility Plan which the Municipal Administration of Ancona, together with many other Italian cities, will equip itself in the next few years. After having cross-referenced experiences in the field with the results of a series of reports entrusted to specialized external companies, not without having promoted - and it is an essential step - an extensive participation process at the basis of the drafting of the plan itself.

Within the participation process, the so-called "Stakeholders", or public and private entities who, in an organized form, will be able to provide an essential contribution to the identification of problems and the construction of solutions, through specific working groups.

The guidelines of the European Commission and the national legislation identify in the SUMP not an additional plan, but a plan that incorporates the pre-existing plans, such as - in the case of Ancona - the Master Plan, and for example the PIA, with the aim of improving the quality of life and environmental performance of the urban area in order to ensure a healthier living environment within an overall framework of economic and social sustainability, in conditions of safety and autonomy (accessibility).

A strategic plan which therefore aims to satisfy the varied demand for mobility of people and the transport needs of companies by integrating the other existing tools and following principles of integration, participation, monitoring and evaluation.

The drafting of the SUMP also provides for its integration through the simultaneous drafting of four additional plans / program:

1_General Plan of Urban Traffic PGTU);

Intended as a preliminary project or framework plan of urban traffic relating to the entire inhabited center and indicating both the intermodal policy adopted and the functional qualification of the individual elements of the main road network and of any elements of the local road system intended exclusively for pedestrians (functional classification of the road system). As well as the respective road regulations, including the occupations of public land and the preliminary sizing of the planned road network modification interventions, with the relative general execution program.

2_Three-year urban LPT program - Update;

The planning process must also concern the drafting and approval of the update of the Urban Transport Plan - Three-year Urban TPL Program, which takes into account, in particular:

The development of the LPT system with respect to the completion of the trolleybus ring; of the integration of the urban LPT system with respect to other intermodality solutions (e.g. electric sharing and other solutions promoted by the SUMP) through:

- the identification of bearing lines and supply lines;
- the identification of the transport offer divided by lines and journeys, according to frequencies developed in different periods of the year and remodeling the fleet;
- revision of stops (number and location);
- the updating of the tariff policy (integration / intermodality);
- the introduction of new modes of public transport (e.g. on-demand transport with minibuses etc.)

3_ Urban Parking Program:

The program will have to indicate the locations and capacities of the car parks, the intervention priorities and the implementation times, favoring the achievements aimed at favoring the decongestion of the urban center through the creation of car parks aimed at interchanging with collective transport systems, as well as provisions necessary for regulating the circulation and parking of vehicles in urban areas. The Parking Regulations will also be produced (criteria, methods and rates for onerous parking, management of parking permits, etc.).

4_ Urban Cycle Mobility Plan_BICIPLAN:

The planning process will also concern the drafting and approval of the Urban Cycling Mobility Plan, framed by the legislation as a sector plan of the Urban Sustainable Mobility Plan (SUMP) aimed at defining the objectives.[61]

Table 184 Summary of SUMP for Ancona

SUMP Main Actions Summary	-SUMP Ancona - Planned actions / interventions started - Revision of the TPL vehicle fleet with the total replacement of diesel buses with vehicles with natural gas systems and above all electric ones (trolleybuses and smaller battery buses) -Revision of the routes and methods of use of the LPT - Completion of the trolleybus loop in both directions with a rapid and frequent trolleybus service from the interchange poles to the urban center - Establishment of the North and South terminus for the extra-urban public transport lines which will have to gradually eliminate the terminus in Piazza Cavour; - Exchanger parking with 260 seats at Verrocchio adjacent to the northern terminus - suburban transport bus station, equipped with charging stations and minicar rental (car sharing) -Optimization of parking on the road in the central area by promoting solutions that eliminate cars parked for a long time on the roadside by concentrating them inside special covered parking lots -Definition of a sharing service with electric vehicles and micro-mobility (cars, bicycles and electric scooters) to support the "last mile" connection between the interchange poles with public transport, the parking lots and the urban center - TPL integration with other carriers - Via Mattei cycle path (port area), north promenade (connection to Torrette) and Ancona- Portonovo - Actions to reduce fine particles with interventions on the ZTL and pedestrian areas (extensions) and incentives for the use of electric cars through the implementation of the charging network (columns)
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	2030

[61] https://www.comuneancona.it/ankonline/pums-piano-urbano-della-mobilita-sostenibile-2/

2.6.16.2 SULP for the city of Ancona

There is no SULP available for the city of Ancona at the moment of drafting this report.

2.6.17 Brindisi

2.6.17.1 SUMP for the city of Brindisi

The SUMP of Brindisi has been adopted, but not yet approved at the time of drafting this report. Its primary objectives include reducing individual private car usage, lowering pollution levels, decreasing energy consumption, increasing road safety, and reducing congestion and traffic in urban areas. Further details are not publicly available at the time of drafting this report.

2.6.17.2 SULP for the city of Brindisi

There is no SULP available for the city of Brindisi at the moment of drafting this report.

2.6.18 L'Aquila

2.6.18.1 SUMP for the city of L'Aquila

The SUMP of l'Aquila is a strategic planning tool that, over a medium-long term time horizon (10 years), develops a system vision of urban mobility (preferably referring to the metropolitan city area, where defined). It is proposing the achievement of environmental, social and economic sustainability objectives through the definition of actions aimed at improving the effectiveness and efficiency of the mobility system and its integration with the urban and territorial structure and developments.

The plan aims to improve sustainable urban mobility through measures such as the restructuring of transport networks, development of collective mobility, promotion of pedestrian and cycling systems, introduction of shared motorized mobility, renewal of the vehicle fleet with low-polluting options, rationalization of urban logistics, and dissemination of safety culture in mobility. Specific actions include integrating transport systems, creating preferential lanes for public transport, introducing bike-sharing services, promoting shared mobility in organizations, and enhancing safety through infrastructural improvements and awareness campaigns.

Table 185 Summary of SUMP for L'Aquila

SUMP Projects Summary	• Incentive to increase the use of the train through the improvement of accessibility (direct and through shuttle services for adduction / distribution in coordination with the trains) from / to the main attractions in the municipal area and an integration between the services of the lines Terni - L'Aquila and Sulmona - L'Aquila • Reorganization of the AMA network according to a hierarchical approach structured in three categories: power lines with timetable at 15 '(possibly on partial sections by overlapping ordinary lines); ordinary lines with rhythm at 30 '/ 60'; weak demand lines with flexible schedules and routes ("on-call services"). Including the evening service with particular attention to the needs of access to university centers • Evening trips of urban buses to the hamlets

	• University Public Transport: increase the frequency of vehicles, even with lower load capacities: smaller, but more frequent vehicles, with extra-urban interchange • Program for the standardization and redevelopment of urban public transport stops by making them safer. • Measures to support users who frequently use the motorway section between the L'Aquila Est and L'Aquila Ovest toll booths for 7 km of travel on the mountain motorway, free or reduced rates for frequent use during the month • Creation of a series of interchange nodes / equipped stops between extra-urban lines, low-demand lines and power lines located at the terminus of the latter or equipped stops at traffic attracting poles • Construction of an interchange node attached to the L'Aquila railway station 100% • Construction of the bus station in the west area in the Hotel Amiternum area 50% 50% • Reactivation of the mechanized pedestrian link between the Natali Terminal tunnel and the Historic Center 100% • Construction of the vertical connection between the terminal Natali tunnel and Viale Rendina 100% • Formulation of a detailed plan for the establishment of a network of suburban car lines connecting L'Aquila and the surrounding municipalities to be shared with the Abruzzo Region in view of its functional and tariff integration with the urban transport network managed by AMA 100 % • Facilitated fares for public transport (discounts for season tickets for entire families or off-site students, reduced-cost tickets for short distances ...) • Single integrated ticket AMA – TUA • Implementation of an info-mobility system to provide public transport users with real-time information regarding timetables and actual passage of buses at stops and for the purchase of tickets via smartphone and at no additional cost,

	also evaluating the researches already carried out by the University of L'Aquila for its implementation.
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	2030

2.6.18.2 SULP for the city of L'Aquila

There is no SULP available for the city of L'Aquila at the moment of drafting this report.

2.6.19 Potenza

2.6.19.1 SUMP for the city of Potenza

There is no SULP available for the city of Potenza at the moment of drafting this report.

2.6.19.2 SULP for the city of Potenza

There is no SULP available for the city of Potenza at the moment of drafting this report.

2.6.20 Campobasso

2.6.20.1 SUMP for the city of Campobasso

The new SUMP (targeting approval in 2023) has the goal, considering that Campobasso at the center of the Molise territory, of which it is the capital, to lead the change towards more sustainable travel through a set of opportunities focused on participation and sharing of actions and policies. This approach places people, in their various stages of life—children, adults, and seniors—at the center of the planning process, emphasizing a human-oriented rather than car-oriented perspective.

The objective of the PUMS is to meet the mobility needs of people and goods in order to improve the quality of life in the municipal territory, in accordance with European guidelines that aim to:

- Improve accessibility for everyone, without distinctions based on income or social status.

- Enhance the quality of life and attractiveness of the urban environment.

- Improve road safety and public health.

- Reduce air and noise pollution, greenhouse gas emissions, and energy consumption.

- Ensure economic feasibility, social equity, and environmental quality.

Table 186 Summary of SUMP for Campobasso

SUMP Actions Summary	- Campobasso City 30: Traffic moderation interventions - The area plan: the new network of urban public transport in Campobasso - From park-and-ride facilities to mobility hinges - Campobasso Accessible City: The hectometric access system to the Monforte Castle - Campobasso Accessible City: New pedestrian connections to railway stations and new vehicular permeability - Increased attention to urban quality - The new parking system

	- Campobasso Safe City: The slow streamlining and securing of critical points along the road network - Sustainable Mobility Schools: School zones and school streets - Intelligent Transport System and New Accessibility to the Center of Campobasso. - Smart mobility: e-mobility, micromobility and sharing mobility - Low Emission Zones, mobility apps and mobility management - Sustainable city logistics
Maturity (ongoing, planned or financed)	Ongoing
Estimated end year	2032

2.6.20.2 SULP for the city of Campobasso

The provisions relating to city logistics are included in the SUMP (see above).

2.6.21 Gioia Tauro

2.6.21.1 SUMP for the city of Gioia Tauro

There is no SULP available for the city of Gioia Tauro at the moment of drafting this report.

2.6.21.2 SULP for the city of Gioia Tauro

There is no SULP available for the city of Gioia Tauro at the moment of drafting this report.

2.6.22 Perugia

2.6.22.1 SUMP for the city of Perugia

The SUMP of Perugia was approved in 2019; its shared objectives are to make the city (1) more livable; (2) more accessible; (3) less polluted; (4) less expensive in terms of mobility. It is structured around the following main topics:

- Effectiveness and efficiency of the mobility system
- Energy and environmental sustainability
- Safety of road mobility
- Socio-economic sustainability

Table 187 Summary of SUMP for Perugia

SUMP Interventions Summary	- Rationalising Public Transport - Implementation of cyclo-pedestrian routes - “Zone 30” (low speed area) - “Piedibus” (walking mobility services for children) - Limited Traffic Zones. - Bike sharing and bike stations - Rationalisation of historically critical road nodes - City logistics (see next paragraph) - ITS and infomobility, mobility management, car pooling, car sharing

Maturity (ongoing, planned or financed)	Ongoing
Estimated costs	144 M€
Estimated end year	2029

2.6.22.2 SULP for the city of Perugia

The SUMP includes a plan for the implementation of city logistics solutions, articulated as follows:

1. Possible revision of freight transport vehicle circulation schemes within the Limited Traffic Zone (Corso Vannucci);

2. Introduction of an electronic access reservation system aimed at staggering entries.

3. Possible revision of access regulations to the Limited Traffic Zone - Pedestrian Area to encourage the renewal of the fleet with electric or LNG vehicles;

4. Creation of a goods transfer point near the historic center.

5. Incentives for the creation of Cargo Bike services for distributing goods to commercial establishments or delivering to the end customer at the Cargo Bike service headquarters, their home, or the structured parking where they left the car.

6. Establishment of a regulated freight traffic zone for vehicles with a maximum laden mass exceeding 7.5 tons (Limited Traffic Zone for "bulky vehicles").

2.6.23 The National Recovery and Resilience Plan (NRRP) of Italy

The National Recovery and Resilience Plan (Piano Nazionale di Ripresa e Resilienza, NRRP) is part of the Next Generation EU (NGEU) programme, namely the € 750 billion package – of which about half is in the form of grants – that the European Union negotiated in response to the pandemic crisis. The main component of the NGEU programme is the Recovery and Resilience Facility (RRF), which has a duration of six years – from 2021 to 2026 – and a total size of € 672.5 billion – of which € 312.5 billion is in the form of grants, and the remaining € 360 billion is in the form of low-interest loans. The NRRP for Italy[62] 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 have to 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. The following investment areas are related to local transport and accessibility to urban nodes:

- **M2C2.Investment 4.1: Strengthening cycling mobility.** The intervention aims to facilitate and further promote the growth of the sector through creation and maintenance of cycle networks in urban, metropolitan, regional and national areas, both with tourist or recreational purposes, both to

[62] https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility/italys-recovery-and-resilience-plan_en

facilitate daily travel and intermodality, guaranteeing safety. The measure provides for the construction of approximately **570 km of urban cycle paths and subways and about 1,250 km of tourist cycle paths**.

- **M2C2.Investment 4.2: Development of rapid mass transport**. The measure raises the problem of reducing the problems related to car transport through the development of mass rapid transit systems that shift the demand for mobility away from private cars. The measure provides for the **construction of 240 km of network equipped for rapid transport** infrastructures mass divided into **metro (11 km), tram (85 km), trolleybus (120 km), cable cars (15 km)**. The focus of the intervention it will mainly be on the metropolitan areas of the major Italian cities. The goal is to achieve a shift of at least 10 percent of traffic on private cars towards the public transport system.
- **M2C2.Investment 4.3: Development of electric charging infrastructures**. The measure aims to build the enabling infrastructures in order to promote the development of sustainable mobility and accelerate the transition of the traditional model of fuel-based refueling stations to electric vehicle refueling points. In order to allow the achievement of these objectives, the intervention is aimed at developing 7,500 points fast charging on the motorway and 13,755 in urban centers, as well as 100 experimental charging stations with technologies for energy storage.
- **M2C2 Investment 4.4: Renewal of Bus Fleets, Green Trains.** The measure includes three interventions: Renewal of the bus fleet with low environmental impact vehicles; Renewal of the train fleet for regional and intercity transport with alternative propulsion vehicles; Renewal of the vehicle fleet of the Fire Brigade. The renewal of the fleet with low environmental impact buses takes place by accelerating the implementation of the Plan National Strategic for Sustainable Mobility and provides for the progressive renewal of buses for local public transport and the creation of dedicated charging infrastructures. In particular, it is expected the purchase by 2026 of approximately 3,360 low-emission buses. About a third of the resources are earmarked to the main Italian cities.The investment for the renewal of part of the fleet of trains for regional transport with propulsion vehicles alternative will make it possible to reduce the average age of the regional rolling stock through the purchase of units an electric and hydrogen propulsion. The measure provides for the purchase of 53 trains to replace a number equivalent of old units by 2026. To these must be added 100 newly designed carriages developed with recyclable materials and coated with photovoltaic panels.
- **M2C2 Reform 4.1: Faster procedures for evaluating projects in the systems sector local public transport with fixed installations and in the rapid mass transport sector**. The reform aims to speed up the timing of implementation of interventions and to simplify the procedures for evaluating projects in local public transport and rapid mass transport, rationalizing responsibilities and eliminating duplication of skills in the field of evaluation of projects within the same Administration.
- **M2C2.5 Investment 5.3: Electric buses**. The intervention is aimed at the dissemination and promotion of technological transformation of the supply chain linked to bus production in Italy, with the main objectives of expanding capacity production and the improvement of the environmental impact.
- **M3C1. Investment 1.5: Strengthening of metropolitan railway nodes and key national connections**. As foreseen in the national strategy "Fast Italy", the interventions on the nodes aim to enhance the "metropolitan" or "suburban" connections, in order to guarantee widespread services with high frequencies, thus supporting the demand for mobility expressed by large metropolitan cities and

urban areas medium sized. Furthermore, these interventions will guarantee medium-range travel services, supporting the mobility demand expressed by large widespread urban areas, with levels of speed and comfort competitive with respect to the use of private cars, also thanks to the creation of "fast regional" connections. Finally, they will allow the improvement of accessibility and interchange between railway stations and other rapid mass transit mobility systems.

2.6.24 EuroVelo Routes Development Status for Italy

The following table shows the levels of development of the EuroVelo cycling routes crossing the country. EuroVelo 5 Via Romea (Francigena), EuroVelo 7 Sun Route, EuroVelo 8 Mediterranean Route and EuroVelo 9 Baltic-Adriatic are passing through Italy.

