Interreg

Co-funded by the European Union

Italy – Croatia

CYROS

D.1.2.1 – New multimodal public transport solution in Romagna

Draft Version

07 2025

D.1.2.1 - Designing of multimodal transport solutions.

Planning and designing a set of multimodal transport solutions (bike&bus, bike&train, bike&boat, multimodal and integrated public transport, bike rack on shuttle buses etc.) with local, regional, national and crossborder dimension

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PPs involved: All

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1. INTRODUCTION

The CYROS project (Implementation, in the Programme area, of the EUSAIR flagship and cross-pillar project idea Adriatic Ionian CYcle ROute for Sustainable tourism) is funded under the Interreg Italy-Croatia 2021-2027 Programme, and its main aim is to enhance sea-mobility solutions and promote the "green transition" by developing a strategic cycling route along the Adriatic coast in Italy and Croatia.

As expressed by the name itself, it is meant to contribute to the implementation of Adriatic Ionian CYcle ROute, a flagship and cross-pillar initiative of the EUSAIR macro-regional strategy, promoting the development of sustainable mobility and tourism and boosting multimodality at national, regional and local level, improving the availability of cross-border and sea-mobility solutions.

In fact, the Adriatic-Ionian cycling route is to be considered the backbone of a network of sustainable mobility solutions, with the dual function of tourist cycle path and infrastructure for urban-interurban mobility, integrated with the local and regional public transport system by sea, rail and road.

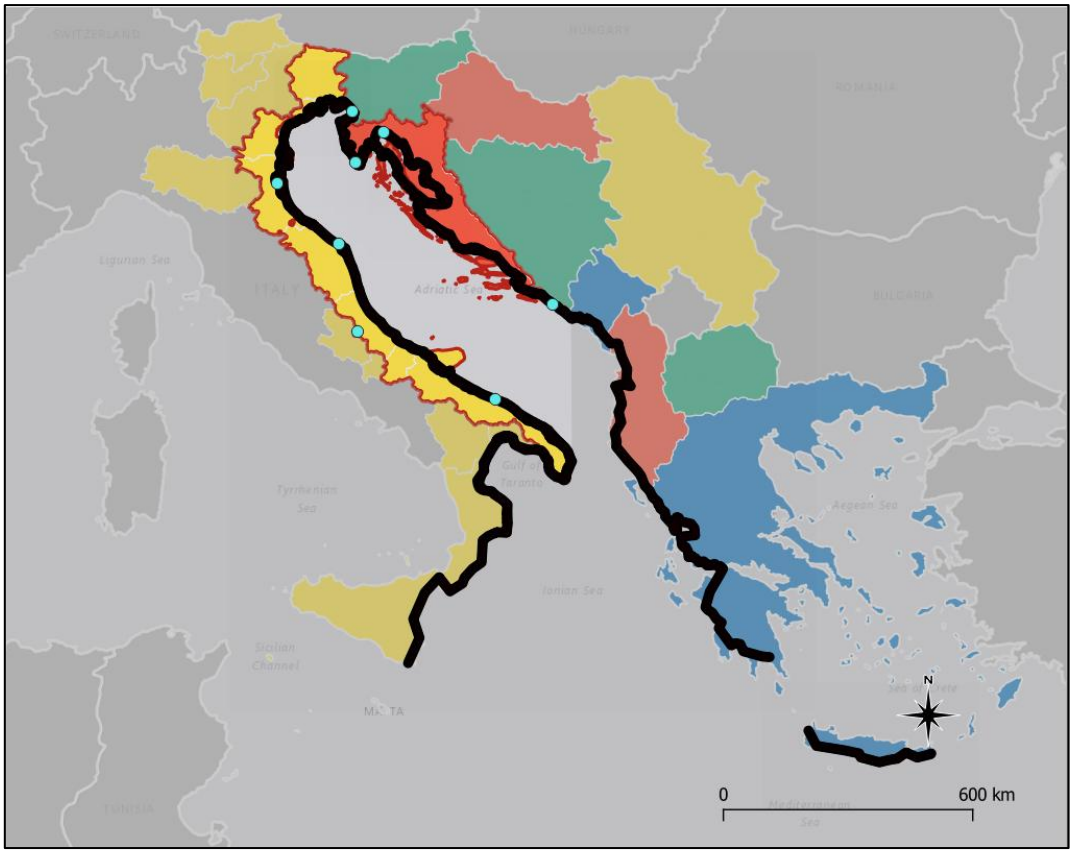

Figure 1 – The ADRIONCYCLETOUR and the Italy – Croatia Programme Area.

In particular, it addresses the promotion of sustainable tourism related to cycling, helping to define the bicycle route along the Adriatic Sea coast in Italy and Croatia (coastal network, represented in black colour in Figure 1), including the main bicycle connections with the hinterland (inland network).

As evident from Figure 1, though being a cross-border project, thanks to the sheer dimension of the Italy-Croatia Programme Area as well as of the territorial distribution of project partners (light blue dots), CYROS covers and addresses a significant portion of the whole territorial scope of the whole ADRIONCYCLETOUR initiative.

More specifically, CYROS actively contribute to the ADRIONCYCLETOUR goals through:

- (WP1) Contributing to the upgrade of the cross-border cycling network and the improvement of multimodality by mapping the overall route as well as designing specific links, as a backbone of a cross-border and internal network of multimodal services to support the cyclists' journeys;
- (WP2) promoting sustainable mobility and tourism in the Programme area linked to the ADRIATIC-IONIAN Cycle Route, exploiting ICT technologies and sharing expertise and knowledge throughout joint training schemes;
- (WP3) Establishing cross-border strategies and governance for permanent institutional cooperation on sustainable mobility and tourism, and on maritime passenger transport, thus ensuring capitalisation, durability and sustainability.

2. GEOGRAPHICAL CONTEXT

2.1. Definition of the study area

The image below shows the territorial framework of the area covered by the feasibility study. The Provinces of Ferrara and Ravenna are highlighted in red, while the municipal boundaries are outlined in yellow.

The main focus of the proposed multimodal service will be on the coastal municipalities of the two provinces, specifically:

- in the Province of Ravenna, the Municipality of Ravenna;
- in the Province of Ferrara, the municipalities of Argenta, Ostellato, Comacchio, Lagosanto, Codigoro, Goro, Mesola, Jolanda di Savoia, and Fiscaglia.

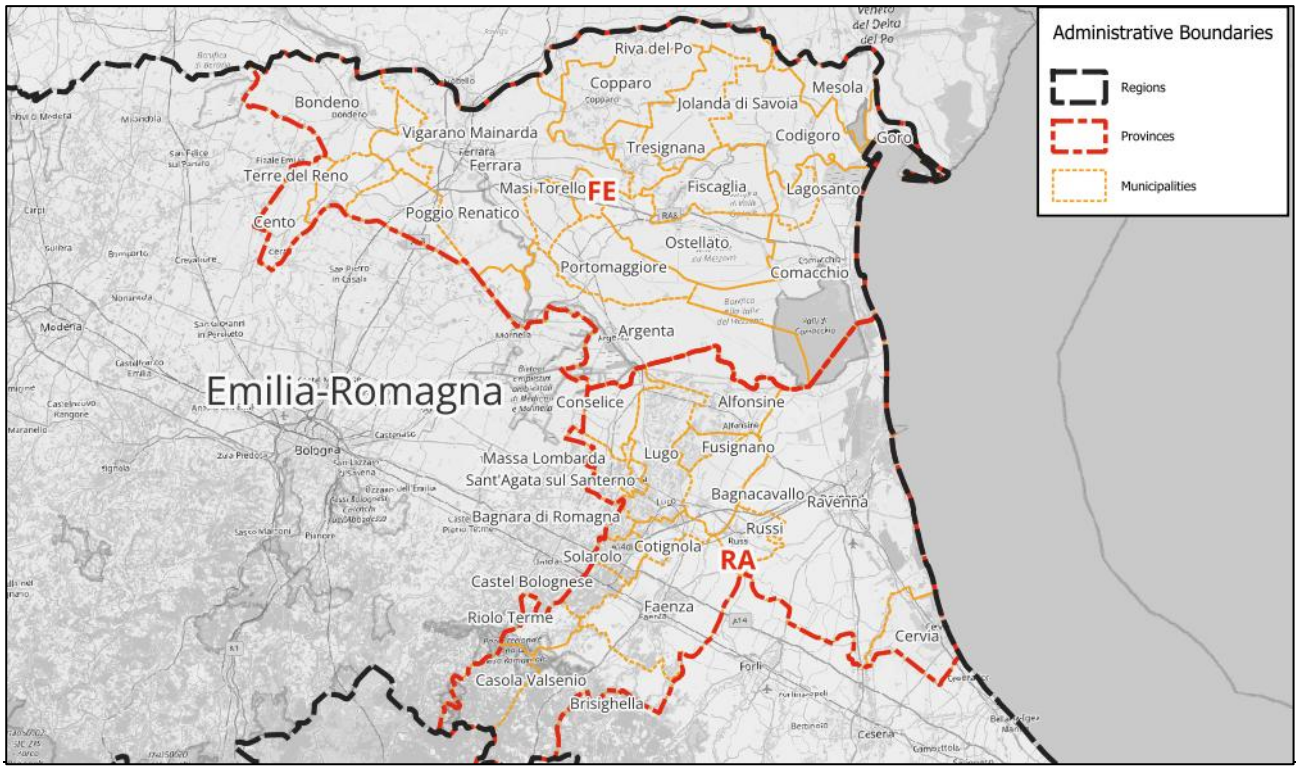

Figure 2 - Administrative boundaries of the study area

2.2. Po Delta Regional Park

The Regional Park of the Po Delta in Emilia-Romagna, established in 1988 by Regional Law No. 27/88, is part of the network of protected areas in the Emilia-Romagna region. The Delta del Po Park is a unique territory that covers a surface of 52‘000 hectares. The Park is divided into six "Stations", which are specific management and conservation zones, each characterized by unique natural, historical, and ecological features. These Stations help organize the vast territory of the park and allow for targeted protection, development, and promotion of the different environments and landscapes found within the Po Delta.

Even though this territory is hardly anthropized and economically developed, the area is reach in biodiversity and includes the widest extension of Italian wetlands. Within the park’s territory there are 10 wetlands of international importance (according to the Ramsar Convention of 1971), 22 special areas of conservation (SAC) and 20 special protection areas for the conservation of birds (SPA) [1]. ZSC and ZPS areas constitute the Natura 2000 network [2]. The extension of the park is also characterized by the presence of 9 museums and visit points [3].

2.3. Programmatic/planning analysis

The main regional sectoral plan concerning transport is the **Integrated Regional Transport Plan (PRIT 2025)**, approved by Regional Assembly Resolution No. 59 of 23/12/2021. The plan outlines the strategic policies and priorities to be implemented at the regional level to enhance sustainable mobility, road and rail infrastructure, support the decarbonisation of transport, improve air quality, and promote the intermodal transport of goods.

The following image shows an excerpt of the regional road network from **"Carta B Sistema stradale"** of the cartographic documentation prepared in support of the Plan. As can be observed, in relation to the provincial capitals of Ravenna and Ferrara, the current study area is only marginally served by the road network. The dashed lines identify the planned infrastructure upgrades set out in the Plan.

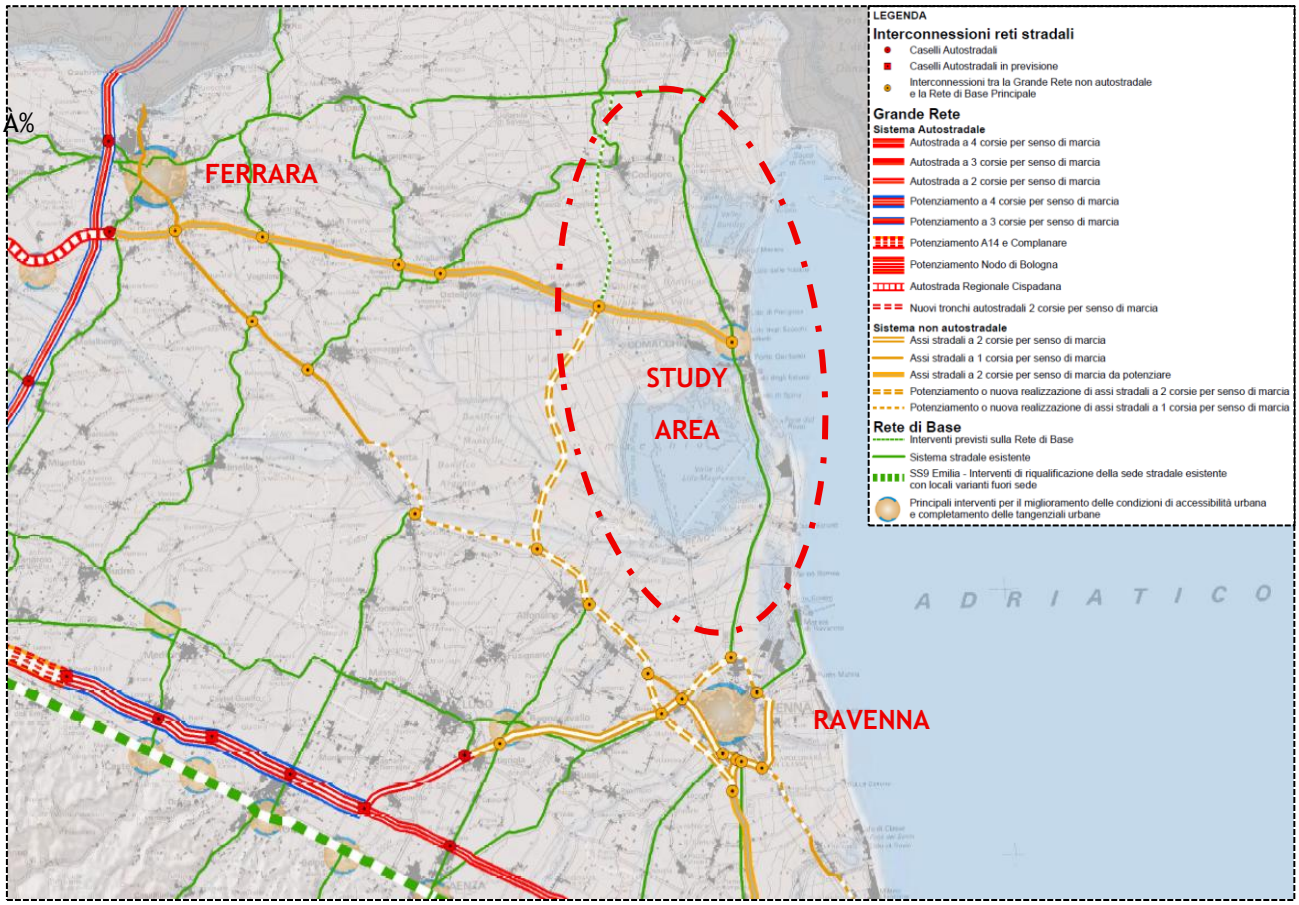

Figure 3 – PRIT 2025 Carta B "Sistema Stradale", regional road system

The railway infrastructure system is shown in the following image. It highlights how the study area is currently poorly served by passenger rail transport, despite the Plan including several upgrades along both the Ferrara and Ravenna railway lines..

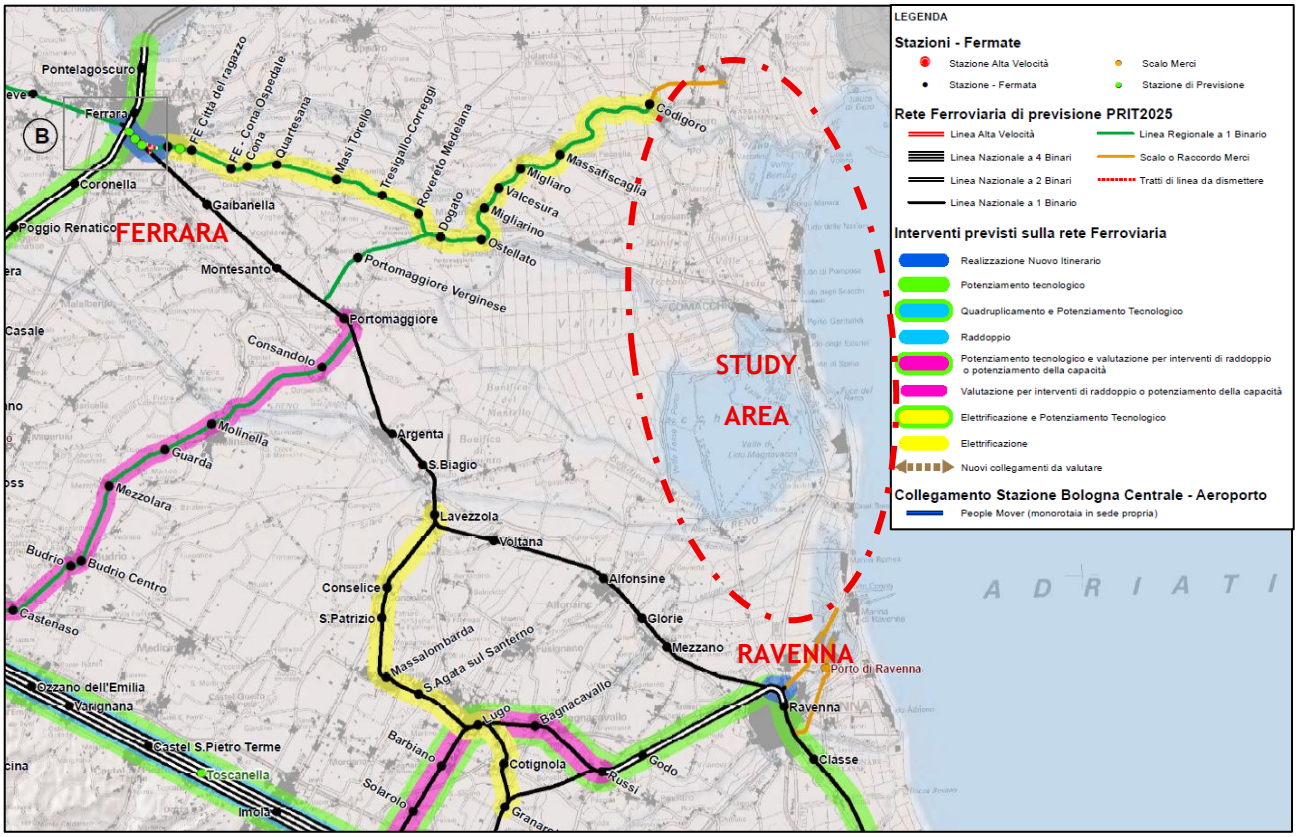

Figure 4 - PRIT 2025 Carta C1 "Sistema infrastrutturale ferroviario",railway infrastructure system

At the level of regional transport services, the schematic representation below highlights the same issue of limited-service provision for the coastal area.