Table 188 EuroVelo Routes Development Status for Italy[63]

Country	EuroVelo km	Planning stage	Under development	Developed	Developed with EV signs	Overall Development Level
Italy	5334	58%	21%	21%	0%	21%

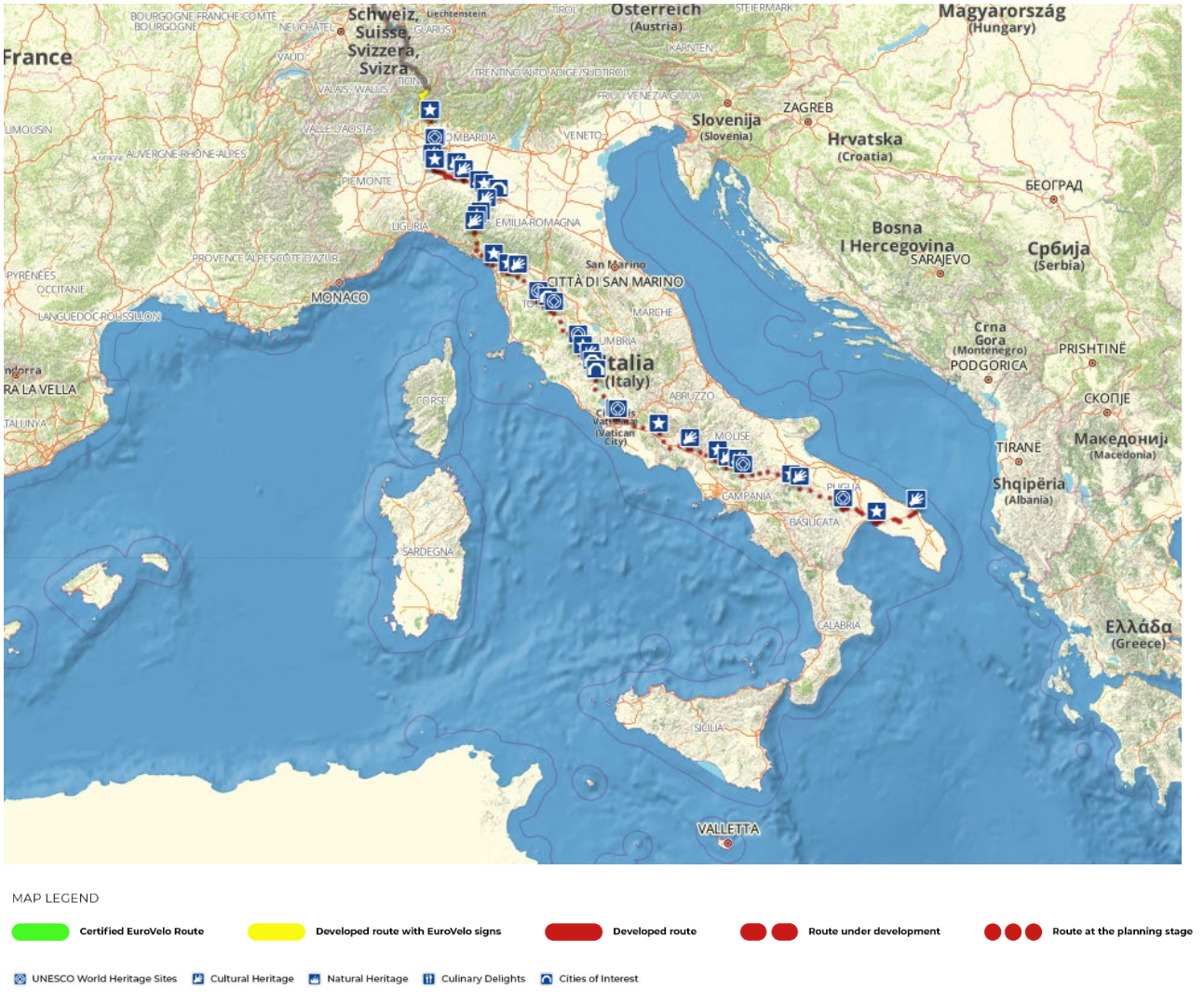
[63] https://pro.eurovelo.com/download/document/EuroVelo%20Route%20Status%20Report_Final_20210520.pdf

Figure 49 EuroVelo Route Passing through Italy[64]

Via Francigena was a major pilgrimage and communication corridor in medieval Western Europe used to reach Rome and Jerusalem through the port of Brindisi. Declared 'Cultural Route of the Council of Europe' in 1994. The EuroVelo 5 Via Romea (Francigena) route runs through the entire Italian peninsula, from lake Como to Brindisi, along the Sigeric corridor from Pavia to Rome. It goes through the Po River plain and crosses the Cisa Pass to Tuscany, and moving behind Rome, goes through the Southern Apennines up to the Adriatic Sea.[65]

[64] https://en.eurovelo.com/italy
[65] https://en.eurovelo.com/ev5/italy

Figure 50 EuroVelo 5 Via Romea (Francigena) Route in Italy



It is in Italy that the EuroVelo 7 Sun Route really begins to live up to its name, crossing the whole country from North to south, including Sicily. The first section crosses the Val Pusteria from Prato alla Drava (San Candido) before joining the Isarco cycle path. After Bressanone/Brixen the route becomes practically flat, with apple orchards on one side and the crystalline waters of Isarco on the other. The route goes through a long list of Italy's most famous cities (See route map), before ending in the Sicilian town of Pozzallo from where ferries connect to Valletta in Malta.[66]

[66] https://en.eurovelo.com/ev7/italy

Figure 51EuroVelo 7 Sun Route in Italy

EuroVelo 8 dissects northern Italy from east to west. EuroVelo 8 in Italy is based on the Bicitalia 2 Po Cycle Route and on the Bicitalia 6 Adriatic Cycle Route from the Po delta to the Balkan border.[67]

[67] https://en.eurovelo.com/ev8/italy

Figure 52 EuroVelo 8 Mediterranean Route in Italy [68]

EuroVelo 9 – Baltic-Adriatic only makes a short excursion into Italy from Slovenia to pass through the port city of Trieste, before crossing the border south into Slovenia again.[69] BI6 - Adriatic Cycle Route[70] connects Trieste with Leuca. The coast par excellence touches the richest coast of beaches. The part from the Po Delta in Trieste is included in EuroVelo 8. The Adriatic Cycle Route begins in Muggia following the Parenzana cycle path, an old railway that connected Trieste to Capo d'Istria.

[68] https://en.eurovelo.com/ev8/italy
[69] https://en.eurovelo.com/ev9/italy
[70] https://www.bicitalia.org/it/bicitalia/gli-itinerari-bicitalia/131-bi6%20-%20ciclovia-adriatica

Figure 53 EuroVelo 9 – Baltic-Adriatic Route in Italy

2.6.25 Summary of Urban Mobility and Transportation Projects and Strategic Actions

The following table shows the summary of all the previously mentioned planned and ongoing projects related to urban mobility and transportation for the selected urban nodes of Italy including project description, timeline, estimated costs and expected impacts.

Table 189 Summary of Planned & Ongoing Urban Mobility and Transportation Related Projects and Strategic Actions of Italy

Node or section	Project description	Costs (€)	Estimated end year	Impact
Milan	• Decouple mobility needs and the use of private cars. • Preparation of a "pilot project" on the theme of cycling development (Biciplan of Homogeneous Zone). • Diffusion of bike-sharing, favoring more attractive methods / acceptable to users. • Diffusion of bike + train intermodality. • Incentives for the use of pedal assisted bicycles. • Promotion of changes to the Highway Code, starting from the first indications deriving from the “DL Relaunch”. • Improve the quality of public space by reducing the share allocated to infrastructure; • Ensure proper safety levels for pedestrians, cyclists and vehicles; • Encourage, integrate and innovate low-impact transport services and modes; • Encourage to share virtuous choices and behavior; • Develop practices of sustainable mobility and efficient use of energy resources; • Diffusion of car-sharing, with the commitment of the Municipalities to make parking spaces available for dedicated stops in their territory. • ensure high accessibility to the city by optimizing the offer and integrating the various public and / or private transport systems; • reduce dependence on private motorized vehicles in favor of modes of transport with a lower impact (with particular attention to the MI / urban area exchange movements and freight transport), • guaranteeing adequate mobility networks and services; • rebalance and recover shares of the road network and public spaces in favor of their better usability and sharing by pedestrians, cyclists and LPT users, improve their quality and optimize their management, especially in areas with a high density of residence or services attractants;	2.555,35 M	2024	Enhancing active & soft mobility, Increasing multimodality, Investments on shared & sustainable mobility, Increased safety, Ensuring sustainable urban logistics & last mile delivery
Milan	• Access rules: control and management system of loading and unloading areas • Control and tracking of dangerous goods • Pilot projects • Integrated system for the management of freight transport in urban areas • Urban freight distribution centers	NA	2030	Ensuring sustainable urban logistics & last mile delivery
Palermo	1) new tram system 2) new railway system 3) improvement of railway ring 4) creation of a light metro underground 5) creation of a new cycle paths and micro-mobility 6) creation of a new road infrastructure 7) enhancement of urban public transport	1,893,233,169	first phase by 2024 second phase by 2030	Improving public transport network, Enhancing active & soft mobility, Electrification, Integrated ticketing strategy
Bologna	1) 160km funded cycling lanes with 538km to be fund 2) 2million km increase in the distance travelled by tram, bus and train 3) 167,000 increase in the number of journeys made by public transport 4) 90,900 of daily passengers of the red tram line by 2030 5) introduction of parking and assistance (charging, repairing and washing area) 6) multi/inter-modality 7) mobility on demand (investing in apps and shared mobility)	145 M	2030	Improving public transport network, Enhancing active & soft mobility, Increasing multimodality, Electrification, Investment in Maas & mobility on demand
Bologna	• Incentive and promotion of the use of electric vehicles; • Upgrading of charging points for electric vehicles; • Incentives for the renewal of the vehicle fleet and limitation of vehicle access to urban centers more polluting commercials; • Management of freight transport in the last mile and in the ZTL with low environmental impact vehicles; • Promotion of sustainability and optimization of short sea freight logistics; • Promotion of sustainability and optimization of freight logistics in the districts industrial / artisanal; • Modal shift of freight transport from road to train. • Double the quantities of goods (+ 135%) currently traveling by rail. • Triple the percentage points of the modal split on rail. • Reduce polluting CO2 emissions by 15%; Reduce freight traffic congestion (-15% VehKm / d).	Included in SUMP (145 M)	2030	Ensuring sustainable urban logistics & last mile delivery
Bari	1. Renewal and upgrading of the fleet 2. Electronic ticketing 3. info-mobility 4. Restyling of the stops	700,000	2026	Improving public transport fleet, Increasing multimodality, Electrification, digitalization

	5. Extension of preferential lanes and traffic light priority 6. Complete reorganization of the program with: • Creation of high frequency carrier lines • Creation of neighborhood circulars coordinated with Metropolitan Railway Service. • Creation of P&R shuttles			
Catania	Strategy 1 - Integration between transportation systems (including mass rapid transit systems) and policies aimed at limiting private traffic and rationalizing parking Strategy 2 - Development of collective mobility Strategy 3 - Development of pedestrian and cycling mobility systems Strategy 4 - Implementation of shared mobility systems Strategy 5 - Renewal of the vehicle fleet with the introduction of low-polluting vehicles Strategy 6 - Rationalization of urban logistics Strategy 7 - Measures to adapt the capacity and safety of the road network Strategy 8 - Coordination of mobility measures at the metropolitan level:	583 M€ - 2900 M€ depending on the scenario	2033	Enhancing active & soft mobility, Increasing multimodality, Investments on shared & sustainable mobility, Ensuring sustainable urban logistics & last mile delivery, Electrification, Digitalization
Messina	The Urban Sustainable Mobility Plan will be strongly oriented towards the promotion of cycle mobility in its various forms; and in particular the following will be considered among the interventions: a) Extension of the cycle network in the urban area (paths and cycle paths); b) Extension of the cycle network in the suburban area; c) Mountain-bike network development in hilly and rural areas; d) Development of Bike sharing and promotion of the electric bike; e) Spaces for children (areas dedicated to cycling); f) Bicibus initiatives; g) Promotion of sporting practice; Hypothesis of new interventions: • Extension of the cycle network in an extra-urban area; • Cycle routes in hilly and outlying areas, • Development of Bike sharing and promotion of the electric bike; • Promotion of sports practice; • Social and political promotion of cycling, through dissemination actions. The SUMP will be strongly oriented towards the promotion of pedestrian mobility in its various forms; and in particular the following will be considered among the interventions: a) Extension of the pedestrian network in the urban area (sidewalks, paths and pedestrian areas); b) Extension of the pedestrian network in the suburban area (provision of sidewalks for traffic of suburban neighborhoods or villages, pedestrian spaces at the edge of roadways); c) Development of the path network in hilly and rural areas; d) Specific measures for the mobility of weak users, starting from pedestrian areas and paths; e) Spaces for children (protected roads, appropriately furnished dedicated areas); f) Piedibus initiatives (on a neighborhood scale); g) Promotion of the sporting practice of walking and running; h) Development of tourist routes (eg Via Dromo, along the Ionian coast); i) Social and political promotion of pedestrian mobility, through dissemination actions.	337,888,274	2030	Enhancing active & soft mobility, Investments on shared & sustainable mobility
Messina	• Reduction of road congestion in the access roads to the historic center and in the areas of merit; • Decrease in noise and atmospheric pollution. • Limitation of freight vehicles by weight • Limitation of goods vehicles by motorization • Limitation of freight vehicles for timetables • Lockers installation	1,531,240 € of 337,888,274 € (the general cost of the SUMP)	2030	Ensuring sustainable urban logistics & last mile delivery
Padua	• New Padua San Lazzaro railway stop • New Padua ZIP railway stop (Roncajette locality) • New Padua Chiesanuova-Campo di Marte railway stop • Redevelopment of the Montegrotto Terme Euganee railway station • Strengthening of railway services along the Padua-Montegrotto-Monselice line (service at 30 'intervals) • Extension northwards from • Pontevigodarzere in Cadoneghe (interchange parking) Padua - Industrial area • Extension in a southerly direction from Guizza to Albignasego / Maserà (interchange parking) • South extension: Padua Voltabarozzo - Ponte San Nicolò- Legnaro / Agripolis University	310,600,000	NA	Improving public transport network, Increasing multimodality, Enhancing active & soft mobility

	• Extension from Ponte di Brenta to Busa di Vigonza FS • Extension from Busa di Vigonza FS a Perarolo • Extension - from Padova FS to Chiesa New in Sarmeola • Extension from Sarmeola to Rubano X • Connection between via Genova and via De Gasperi 180 • Completion of the connection along the SP12 “della Terra Rossa” between the urban center and the hamlet of Taggì di Sopra • Remaking of the "Peschiera" 360 route • Lungo fiume Brenta dal ponte con Limena (via Manetti) alla frazione Tavo • Along the Brenta river from the bridge with Limena (via Manetti) to the hamlet of Tavo Cycling plan – increasing and enhancing the cycling network: • 2.8km Abano terme • Albignasego: Inteventions in the requalifications of the 30km/h streets • 2.6km Cadoneghe • 3.5km Casalserugo • 4.0km in Legnaro • 0.6km in Limena • 4.5km in Masera di Padova • 2.9km in Mestrino • Montegrotto: previewed interventions in the requalification of the 30km/h street • 2.5km in Noventa Padovana • 4.1km in Ponte San Nicolo • 8.3km in Rubano • 2.0km in Saccolongo • 3.1km in Saonara • 3.7km in Selvazzano dentro • 1.1km in vigodarzere • 3.0km Vigonovo • 2.6km Vigonza • 8.9km Villafranca Padovana • Total of 60 km of extension of the cycling network			
Trieste	-cycle-pedestrian mobility; -intermodality; -private transport; -collective and individual public transport; -road safety; -logistics and distribution of goods; -ITS systems (intelligent transport system); -optimization of existing infrastructures and transport networks and analysis of -possible new light and / or heavy infrastructure interventions.	*NA*	short term: 2 years from the approval of the PUMS in the City Council, by 2022; -medium term: 5 years from the approval of the PUMS in the City Council, by 2015); -long term: 10 years from the approval of the PUMS in the City Council, by 2030.	Enhancing active & soft mobility, Increasing multimodality, Ensuring sustainable urban logistics, digitalization, Increased safety
Taranto	-Pedestrian Mobility: Investing in the quality of street furniture and on Wayfinding (spatial cognition). - creation of a competitive public transport system: reorganization of the 400 suburban buses that daily serve the city of Taranto, eliminating, in particular, the transit on the viability of the Old Town. -Enhancing and creating two circuits for the bike lines coming from the west would take place respectively: 1. at the entrance from via Magnaghi up to the height of via Leonida da Taranto where there is an equipped stop to then come out of the city through via Cesare Battisti which would be relieved from the current transit of city buses; 2. at the entrance from viale Trentino continuation on via Umbria and abutment on viale Virgilio at the height of via Rizzitelli and then succeeding on viale Virgilio towards the south. -Creating a cycle path to connect the Maritime Station and the Railway Station to the Center, through the Old Town mixed within ZONE 30 and ZTL and supported by a Bike Sharing service. -Create a network of velostations at public and private attraction poles and all over the city for students and workers -Identify a structure of the main network for cycling based on the contextualization of the intervention methods (Routes in a dedicated site, Zone 30, ZTL	*NA*	NA	Improving public transport network, Enhancing active & soft mobility, Investments on shared & sustainable mobility

	and circulation on low-traffic roads in rural areas in accordance with the Public Administration) -Provide for the possibility of transporting bicycles on the main lines of public car transport and on the waterway network			
Reggio Calabria	Strategy “People”.1 – Implement measures for the reduction of accidents Strategy “People”.2 – Ensure better accessibility to health centers Strategy "People”.3 – Develop planning and design for the elimination of architectural barriers Strategy “People”.4 – Enhancement and rationalization of school transportation Strategy “People”.5 – Investments in favor of social inclusion Strategy “City”.1 – Enhancement of urban public transportation Strategy “City”.2 – Discouraging the use of cars in the city Strategy “City”.3 – Promoting the integration of different modes of transportation Strategy “City”.4 – Rationalizing urban freight logistics. Strategy “Mountain”.1 – Enhancement of extra-urban road public transportation in a comb structure Strategy “Mountain”.2 - Enhancement and promotion of service networks, both public and private, related to slow tourism Strategy “Mountain”.3 – Reduction of the digital divide and increase in connectivity Strategy “Mountain”.4 – Improvement of the conditions of the road network between the coast and the mountains Strategy “Sea”.1 – Harness the potential of cycle tourism Strategy “Sea”.2 – Integration of the Strait Strategy “Sea”.3 – Enhancement of public transportation services by rail Strategy “Sea”.4 – Requalification of waterfronts in favor of active mobility and social interaction Strategy “Sea”.5 – Construction of a network of small ports Strategy “Sea”.6 – Adaptation of coastal routes	400+ M€	2032	Enhancing active & soft mobility, Increasing multimodality, Investments on shared & sustainable mobility, Ensuring sustainable urban logistics & last mile delivery, Digitalization
Ravenna	• Resolution of interference between rail and road traffic at the Ravenna junction, through the construction of road underpasses / overpasses; • Increase in the number of tracks available in the new yard to at least 6 electrified and two non-electrified • limitation of private circulation with extension to the entire town (from 1 October to 31 March from Monday to Friday from 8.30 to 18.30) • renewal of the bus fleet with replacement of vehicles <= euro 2 in urban areas by 2020’ • upgrading and strengthening of public transport services to improve the modal alternative to private vehicles, through: 10% increase in local public transport services and 20% increase in rail transport; • construction of infrastructures for the improvement of the rail-road-bike modal interchange in public transport stations / stops • Completion of the integrated railroad tariff system (Mi Muovo), to be extended to become a “regional mobility card” (eg for bike and car sharing services, parking, electric recharging…); • extension of the Pedibus / bicibus to the majority of primary schools in urban areas of municipalities with a population greater than 30,000 inhabitants; • promotion of company or industrial district agreements to optimize employee travel from home to work (district Mobility manager) and inclusion in calls for tenders for companies to implement Mobility management policies; • regulation of the distribution of goods in urban areas through: o limiting access to urban centers to the most polluting commercial vehicles; o updating of the agreement for the access of commercial vehicles to the LTZ, development of projects for the distribution of goods in the last km and in the LTZ with vehicles with very low environmental impact;	750,000	2032	Improving public transport network & fleet, Increasing multimodality, Integrated ticketing strategy, Ensuring sustainable urban logistics & last mile delivery
Trento	• creating infrastructures for intermodality (attestation, interchange), • reduction of parking in the ZTL, reserve parking for residents around the ZTL or in the environmental islands peripherals • PUBLIC TRANSPORT: increase the efficiency of public transport (lanes preferential routes, backbone line, provincial rail network) • CYCLING: create a cycle transport system (transport, signage, marketing) • FOOTWALKING: creating a complete, safe, barrier-free network, also assisted • CAR: contain congestion, the cause of the greatest pollution, with a network hierarchical but homogeneous on the territory for each level • GOODS: define solutions for the logistics and distribution of goods • SAFETY: improve the critical points of the network, create environmental islands • promoting the street as a shared space • MOBILITY MANAGEMENT: define mobility management actions (on a large scale) • COMMUNICATION: push for a culture of sharing (car sharing, car pooling) and respect for the environment (low-impact vehicles), with TV, radio, internet, etc. • TECHNOLOGY: promoting advanced technological systems for system control, data processing and immediate communication for addressing the application RAIL PUBLIC TRANSPORT • Brenner Tunnel (with freight traffic movement) • Provincial public rail transport system (METROLAND): • Brenner axis (new stations)	2,543,251,180	Short term: 2013 Medium term: 2018 Long term: 2028	Increasing multimodality, Improving public transport network to be more reliable and accessible, Upgrading parking policies to reduce car dependency, Enhancing active & soft mobility, Ensuring sustainable urban logistics & last mile delivery, Increased safety, Investments on shared & sustainable mobility

	• Trento Malè (new Roncafort station) • Valsugana (direct connection Pergine - Trento) CYCLING NETWORK: • Network construction • Cycle parking + last mile • Introduction of Bike Sharing PEDESTRIANITY • Limited Traffic Zones • Traffic moderation and Environmental Islands • Urban axes equipped for cycling and walking • Urban redevelopment and furniture • Sidewalks and tactile paths			
Pescara	-Enhancing The POLARIS project that is aimed at creating a direct connection service hills-city center which, through the use of ecological vehicles and bicycle mobility services, encourage the transport of people and bicycles from the upper to the lower part of the city and vice versa - The project involves the installation of ten stations (eco-mobility point), equipped with recharging electric, placed in strategic points of the city at the service of an organized route that meets the needs of sustainable mobility. -improvement of the north / south crossing viability is envisaged through the completion of the road called "pendulum", the creation of new cycle paths that will connect the existing sections and allow access to the urban center from the peripheral areas, the construction of two sections of the route of the public transport route in a protected area: - vehicular mobility, completion of three sections of the "pendulum road"; - cycling mobility, completion of linear park and south promenade cycle paths, “Bici in Rete” project, which involves the construction of three cycle paths that will connect various routes in the northern area of the city; - cycle mobility, completion of the network of cycle paths along existing roads; - public transport in its own headquarters, as part of the program, three portions of the public transport route will be created in its own headquarters, through the involvement of private operators	NA	2027	Enhancing active & soft mobility, Increasing multimodality, Improving public transport network to be more reliable and accessible, Ensuring sustainable urban logistics & last mile delivery
Bolzano	-completing, as a matter of priority, the provision of cycle paths serving the neighborhoods, -creation of a network of controlled access bicycle parking spaces. These infrastructures, in addition to accommodating the bicycles of employees and visitors / users, are aimed at providing City Users who make chains of movements within the city, a network of safe places to park their bicycles, especially if in assisted pedaling. -The expansion and safety of pedestrian paths will be addressed, as a matter of priority, in favor of school mobility and, in this direction, by providing infrastructural interventions, temporary pedestrianization, the establishment of further Piedibus services and the realization of school projects for the education for sustainable mobility. -In the urban logistics sector, intervention strategies are defined and pilot projects are proposed that can offer diversified responses to the needs of both production and commercial activities and logistics companies.	NA	2030	Enhancing active & soft mobility, Increased safety, Ensuring sustainable urban logistics & last mile delivery
Ancona	SUMP Ancona - Planned actions / interventions started - Revision of the TPL vehicle fleet with the total replacement of diesel buses with vehicles with natural gas systems and above all electric ones (trolleybuses and smaller battery buses) -Revision of the routes and methods of use of the LPT - Completion of the trolleybus loop in both directions with a rapid and frequent trolleybus service from the interchange poles to the urban center - Establishment of the North and South terminus for the extra-urban public transport lines which will have to gradually eliminate the terminus in Piazza Cavour; - Exchanger parking with 260 seats at Verrocchio adjacent to the northern terminus - suburban transport bus station, equipped with charging stations and minicar rental (car sharing) -Optimization of parking on the road in the central area by promoting solutions that eliminate cars parked for a long time on the roadside by concentrating them inside special covered parking lots -Definition of a sharing service with electric vehicles and micro-mobility (cars, bicycles and electric scooters) to support the "last mile" connection between the interchange poles with public transport, the parking lots and the urban center - TPL integration with other carriers - Via Mattei cycle path (port area), north promenade (connection to Torrette) and Ancona- Portonovo - Actions to reduce fine particles with interventions on the ZTL and pedestrian areas (extensions) and incentives for the use of electric cars through the implementation of the charging network (columns)	NA	2030	Improving public transport network, Enhancing active & soft mobility, Increasing multimodality, Investments on shared & sustainable mobility, Electrification
Campobasso	- Campobasso City 30: Traffic moderation interventions - The area plan: the new network of urban public transport in Campobasso - From park-and-ride facilities to mobility hinges - Campobasso Accessible City: The hectometric access system to the Monforte Castle - Campobasso Accessible City: New pedestrian connections to railway stations and new vehicular permeability - Increased attention to urban quality	n.a.	2032	Enhancing active & soft mobility, Increasing multimodality, Investments on shared & sustainable mobility, Ensuring sustainable urban logistics & last mile delivery, Electrification, Digitalization

	- The new parking system - Campobasso Safe City: The slow streamlining and securing of critical points along the road network - Sustainable Mobility Schools: School zones and school streets - Intelligent Transport System and New Accessibility to the Center of Campobasso. - Smart mobility: e-mobility, micromobility and sharing mobility - Low Emission Zones, mobility apps and mobility management - Sustainable city logistics			
L'Aquila	The redistribution and recomposition of the transport network in a hierarchical and synergistic form and the recovery of shares of the road network and public spaces by integrating with new interventions infrastructural, in favor of their better usability and sharing by pedestrians, cyclists, LPT users and private mobility with low environmental impact b. identification of possible forms of integration between transport systems through the proper functioning of existing interchange nodes (and / or construction of new nodes) to ensure appropriate additions to the primary and secondary network c. make it possible to transport bicycles on LPT vehicles and trains by appropriately adapting spaces d. the development of tariff integration also providing for the transport of bicycles on LPT vehicles and trains And. use of ITS and info-mobility systems to facilitate the integration of transport systems, for the provision of data on the priority urban network and for the development of innovative services mobility f. Activities conducted by the area Mobility Manager in collaboration with individual company Mobility Managers with the aim of encouraging sustainability g. Develop integrated demand management policies	104,284,091	2030	Increasing multimodality, Digitalization, Integrated ticketing strategy
Perugia	1. Strategies and actions for the reorganization of the transport network Automotive Urban Public; 2. Progressive adoption of electric vehicles for the transport service Automotive Urban Public; 3. Bus integration - Minimetrò; 4. Intermodality Bus - Private Car (Park & Ride) in the urban area; 5. Intermodality Bus - Bus / Railway Services 6. Tariff concessions on the Perugia Single Public Transport network; 7. Active Mobility (pedestrian and cycling) and Traffic Control (ZTL and Zone 30); 8. Infrastructural interventions on "historicized" critical junctions of the urban road system; 9. Logistics of the distribution of goods in the urban field 10. ITS and Infomobility; 11. Mobility Management and Car Pooling; 12. Car sharing The Administration has decided to dedicate a Position Paper of the Municipality of Perugia to these issues to accompany the PUMS which deals, in particular: • Regional rail services and access to High Speed; • Railway services with Tram - Train mode; • Perugia suburban road junction. • Enhancement of air transport (actions for the growth of the San Francesco di Assisi airport);	144,435,500 €	2030/2050	Enhancing active & soft mobility, Increasing multimodality, Investments on shared & sustainable mobility, Ensuring sustainable urban logistics & last mile delivery, Electrification, Digitalization
Italy /Abruzzo	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	13.18M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Abruzzo	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	28.16M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Abruzzo	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT / Interventions for urban cycling mobility	13.9M	Aug-26	Enhancing active & soft mobility
Italy /Abruzzo	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT/ Adriatic Cycle Route	24.48M	Aug-26	Improving regional and long-distance cycling routes and infrastructure

Italy /Basilicata	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	7.35M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Basilicata	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	20.93M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Basilicata	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT/ Magna Greece cycle route	5.99M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Basilicata	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT/ Cycle route of the Apulian Aqueduct	2.83M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Calabria	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	46.22M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Calabria	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	31.46M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Calabria	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT/ Interventions for urban cycling mobility	7.72M	Aug-26	Enhancing active & soft mobility
Italy /Calabria	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT/ Magna Greece cycle route	33.33M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Emilia-Romagna	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	143.05M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Emilia-Romagna	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	30.19M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Emilia-Romagna	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT / Interventions for urban cycling mobility	14.18M	Aug-26	Enhancing active & soft mobility
Italy /Emilia-Romagna	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT/ VEN-TO cycle path	7.88M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Emilia-Romagna	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT/ Adriatic Cycle Route	4M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Emilia-Romagna	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT/ Ciclovia Sole	11M	Aug-26	Improving regional and long-distance cycling routes and infrastructure

Italy /Emilia-Romagna	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / BOLOGNA: first tram line (red line) - (resources under current legislation: 511,324,369.22 euros)	151.02M	Aug-26	Improving public transport network
Italy /Emilia-Romagna	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / RIMINI: 2nd section "rapid coastal transport" (sea metro): Rimini FS - Rimini Fiera section (resources under current legislation)	48.98	Aug-26	Improving public transport network
Italy /Emilia-Romagna	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / BOLOGNA: technical and economic feasibility project of the second tram line of Bologna (northern section of the Corticella-Castel Maggiore line)	222.14M	Aug-26	Improving public transport network
Italy /Friuli-Venezia Giulia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	10.41M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Friuli-Venezia Giulia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	12.35M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Friuli-Venezia Giulia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT / Interventions for urban cycling mobility	3.21M	Aug-26	Enhancing active & soft mobility
Italy /Friuli-Venezia Giulia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility /CYCLING MOBILITY DEVELOPMENT/ Trieste-Lignano Sabbiadoro-Venice cycle route	20.01M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Friuli-Venezia Giulia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT / Trieste-Porto Vecchio-Carso underground cable car	48.77M	Aug-26	Improving public transport network
Italy /Friuli-Venezia Giulia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT / TRIESTE: Extraordinary maintenance of tram rolling stock	0.27M	Aug-26	Improving public transport network
Italy /Friuli-Venezia Giulia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT / TRIESTE: Extraordinary maintenance of tram armament	0.55M	Aug-26	Improving public transport network
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / RENEWAL OF THE BUS FLEET: Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	312.17M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / RENEWAL OF THE BUS FLEET: Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	60.88M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Interventions for urban cycling mobility	13.18M	Aug-26	Enhancing active & soft mobility
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: VEN-TO cycle path	27M	Aug-26	Improving regional and long-distance cycling routes and infrastructure

Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Garda cycle path	12.54M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: BERGAMO: eBRT BERGAMO-DALMINE	80M	Aug-26	Improving public transport network / Electrification of public transport
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: MILAN: NORTH INTER-DISTRICT UNDERGROUND - NIGUARDA-CASCINA GOBBA FUNCTIONAL SECTION	50.31M	Aug-26	Improving public transport network
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: MILAN: TRAMVIA 7 BAUSAN - VILLAPIZZONE	36M	Aug-26	Improving public transport network
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: MILAN: SUPPLY OF 14 BIDIRECTIONAL TRAMS (SERVING LINE 7)	52.36M	Aug-26	Improving public transport network
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: MILAN: TRANSPORT PLAN CIRCULAR LINE 90-91 - RESERVED OFFICE FROM P.ZZA ZAVATTARI TO P.ZZA STUPARICH	9M	Aug-26	Improving public transport network
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: MILAN: PURCHASE OF 10 NEW TROLLEY BUSES	8.8M	Aug-26	Improving public transport network / Electrification of public transport
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: BERGAMO: TRANVIAR LINE T2 OF THE BREMBANA VALLEY, BERGAMO - VILLA D'ALMÈ (total resources under current legislation 125.04 million euro - Ministerial Decree no. 607/2019)	50M	Aug-26	Improving public transport network
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: BRESCIA: NEW TRAIN LINE "PENDOLINA-FIERA (T2)"	359.55M	Aug-26	Improving public transport network
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: BRESCIA: EXTRAORDINARY MAINTENANCE OF UNDERGROUND ARMAMENT	3.3M	Aug-26	Improving public transport network
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: MILAN: EXTRAORDINARY MAINTENANCE OF UNDERGROUND ROLLING STOCK	36.4M	Aug-26	Improving public transport network
Italy /Lombardy	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT: MILAN: EXTRAORDINARY MAINTENANCE OF THE METRO CONTACT LINE	8M	Aug-26	Improving public transport network
Italy /Marche	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	3.84M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Marche	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	15.06M	Aug-26	Electrification and alternative sustainable fueled public transport

Italy /Marche	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Interventions for urban cycling mobility	1.57M	Aug-26	Enhancing active & soft mobility
Italy /Marche	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Adriatic Cycle Route	27.5M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Molise	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	3.98M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Molise	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	21.54M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Molise	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Adriatic Cycle Route	22.57M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Autonomous Province of Bolzano – South Tyrol	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	3.46M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Autonomous Province of Bolzano – South Tyrol	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	8.62M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Autonomous Province of Bolzano – South Tyrol	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Investments in provincial cycling mobility	13.35M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy /Autonomous Province of Trento	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	4.72M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Autonomous Province of Trento	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	7.9M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy /Autonomous Province of Trento	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Interventions for urban cycling mobility	1.73M	Aug-26	Enhancing active & soft mobility
Italy /Autonomous Province of Trento	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Garda cycle path	6.97M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy / Puglia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	95.78M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy / Puglia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	47.47M	Aug-26	Electrification and alternative sustainable fueled public transport