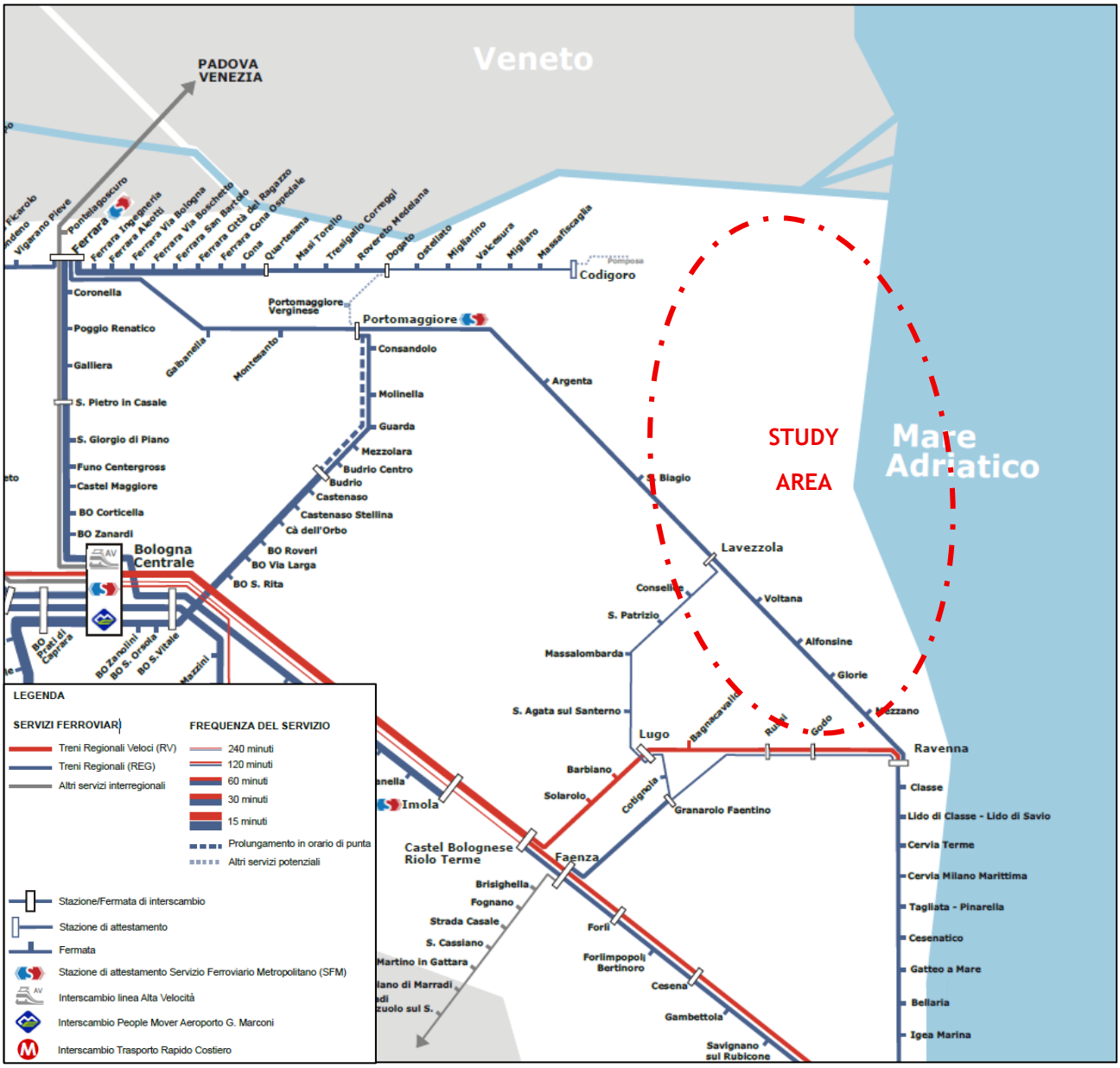

Figure 5 – PRIT 2025 Carta C2 "Schema di riferimento del Servizio ferroviario regionale", regional rail service

The cartography of the Regional Cycleways (Map E) shows a network that effectively covers the entire study area. However, not all cycle routes have been fully completed, resulting in discontinuities along the network, particularly in the coastal area.

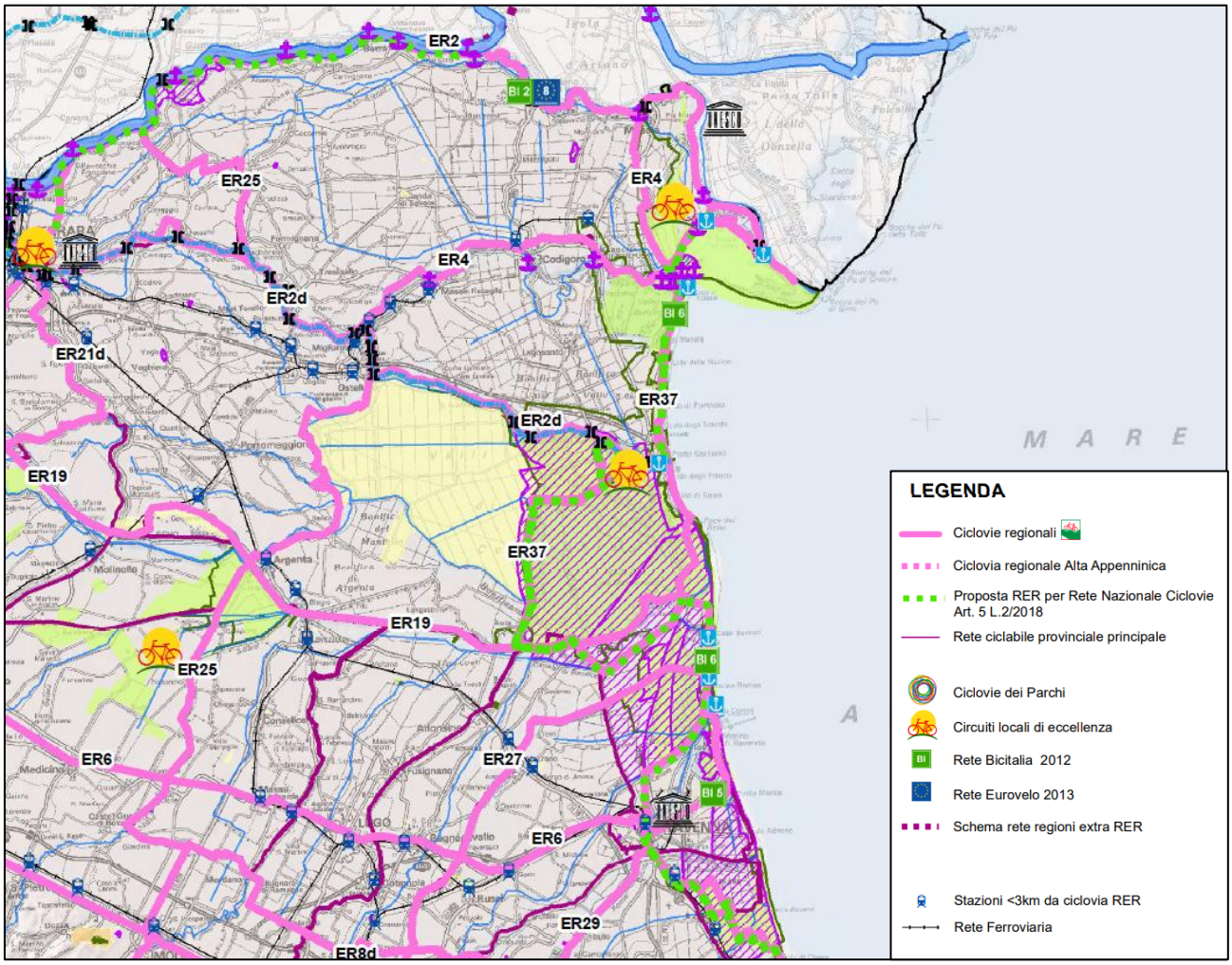

Figure 6 - PRIT 2025 Carta E "Ciclovie Regionali", regional cycleways

2.4. Demografic analisys of the territory and future trends

According to the Emilia-Romagna Region's website, the municipalities of Comacchio, Goro, Lagosanto, and Mesola — which make up District No. 1 and a significant portion of the Po Delta Park — have a declining population of approximately 37,000 inhabitants [4]. The average age of residents in the area is rising, with the old-age index (the number of elderly people per 100 young people) increasing from 190 in 2001 to 264 in 2018. Tourism in these municipalities is increasing too.

The latest projections from the Italian National Institute of Statistics (ISTAT) on the resident population in Italy show the population trend up to 2043 for the Provinces of Ferrara and Ravenna and their main municipalities.

Province/Municipality	2023	2043	Percentage Change
Ferrara	**322.595**	**313.624**	**-2,8%**
Argenta	20.958	19.874	-5,2%
Bondeno	13.821	12.764	-7,6%
Cento	35.291	36.501	3,4%
Codigoro	11.073	9.098	-17,8%
Comacchio	22.047	21.140	-4,1%
Copparo	15.694	14.244	-9,2%
Ferrara	129.724	129.440	-0,2%
Fiscaglia	8.403	7.369	-12,3%
Mesola	6.459	5.143	-20,4%
Ostellato	5.617	4.595	-18,2%
Poggio Renatico	9.721	9.910	1,9%
Portomaggiore	11.806	12.495	5,8%
Riva del Po	7.403	6.190	-16,4%
Terre del Reno	9.991	10.475	4,8%
Tresignana	6.962	6.517	-6,4%
Vigarano Mainarda	7.625	7.869	3,2%
	2.023	**2.043**	**Percentage Change**
Ravenna	**374.158**	**379.932**	**1,5%**
Alfonsine	11.536	11.290	-2,1%
Bagnacavallo	16.399	16.717	1,9%
Brisighella	7.195	6.558	-8,9%
Castel Bolognese	9.542	9.720	1,9%
Cervia	28.883	30.022	3,9%
Conselice	9.588	9.958	3,9%
Cotignola	7.353	7.453	1,4%
Faenza	58.827	60.819	3,4%
Fusignano	8.080	8.078	0,0%

Lugo	32.070	33.719	5,1%
Massa Lombarda	10.644	11.696	9,9%
Ravenna	156.050	154.752	-0,8%
Riolo Terme	5.755	5.956	3,5%
Russi	12.236	13.194	7,8%

Table 1 – Demographic projections for the municipalities of the study area

The main municipalities within the study area are highlighted in yellow. As shown, the coastal municipalities of the Province of Ferrara are expected to experience a more significant decline in resident population by 2043, while the municipalities in the Ravenna area are projected to see a more moderate decrease.

2.5. Accessibility – supply and demand analisys

2.5.1. Road infrastructure and traffic flows

The easiest way to reach the study area is by car, through the following roads:

- Highway junction between Ferrara, Comacchio and Lidi;
- A14 highway, exit Ravenna;
- S.S. 309 "Romea" - Venezia/Ravenna;
- S.S. 16 "Adriatica" - Ferrara/Rimini;
- E 45 - Roma/Ravenna.

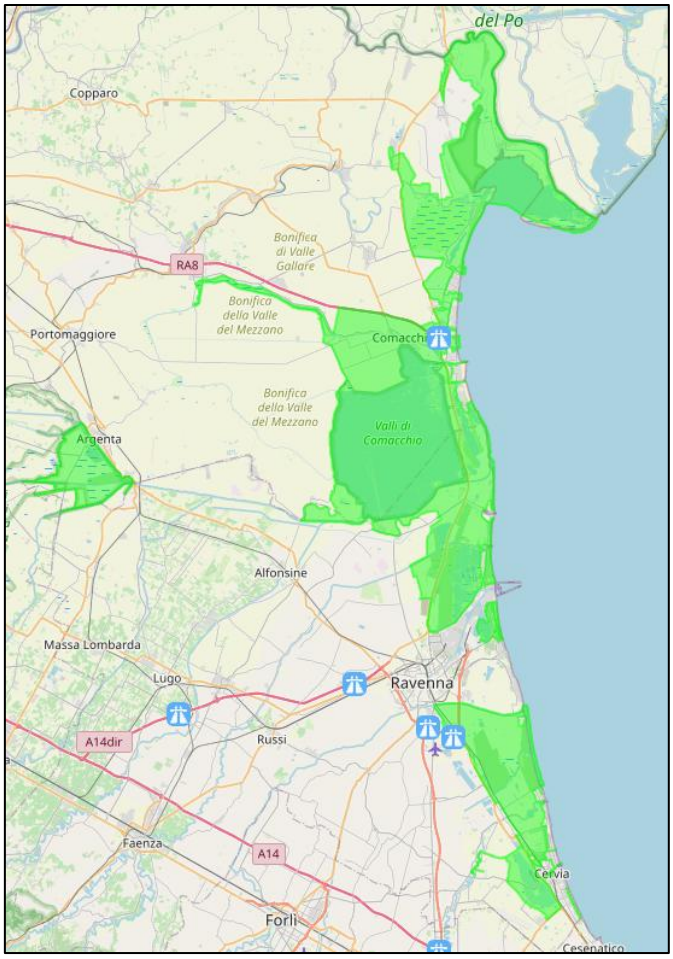

Figure 7 - Highway tollgates in the study area (in blue) and the park protected area (in green)

There is a dense monitoring system throughout the regional territory that allows to study the seasonal peaks of traffic in the study area.

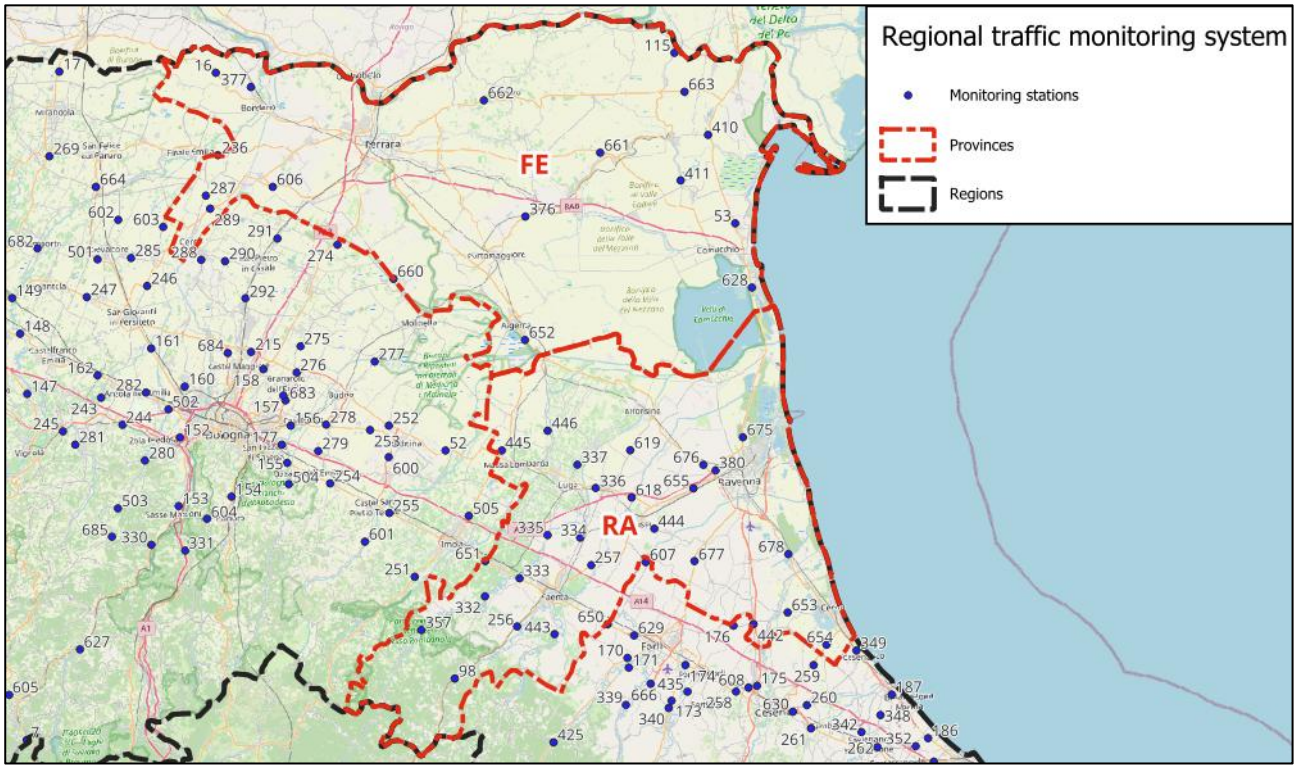

Figure 8 - Map of the Regional traffic monitoring system

The period most affected by tourism - and consequently by transport peaks – is the summer months. The following figures show traffic data from May to October, expressed in terms of total vehicles per month.