Italy / Puglia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Interventions for urban cycling mobility	14.63M	Aug-26	Enhancing active & soft mobility
Italy / Puglia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Adriatic Cycle Route	18.94M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy / Puglia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Cycle route of the Apulian Aqueduct	32.16M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy / Puglia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT / MUNICIPALITY OF TARANTO: BRT Bus Rapid Transit - Blue line (current legislation)	130M	Aug-26	Improving public transport network
Italy / Puglia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT / MUNICIPALITY OF BARI: BRT - construction of new lines and extension of existing lines to implement the STIF network for the TRM	159.17M	Aug-26	Improving public transport network
Italy / Puglia	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT / MUNICIPALITY OF TARANTO: New electric carrier line BRT network foreseen by the PUMS - red line "Paolo VI-Cimino"	134.56M	Aug-26	Improving public transport network / Electrification of public transport
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	222.89M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	56.53M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Interventions for urban cycling mobility	17.26M	Aug-26	Enhancing active & soft mobility
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Magna Greece cycle route	22.18M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / PNRR FOR CATANIA AND PALERMO, NATIONAL RESOURCES FOR MESSINA / Circumetnea Misterbianco - Paternò railway: Misterbianco - Belpasso section (current legislation)	115M	Aug-26	Improving public transport network
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / PNRR FOR CATANIA AND PALERMO, NATIONAL RESOURCES FOR MESSINA / Upgrade and transformation of the Circumetnea railway in the urban areas of Catania and Misterbianco and of the suburban section up to Paternò including the Ardizzone depot	317.07M	Aug-26	Improving public transport network
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / PNRR FOR CATANIA AND PALERMO, NATIONAL RESOURCES FOR MESSINA / Palermo tram system - phase II sections D, E2, F, G and interchange parking lots (current legislation)	481.27	Aug-26	Improving public transport network
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / PNRR FOR CATANIA AND PALERMO, NATIONAL RESOURCES FOR MESSINA / Palermo tram system - phase II - sections D, E2, F, G and interchange parking lots: tram supply	23.14M	Aug-26	Improving public transport network

Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / PNRR FOR CATANIA AND PALERMO, NATIONAL RESOURCES FOR MESSINA / Messina: extraordinary maintenance of tram rolling stock	0.75M	Aug-26	Improving public transport network
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / PNRR FOR CATANIA AND PALERMO, NATIONAL RESOURCES FOR MESSINA / Messina: extraordinary maintenance of tram armament	16M	Aug-26	Improving public transport network
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / PNRR FOR CATANIA AND PALERMO, NATIONAL RESOURCES FOR MESSINA / Messina: extraordinary maintenance of the contact line tram	2.18M	Aug-26	Improving public transport network
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / PNRR FOR CATANIA AND PALERMO, NATIONAL RESOURCES FOR MESSINA / Messina: extraordinary maintenance of tram conversion substations	0.5M	Aug-26	Improving public transport network
Italy / Sicily	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / DEVELOPMENT OF RAPID MASS TRANSPORT (METRO TRAM BRT) / PNRR FOR CATANIA AND PALERMO, NATIONAL RESOURCES FOR MESSINA / Messina: extraordinary maintenance of tram signaling systems	0.5M	Aug-26	Improving public transport network
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET /Renewal of rolling stock with zero-emission urban LPT buses (electric / hydrogen)	127.77M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / M2C2: Renewable energy, hydrogen and sustainable local mobility / RENEWAL OF THE BUS FLEET / Renewal of rolling stock with methane-fueled buses and related supply infrastructures, used for local suburban public transport	31.96M	Aug-26	Electrification and alternative sustainable fueled public transport
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Interventions for urban cycling mobility	8.1M	Aug-26	Enhancing active & soft mobility
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: VEN-TO cycle path	6.79M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Adriatic Cycle Route	4M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Trieste-Lignano Sabbiadoro-Venice cycle route	9.99M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Garda cycle path	10.49M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / CYCLING MOBILITY DEVELOPMEN: Ciclovia Sole	6.04M	Aug-26	Improving regional and long-distance cycling routes and infrastructure
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT / PADUA: SIR 2 tram line - completion of the intermediate network system of the city of Padua (PNRR)	238.06M	Aug-26	Improving public transport network

Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT / PADUA: SIR 2 tram line - completion of the intermediate network system of the city of Padua(NOTICE n.2)	97.15M	Aug-26	Improving public transport network
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT / VENICE: Extraordinary maintenance of tram rolling stock	1.85M	Aug-26	Improving public transport network
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT / PADUA: Extraordinary maintenance of tram rolling stock	0.91M	Aug-26	Improving public transport network
Italy / Veneto	MISSION 2: GREEN REVOLUTION AND ECOLOGICAL TRANSITION / DEVELOPMENT OF RAPID MASS TRANSPORT / PADUA: Extraordinary maintenance of tram armament	6.09M	Aug-26	Improving public transport network

2.7 Montenegro

In order to provide details of the interventions for the integration of urban nodes and tourist centers in the main EUSAIR networks the Sustainable Urban Mobility Plan (SUMP) and Sustainable Urban Logistics Plan (SULP) for selected main urban nodes of Montenegro based on their availability are studied. In addition, the status of EuroVelo Network is studied.

Table 190 Available strategic documents per city

	SUMP	SULP
Podgorica	✓	n.a.
Tivat	n.a.	n.a.
Bar	n.a.	n.a.

2.7.1 Podgorica

2.7.1.1 SUMP for the city of Podgorica

Podgorica, the capital of Montenegro, is the administrative, economic, cultural and academic center of more than a third of the country's population.

The local parliament of Podgorica has adopted its very first Sustainable Urban Mobility Plan (SUMP). In a highly participatory process aimed at taking a human-centered perspective.

A growing and modern capital, Podgorica has witnessed a variety of concerns on transport and quality of life: While public transport has operated only insufficiently, the number of cars in the city has rocketed and safety concerns have arisen. Moving through the city by any means of transport has become increasingly strenuous and unpleasant for citizens of Podgorica.

Moving through the city by any means of transport has become increasingly strenuous and unpleasant

In May 2019, the Montenegrin capital started the process to develop a SUMP, supported by the project for “Sustainable Urban Mobility in South-East European Countries II” (SUMSEEC II) that is implemented by the GIZ Open Regional Fund for Energy Efficiency (GIZ ORF-EE) and funded by the German Federal Ministry for Economic Cooperation and Development. Document is dealing also issues of planning, safety, walking, and cycling and Secretary for Transport Lazarela Kalezić, as the head of the working groups, has been overseeing a complex process that is connected to all other sectors.

Therefore, the working groups have included members of different secretariats of the city administration, representatives of the cycling NGO Biciklo.me and of GIZ, as well as local and international experts and, have been backed by a network of regional exchange.[71]

Table 191 Summary of SUMP for Podgorica

SUMP Strategic Objectives Summary	• In 5 years, 4 strategies were created (city transport, cycling, parking, walking) that include an inclusive aspect • Increase in billing percentage penalties for illegal parking until 2025 • Objective of reducing accident and injuries on streets by 2025

[71] SUSTAINABLE URBAN MOBILITY, THE CAPITAL CITY OF PODGORIC, Podgorica, January 2020

	• Motorization must be less than 3% by the end of 2025 • Growth in the offers of PT by 100% by 2025 while reducing the travel time by half. • Reducing the average age of vehicles • Reducing the percentage of using cars for people to go to school by relying more on PT • Increasing the number of electric vehicles in the city • Electrification • Digitalization • Lowering CO2 emissions • Increasing Cycling routes
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	2025

2.7.1.2 SULP for the city of Podgorica

There is no SULP available for the city of Podgorica at the moment of drafting this report.

2.7.2 Tivat

2.7.2.1 SUMP for the city of Tivat

There is no SUMP available for the city of Tivat at the moment of drafting this report.

2.7.2.2 SULP for the city of Tivat

There is no SULP available for the city of Tivat at the moment of drafting this report.

2.7.3 Bar

2.7.3.1 SUMP for the city of Bar

There is no SUMP available for the city of Bar at the moment of drafting this report.

2.7.3.2 SULP for the city of Bar

There is no SULP available for the city of Bar at the moment of drafting this report.

2.7.4 EuroVelo Routes Development Status for Montenegro

The following table shows the levels of development of the EuroVelo cycling routes crossing the country. EuroVelo 8 Mediterranean Route is passing through Montenegro.

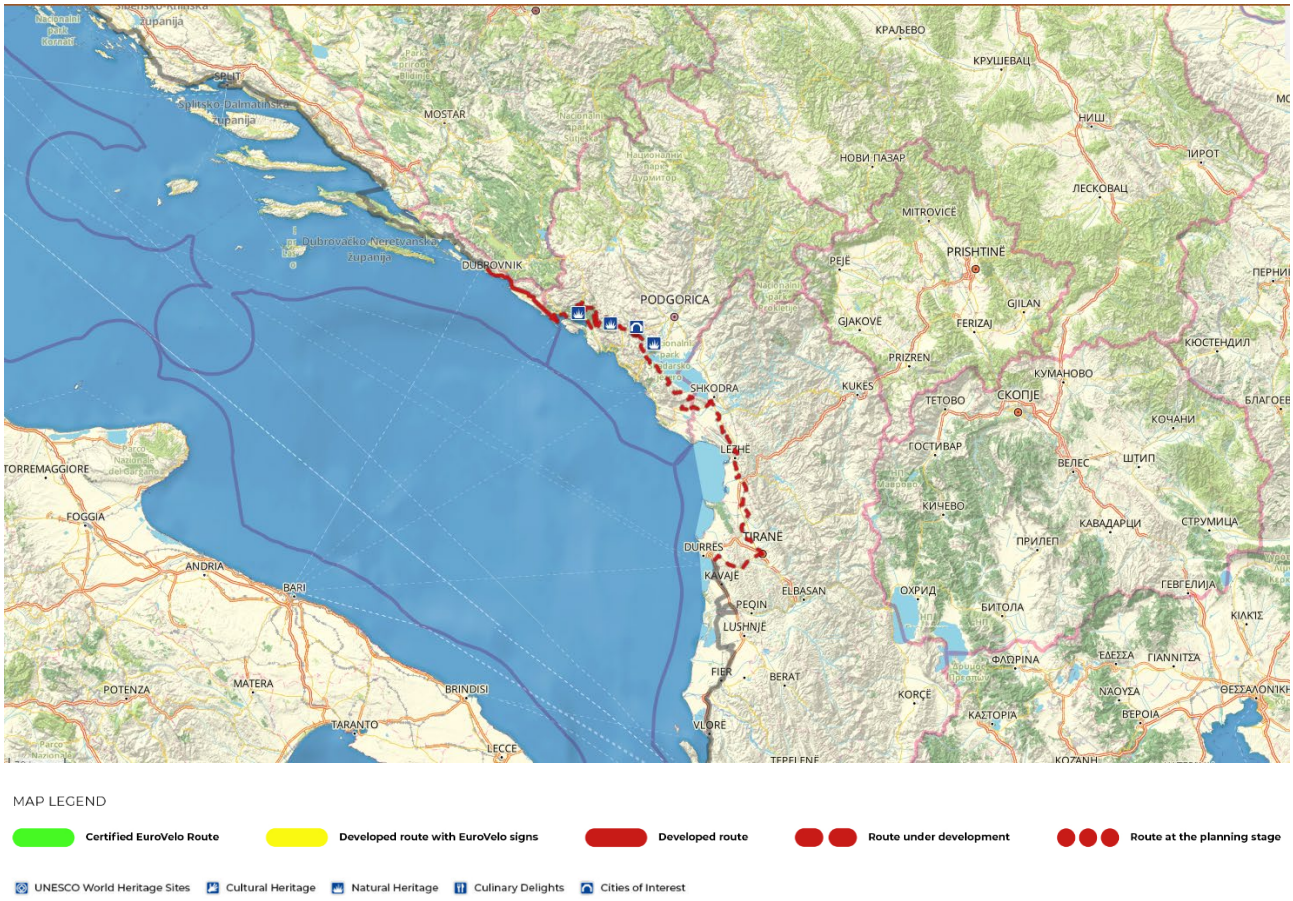
Table 192 EuroVelo Routes Development Status for Montenegro[72]

Country	EuroVelo km	Planning stage	Under development	Developed	Developed with EV signs	Overall Development Level
Montenegro	236	0%	100%	0%	0%	0%

[72] https://pro.eurovelo.com/download/document/EuroVelo%20Route%20Status%20Report_Final_20210520.pdf

Montenegro. it is more and more accessible to cyclists, with some 300 km of on- and off- road biking trails. EuroVelo 8 will pass by Boka Bay: Herceg Novi, Tivat and Kotor – a UNESCO world heritage site, on the way through two incredible National Parks (Lovcen and Skadar Lake) to Sukobin border crossing. In Kotor it will pass through some of the best-preserved medieval settlements in this part of the Mediterranean. [73]

Figure 54 EuroVelo 8 Mediterranean Route in Montenegro



2.7.5 Summary of Urban Mobility and Transportation Projects and Strategic Actions

The following table shows the summary of all the previously mentioned planned and ongoing projects related to urban mobility and transportation for the selected urban nodes of Montenegro including project description, timeline, estimated costs and expected impacts.

Table 193 Summary of Planned & Ongoing Urban Mobility and Transportation Related Projects and Strategic Actions of Montenegro

Node or section	Project description	Costs (€)	Estimated end year	Impact

[73] https://en.eurovelo.com/ev8/montenegro

Podgorica	• In 5 years, 4 strategies were created (city transport, cycling, parking, walking) that include an inclusive aspect • Increase in billing percentage penalties for illegal parking until 2025 • Objective of reducing accident and injuries on streets by 2025 • Motorization must be less than 3% by the end of 2025 • Growth in the offers of PT by 100% by 2025 while reducing the travel time by half. • Reducing the average age of vehicles • Reducing the percentage of using cars for people to go to school by relying more on PT • Increasing the number of electric vehicles in the city • Electrification • Digitalization • Lowering CO2 emissions • Increasing Cycling routes	NA	2025	Upgrading parking policies to reduce car dependency, Increased safety, Improving public transport network to be more reliable and accessible, Enhancing active & soft mobility, Electrification, Digitalization

2.8 North Macedonia

In order to provide details of the interventions for the integration of urban nodes and tourist centers in the main EUSAIR networks the Sustainable Urban Mobility Plan (SUMP) and Sustainable Urban Logistics Plan (SULP) for selected main urban nodes of North Macedonia based on their availability are studied. In addition, the status of EuroVelo Network is studied.

Table 194 Available strategic documents per city

	SUMP	SULP
Skopje	n.a. (Transport Master Plan 2011)	n.a.

2.8.1 Skopje

2.8.1.1 Transport Masterplan for the city of Skopje

In 2011, a transport master plan for greater Skopje was put in place by the Republic of North Macedonia.

The plan was concluded by several projects and intervention in the city.

Skopje, the capital city of Macedonia has a very long history as a main settlement in the Balkan region. Over the years, and influenced by many different and shifting regimes and cultures, the town has turned into a multi-facetted and vibrant city, where a mixture of ethnic and socio-economic groups gives the city a specific character. Population increases in parity with the global urbanization trend and the simultaneous growth and shifts in the economy of the area has put a pressure on the socio-economic and environmental conditions under which the people live. Issues related to health, comfort, safety and quality of life has thereby come to the forefront in the daily life of the individuals and the communities and at the same time caused some concern about the long-term sustainability of the development of the City. At present, urban transport and the general public traffic system throughout the city have degraded to a large extent the quality of life in the city. Jammed traffic problems and loss of time, lack of parking space, air pollution and noise, reduced traffic safety, are part of everyday lives' citizens. These traffic issues can affect to the opportunities for economic development, cultural, political development and prosperity of the city. Hence the urgent need to solve traffic problems in general and the specific problems of urban public transport operating in Skopje.[74]

Despite the poor conditions in public urban transport in Macedonia there is no policy or strategy to develop urban transport, and especially the sustainable development of urban transport systems. This study may be the beginning of a change in strategy, now more than ever, in order to be closer to Europe. Thus, the study has followed the definitions and recommendations of the EU.