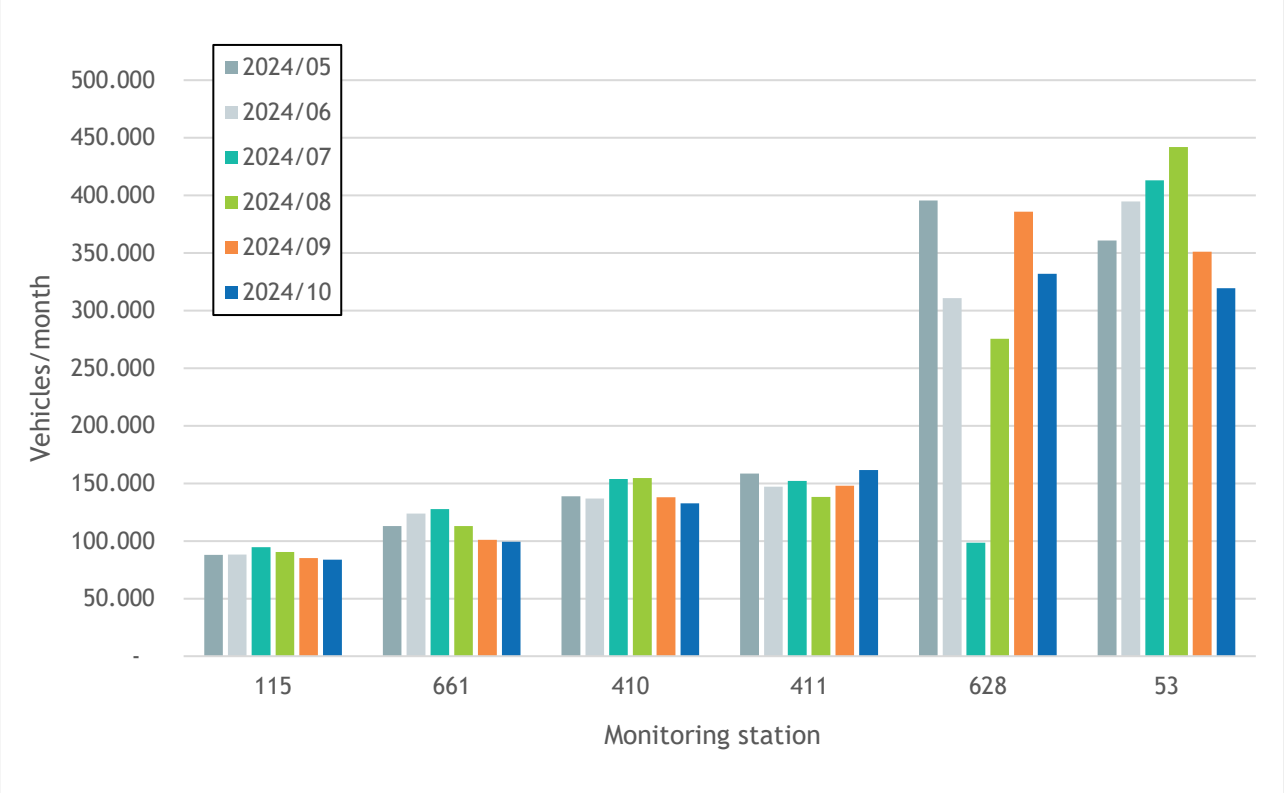

Figure 9 – Monitoring station into the territory of the Province of Ferrara, coastal municipalities, summer 2024

Monitoring station	2024/05	2024/06	2024/07	2024/08	2024/09	2024/10	Total
115	87.960	88.157	94.741	90.484	85.314	83.845	530.501
661	113.008	123.917	127.680	113.063	100.898	99.236	677.802
410	138.817	136.920	153.781	154.687	137.986	132.778	854.969
411	158.518	147.124	152.062	138.166	147.961	161.505	905.336
628	395.671	310.815	98.611	275.586	385.867	331.963	1.798.513
53	360.900	394.808	412.985	442.027	351.157	319.427	2.281.304
Total	1.254.874	1.201.741	1.039.860	1.214.013	1.209.183	1.128.754	7.048.425

Table 2 – Montly traffic flows, Province of Ferrara, coastal municipalities , summer 2024

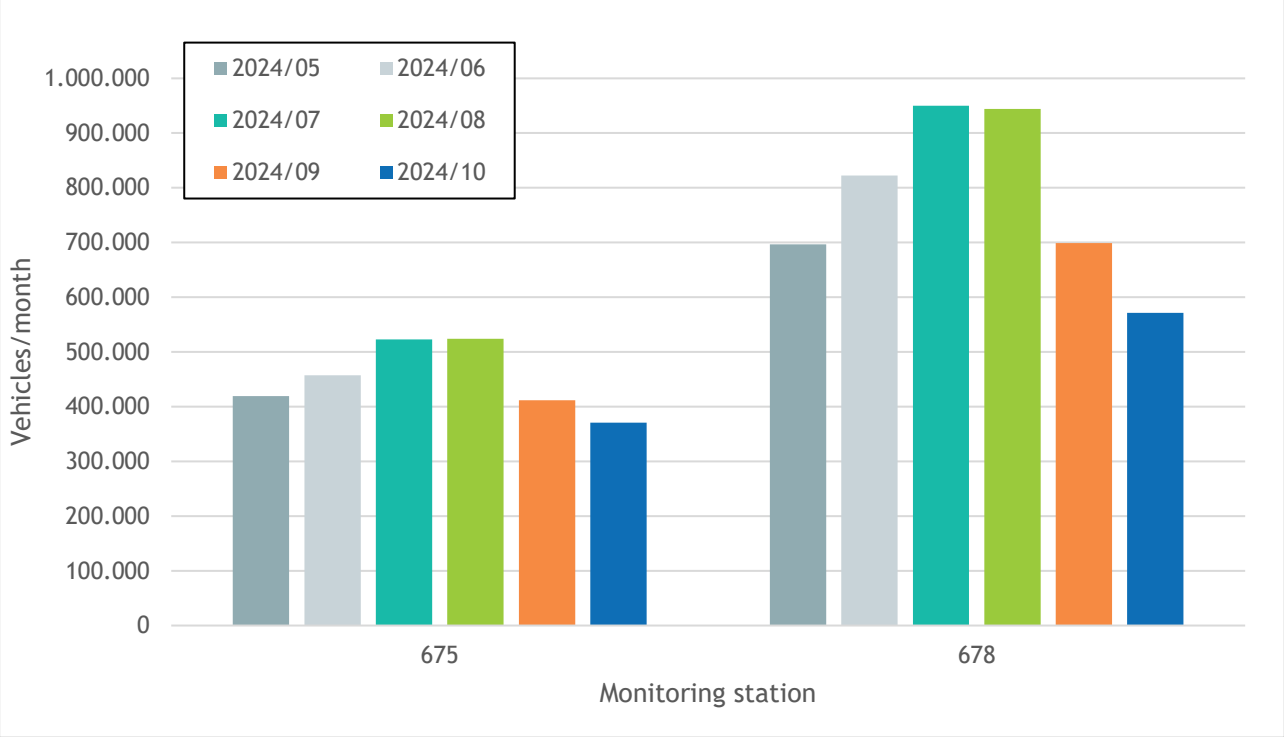

Figure 10 - Monitoring station into the territory of the Province of Ravenna, coastal municipalities, summer 2024

Monitoring Station	2024/05	2024/06	2024/07	2024/08	2024/09	2024/10	Total
675	419.339	457.432	522.610	524.260	411.931	370.580	2.706.152
678	696.748	822.582	949.862	944.322	698.996	571.528	4.684.038
Total	1.116.087	1.280.014	1.472.472	1.468.582	1.110.927	942.108	7.390.190

Table 3 - Montly traffic flows, Province of Ravenna, coastal municipalities , summer 2024

By examining data extracted from the regional vehicle traffic monitoring system on the main roads near the coastal areas under study, it is evident that the main peaks during the summer period occur in the months of July and August. The only exception is at the monitoring station 628 of Ferrara, placed in the municipality of Comacchio, where a limited traffic zone is established between June and august, leading to lower traffic during those months, compared to May and September.

2.5.2. Cycling infrastructure and bicycle flow

The cycling networks in the two study areas will be presented using the most up-to-date territorial and transport planning instruments. For the Ravenna coastal area, the reference document will be the *Piano Urbano della Mobilità Sostenibile (PUMS)* of the Municipality of Ravenna; for the Ferrara coastal area, it will be the network included in the *Piano Territoriale di Coordinamento Provinciale (PTCP)* of the Province of Ferrara.

The following map shows the cycling network from the *Piano Generale del Traffico Urbano (PGTU)* of the Municipality of Ravenna, an operational tool of the PUMS. The existing network is shown in dark green, the reference scenario network in purple, and the proposed network in dark blue.

As observed, the network remains fragmented, and northward connections—particularly towards Comacchio and the Ferrara coastal area—are not easily accessible.

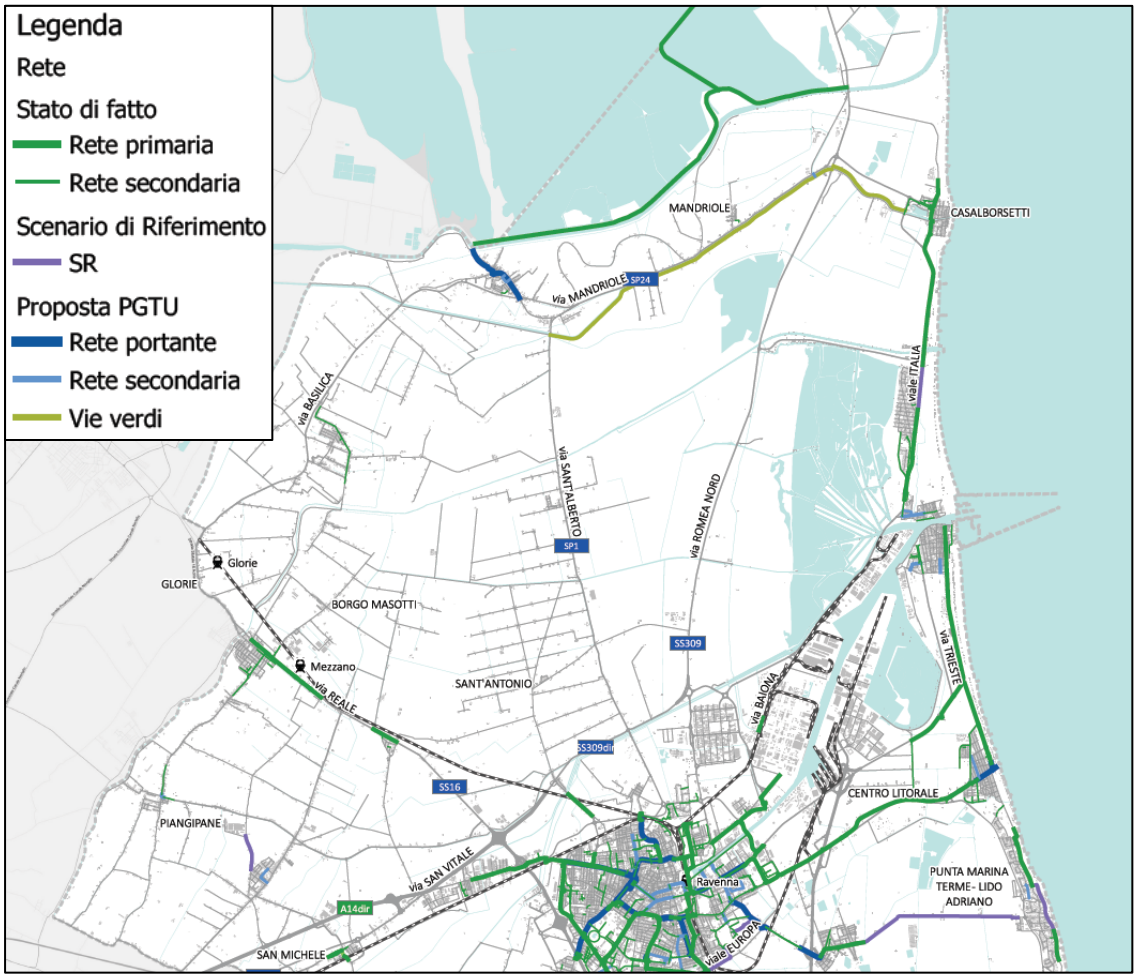

Figure 11 - PGTU Of the Municipality of Ravenna, Cycling network

For the territory of the Province of Ferrara, the cycling network included in the *Piano Territoriale di Coordinamento Provinciale (PTCP)* is presented, both in its current state and in its planned configuration.

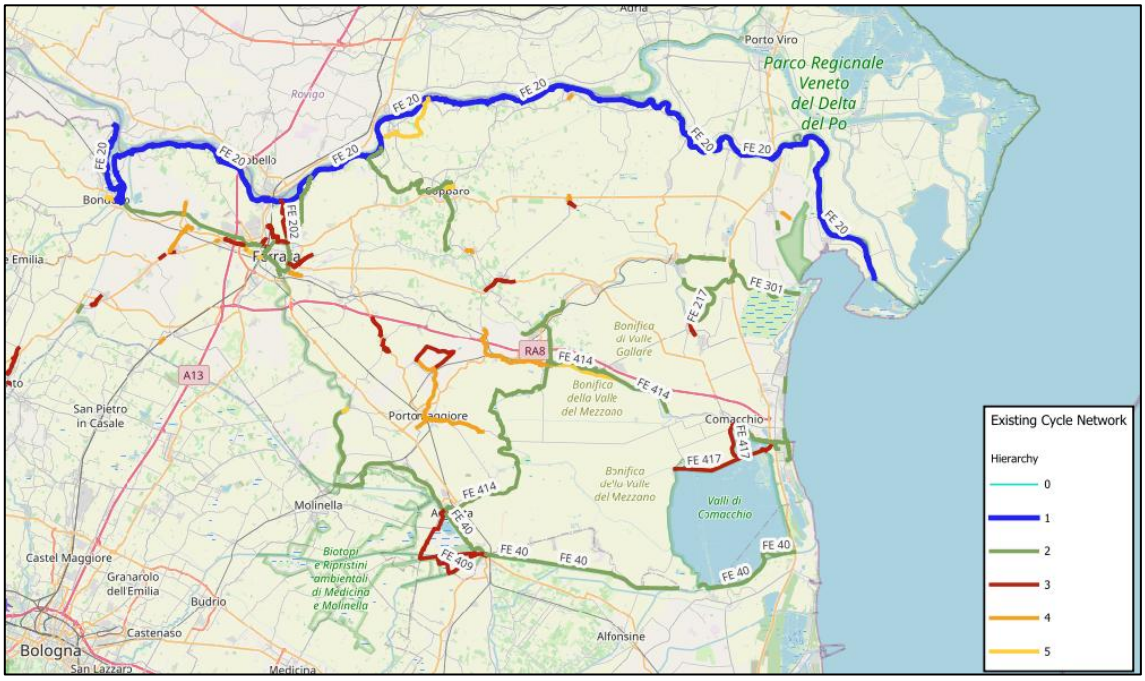

Figure 12 - PTCP of the Province of Ferrara, existing cycle network

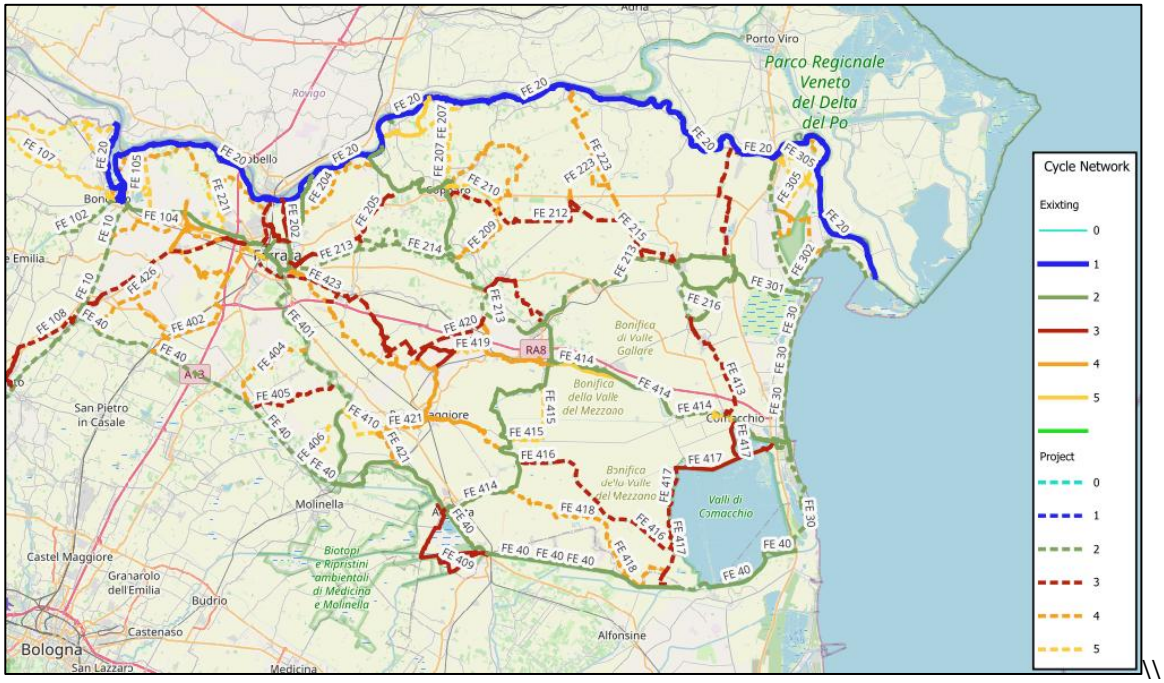

Figure 13 - PTCP of the Province of Ferrara, project cycle network

As shown in the maps of the existing and planned cycling networks from the *Piano Territoriale di Coordinamento Provinciale (PTCP)* of the Province of Ferrara, the current network in this area also appears fragmented. Only the route along the embankment of the Po River, which connects the provincial capital Ferrara with its coastal resorts (*Lidi*), shown in blue, is currently complete.
The planning strategy of the PTCP aims to reconnect the territory and its cycling infrastructure through a series of significant interventions.
Alongside the existing cycling infrastructure in both provinces and the networks planned through territorial and sectoral planning tools, both areas also exhibit a strong tourist and cycle-tourist vocation. This is reflected in a wide range of cycling itineraries, particularly in areas that host natural parks and sites of cultural interest.

2.5.3. Public Trasport – Urban and suburban Bus services

The public road transport services for the Ravenna and Ferrara areas serve the study area through the following urban and suburban bus lines

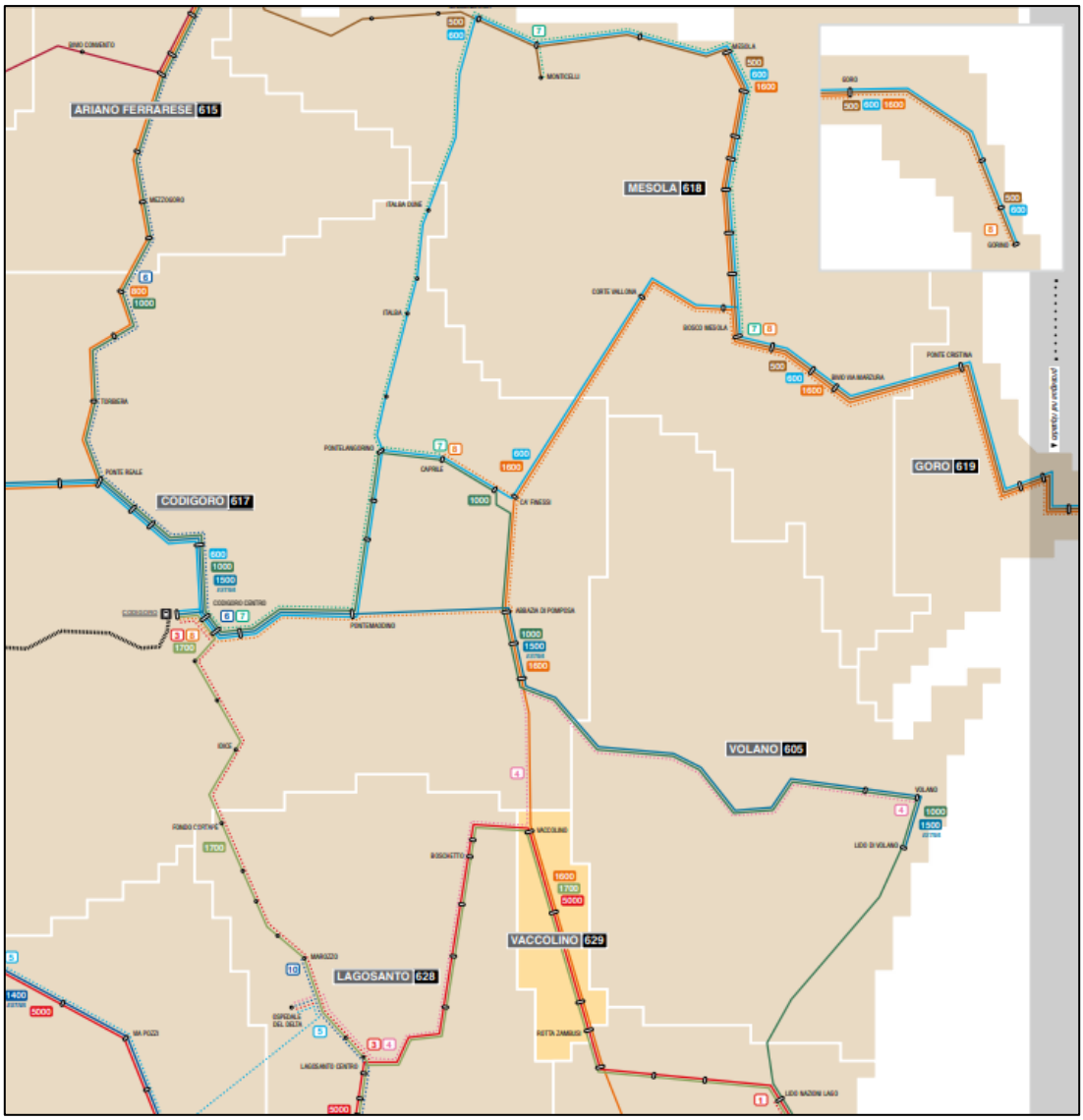

Figure 14 – Province of Ferrara, public transport interurban map routes, north area

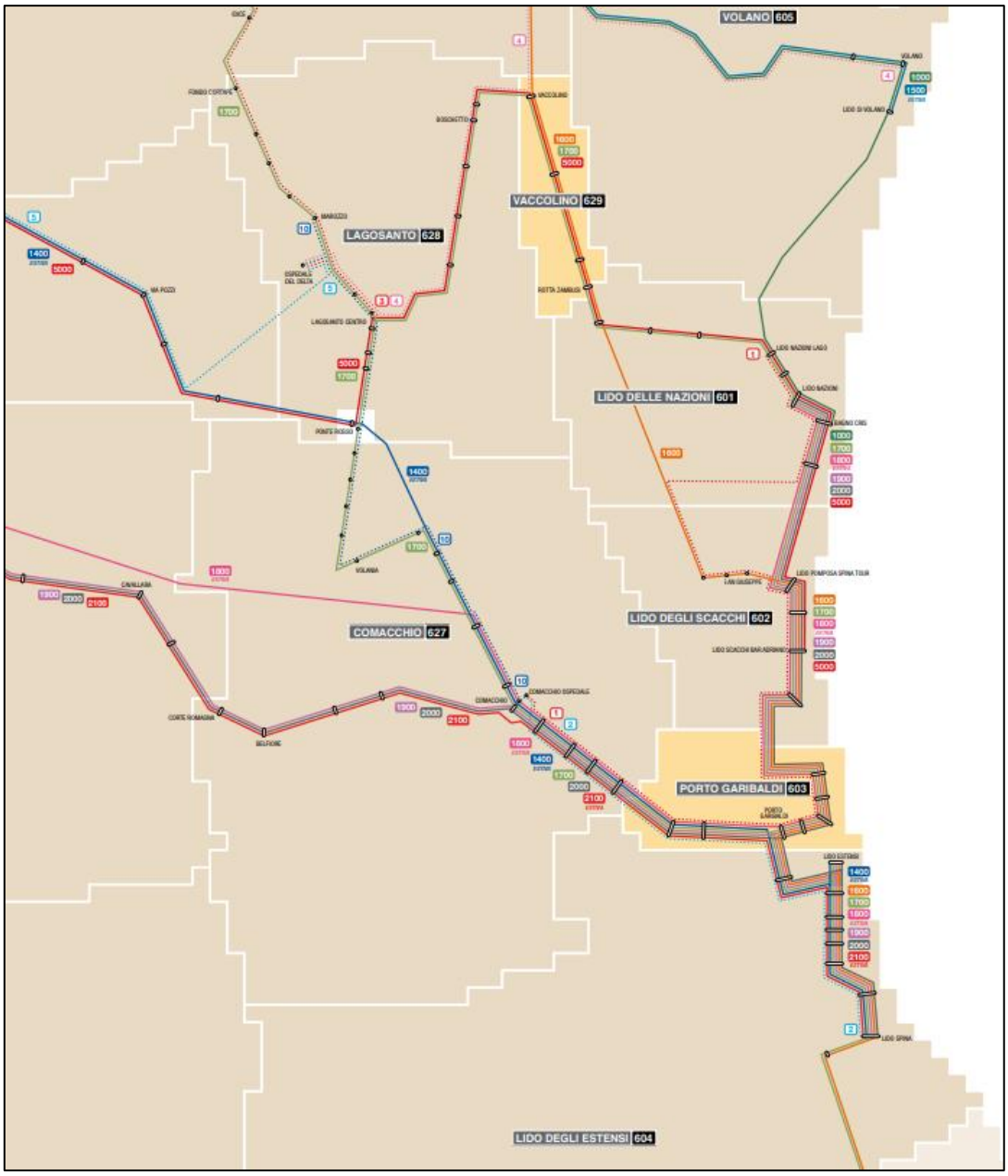

Figure 15 – Province of Ferrara, public transport interurban map routes, north area

Public transport services within the municipality of Ravenna and its provincial territory are operated by the company Start Romagna S.p.A. The following image shows the main urban and interurban bus lines serving the coastal area (*Lidi*).

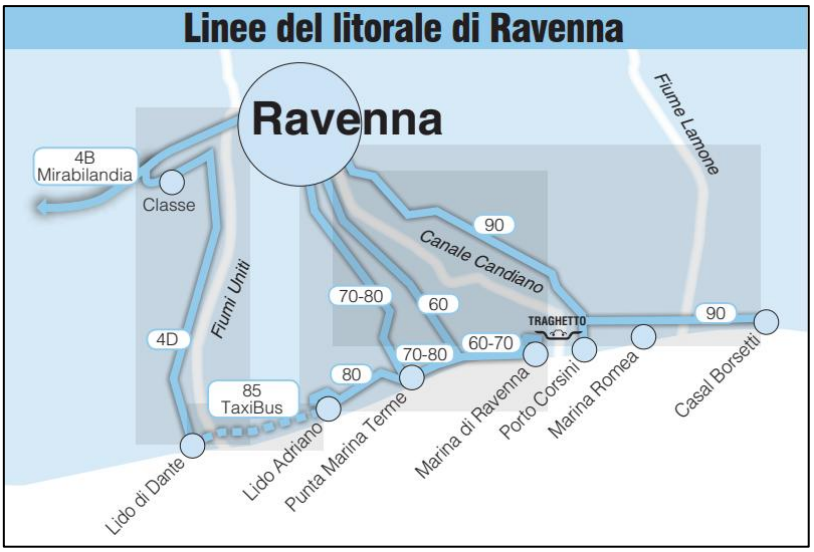

Figure 16 – Province of Ravenna, main public transport lines for the coastal area

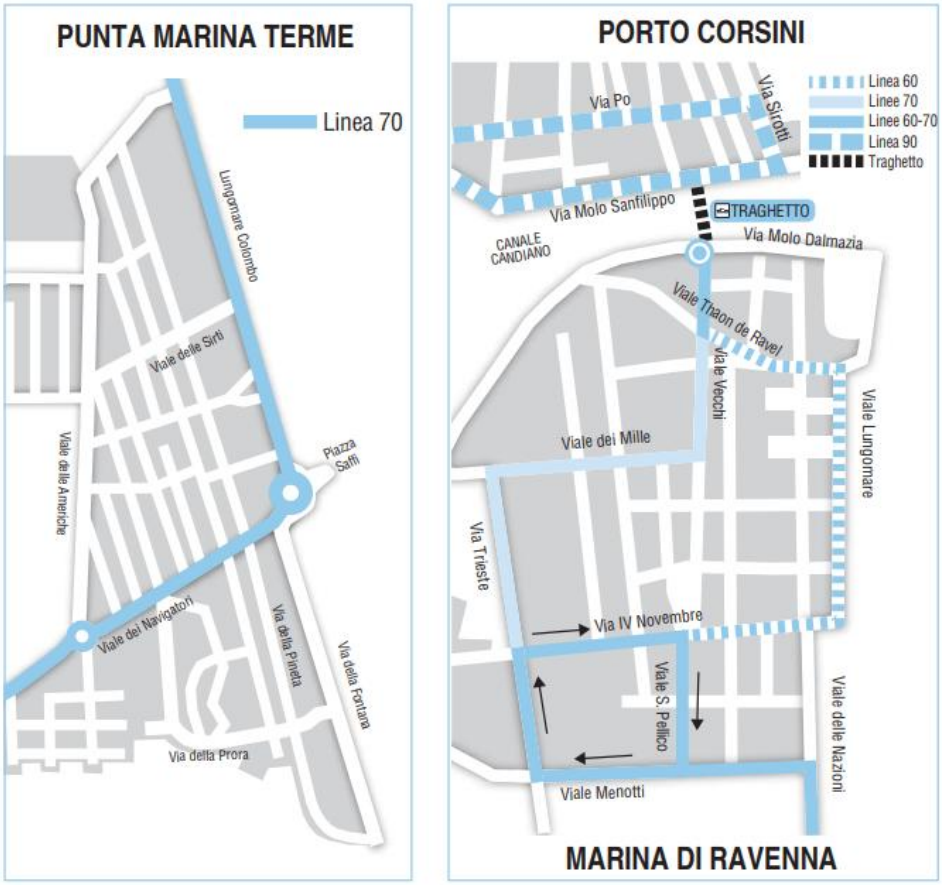

Figure 17 – Province of Ravenna, public transport, line 70

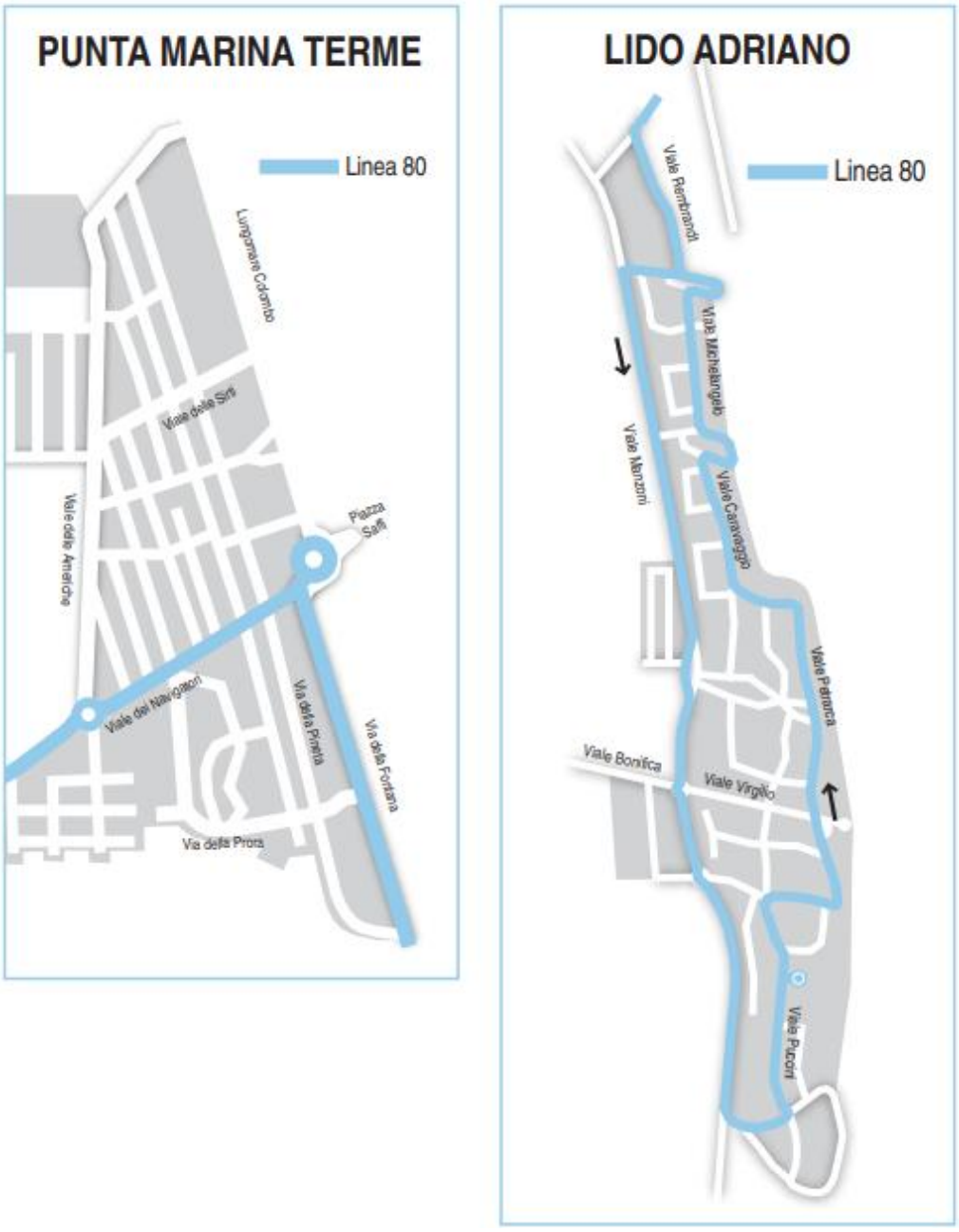

Figure 18 – Province of Ravenna, public transport, line 80

2.5.4. Public Trasport - Train services

Another alternative to reach the area is by train, from the stations of Ostellato, Codigoro, Argenta, Alfonsine, Ravenna or Cervia.

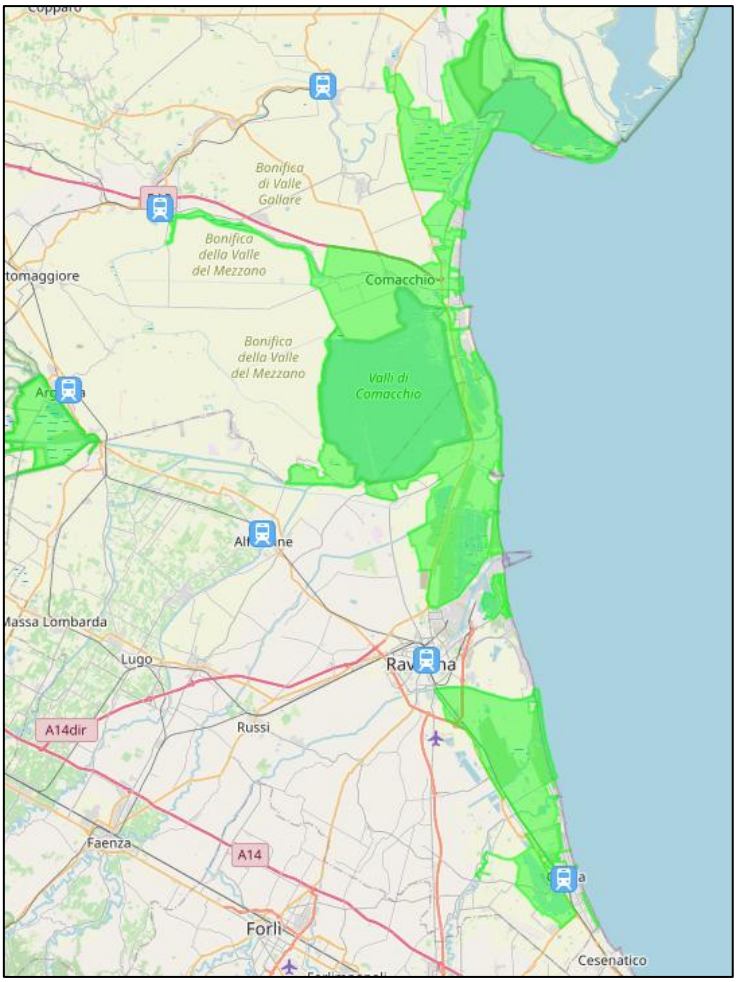

Figure 19 - Train stations near the study area (in blue) and the park (green polygons)

The delta del Po area is anyways hardly reachable by train, being it badly connected with railways, as seen in the previous chapters.