PUBLIC TRANSPORT NETWORK:

Several measures to increase the use of the public transport system have already been mentioned in the previous chapter. As already mentioned, the Consultant opts for an integrated public transport system, which maximizes the use of public transport and results in positive and sustainable effects for all, hence the creation of an additional scenario in the previous chapter, called "2030 PLUS". Some additional conclusions have been included below:

[74] Republic of Macedonia, Report Skopje, 05 may 2011

• By 2030, the light rail will be the prioritized mode of mass transport in Skopje due to its environmentally friendly characteristics and costumer friendly performance, i.e. integrity, speed, capacity. Consultant in charge ("Ingenieros de Obras y Mantenimiento") hereafter IDOM highlights, that Skopje, with its compact and dense urban shape, would be an ideal city for an efficient light rail system. The general function of the bus network, which needs to be reorganized previously, can be defined as a feeder for the light rail network

Bus lanes should be implemented, in particular at bottle necks and in the surroundings of major road junctions

• At major road junctions with light rail cars crossing, traffic light phasing needs to favor light rail operation and no left turn should be permitted across tracks

• Bus terminals or interchange facilities with bus bays and bus parking facilities need to be built at key stations of the light rail network, according to the proposed bus network changes listed in the previous chapter

• The Airport – the most important in the country - needs to be connected by an Express Bus Lines to the main spots of the Capital, such as the interchanges at Transporten Center and the vicinity of Macedonia Square.

IMPROVE PRIVATE TRANSPORT NETWORK:

Introduction of new proposals, see details of Scenario "2030 PLUS" of IDOM, previously explained, concerning highway infrastructure: o Macedonia Boulevard ("South Blvd") - taken out o Outer Ring Southeast between Prvmosaska – Pripor - taken out o Dual Carriageway between Junction Gorce Centre/ Blvd Montenegro– Volkovo: Extension Blvd Ilinden - taken out o Widening of Saraj Bridge – high priority o Closure of Cupovski Street except for LIGHT RAIL and PEDESTRIANS – high priority o Traffic-Calm and revitalize Gorce Petrov Blvd whereby through traffic will be divert onto new Montenegro Blvd– high priority

• IDOM is aware, that the City Council is planning a new Traffic Management Centre, aiming a better and more coordinated control of traffic lights and other measures to improve flow conditions and restrict traffic if required. The activities of this center need to comply with the guidelines set in the new General Urban Plan (GUP) - all proposals of this Chapter refer.

• Closely related to the previous point is the fact that Skopje holds a high-capacity ring road motorway which is currently under used. In order to achieve a better mobility management, some traffic flows should be re-directed via this alternative, as it will relieve the city, especially of heavy vehicle flows, which tend to use the city highways instead of the existing by-pass

IMPROVE CONDITIONS FOR BICYCLES AND PEDESTRIANS:

Some proposals to improve the situation for cyclists and pedestrians are summarized below.

• Movement and access of persons with special needs. Study for the traffic system of the city of Skopje, with preliminary designs for the following roads: "ST.KLIMENT OHRIDSKI" boulevard and the underground road from the synodal church to "KOMPLEKS BANKI" building

• Traffic-calm center and close traffic at Cupovski and in wider zone of Turkish Bazaar

• Walking crossovers over the roads (de-levelled) (underground)

IMPROVEMENT OF URBAN PUBLIC SPACE:

• Another objective is the introduction of an integrated waste management which helps to empty the waste bins in a more efficient way while improving the environment of urban fabric.

• A weakness in this respect is that bins block and disturb public spaces fairly often; this is especially in the city center a common nuisance.

• One alternative suitable for Skopje to overcome this matter would be to integrate them in the pavement

Table 195 Summary of Transport Master Plan for Skopje

Transport Master Plan Strategic objectives Summary	Strategic goals for implementation of the traffic policy in the City for future long-term period need to be clearly defined in the new GUP. There should be a clear statement that traffic policy should reflect Skopje's character as a compact, dense structure with short trips, mainly undertaken by modes other than by car. This sustainable element of Skopje needs to be reflected in future policies, such as • prioritizing environmentally modes, like bus, light rail, bicycle and walking • strengthen the accessibility of center by these environmentally modes, to which most trips are orientated • in this respect regulate also parking policy by applying an area-wide tariff system, especially in center and other areas with high parking demand • develop the potentials in respect to the above, i.e. the existing wide road corridors and the existing rail network • institutional changes, such as concentrating both land-use and transport policies in the City Hall, at least for projects of a city-wide importance • better traffic management for the metropolitan area, including also national roads • priority signaling for light rail cars, taxis and buses at key junctions • Ideally would be the establishment of a Metropolitan Transport Authority to manage projects and operation of all modes, and to ensure a healthy and efficient interaction of mode changes and timetables.
Maturity (ongoing, planned or financed)	ongoing
Representatives	Ministry of Transport and Communications IDOM Ingereria y consiltaria, sociedad anonima
Estimated end year	2030

2.8.1.2 SULP for the city of Skopje

There is no SULP available for the city of Skopje at the moment of drafting this report.

2.8.2 EuroVelo Routes Development Status for North Macedonia

The following table shows the levels of development of the EuroVelo cycling routes crossing the country. EuroVelo 11 East Europe Route and EuroVelo 13 Iron Curtain Trail are passing through North Macedonia.

Table 196 EuroVelo Routes Development Status for North Macedonia[75]

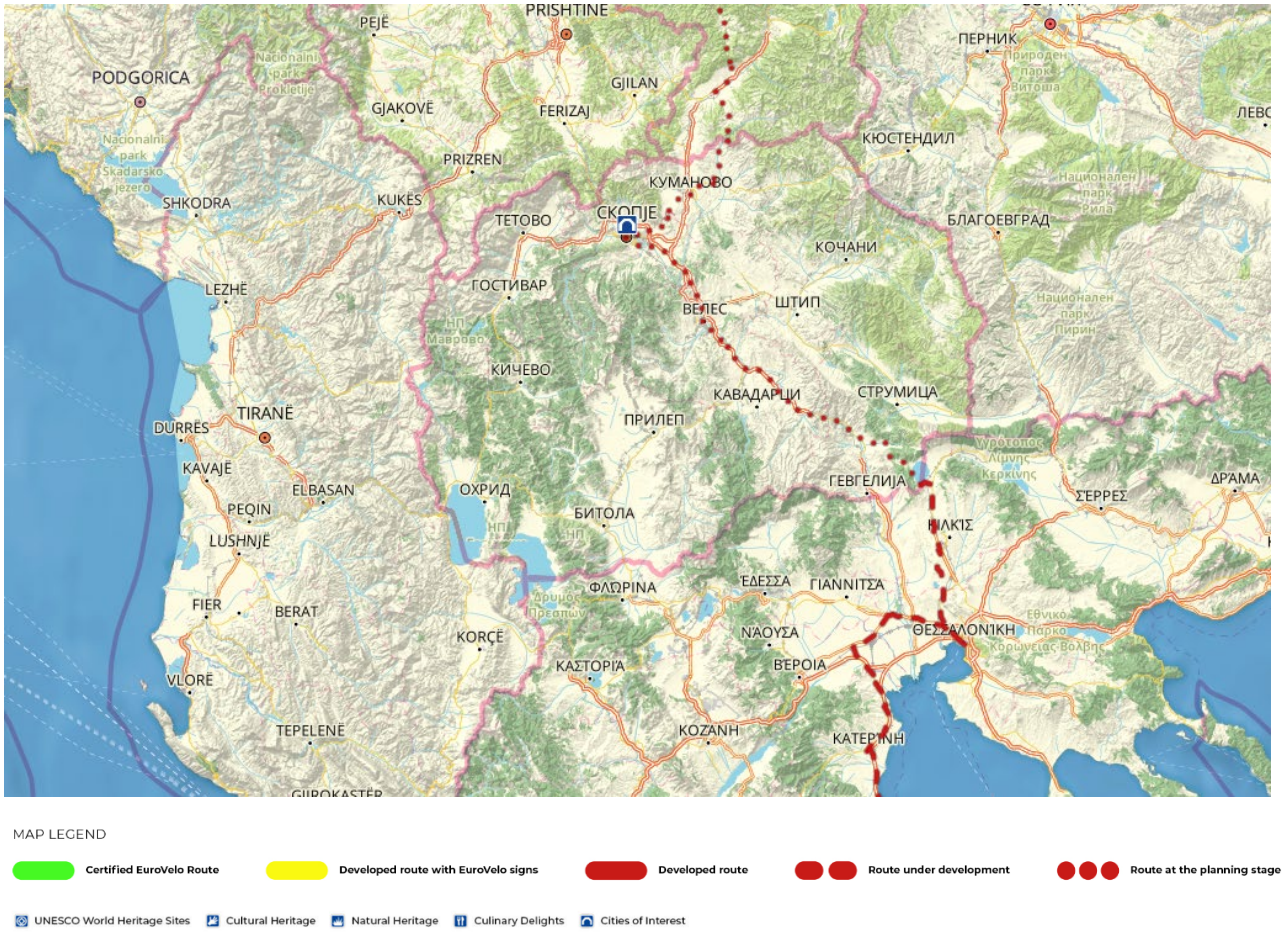
Country	EuroVelo km	Planning stage	Under development	Developed	Developed with EV signs	Overall Development Level
North Macedonia	404	64%	36%	0%	0%	0%

Figure 55 EuroVelo Routes Passing Through North Macedonia

EuroVelo 11 passes through the centre of the country, connecting Greece and Serbia by way of the cities of Gevgelija, Veles, Skopje, and Kumanovo. [76]

[75] https://pro.eurovelo.com/download/document/EuroVelo%20Route%20Status%20Report_Final_20210520.pdf
[76] https://en.eurovelo.com/ev11/fyro-macedonia

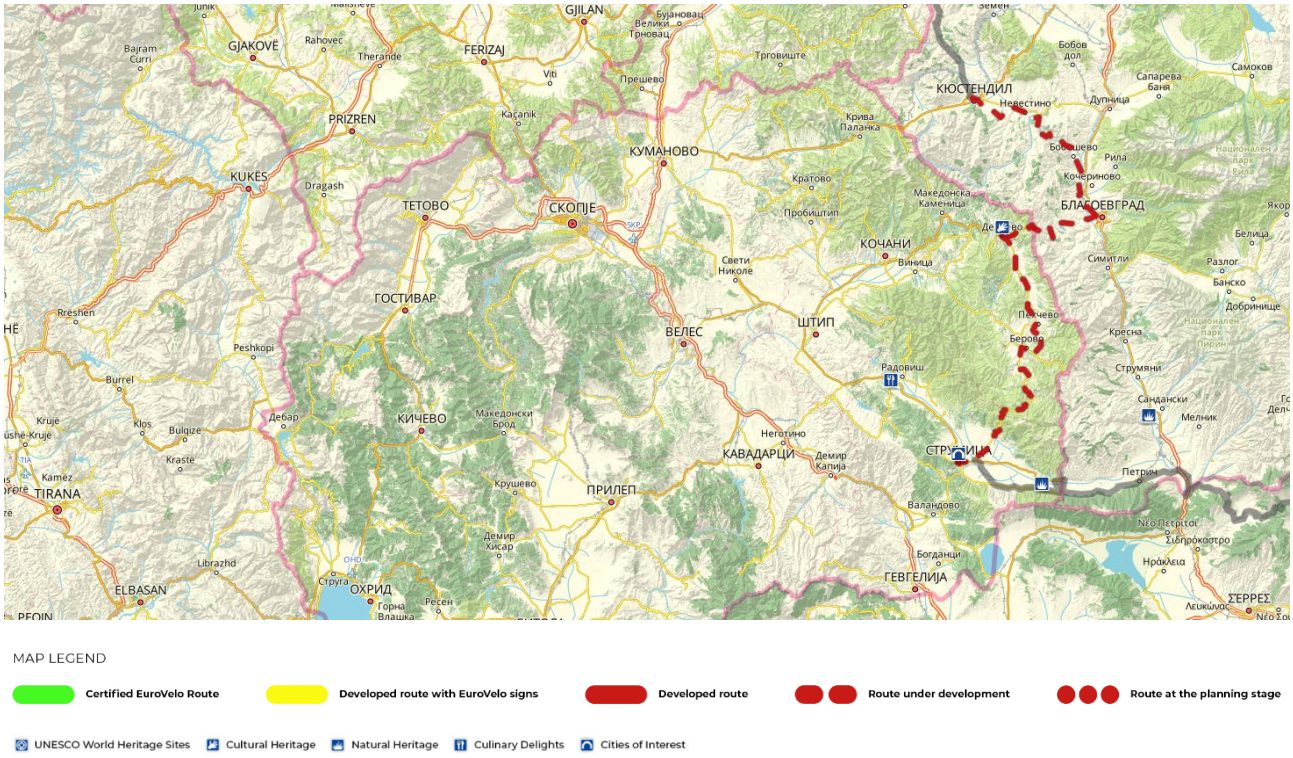
Figure 56 EuroVelo 11 East Europe Route in North Macedonia



EuroVelo 13 – Iron Curtain Trail enters North Macedonia from Bulgaria at the Delchevo border crossing. The route weaves its way between towns and villages, passing through the natural beauty of the Malesh Mountains before entering Strumica, home to the famous frescoes in St. Leontius Monastery. The final section in North Macedonia is natural areas close to the Belasica Mountains.[77]

[77] https://en.eurovelo.com/ev13/republic-of-macedonia

Figure 57 EuroVelo 13 – Iron Curtain Trail in Croatia



2.8.3 Summary of Urban Mobility and Transportation Projects and Strategic Actions

The following table shows the summary of all the previously mentioned planned and ongoing projects related to urban mobility and transportation for the selected urban nodes of North Macedonia including project description, timeline, estimated costs and expected impacts.

Table 197 Summary of Planned & Ongoing Urban Mobility and Transportation Related Projects and Strategic Actions of North Macedonia

Node or section	Description	Costs (€)	Estimated end year	Impact
Skopje	Strategic goals for implementation of the traffic policy in the City for future long-term period need to be clearly defined in the new GUP. There should be a clear statement that traffic policy should reflect Skopje's character as a compact, dense structure with short trips, mainly undertaken by modes other than by car. This sustainable element of Skopje needs to be reflected in future policies, such as • prioritizing environmentally modes, like bus, light rail, bicycle and walking	NA	2030	Increasing multimodality, Enhancing active & soft mobility, Improving public transport network, Upgrading parking policies

	• strengthen the accessibility of center by these environmentally modes, to which most trips are orientated • in this respect regulate also parking policy by applying an area-wide tariff system, especially in center and other areas with high parking demand • develop the potentials in respect to the above, i.e. the existing wide road corridors and the existing rail network • institutional changes, such as concentrating both land-use and transport policies in the City Hall, at least for projects of a city-wide importance • better traffic management for the metropolitan area, including also national roads • priority signaling for light rail cars, taxis and buses at key junctions • Ideally would be the establishment of a Metropolitan Transport Authority to manage projects and operation of all modes, and to ensure a healthy and efficient interaction of mode changes and timetables.			

2.9 Serbia

In order to provide details of the interventions for the integration of urban nodes and tourist centers in the main EUSAIR networks the Sustainable Urban Mobility Plan (SUMP) and Sustainable Urban Logistics Plan (SULP) for selected main urban nodes of Serbia based on their availability are studied. In addition, the status of EuroVelo Network is studied.

Table 198 Available strategic documents per city

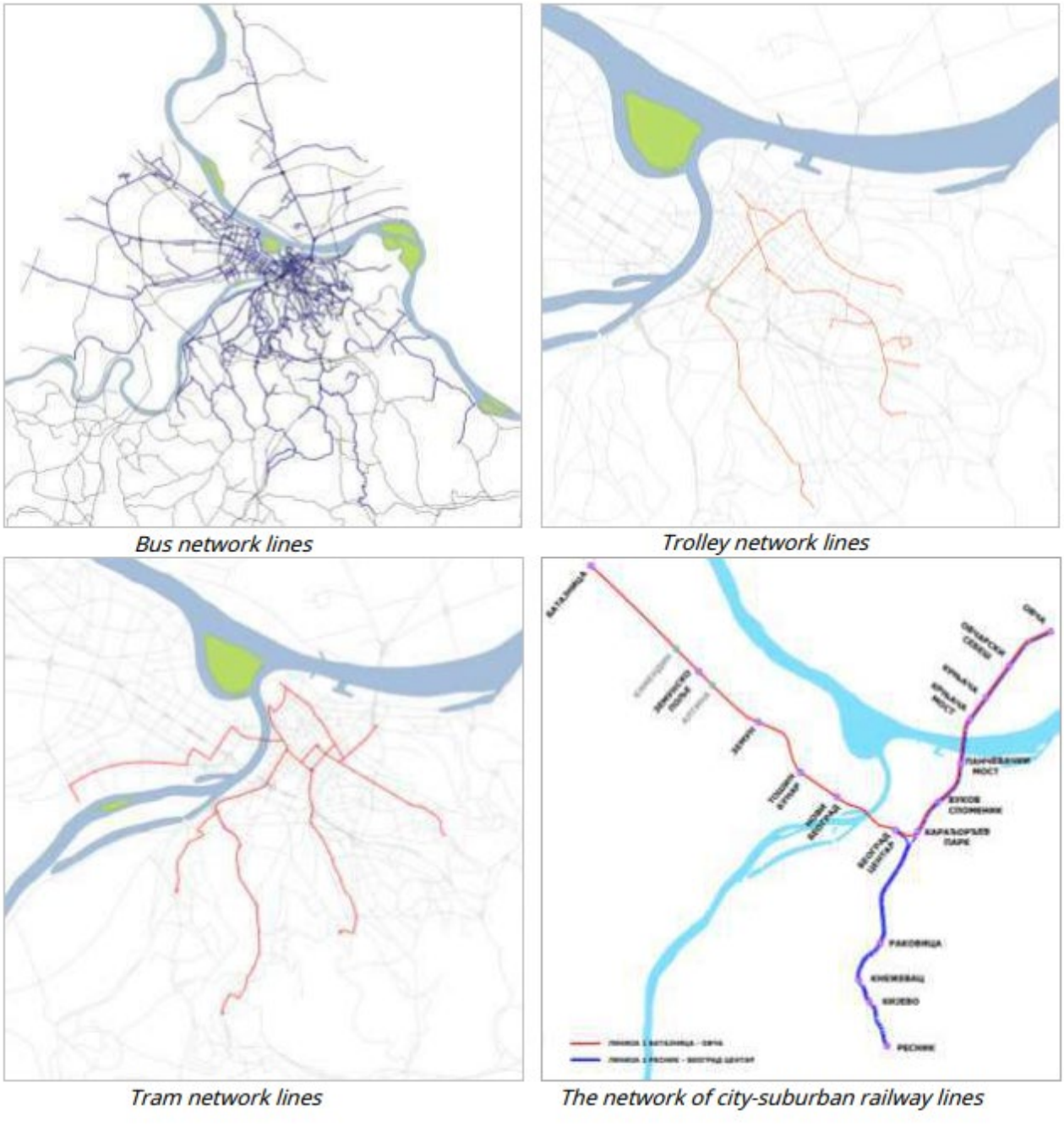
	SUMP	SULP
Belgrade	✓	n.a.