The following image shows the 15- and 30-minute isochrones for the bicycle transport mode, generated from the main railway stations located within the study are

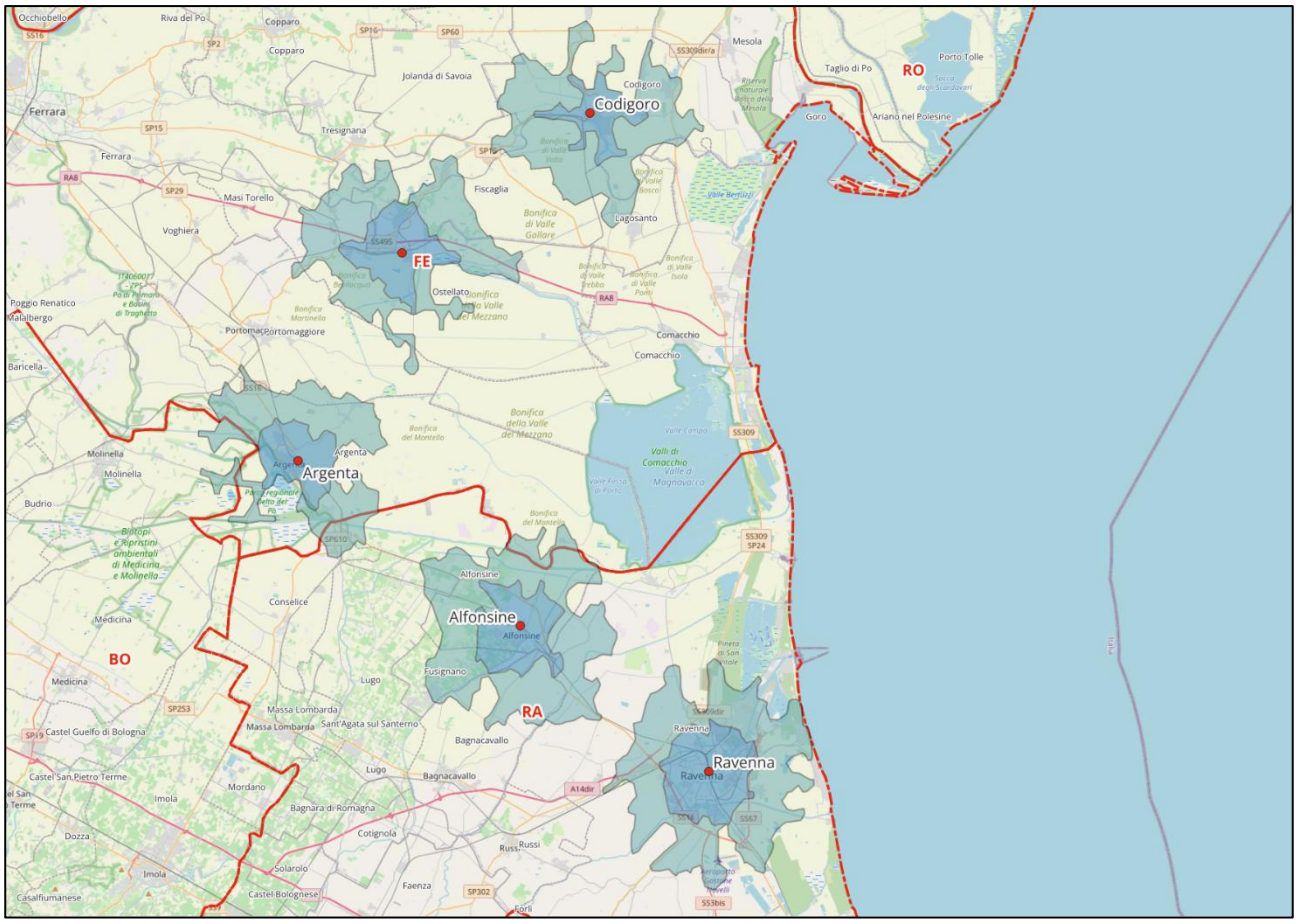

Figure 20 – Isochrones by 15-30 minutes from the main train station into the study area, mode bicycle

The following image shows the 15- and 30-minute isochrones for the electric bicycle transport mode, generated from the main railway stations located within the study area.

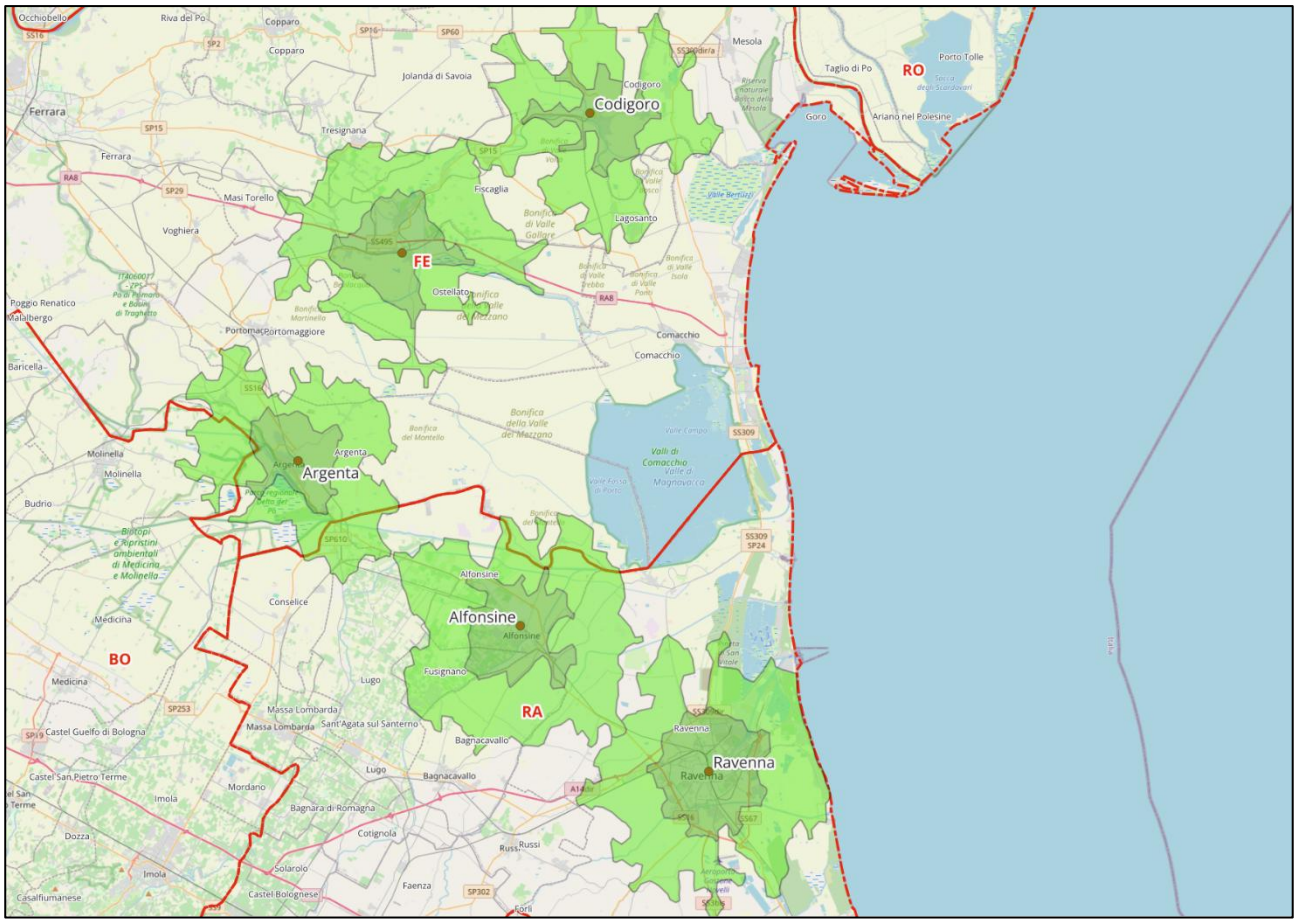

Figure 21 – Isochrones by 15-30 minutes from the main train station into the study area, mode E-bicycle

As shown in both analyses, the central portion of the study area—where the city of Comacchio is located—appears to be difficult to reach by either conventional (muscle-powered) or electric bicycle from the main railway stations.

2.5.5. Waterways and services

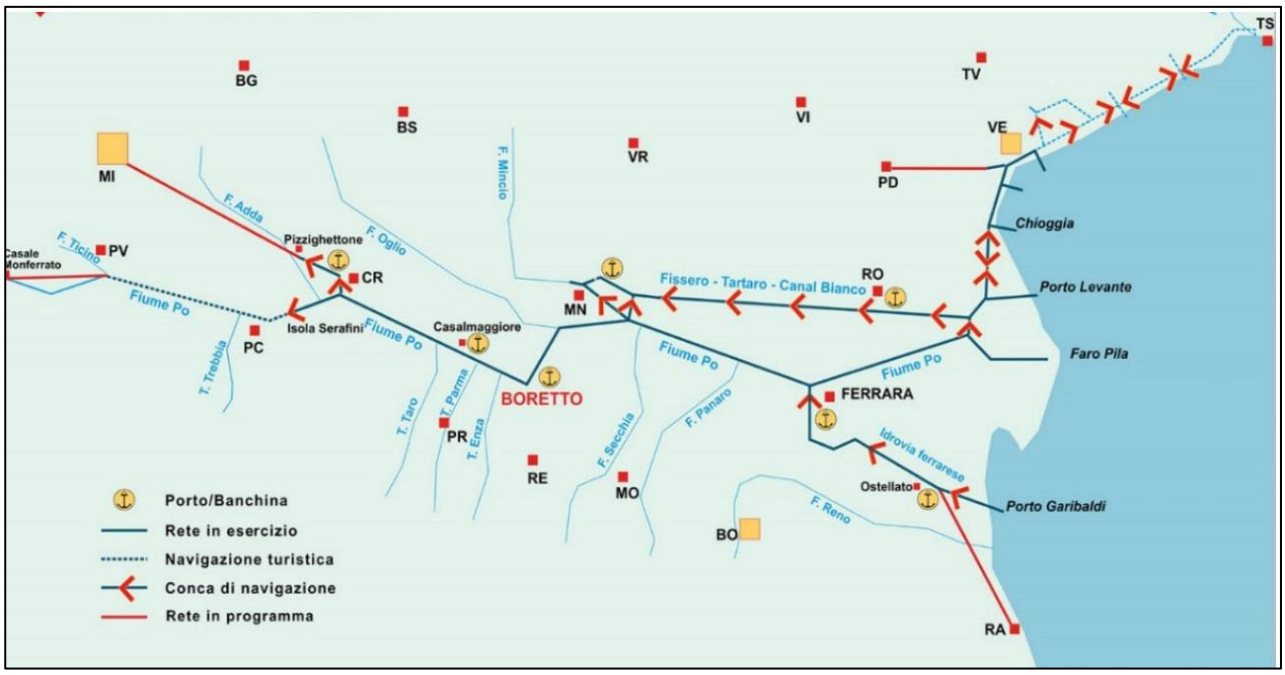

Figure 22 – Padano-Venetian inland waterway system

The Padano-Venetian inland waterway system, as defined by the Decree of the Ministry of Transport and Navigation No. 753 of 25/06/1992 and provided for by Law 380/90, extends for a total of 957 km, of which 564 km are navigable for commercial purposes. These are mainly comprised of the primary axis of the Po River, flanked by the Fissero-Tartaro-Canal Bianco canal leading to the Po di Levante (which flows into the sea at the northern end of the system), and by the Ferrara waterway (with a seaward outlet at the southern end of the system).

Along the Po River and its connected waterways, there are river ports and quays. The public commercial ports are five, but only the Port of Rovigo (on the Fissero-Tartaro-Canalbianco) is located inside the study area.

Regarding tourism specifically, there are currently 13 tourism operators active on the inland waterway system, compared to 20 about a decade ago. Of these, 5 operate within the regional territory. These operators offer various services, including the organization of day excursions and cruises, as well as the rental of boats for sport fishing or houseboats. In addition, some travel agencies also promote river tourism by organizing activities using the fleets and vessels of other operators.

2.6. Turists flows analysis (seasonal peaks)

The study area has a natural tourist vocation, as it hosts numerous seaside and recreational activities, parks, nature reserves, and protected areas located along the coastal territories of various municipalities in both the Province of Ravenna and the Province of Ferrara. The following image illustrates the coastal area of the Province of Ferrara, highlighting the main points of interest (POIs) and accessible beaches.

Figure 23 – Touristic map of the Province of Ferrara (source: https://www.ferraraterraeacqua.it/it/come-arrivare/mappe/carta-turistica-della-provincia-di-ferrara/view)

With regard to cycle tourism, the previous map identifies in red the tourist cycling routes covering both the coastal and inland areas.

As for tourism data referring to the main municipalities within the study area, the following figures for the year 2024 show the number of tourist overnight stays, broken down by domestic and international visitors.

	Italian		Abroad		Total	
Municipalities	**Arrival**	**Presence**	**Arrival**	**Presence**	**Arrival**	**Presence**
Codigoro	4.246	10.912	954	2.616	5.200	13.528
Comacchio	202.881	1.286.229	111.109	875.676	313.990	2.161.905
Copparo	3.792	10.739	440	1.401	4.232	12.140
Fiscaglia	587	1.980	72	335	659	2.315
Mesola	1.564	2.987	270	1.114	1.834	4.101
Ostellato	3.040	11.039	497	2.548	3.537	13.587
Riva del Po	215	319	174	393	389	712
Others municipalities*	934	3.837	244	1.445	1.178	5.282
Total Province Ferrara	**409.309**	**1.742.598**	**197.676**	**1.072.831**	**606.985**	**2.815.429**

Table 4 - Province of Ferrara, coastal municipalities, arrival and turistic presences, 2024

As shown, the Municipality of Comacchio represents a major attraction within the territory, accounting for approximately 50% of all tourist arrivals and 77% of overnight stays in the Province of Ferrara.

Similarly to the analysis conducted for the coastal areas of the Province of Ferrara, the following section presents data on the services available in the Municipality of Ravenna and the related tourism statistics.

Figure 24 – Bike services and Adriatic cycling route (source: https://www.turismo.ra.it/)

With reference to tourism data for the main municipalities within the study area, the following figures for the year 2024 report the number of overnight stays, broken down by domestic and international visitors.

	Italian		Abroad		Total	
Municipalities	**Arrival**	**Presence**	**Arrival**	**Presence**	**Arrival**	**Presence**
Alfonsine	1.545	6.234	179	616	1.724	6.850
Cervia	702.368	2.775.494	120.833	632.643	823.201	3.408.137
Ravenna	443.840	2.036.935	182.565	805.843	626.405	2.842.778
Total Province Ravenna	**1.248.085**	**5.092.654**	**333.493**	**1.540.458**	**1.581.578**	**6.633.112**

Table 5 - Province of Ravenna, coastal municipalities, arrival and turistic presences, 2024

As observed, the municipalities of Cervia and Ravenna are the main tourist attractors within the Province of Ravenna, accounting respectively for 52% and 40% of total domestic and international arrivals, and for 51% and 43% of overall overnight stays.

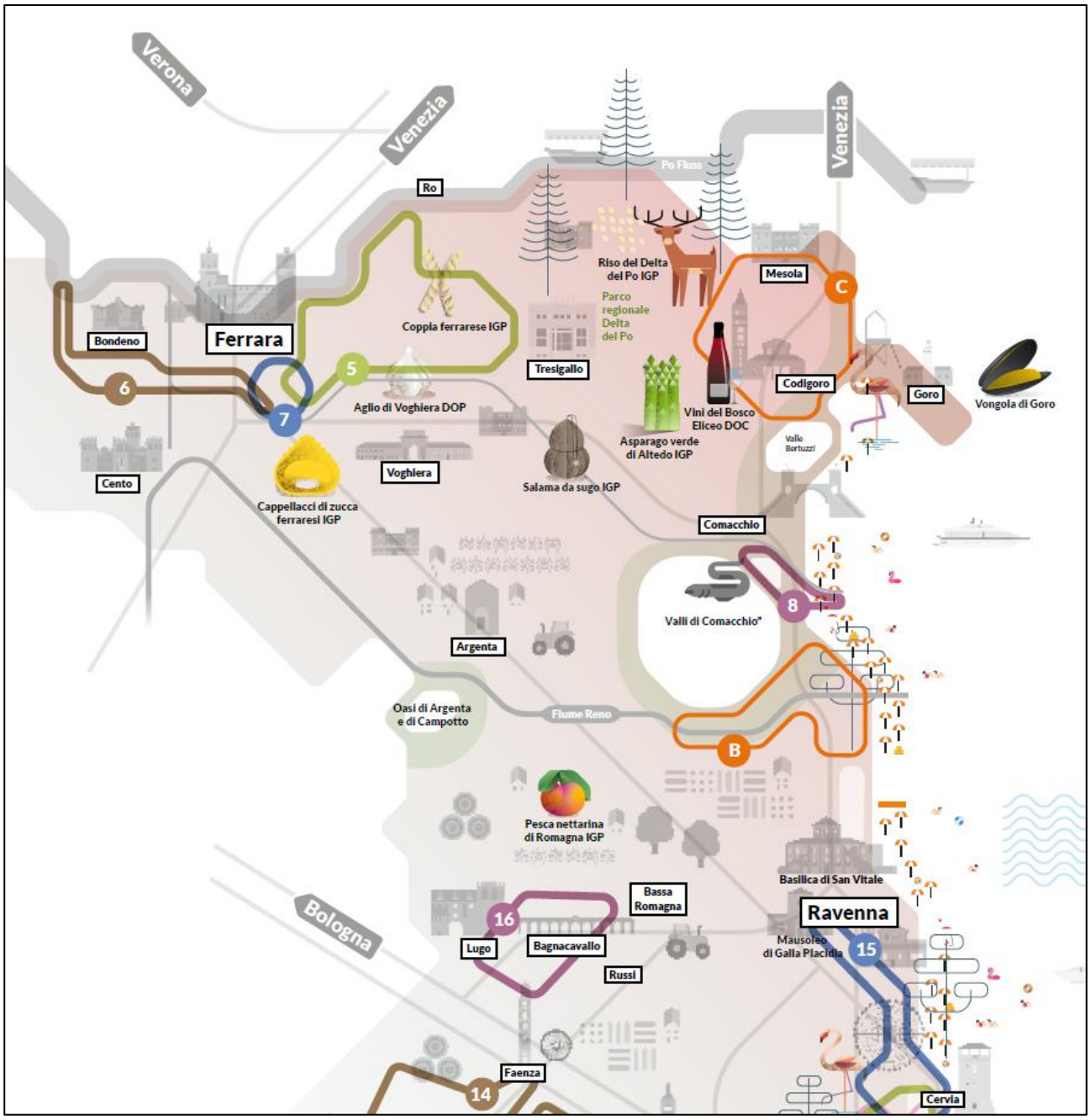

Figure 25 – Cycling touristic path into the coastal study area (source: https://www.romagnabike.com/percorsi)

Province of Ferrara has also made available a tourism promotion website, with a dedicated focus on cycle tourism in the coastal areas and within the Delta del Po Park.

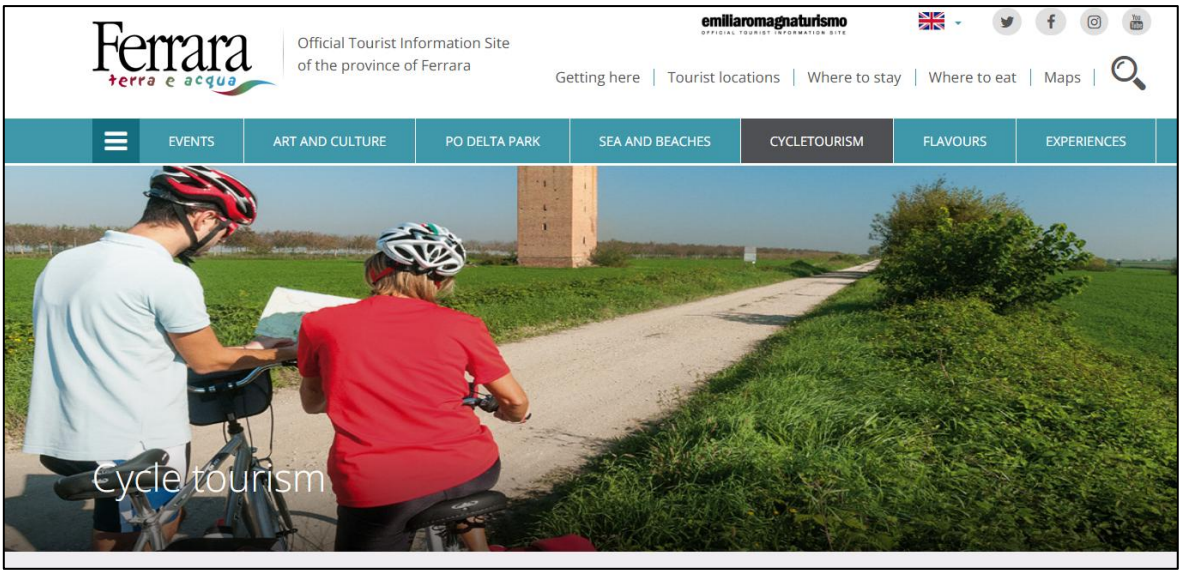

Figure 26 - Province of Ferrara, official tourist information site

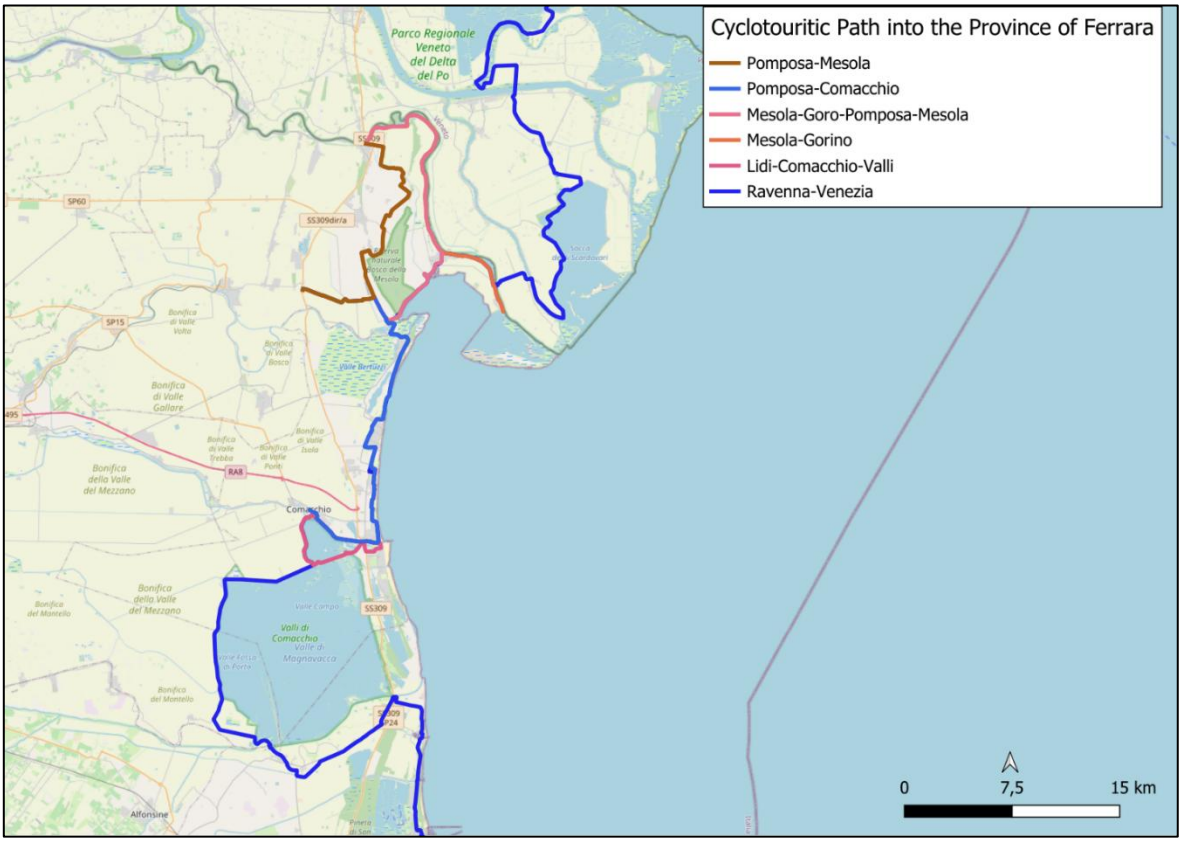

Figure 27 - Examples of cyclotouristic path inside the study area

Among the various tourism services available in the Ferrara area for exploring the territory, a noteworthy offering is the combined use of boat and bicycle, known as *Bike&Boat*, which operates within the Valli di Comacchio

Figure 28 – Bike&Boat service, active into the Valli di Comacchio (source: https://www.podeltatourism.it/en/attraction/)

Figure 29 – Bike&Boat service, active into the Valli di Comacchio (source: https://www.podeltatourism.it/en/attraction/)

With regard to cycle tourism alone, no specific data on the presence of cycle tourists is currently available for the two provincial territories within the study area. However, national and partial regional insights can be drawn from the National Report on Cycle Tourism produced by the National Institute for Tourism Research (ISNART) in collaboration with Legambiente.

Figure 30 - 5th National report over Cyclotourism (Souce: ISNART-Legambiente)

Among the main findings of the 2024 study, the following figures emerge: a total of 89 million cycle tourists, representing approximately 10% of all tourists, with an estimated economic impact of €9.8 billion.

Figure 31 – Extract from the 5th National report over Cyclotourism (Souce: ISNART-Legambiente)

With regard to cycle tourists in the Emilia-Romagna Region, the following insights are reported:

- 36% of cycle tourists are women;
- More than half are Millennials (55,3%);
- They mostly travel as couples (48,8%) or with friends (45%);
- 65,5% belong to the upper-middle or high-income brackets;

- They stay mainly in hotels (41,6%) or B&Bs (24,8%);
- 14,9% rent a bicycle on site;
- They engage in excursions and visit historical town centers;
- They choose the area for its beautiful landscapes, good maintenance, and opportunities for relaxation;
- They appreciate route-related apps (44,7%), tailored breakfasts (34,5%), and water refill points;
- Waste collection is identified as an area for improvement (45,7%).

2.7. Comparison of Demand and Supply services: results

The previous sections have provided the most detailed possible overview of the current transport offer within the study area, both in terms of infrastructure and services. At the same time, an effort has been made to assess the demand for transport by presenting, where available, quantitative data on the use of infrastructure and services.
With regard to vehicle flows on the primary road network of the Emilia-Romagna Region, data from the regional monitoring system have been presented, particularly for the spring and summer periods, during which the coastal areas remain the main destinations.
In parallel with vehicle flows, tourism data for coastal municipalities in both the Province of Ferrara and the Province of Ravenna have been analysed, highlighting the most attractive areas. Although it is not currently possible to isolate the share of tourist presence specifically attributable to cycle tourism from the domestic and international figures, the national study carried out by the National Institute for Tourism Research (ISNART) in collaboration with Legambiente suggests that this segment may represent up to 10% of total tourism at the national level.
Having presented the initial evidence on the transport supply and demand within the study area covering all available transport modes, including private vehicles, road-based public transport, and rail services—it becomes evident that the cycling network remains incomplete, and the railway system does not yet ensure full accessibility of the territory for cycle tourists.

3. CASE STUDIES OF INTERMODAL SOLUTIONS FOR ADDRESSING TERRITORIAL GAPS

At the national level, several regions in Italy have adopted multimodal solutions to enhance cycle tourism accessibility and to address existing gaps in the transport services network. These strategies aim to offer users an improved experience in accessing and enjoying the territory.

One of the main issues faced by cycle tourists during their journeys is the difficulty of transporting their bicycle—and sometimes their luggage—across different modes of transport. This is often due to the design characteristics of certain vehicles, particularly older ones, which were not originally designed to accommodate bicycles. Today, this issue has been largely addressed: all regional trains are now equipped with dedicated bicycle spaces in specific carriages, and buses on interurban routes can be fitted with rear-mounted racks or, alternatively, with trailers for carrying bikes.

Several examples of multimodal services implemented in Italy—particularly in tourist areas—demonstrate the feasibility and effectiveness of these solutions. Among the most relevant cases are the services operated by Busitalia, a company within the Trenitalia Group specializing in road transport. Busitalia currently operates two Bike+Bus services: one in the Veneto Region and one in the Umbria Region.

Figure 32 – Bike+Bus services operated by Bus Italia (source: https://www.fsbusitalia.it/it/turismo/bus-bici.html?)

The two services operated in the Umbrian territory are provided on the following interurban routes, with a service calendar covering the summer months, from June to September.

Il servizio è attivo sulle linee:

E401 | Norcia-Spoleto

E621 | Terni-Marmore-Scheggino

BUSITALIA
GRUPPO FERROVIE DELLO STATO ITALIANE

Calendario delle validità estive dall'8 giugno al 14 settembre 2025

LEGENDA

Servizio feriale / scolastico | *Weekday / school service*

Servizio feriale / non scolastico / estivo | *Weekday / non-school / summer service*

Servizio festivo | *Holiday service*

Servizio festivo ridotto | *Reduced holiday service*

anno	Giorno / Mese	Domenica	Lunedì	Martedì	Mercoledì	Giovedì	Venerdì	Sabato	Domenica	Lunedì	Martedì	Mercoledì	Giovedì	Venerdì	Sabato	Domenica	Lunedì	Martedì	Mercoledì	Giovedì	Venerdì	Sabato	Domenica	Lunedì	Martedì	Mercoledì	Giovedì	Venerdì	Sabato	Domenica	Lunedì	Martedì	Mercoledì	Giovedì	Venerdì	Sabato	Domenica	Lunedì
2025	Giugno								8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30								
2025	Luglio			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
2025	Agosto					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
2025	Settembre		1	2	3	4	5	6	7	8	9	10	11	12	13	14																						

Nota: per le festività del Santo Patrono delle città consultare i servizi speciali sul sito www.umbriamobilita.it

Figure 33 - Calendar of the summer services

Similarly, in the Veneto Region, two services are active in the Province of Rovigo:

E601-E680 Rovigo - Adria - Rosolina mare

E601 Rovigo - Adria - Porto Tolle - Barricata

Linea E601-680 | Rovigo - Adria - Rosolina mare			
Fermate abilitate per salita/discesa biciclette	**Feriale Lunedì - Sabato**		**Festivo**
Rovigo autostazione	07:35	|	07:20
Adria autostazione	08:10	13:35	07:50
Rosolina mare P.le Europa	08:54	14:12	08:27

Linea E680-601 | Rosolina mare - Adria - Rovigo			
Fermate abilitate per salita/discesa biciclette	**Feriale Lunedì - Sabato**		**Festivo**
Rosolina mare P.le Europa	09:20	17:30	19:00
Adria autostazione	09:57	18:20	19:42
Rovigo autostazione	|	18:50	20:12

Figure 34 – Lines E601-680 Weekly scheduling

Tratta	**Acquisto da app**		**Acquisto a bordo**	
	Tariffa passeggero	**Tariffa bici**	**Tariffa passeggero**	**Tariffa bici**
Rovigo - Adria	€ 4,40	€ 3,00	€ 5,00	€ 3,00
Rovigo - Rosolina	€ 7,20	€ 3,00	€ 8,00	€ 3,00
Adria - Rosolina	€ 5,50	€ 3,00	€ 7,00	€ 3,00
Rovigo - Porto Tolle	€ 7,20	€ 3,00	€ 8,00	€ 3,00
Rovigo - Barricata	€ 9,20	€ 3,00	€ 10,00	€ 3,00
Adria - Barricata	€ 7,90	€ 3,00	€ 9,00	€ 3,00
Porto Tolle - Barricata	€ 4,40	€ 3,00	€ 5,00	€ 3,00
Adria - Porto Tolle	€ 5,50	€ 3,00	€ 7,00	€ 3,00

Figure 35 – Fares apply to both the passenger and the bicycle, and tickets can be purchased via the mobile app or directly on board.

Fares range from €4.40 to €9.20 depending on the selected route. The bicycle fare is fixed at €3. Tickets can be purchased through the mobile app, which offers a discounted price compared to on-board purchases. The technical solution adopted by Busitalia for bicycle transport consists of a rear vertical bike rack mounted on the bus, with a maximum capacity of 6 bicycles.
The following image shows a possible bike rack solution for buses, produced by a European manufacturer.

Figure 36 - Rear bikerack for bus (source: https://franz-harbeck.de/en/bicycle-carriers/)

The Friuli Venezia Giulia Region has also implemented several Bike+Bus services across the regional territory. Bicycle transport is currently available on the following routes:

1. Udine – Palmanova – Aquileia – Grado
2. Grado – Gorizia – Cormons
3. Udine – Latisana – Lignano
4. Maniago – Gemona
5. Pordenone – Aviano – Piancavallo
6. Trieste – Poreč (Croatia)

With the following service calendar:

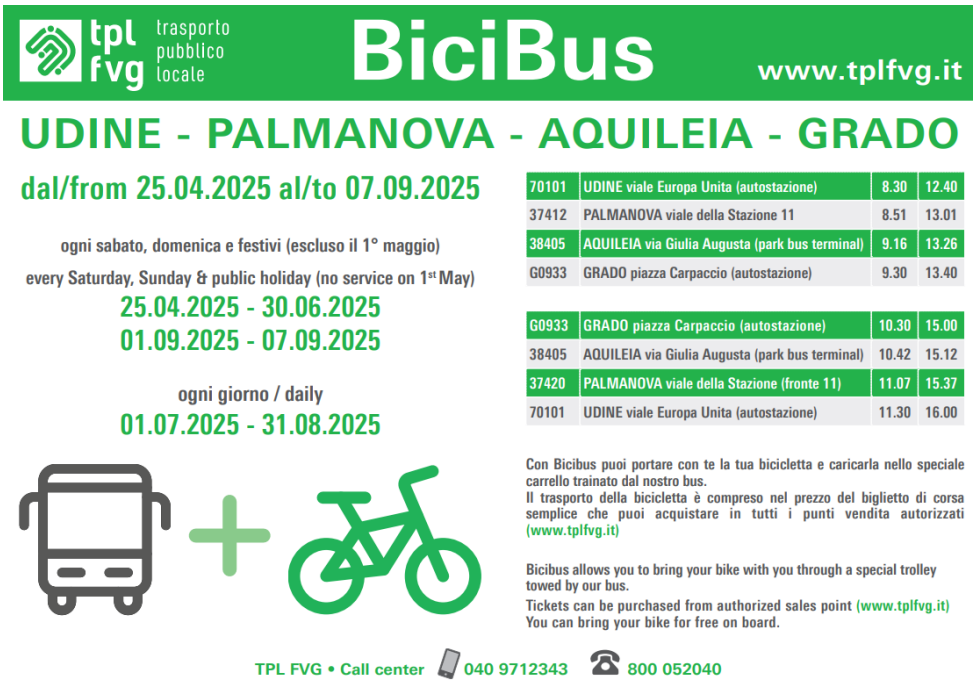

Figure 37 – Bike+Bus service for the line Udine – Palmanova – Aquileia -Grado, weekend scheduling

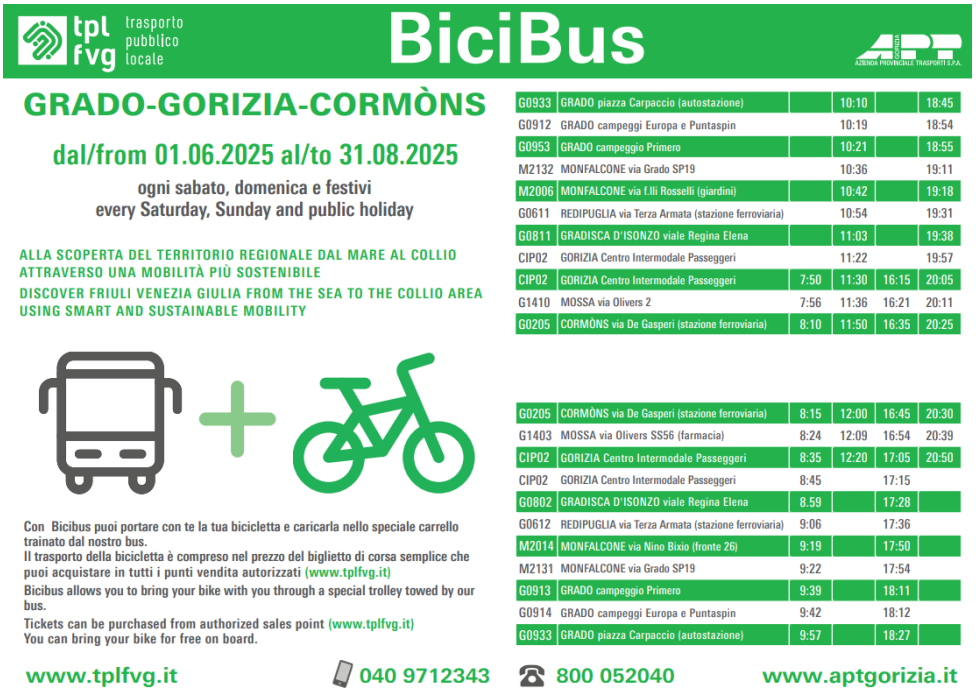

Figure 38 – Bike+Bus service for the line Grado – Gorizia - Cormòns, weekend scheduling

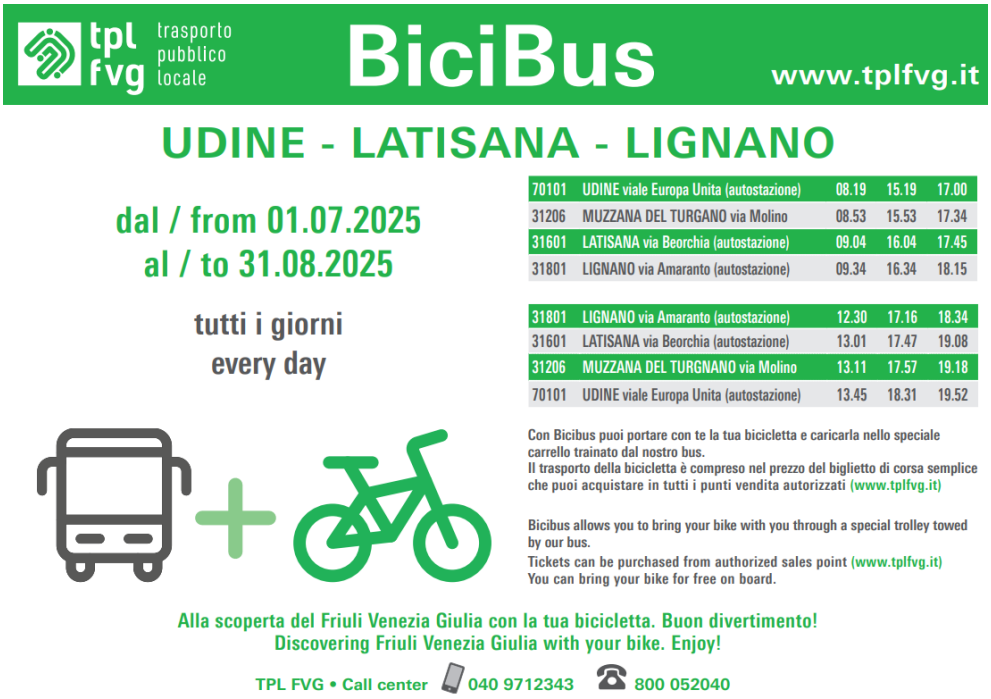

Figure 39 – Bike+Bus service for the line Udine – Latisana - Lignano, weekend scheduling

The technical solution adopted by TPL FVG, the regional public transport operator, for providing Bike+Bus services consists of a closed towed trailer. This solution ensures greater loading capacity and improved safety for the transported bicycles.