2.9.1 Belgrade

2.9.1.1 SUMP for the city of Belgrade

Belgrade, with over 1.3 million inhabitants, faces challenges in commuter traffic due to complex and underdeveloped transport systems. The city's SUMP aims to address these challenges by prioritizing pedestrian and cycling movements, improving public transport quality, and reducing car use. Goals include a modal shift to cycling, electromobility infrastructure development, a denser public transport network, and a Mobility-as-a-Service system. Challenges include poor pedestrian infrastructure, lack of cycling paths, and safety concerns. The city seeks a holistic approach, setting scenarios for sustainable urban mobility, with the plan adopted in December 2020 aligning with national strategies.

Figure 58 Public Transport Network of Belgrade focusing on the urban and suburban area



The objectives of the Sustainable Urban Mobility Plan (SUMP) in Belgrade include:

1. Prioritizing pedestrian movements and maintaining or increasing their modal share through improved pedestrian infrastructure (target: 25%).

2. Promoting everyday bicycle use and increasing the overall modal share of cyclists (target: 4%).

3. Maintaining a significant share of the public passenger transport system and enhancing its service quality (minimum target: 48%).

4. Reducing the use of passenger cars (target: 20%).

5. Promoting social justice and equality, ensuring accessibility for all citizens, and enhancing safety for all traffic participants.

6. Preserving and improving natural resources.

7. Reducing harmful emissions and energy consumption.

8. Enhancing the attractiveness and quality of the urban environment.

9. Facilitating the balanced development of all Belgrade municipalities and improving their connections at both local and regional levels.

10. Infrastructure activities include subway development, public parking improvements, and road enhancement projects.

Figure 59 Illustration of the planned Cycling Infrastructure of Belgrade

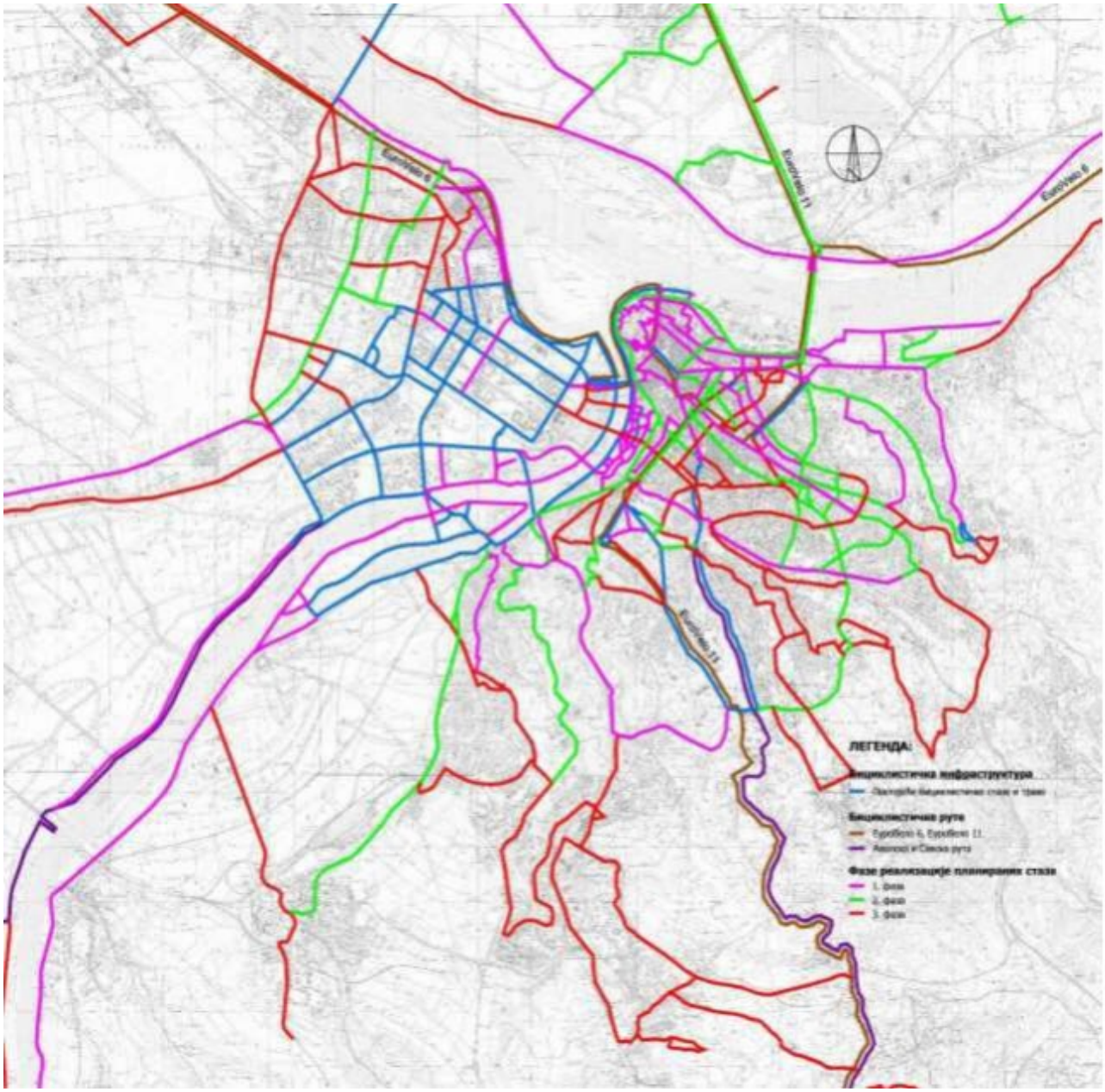


Table 199 Summary of SUMP for Belgrade

SUMP Projects Summary	Soft mobility investments: -upgrades to at least 10-15 km of pedestrian areas per year. -The SUMP plans the construction of 493 km of cycle paths in the next 10 years (currently there are 102 km). -Belgrade Bypass: The construction of the bypass around Belgrade is expected to reduce traffic congestion, remove transit traffic from the city centre and relieve the Gazela Bridge and the Pančevo Bridge. The total length of the bypass will be 69 kilometres.

Maturity (ongoing, planned or financed)	Ongoing
Estimated end year	2030

2.9.1.2 SULP for the city of Belgrade

There is no SULP available for the city of Belgrade at the moment of drafting this report.

2.9.2 EuroVelo Routes Development Status for Serbia

The following table shows the levels of development of the EuroVelo cycling routes crossing the country. EuroVelo 6 Atlantic-Black Sea, EuroVelo 11 East Europe Route and EuroVelo 13 Iron Curtain Trail are passing through Serbia. Two of them are completely signposted – EuroVelo 6 and EuroVelo 13 while the last one, EuroVelo 11 is still under development.[78]

Table 200 EuroVelo Routes Development Status for Serbia[79]

Country	EuroVelo km	Planning stage	Under development	Developed	Developed with EV signs	Overall Development Level
Serbia	2047	32%	26%	0%	42%	42%

[78] https://en.eurovelo.com/serbia
[79] https://pro.eurovelo.com/download/document/EuroVelo%20Route%20Status%20Report_Final_20210520.pdf

Figure 60EuroVelo Routes Passing through Serbia

The EuroVelo 6 Atlantic-Black Sea enters Serbia through the north, near the town of Backi Breg and follows the meandering Danube. Later you will enter Serbia's second largest city, Novi Sad, passing the old town and fortress of Petrovaradin and continues towards Belgrade, first arriveìing at Smederevo. Archaeological sites, antique monuments and medieval fortifications are highlights of the area. The largest national park in Serbia, Djerdap National Park, is close by, along with 'The Iron Gate', the largest and longest gorge in Europe.[80]

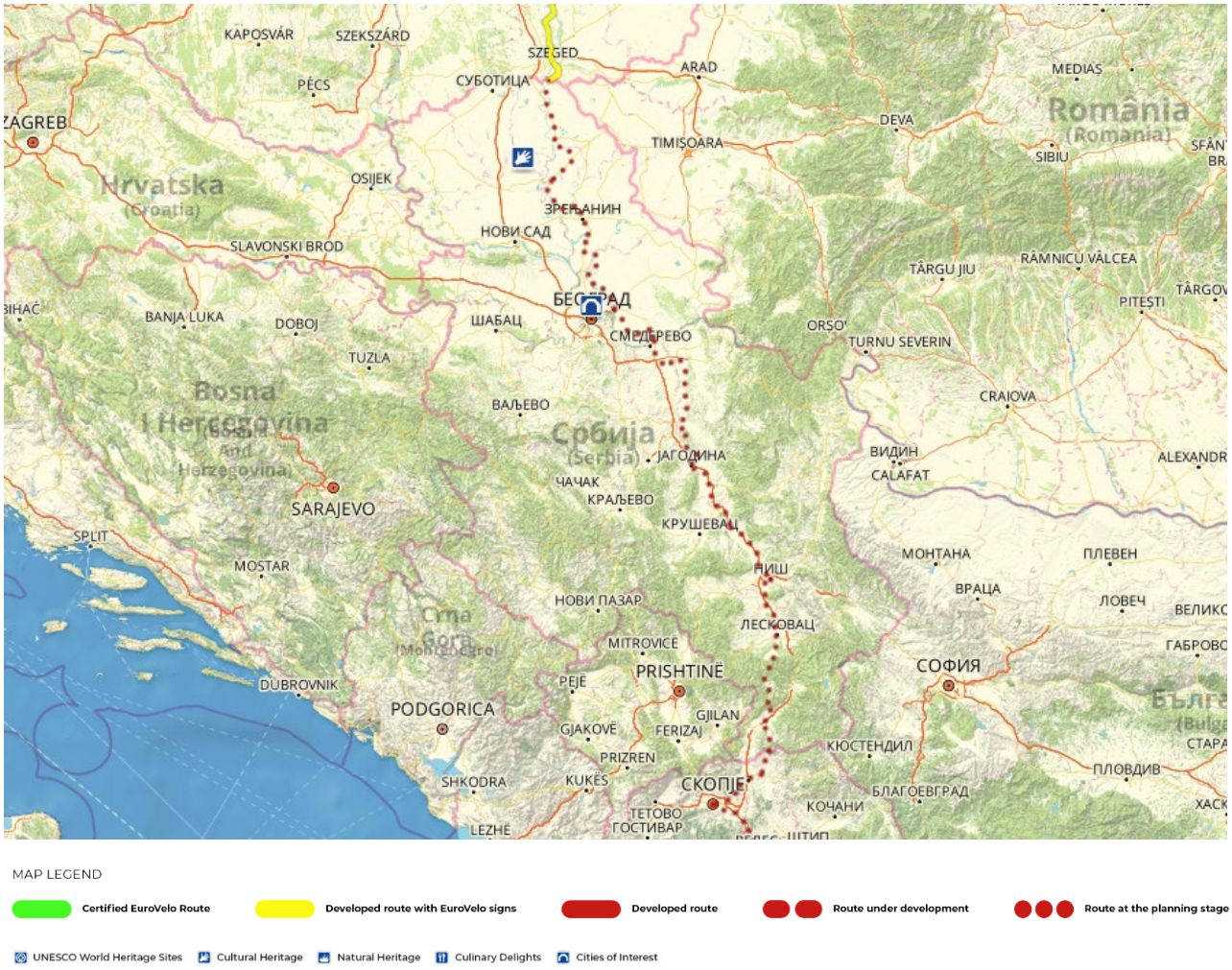
[80] https://en.eurovelo.com/ev6/serbia

Figure 61 EuroVelo 6 Atlantic-Black Sea in Serbia

Entering Serbia from Hungary, the EuroVelo 11 East Europe Route first passes through the northern province of Vojvodina. The route then crosses the region of Banat and the Danube River before reaching the city of Smederevo. From here you are entering the heart of the country.[81]

[81] https://en.eurovelo.com/ev11/serbia

Figure 62 EuroVelo 11 East Europe Route in Serbia



The Serbian section of EuroVelo 13 Iron Curtain Trail showcases the diversity of the country's geography. The route along the Hungarian and Northern Romanian borders are generally quite flat but take in the impressive Iron Gates, a gorge through which the mighty River Danube passes. The route then follows the border between Southern Romania and Bulgaria through several mountain massifs, including a section close to the 2,016 m high Midžor peak, on the Bulgarian-Serbian border. The numerous checkpoints along the Serbian borders remind the traveller that the Eastern bloc monitored the border with Yugoslavia at least as closely as those with Western countries.[82]

[82] https://en.eurovelo.com/ev13/serbia

Figure 63 EuroVelo 13 Iron Curtain Trail in Serbia

2.9.3 Summary of Urban Mobility and Transportation Projects and Strategic Actions

The following table shows the summary of all the previously mentioned planned and ongoing projects related to urban mobility and transportation for the selected urban nodes of Serbia including project description, timeline, estimated costs and expected impacts.

Table 201 Summary of Planned & Ongoing Urban Mobility and Transportation Related Projects and Strategic Actions of Serbia

Node or section	Project description	Costs (€)	Estimated end year	Impact
Serbia	Soft mobility investments: -upgrades to at least 10-15 km of pedestrian areas per year. -The SUMP plans the construction of 493 km of cycle paths in the next 10 years (currently there are 102 km).	NA	2030	Enhancing active & soft mobility, Improving public transport network, Upgrading parking policies

	Creation of: CORRIDOR 10 (Project South E75 – border with Macedonia) -CORRIDOR 10 (Project East E80 – border with Bulgaria) -Belgrade Bypass -Milos the great highway - section preljina - pozeca: The section Preljina - Požega is a part of the highway E-763 -MORAVA CORRIDOR (E-761 HIGHWAY, SECTION POJATE - PRELJINA) -FRUŠKOGORSKI CORRIDOR (FAST ROAD Novi Sad - Ruma) -1. Railway Belgrade - Lapovo - Kragujevac - Kraljevo - Priština, length 366 km, 2. Railway Belgrade - Lapovo - Nis - Doljevac - Kuršumlija - Priština, length 388 km. - Railway Belgrade - Lapovo - Kragujevac - Kraljevo - Priština, length 366 km			

2.10 Slovenia

In order to provide details of the interventions for the integration of urban nodes and tourist centers in the main EUSAIR networks the Sustainable Urban Mobility Plan (SUMP) and Sustainable Urban Logistics Plan (SULP) for selected main urban nodes and planned urban mobility related projects from the National Recovery and Resilience Plan (NRRP) of Slovenia based on their availability are studied. In addition, the status of EuroVelo Network is studied.

Table 202 Available strategic documents per city

	SUMP	SULP
Ljubljana	✓	n.a.
Koper	✓	n.a.

2.10.1 Ljubljana

2.10.1.1 SUMP for the city of Ljubljana

Traffic connectivity and the mobility of people and goods play a key role in the development of cities and urban centers, municipalities, the region, and the country; however, only sustainable mobility promotes economic development, social justice and quality of the environment. The objective of sustainable mobility planning in Ljubljana is to establish a sustainable mobility system by ensuring the availability of jobs and services for all, the improvement of safety, reduction in pollution, greenhouse gas emissions and energy consumption, increase in the efficiency of public transport, reduction in the costs of mobility, optimization of freight transport, and a positive contribution to the health of residents and visitors of the region. In the past, Ljubljana dedicated a large share of its development resources to the development of mobility based on the use of personal vehicles, while neglecting the development of public transport (JPP), rail transport, cycling and walking, which was followed by the patterns of settlement and spatial development[83]

Table 203 Summary of SUMP Pillars for Ljubljana

SUMP Pillars Summary	PILLAR NO. I: Walking and cycling 1. Good connections with the network of cycling routes 2. A higher percentage of journeys made by bicycle 3. Improved intermodal points for pedestrians and cyclists PILLAR NO. II: Public transport 4. Upgrading the public infrastructure for public transport 5. The modernization of the public transport vehicle fleet 6. Improving the management system of public transport PILLAR NO. III: Motorized transport 7. Optimized car traffic 8. Comprehensive regulation of stationary traffic 9. More safety and less pollution of towns with emissions and noise

[83] Sustainable Urban Mobility Plan of the Ljubljana Urban Region, RRA LUR, March 2019

	PILLAR NO. IV: Freight transport and logistics 10. Effective (transit) freight transport with as little impact on the local population as possible 11. Design of sustainable logistics in urban centers 12. Promotion of modern and environmentally-friendly logistics centers PILLAR NO. V: Sustainable mobility planning 13. A more coherent and focused management at various levels (vertical and horizontal) 14. Sustainable mobility planning coordinated between various areas (transport, spatial, economic, etc.) 15. Education, raising awareness and public participation 16. Improving financing conditions and rational use of resources 1. Establishing a national and inter-municipal network of cycling routes in the region the allocation and construction of new long-distance national cycling routes the connection of inter-municipal cycling routes between towns into a network Conducting calls for co-financing 2. Strengthening the cooperation of municipalities and the state in the development of the cycling infrastructure 3. Development of infrastructure and introduction of modern technology 4. Improving the time competitiveness of the bicycle in peak traffic hours 5. Improving the bicycle infrastructure at the workplace 6. Access to intermodal points with safe and comfortable walking paths 7. Improved conditions for the use of bicycles at intermodal points 8. Upgrading of existing railway lines in the LUR area 9. Complete renovation (upgrade) of the Ljubljana railway hub, including new lines for passenger transport 10. Renovation, modernization of existing and establishment of new public transport stations and stops 11. Introduction of yellow lanes for bus transport 12. Modernization of the bus fleet 13. Modernization of railway rolling stock 14. The extension of existing public transport routes and the introduction of clock-phased timetable 15. The introduction of an integrated public transport ticket for all users 16. Harmonization of bus and train timetables and introduction of frequencies co-responding to the passenger's needs 17. Restricting traffic (including transit) in municipal centers 18. Rational construction of transport infrastructure and the introduction of new mobility planning solutions for achieving better traffic flow 19. Optimizing the use of cars 20. Reduction of car journeys to work

	21. Providing intermodal points 22. Parking management 23. Computerization of stationary traffic 24. Safe infrastructure for all road users
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	2030

2.10.1.2 SULP for the city of Ljubljana

There is no SULP available for the city of Ljubljana at the moment of drafting this report.

2.10.2 Koper

2.10.2.1 SUMP for the city of Koper

Koper Municipality, is implementing step by step, its Smart Mobility Strategy, with a very practical approach and a strong vision. It is interesting to notice that Koper has developed its SUMP in a one-year timeframe, by need (especially due to the port activities nuisances), well before the Slovenian guidelines and incitation to develop one.

With the support of Interreg MED Program, the Municipality of Koper implements a user-oriented approach to give citizens real-time information to optimize their travel. The Municipality is upgrading the existing Transport Information Centre to better monitor and manage urban mobility but also to provide useful information to citizens. Users can access to this information via web and mobile applications but also on LED displays on bus stops, multimodal knots and streets.

Table 204 Summary of SUMP for Koper

SUMP Projects Summary	• Installing bus trackers • sensors for counting traffic (vehicles, pedestrians and cyclists), • parking lot occupancy counters, • Data centralization by the Transport Information Centre, and dissemination through an integrated application and information panels. Thanks to this new service, it is now easier to plan a trip using Public Transport or to find a free parking space. By reducing congestion and facilitating the use of public transport, the program is expected to have a positive environmental impact.
Maturity (ongoing, planned or financed)	ongoing
Estimated end year	2030

2.10.2.2 SULP for the city of Koper

There is no SULP available for the city of Koper at the moment of drafting this report.

2.10.3 The National Recovery and Resilience Plan (NRRP) of Slovenia

The NRRP of Slovenia[84] consists of **55 investments and 33 reforms**. They will be supported by **1.8 € billion in grants and 0.7 € billion in loans**. **42%** of the plan will support **climate objectives** and **21%** of the plan will foster the **digital transition.** The following investment areas relate to local transport:

- **GREEN TRANSITION COMPONENT 4: Sustainable mobility**. The following investment is related to urban mobility and transportation with the estimated cost of 7.75 million Euro: promoting the deployment of alternative fuels infrastructure in transport (network of electric vehicle charging points)

2.11 EuroVelo Routes Development Status for Slovenia

The following table shows the levels of development of the EuroVelo cycling routes crossing the country. EuroVelo 8 Mediterranean Route, EuroVelo 9 Baltic-Adriatic and EuroVelo 13 Iron Curtain Trail are passing through Slovenia. EuroVelo 8 and 13 are already completely signposted in Slovenia, while EuroVelo 9 is under development.[85]

Table 205 EuroVelo Routes Development Status for Slovenia[86]

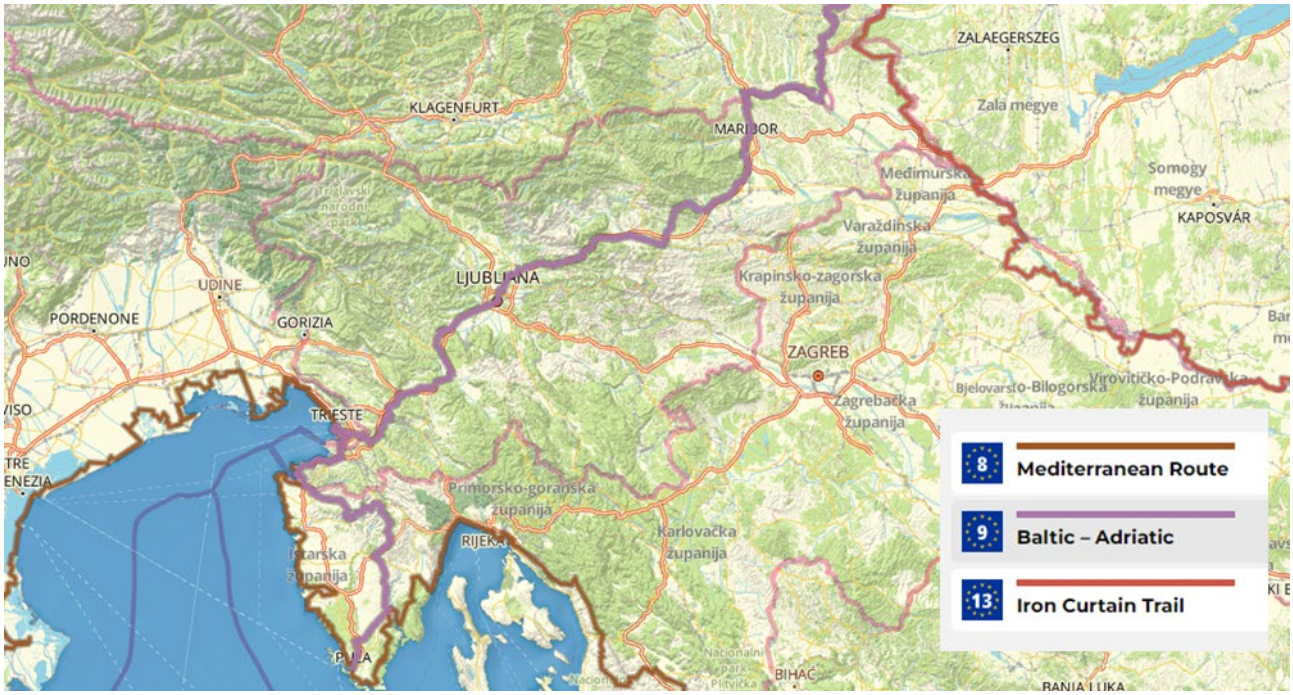
Country	EuroVelo km	Planning stage	Under development	Developed	Developed with EV signs	Overall Development Level
Slovenia	400	0%	65%	0%	35%	35%

[84] https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility/slovenias-recovery-and-resilience-plan_en

[85] https://en.eurovelo.com/slovenia

[86] https://pro.eurovelo.com/download/document/EuroVelo%20Route%20Status%20Report_Final_20210520.pdf

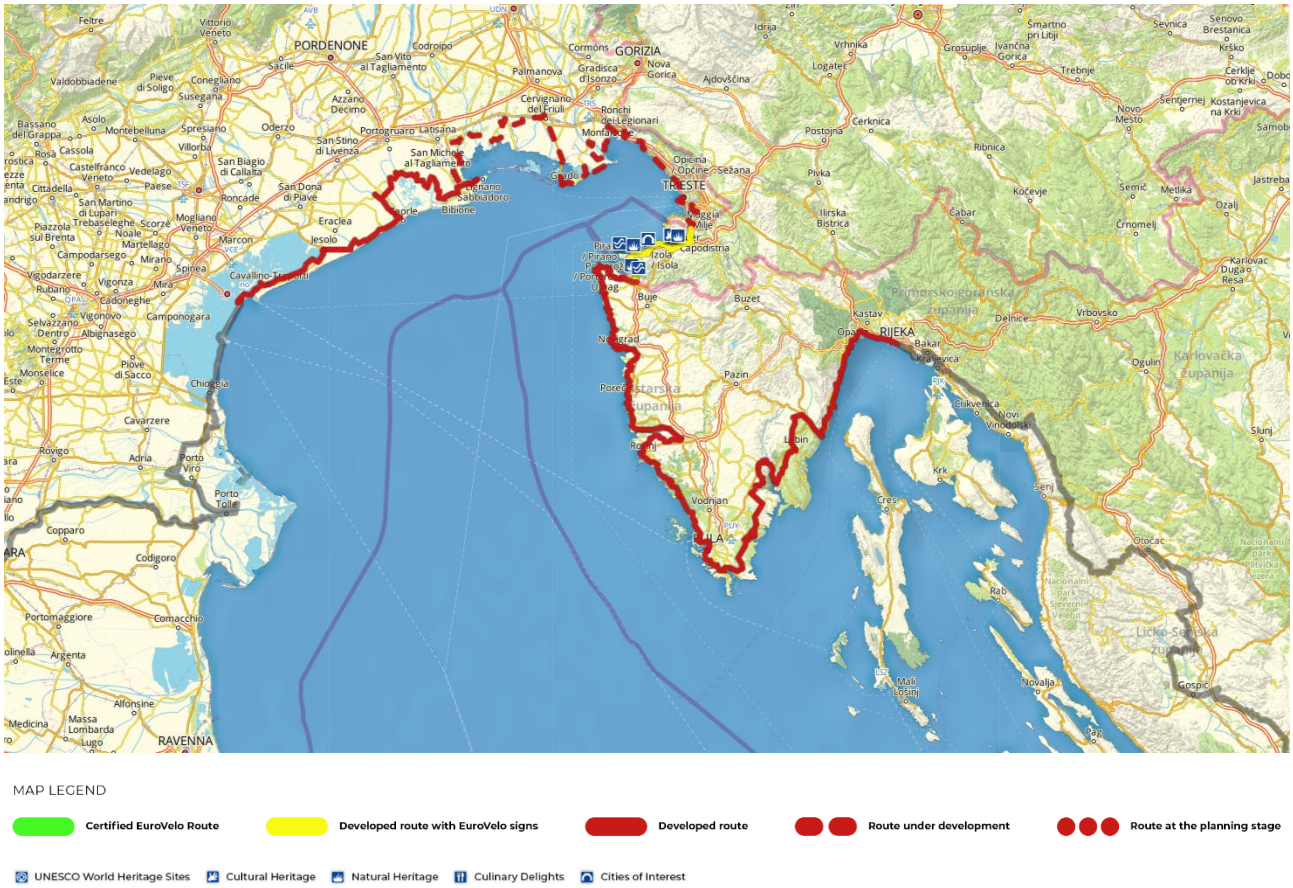
Figure 64 EuroVelo Routes Passing through Slovenia



The Slovenian part of the EuroVelo8 follows the Parenzana or Porečanka, the health and friendship route goes along the old narrow gauge Parenzana railway, which used to connect Trieste and Poreč and has become a symbol of friendship between the Slovenian, Italian and Croatian municipalities. The Slovenian part of Parenzana is fully paved and included in the national network of cycle routes.[87]

[87] https://en.eurovelo.com/ev8/slovenia

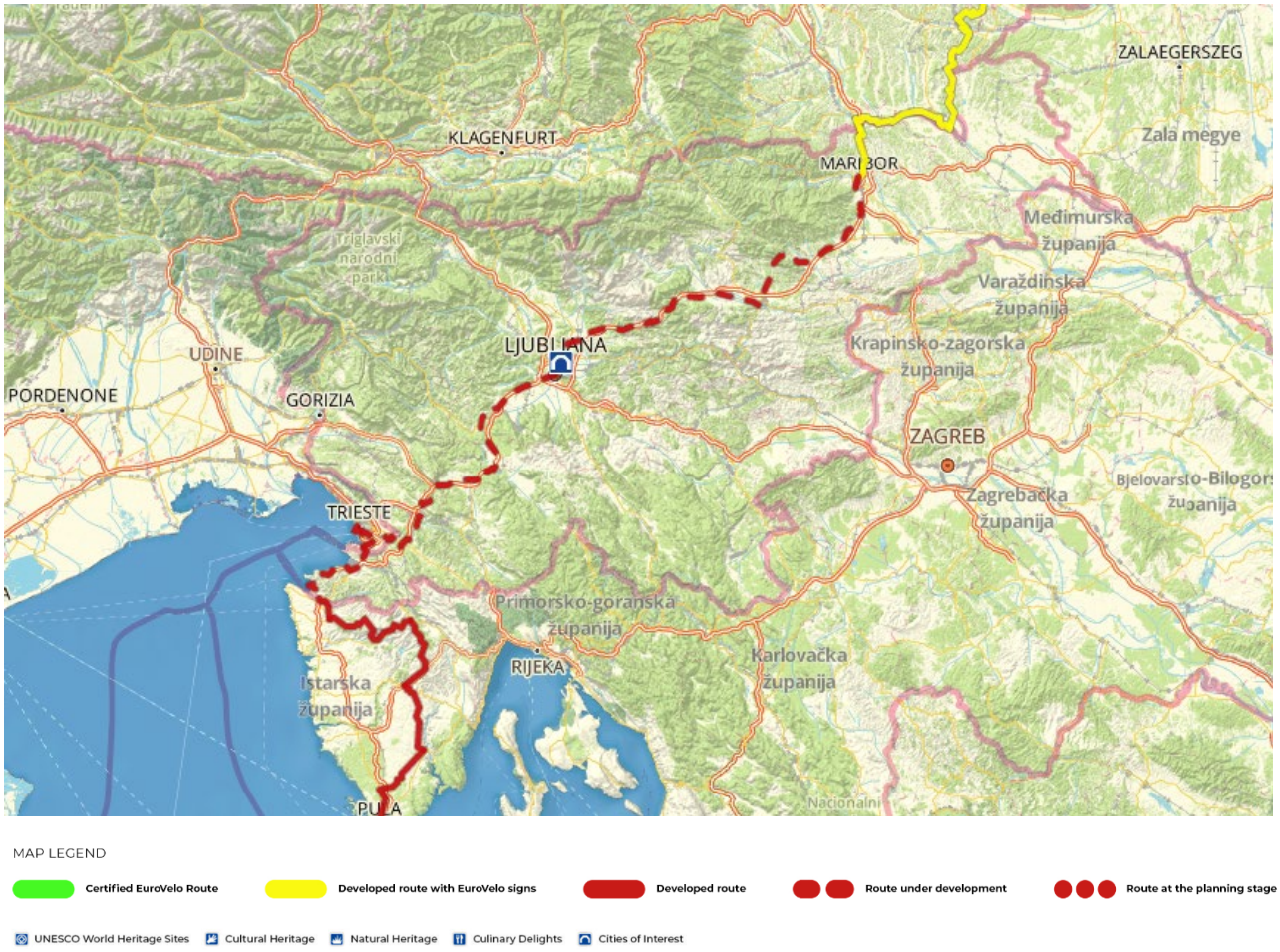
Figure 65 EuroVelo 8 Mediterranean Route in Slovenia



EuroVelo 9 - Baltic-Adriatic is the longest cycling trail of its kind in Slovenia, starting in on the Austrian-Slovenian border and ending at the seaside border with Croatia, in the town of Bad Radkersburg. The route passes through a beautiful countryside as well as historic cities like Maribor (European Capital of Culture in 2012) and Ljubljana.[88]