The cost of bicycle transport is included in the price of a standard one-way ticket.

The following image shows an example of the adopted solution.

Figure 40 – Exaple of trailer for the transport of bicycles (source: https://www.turismofvg.it/it/bike/trasporti-pubblici-per-cicloturisti)

In terms of economic costs, the trailer solution, despite offering greater safety and higher loading capacity,entails higher costs compared to the rear-mounted bike rack solution.

Attivazione sul servizio extraurbano corse bici più bus sulla tratta Maniago-Gemona

Si informa che, da **sabato 5 luglio** a **domenica 24 agosto 2025** compresi, sarà attivo il servizio BICI più BUS sulla tratta Maniago – Gemona tutti i sabati e le domeniche con i seguenti orari:

ANDATA

CORSA	1	3
CADENZA	FES40	FES40
P2501 MANIAGO (autostazione)	07:34	14:56
P2691 MEDUNO (poste)	07:48	15:10
P4715 TRAVESIO stazione ferroviaria	08:02	15:24
P3091 PINZANO via XX Settembre (piazza)	08:15	15:37
P3002 PINZANO Stazione	08:17	15:39
P3002 PINZANO Stazione	08:19	15:41
50I20 SAN DANIELE DEL FRIULI via Kennedy 11 (lato	08:32	15:54
51703 RIVOLI via Rivoli 75 (ex stazione Majano,	08:47	16:09
51700 OSOPPO STAZIONE FS	08:53	16:15
61014 GEMONA via Roma (autostazione)	09:03	16:25

RITORNO

CORSA	2	4
CADENZA	FES40	FES40
61014 GEMONA via Roma (autostazione)	09:31	16:52
51700 OSOPPO STAZIONE FS	09:41	17:02
51716 RIVOLI via Rivoli (fronte civico 77, ex stazione	09:47	17:08
50I20 SAN DANIELE DEL FRIULI via Kennedy 11 (lato	10:02	17:23
P3002 PINZANO Stazione	10:15	17:36
P3002 PINZANO Stazione	10:17	17:38
P3001 PINZANO via XX Settembre 70 (piazza)	10:19	17:40
P4715 TRAVESIO stazione ferroviaria	10:32	17:53
P2691 MEDUNO (poste)	10:46	18:07
P2501 MANIAGO (autostazione)	11:00	18:21

Nel mese di **agosto** il servizio verrà svolto anche **lunedì 11, martedì 12, mercoledì 13, giovedì 14 e venerdì 15**.

Figure 41 – Bike+Bus service for the line Maniago - Gemona, weekend scheduling

For the Bike+Bus services operated by ATAP S.p.A., the public transport operator for the Province of Pordenone, the adopted solution is also a covered bicycle trailer.

An additional cross-border Bike+Bus service between Italy and Croatia connects the provinces of Trieste and Istria, operating along the Trieste–Poreč route. This service allows users to travel along the Parenzana cycle path, which in several sections overlaps with the international EuroVelo 8 – Mediterranean Route cycle itinerary.

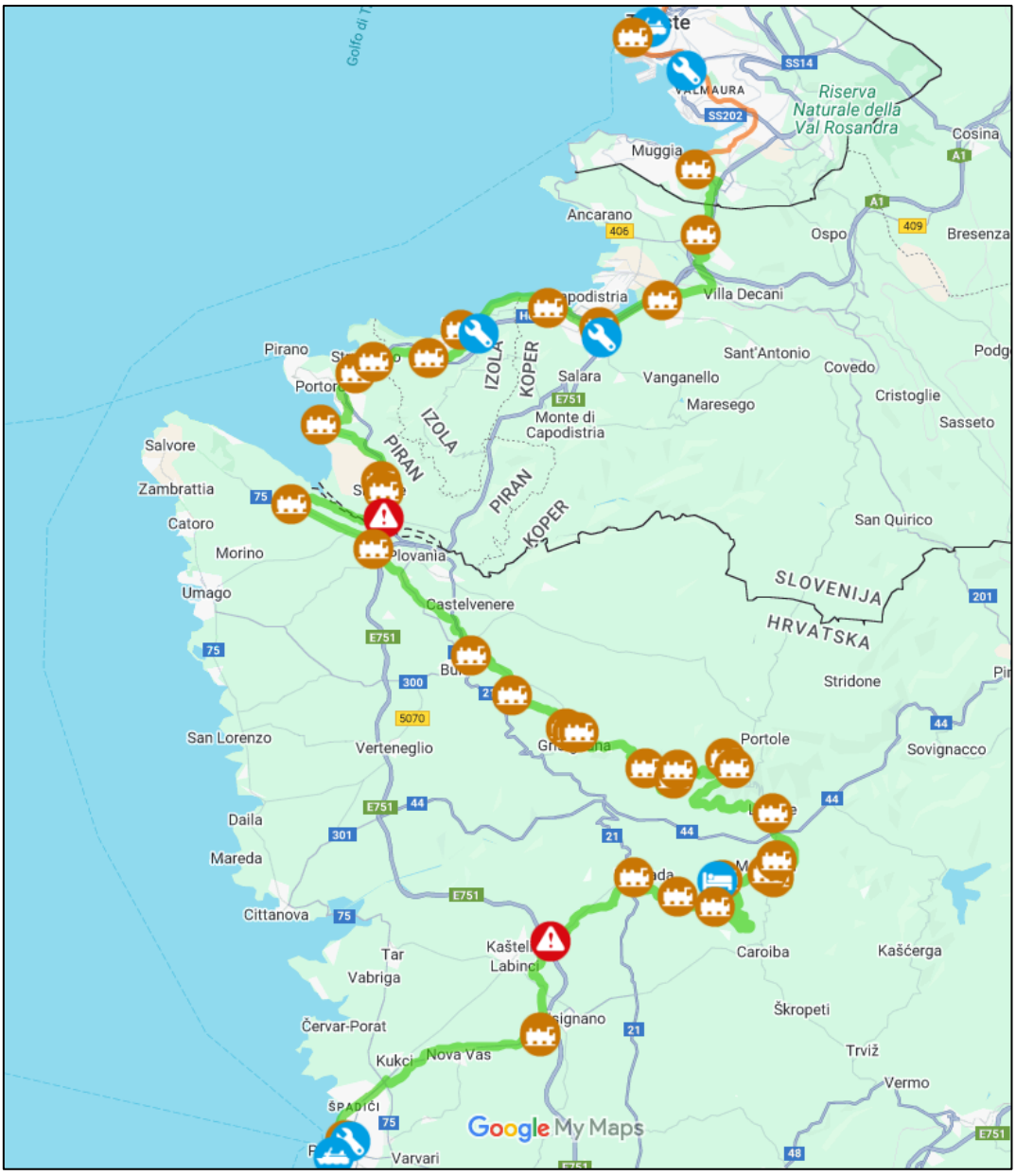

Figure 42 – Parenzana Cycleway, connecting Trieste to Poreč

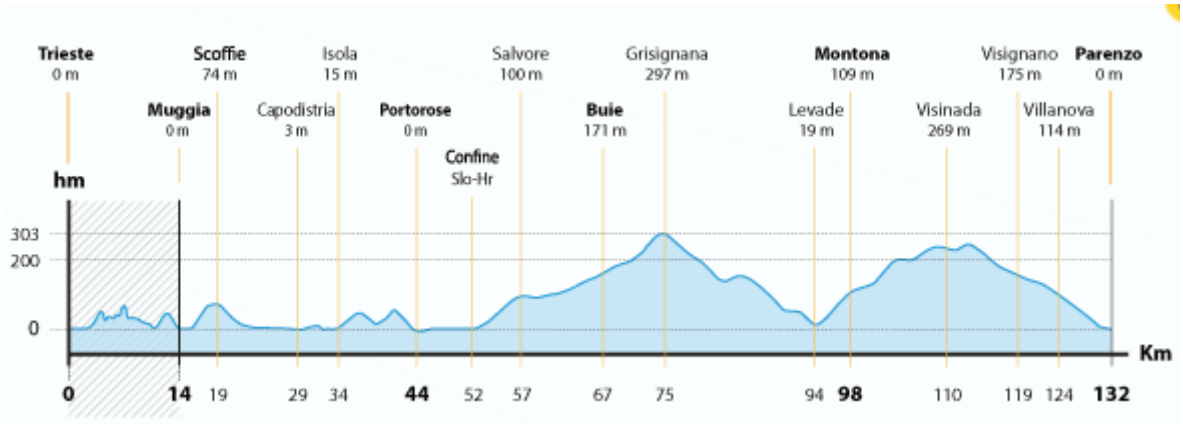

Figure 43 – Parenzana Cycleway, from Trieste to Porec - Altimetry

The current service operates two trips on weekends: one at 14:00 from Trieste and one at 18:00 from Poreč, with two intermediate stops in Rabuiese and Plovania. The system has a bicycle transport capacity of up to 30 units. The service is free of charge and is operated by the private company Autoservizi Cogoi. As in other cases, the solution adopted for bicycle transport consists of a covered trailer.

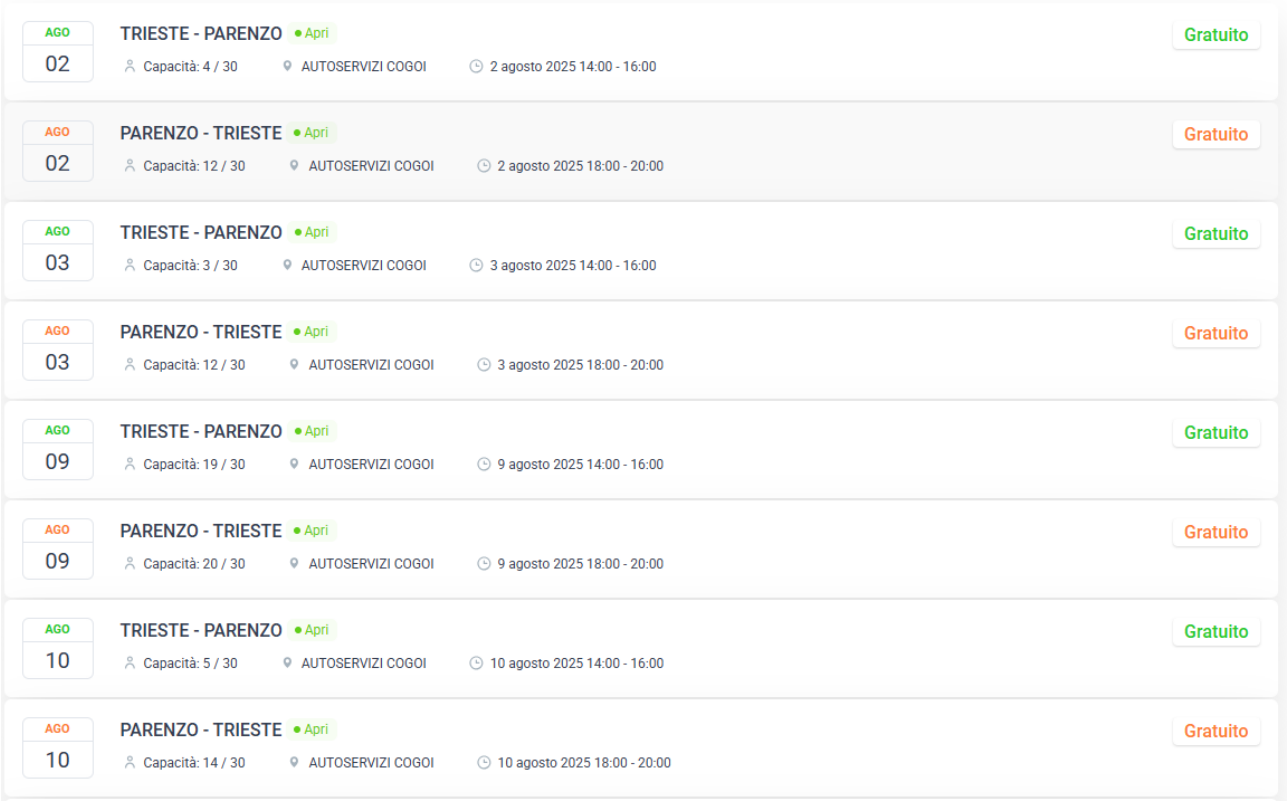

Figure 44 – Scheduling of the bike+bus services for the month of august 2025

The Friuli Venezia Giulia Region has provided historical data on the Bike+Bus service operated during the year 2022.

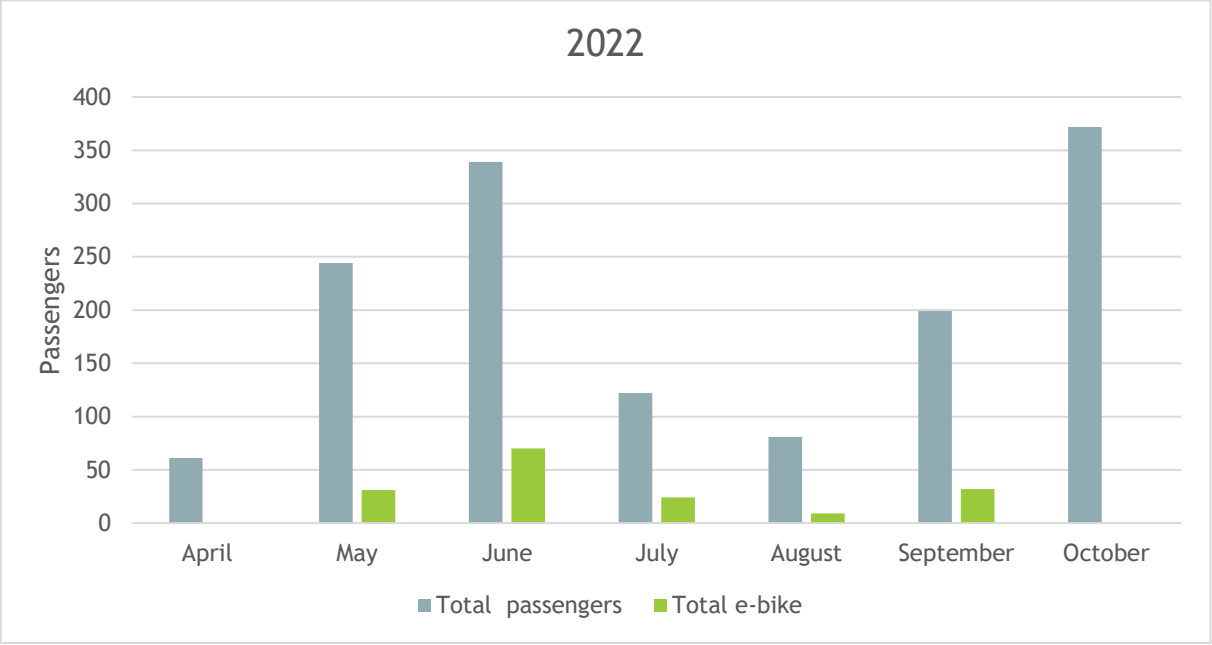

Figure 45 – Passengers and bicycles transported in 2022

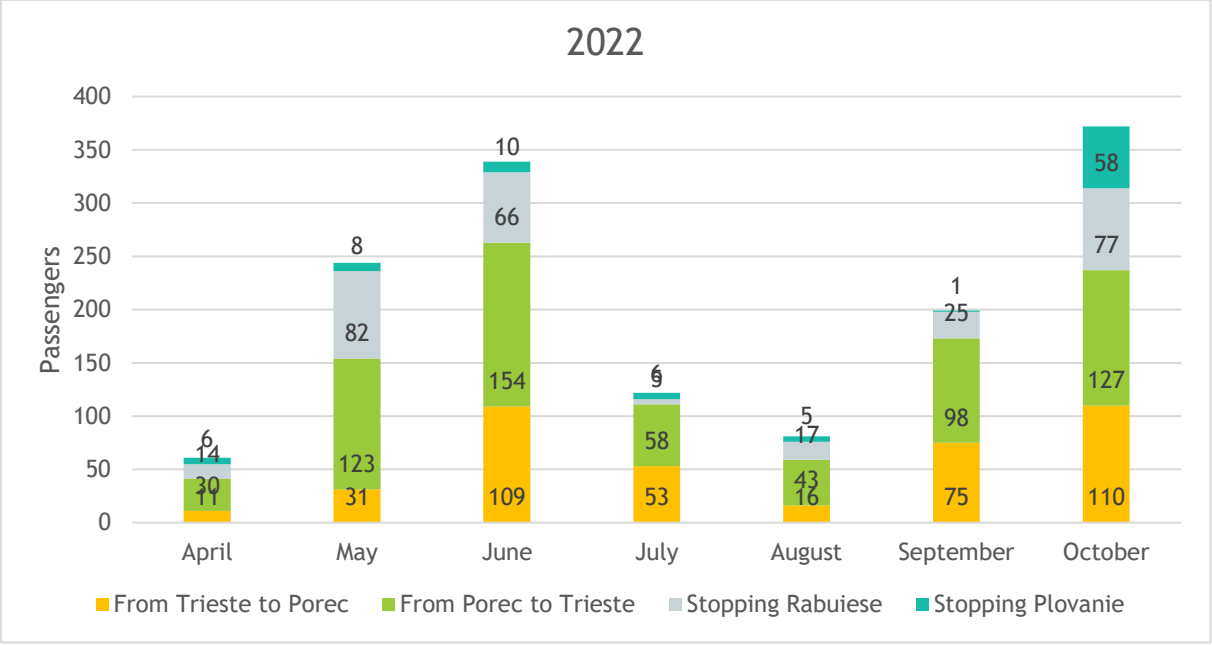

Figure 46 – Trends in the use of the Bike+Bus service

The analysis of historical data for the year 2022 shows that the use of the service was concentrated primarily between the two terminal stops in Trieste and Poreč, with a predominance of travel in the Poreč–Trieste direction. Lower passenger volumes were recorded at the intermediate stops of Rabuiese and Plovania.