[88] https://en.eurovelo.com/ev9/slovenia

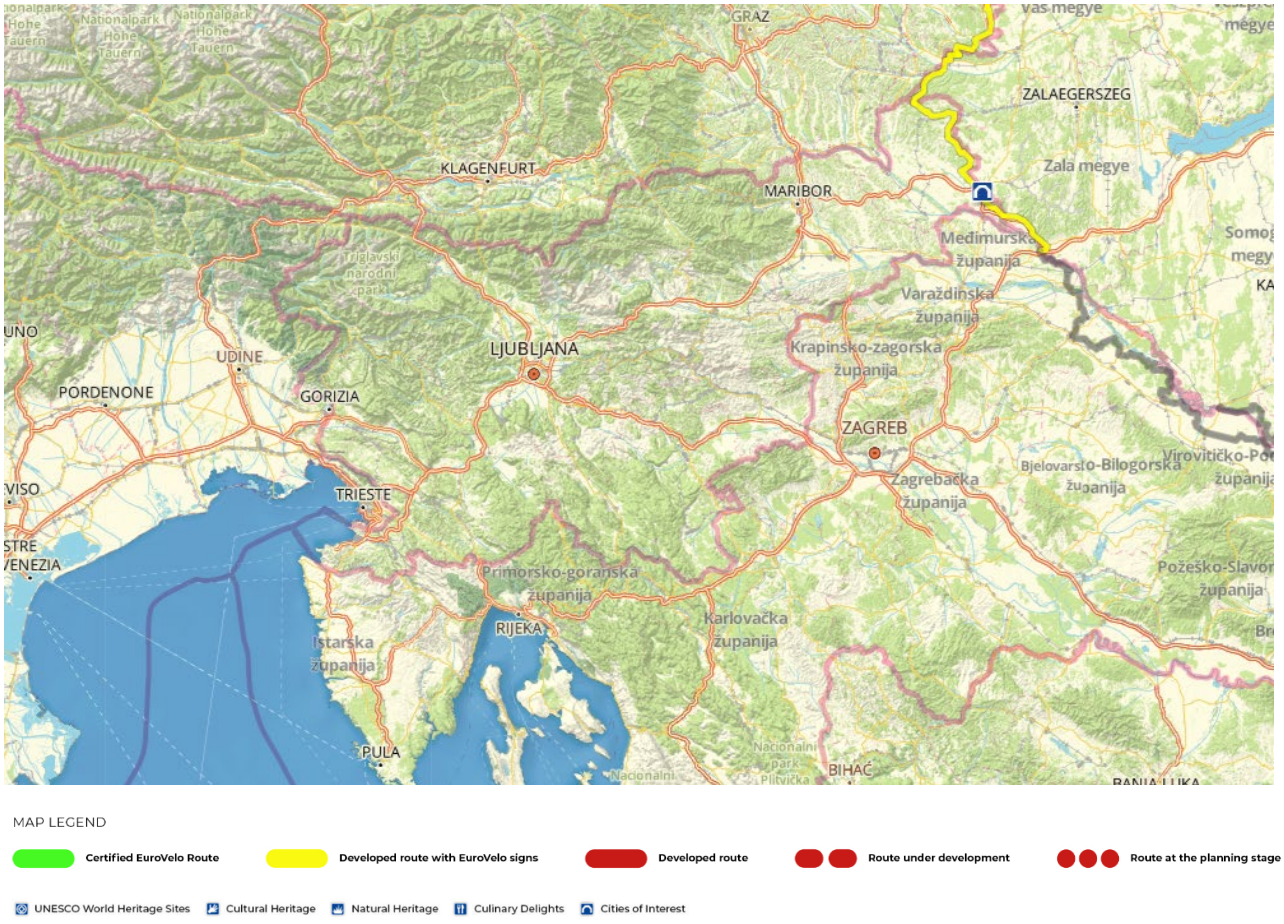
Figure 66 EuroVelo 9 Baltic-Adriatic Route in Slovenia



The Slovenian part of the EuroVelo 13 Iron Curtain Trail of is a short one and crosses a small area in the northeastern part of the country, between the border crossing with Hungary to the north and with Croatia to the south. Although the shared border is only 107 km long the route passes through a geographically, linguistically, culturally and ethnically defined region known as Prekmurje. The most significant settlement along this border region is Lendava, which is located close to the border crossing with Hungary at Dolga Vas-Rédics.[89]

[89] https://en.eurovelo.com/ev13/slovenia

Figure 67 EuroVelo 13 Iron Curtain Trail in Slovenia



2.12 Summary of Urban Mobility and Transportation Projects and Strategic Actions

The following table shows the summary of all the previously mentioned planned and ongoing projects related to urban mobility and transportation for the selected urban nodes of Slovenia including project description, timeline, estimated costs and expected impacts.

Table 206 Summary of Planned & Ongoing Urban Mobility and Transportation Related Projects and Strategic Actions of Slovenia

Node or section	Project description	Costs (€)	Estimated end year	Impact
Ljubljana	1. Establishing a national and inter-municipal network of cycling routes in the region the allocation and construction of new long-distance national cycling routes the connection of inter-municipal cycling routes between towns into a network Conducting calls for co-financing 2. Strengthening the cooperation of municipalities and the state in the development of the cycling infrastructure 3. Development of infrastructure and introduction of modern technology 4. Improving the time competitiveness of the bicycle in peak traffic hours 5. Improving the bicycle infrastructure at the workplace 6. Access to intermodal points with safe and comfortable walking paths 7. Improved conditions for the use of bicycles at intermodal points 8. Upgrading of existing railway lines in the LUR area 9. Complete renovation (upgrade) of the Ljubljana railway hub, including new lines for passenger transport 10. Renovation, modernization of existing and establishment of new public transport stations and stops 11. Introduction of yellow lanes for bus transport 12. Modernization of the bus fleet 13. Modernization of railway rolling stock 14. The extension of existing public transport routes and the introduction of clock-phased timetable 15. The introduction of an integrated public transport ticket for all users 16. Harmonization of bus and train timetables and introduction of frequencies co-responding to the passenger's needs 17. Restricting traffic (including transit) in municipal centers 18. Rational construction of transport infrastructure and the introduction of new mobility planning solutions for achieving better traffic flow 19. Optimizing the use of cars 20. Reduction of car journeys to work 21. Providing intermodal points 22. Parking management 23. Computerization of stationary traffic 24. Safe infrastructure for all road users	NA	2030	Enhancing active & soft mobility, Increasing multimodality, Upgrading parking policies, Improving public transport network
Koper	• Installing bus trackers • sensors for counting traffic (vehicles, pedestrians and cyclists), • parking lot occupancy counters, • Data centralization by the Transport Information Centre, and dissemination through an integrated application and information panels. Thanks to this new service, it is now easier to plan a trip using Public Transport or to find a free parking space. By reducing congestion and facilitating the use of public transport, the program is expected to have a positive environmental impact.	NA	2030	Upgrading parking policies to reduce car dependency, Improving public transport network, Digitalization
Slovenia	Slovenia NRRP / GREEN TRANSITION COMPONENT 4: Sustainable mobility / Promoting the deployment of alternative fuels infrastructure in transport (network of electric vehicle charging points)	7.75 M	2026	Investment on use of sustainable and alternative fueled vehicles, Electrification

3 Conclusions and policy recommendations for improving accessibility to urban nodes and tourist attractions

In this chapter a recap of the findings of the previous chapters is proposed, in order to highlight the main issues of the sector in the macro-region and its outlook. Moreover, suggestions for development guidelines are being proposed.

3.1 Key issues

The following table shows the summary of identified key issues focused on urban mobility and city logistics services for each country based on the findings of the study.

The scale of importance is given for each of the identified issues from “very relevant” to “relevant” and “mainly improvements”, representing a decreasing degree of diffusion and extent of the actions needed to solve the issue. The regional interconnections by modes of transport are not considered here since it overlaps with other volumes of the project where each mode of transport is studied in detail. The criteria presented in each row were selected in Chapter 1 of this Volume in order to represent key dimensions of the effectiveness and efficiency of local mobility systems (Extension of public transport network in the selected urban nodes) and major strategic objectives of the local transport policy in Europe (Electrification and use of alternative fuels in public transport fleet in the selected urban nodes; Dissemination of sustainable and shared mobility in the selected urban nodes; Availability of sustainable and innovative urban logistics solutions in the selected urban nodes).

Table 207 Key issues of urban transport sector and their relevance in EUSAIR countries

	Albania	Bosnia & Herzegovina	Croatia	Greece	Italy	Montenegro	North Macedonia	Serbia	Slovenia
Extension of public transport network in the selected urban nodes	Very relevant	Mainly improvements	Relevant for secondary nodes	Relevant for secondary nodes	Relevant for secondary nodes	Very relevant	Very relevant	Mainly improvements	Very relevant

Electrification and use of alternative fuels in public transport fleet in the selected urban nodes	Very relevant	Very relevant	Relevant for secondary nodes	Very relevant for secondary nodes	Very relevant for secondary nodes	Very relevant	Relevant	Mainly improvements	Relevant
Dissemination of sustainable and shared mobility in the selected urban nodes	Relevant	Relevant	Mainly improvements	Relevant	Relevant for secondary nodes	Very relevant	Very relevant	Very relevant	Very relevant for secondary nodes
Availability of sustainable and innovative urban logistics solutions in the selected urban nodes	Very relevant	Mainly improvements	Relevant	Relevant for primary nodes	Relevant for secondary nodes	Relevant	Very relevant	Relevant	Relevant

3.2 Outlook

As per details provided in Chapter 2, the following local and national transport plan and EU investment plans and strategies have been analysed, based on availability and included for selected main urban nodes of the member state of the Adriatic-Ionian region:

- The Sustainable Urban Mobility Plan (SUMP)
- The Sustainable Urban Logistics Plan (SULP)
- The PNRR (Piano Nazionale di Ripresa e Resilienza – National Recovery and Resilience Plan)

The following lists present the main projects in the pipeline.

As concerns the **extension of public transport network in the urban nodes:**

- In Albania, a new tramway project in Tirana is foreseen, planned to be completed in the long term (2038);

- In Bosnia and Hercegovina, Sarajevo's SUMP, to be completed in 2025, includes among other projects, public transport network improvements;
- In Croatia, an important set of interventions in planned in the national Recovery and Resilience Facility, including the development of the railway node Zagreb with better integration of railways into the public transport system of the city;
- In Greece, interventions for improving the public transport network are envisaged with in the SUMPs of Athens (Public Transport connections for individual neighborhoods, thickening of MMM itineraries and strengthening of their fleet to meet the increased needs; expansion of TRAM to improve urban planning issues) and Thessaloniki (Introduction of a tram network in the city; the proposed network has a length of 24 km);
- In Italy, extensions of public transport infrastructures are envisaged in the plans in Milan, Palermo, Padua, Trieste, Taranto, Ravenna, Trento, Ancona, Rimini, Bari, Catania and Venice;
- In Slovenia, the development of infrastructure and introduction of modern technology is planned in Ljubljana by 2030, as well as the extension of existing public transport routes and the introduction of clock-phased timetable

As concerns **electrification and use of alternative fuels in public transport fleet**, these objectives are common in existing SUMPs in the region and several projects are underway, especially in Italy. In the other countries, actual ongoing or planned projects include:

- In Croatia's national RFF, the purchase of alternative-powered vehicles, with the aim to modernize the public urban, suburban and interurban line bus transport of passengers, and the installation of the necessary infrastructure;
- In Greece's national RFF as well, an extensive plan involves installing more than 8,000 charging points for electric vehicles and replacing 220 urban transport busses in Athens and Thessaloniki with electric vehicles;
- Similar plans are envisaged or ongoing in many Italian cities such as Milan, Bologna, Messina, Perugia, Ancona, and the national RFF supports electrification plans in all the regions included in the EUSAIR macro-region, among others;
- Slovenia's national RFF also plans investments in electrification, to promote the deployment of alternative fuels infrastructure in transport (network of electric vehicle charging points)

For the dissemination of **sustainable and shared mobility** the following projects are worth highlighting:

- In Croatia investments are planned for developing environmentally independent airports by modernizing and constructing energy-independent infrastructure, through the construction of photovoltaic cells, the purchase of electric vehicles, and the reconstruction of aprons and terminals, to create new, modern, and more resilient airports;
- In Italy, the National Recovery and Resilience Facility has a specific mission including: renewal of Bus Fleets, Green Trains / Introduction of 200 new vehicles with hybrid electric-endothermic power supply in airports.
- Slovenia's RRF has as well a component dedicated to Sustainable mobility, promoting the deployment of alternative fuels infrastructure in transport via network of electric vehicle charging points).

As concerns sustainable and innovative **urban logistics solutions**, projects aiming at establishing city logistics experiences are currently programmed or ongoing for Tirana (Albania); Sarajevo (Bosnia and Hercegovina); Rijeka (Croatia) and Milan, Bologna, Messina, Trieste, Perugia (Italy); Lubljana (Slovenia). The rest of the macro-region therefore needs to fill in the gap in this field.

3.3 Development guidelines

Taking into account the above-mentioned objectives and the status of EUSAIR air transport system, the following development guidelines are recommended, grouped into three main policy areas, as for the other transport modes.

It is to be underlined that issues related to local accessibility involve drivers, technology and business models whose evolution is particularly fast as compared to other transport sectors (for example: sharing technologies and models; micromobility technologies; electric vehicle evolution; digital solutions for integrated ticketing and MaaS). Hence, on one hand we have recorded that the diffusion of adopted and approved SUMPs is having a relevant increase in the very latest period, so that there are many programmed strategic actions already aiming at filling gaps currently uncovered by projects; on the other hand the fast evolution also implies the challenge for programming Authorities and operatores to keep up with the needs and the opportunities offered by the new solutions while at the same time filling existing gaps in terms of more basic requirements such as transport safety, quality Local Public Transport Services ecc.).

SAFETY, SECURITY AND RESILIENCE	ENVIRONMENTAL AND SOCIAL SUSTAINABILITY	CONNECTIVITY AND TRAFFIC DEVELOPMENT
• 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 solution

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List of Abbreviations

AGCT: Adriatic Gate Container Terminal
AMA: Azienda Mobilità Aquilana (Mobility Agency of L'Aquila)
AMAT: Agenzia Mobilità Ambiente e Territorio (Environment and Territory Mobility Agency)
AMA-TUA: Azienda Mobilità Aquilana (Mobility Agency of L'Aquila) - Transporto Unico Abruzzese (Abruzzo Transport Company)
AUEB: University of Athens
ATTAC: Attractive Urban Public Transport for Accessible Cities
BRT: Bus Rapid Transit
CoMePa: Conferenza Metropolitana di Padova (Padua Metropolitan Conference)
DAFI: Infrastructure for Alternative Fuel
EC: European Commission
ECF: European Cyclists' Federation's
EU: European Union
EUR: Euro
EUSAIR: EU Strategy for the Adriatic – Ionian Region
EV: Electric Vehicles
FEEF: Environmental Protection and Energy efficiency Fund (of Croatia)
FTTS: Faculty of Transport and Traffic Sciences (of University of Zagreb)
GIZ: German International Development Agency
GUP: General Urban Plan
HRK: Croatian Kuna (Currency)
IDOM: Consultant in charge ("Ingenieros de Obras y Mantenimiento") for Skopje
ITS: Intelligent Transport System
KPI: Key Performance Indicators
LC (R)SGU: Local and Regional Self-Government Units
LCV: Light Commercial Vehicle
LRT: Light Rail Transit
M: Million
MaaS: Mobility as a Service
MED: Mediterranean
MM: Mobility Management
MMPI Ministry of the Sea, Transport and Infrastructure (of Croatia)
MoU: Memorandum of Understanding
NGO: Non-Governmental Organization
NECC/Cs: National EuroVelo Coordination Centers and Coordinators
NECP: National Energy and Climate Plan of the Republic of Slovenia
NRRP: National Recovery and Resilience Plan
OG: Operative Goals
OLDI: Online Data Interchange Interoperability
OMSZ: Hungarian National Meteorological Service
ORF-EE: Open Regional Fund for South-East Europe – Energy Efficiency
PBN: Performance Based Navigation
PCP: Pilot Common Projects

PGT: Piano di Governo del Territorio (Territory Government Plan)
PGTL: Piano Generale dei Trasporti e della Logistica (General Transport and Logistics Plan)
PGTU: Piano Generale del Traffico Urbano (General Urban Traffic Plan)
PRM: Population with Reduced Mobility
PSOs: Public Service Contracts
PT: Public Transport
PUMAV: Urban Mobility Plan of the Vast Area
PUT: Piano Urbano del Traffico (Urban Traffic Plan)
RRF: Recovery and Resilience Facility
RRF: Recovery and Resilience Facility
SECAPs: Sustainable Energy and Climate Action Plans
SEE: South-East Europe
SFMR: Regional Metropolitan Railway Service (Sistema Ferroviario Metropolitano Regionale)
SG: Strategic Goals
SIR: Intermediate Network System
SST: Sectorial Strategy of Transport
SULP: Sustainable Urban Logistic Plan
SUMP: Sustainable Urban Mobility Plan
SUMSEEC: Sustainable Urban Mobility in South-East European Countries
SYMPE: Share Your Mobility in Pescara
TEN-T: Trans-European Transport Network
TCPS: Transport Community Permanent Secretariat
TCR: Tower center Rijeka
THEPTA: Thessaloniki Public Transport Authority
TPL: Trasporto Pubblico Locale (Local Public Transport)
TPM: Metropolitan Public Transport (of Bologna)
TUA: Transporto Unico Abruzzese (Abruzzo Transport Company)
UFT: Urban Freight Transportation
ZTC: Zapadni trgovački center
ZTL: Zona a Traffico Limitato (Limited Traffic Zone)

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