In the Emilia-Romagna Region, a Bike+Bus service is currently active in the Province of Ferrara as a replacement for the Ferrara–Codigoro railway line. The service includes a covered trailer with a capacity for 22 bicycles and operates from 29 June to 7 September 2025, with 4 outbound and 4 return trips per day.

Figure 47 – Bike+Bus replacement service on the Ferrara-Codigoro railway line

The fare for the service is €4,50 per passenger, while the cost for transporting a bicycle is €7,00. Reservations must be made online the day before departure at www.tper.it/bici.

Ferrara → Codigoro Festivi

Stazioni	B5301	B5303	B5305	B5307	B5309	B5317
		BUS			BUS	
Ferrara	08:10	09:10	12:10	15:10	18:10	19:10
Ferrara via Boschetto	08:18	09:18	12:18	15:18	18:18	19:18
Ferrara Città del Ragazzo	08:21	09:21	12:21	15:21	18:21	19:21
Ferrara - Cona Ospedale	08:29	09:29	12:29	15:29	18:29	19:29
Cona	08:32	09:32	12:32	15:32	18:32	19:32
Quartesana	08:35	09:35	12:35	15:35	18:35	19:35
Masi Torello	08:41	09:41	12:41	15:41	18:41	19:41
Tresigallo Correggi	08:45	09:45	12:45	15:45	18:45	19:45
Rovereto Medelana.	08:50	09:50	12:50	15:50	18:50	19:50
Dogato	08:55	09:55	12:55	15:55	18:55	19:55
Ostellato	08:59	09:59	12:59	15:59	18:59	19:59
Migliarino	09:05	10:05	13:05	16:05	19:05	20:05
Valcesura	09:08	10:08	13:08	16:08	19:08	20:08
Migliaro	09:11	10:11	13:11	16:11	19:11	20:11
Massafiscaglia	09:18	10:18	13:18	16:18	19:18	20:18
Codigoro	09:28	10:28	13:28	16:28	19:28	20:28

Codigoro → Ferrara Festivi

Stazioni	B5300	B5302	B5304	B5306	B5308	B5318
		BUS			BUS	
Codigoro	06:45	07:45	10:45	13:45	16:45	17:45
Massafiscaglia	06:55	07:55	10:55	13:55	16:55	17:55
Migliaro	07:02	08:02	11:02	14:02	17:02	18:02
Valcesura	07:05	08:05	11:05	14:05	17:05	18:05
Migliarino	07:09	08:09	11:09	14:09	17:09	18:09
Ostellato	07:14	08:14	11:14	14:14	17:14	18:14
Dogato	07:18	08:18	11:18	14:18	17:18	18:18
Rovereto Medelana	07:23	08:23	11:23	14:23	17:23	18:23
Tresigallo Correggi	07:28	08:28	11:28	14:28	17:28	18:28
Masi Torello	07:32	08:32	11:32	14:32	17:32	18:32
Quartesana	07:38	08:38	11:38	14:38	17:38	18:38
Cona	07:41	08:41	11:41	14:41	17:41	18:41
Ferrara - Cona Ospedale	07:44	08:44	11:44	14:44	17:44	18:44
Ferrara Città del Ragazzo	07:52	08:52	11:52	14:52	17:52	18:52
Ferrara via Boschetto	07:55	08:55	11:55	14:55	17:55	18:55
Ferrara	08:03	09:03	12:03	15:03	18:03	19:03

Figure 48 – Lines Ferrara-Codigoro/ Codigoro-Ferrara Weekend scheduling (Saturday, Sunday)

4. PROJECT PROPOSAL

The analysis of the study area and the development of a knowledge framework regarding current transport demand and available services has made it possible to highlight the main transport-related issues, particularly those affecting cycle tourists.

In this regard, several case studies have been presented, focusing on newly implemented multimodal services combining buses and bicycles across different Italian regions. These services are operated both by public transport companies and private transport operators.

Following an in-depth analysis of the territory and identification of existing gaps, and in line with the broader objectives of public authorities to limit non-strategic infrastructure interventions,it is proposed to develop a new multimodal service to improve accessibility for visitors and cycle tourists in the coastal areas of the Provinces of Ravenna and Ferrara.

Tourism data on arrivals and overnight stays by domestic and international visitors in the coastal municipalities, as discussed in Chapter 2.6, show significant volumes during the summer season, driven by thematic and cultural routes in natural parks and protected areas.

This existing tourist demand, along with the current service offerings, provides a solid foundation upon which to design an additional transport service such as the Bike+Bus system, which would connect the coastal areas across the provinces of Ravenna and Ferrara.

The proposed service would be operated during the spring and summer period,specifically from April to October, when tourist arrivals and overnight stays are at their highest.

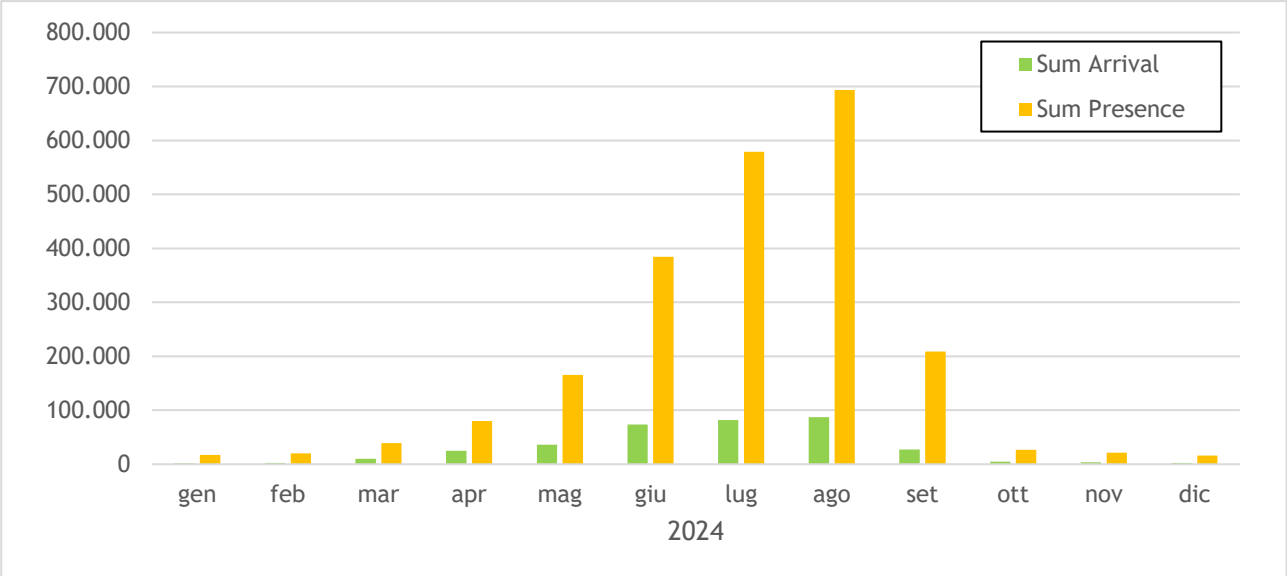

Figure 49 – Municipality of Ravenna, coastal area, arrival and presence for the year 2024 (Source: https://statistica.regione.emilia-romagna.it/statistiche-per-temi/turismo/dati-preliminari)

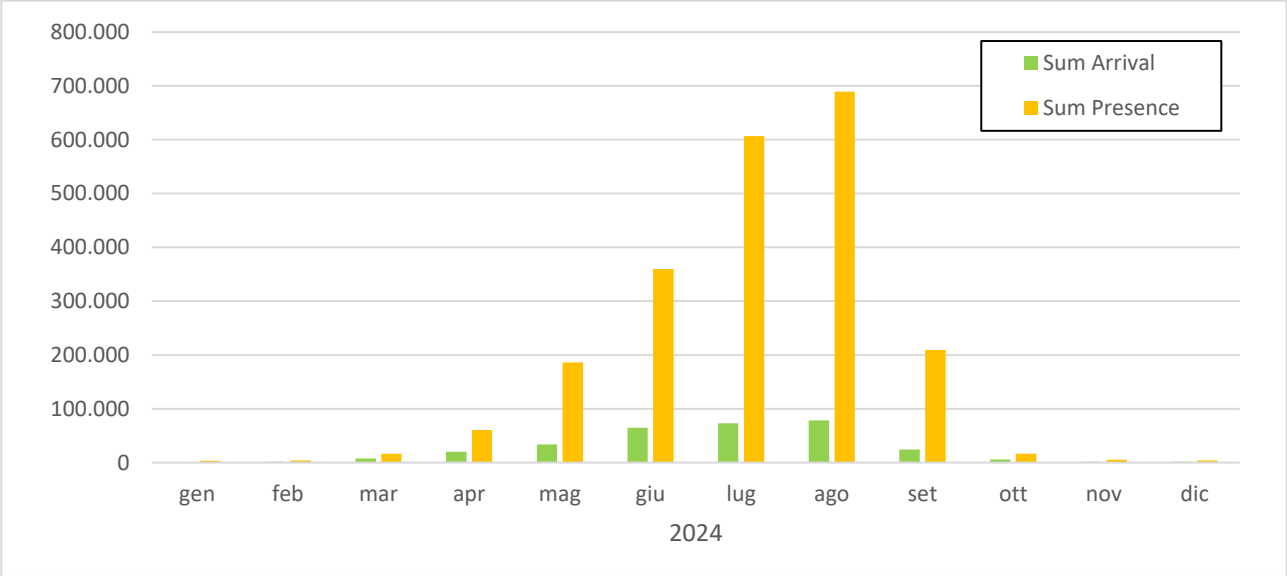

Figure 50 – Municipality of Comacchio, arrival and presence for the year 2024 (Source: https://statistica.regione.emilia-romagna.it/statistiche-per-temi/turismo/dati-preliminari)

4.1. Technical analysis

This paragraph aims to provide the main information regarding the proposed Bike+Bus service, outlining its technical features as well as the areas and locations involved.

The following image presents an initial schematic representation of the service connecting the cities of Ravenna, Comacchio, and Mesola—selected for their central position within territories hosting nature reserves and regional parks.

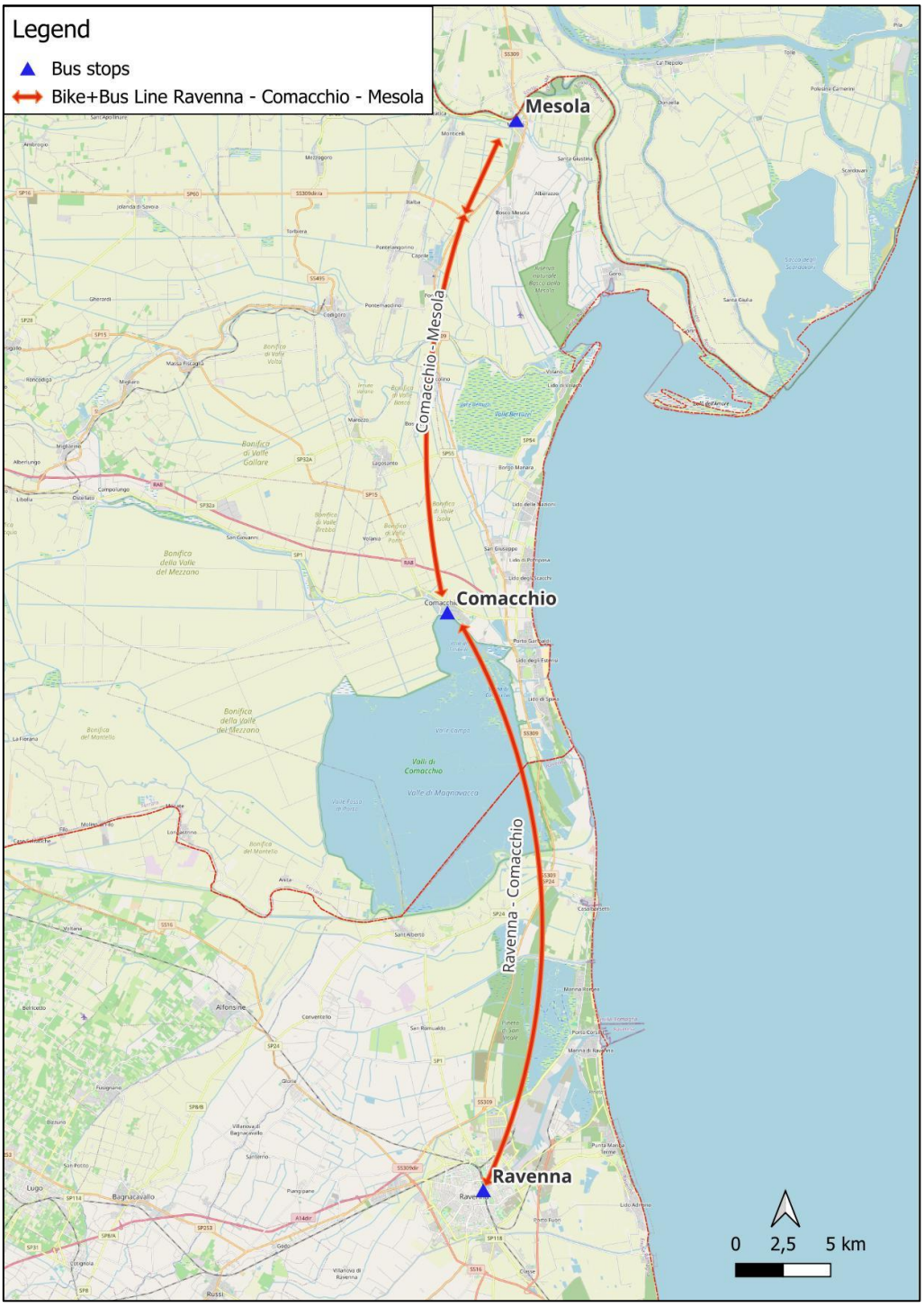

Figure 51 – Proposed Bike+Bus service between Ravenna – Comacchio - Mesola

The following image shows the isochrones for bicycle mode, indicating the distance that can be covered within one hour from each of the three stops of the proposed Bike+Bus service.

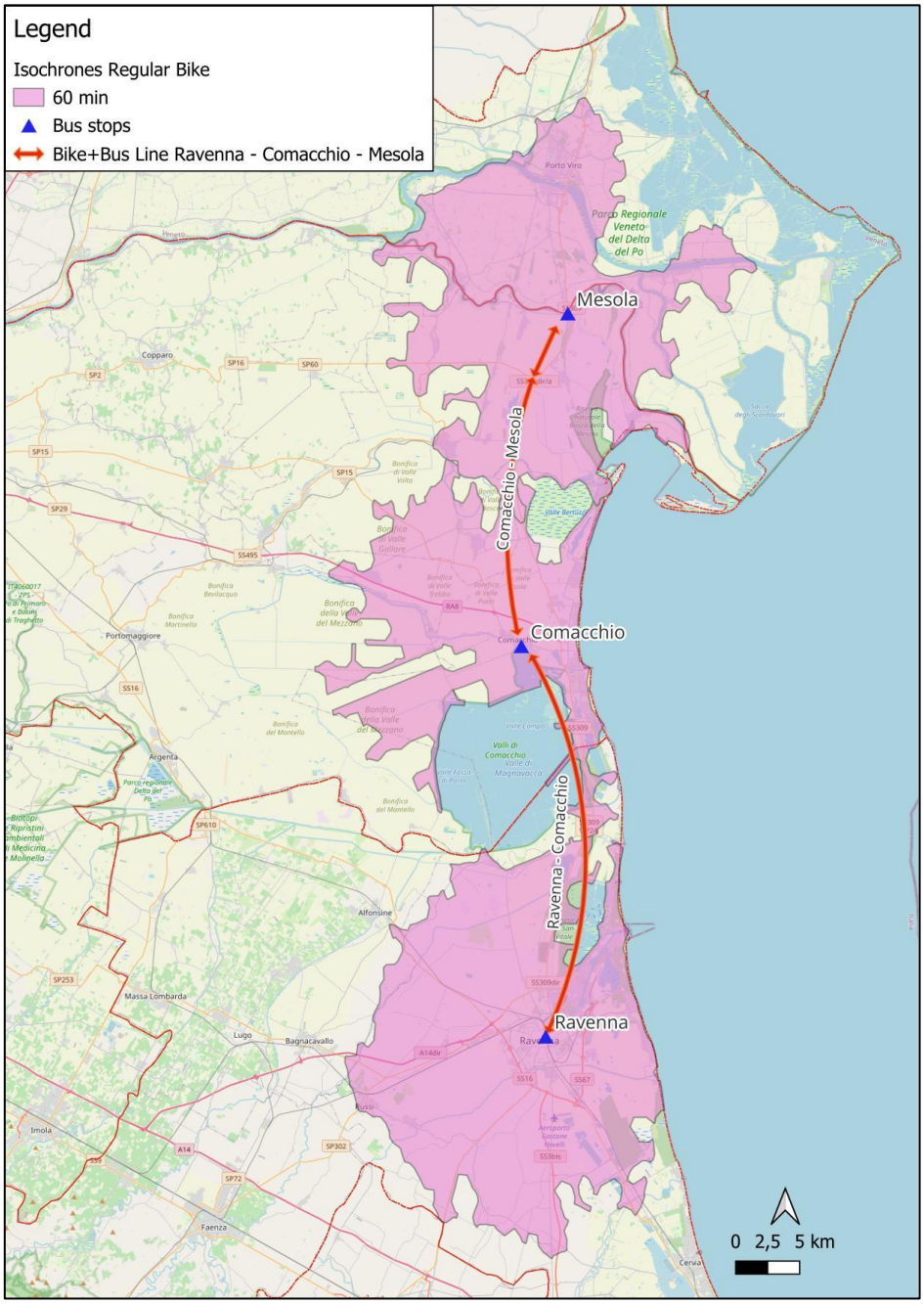

Figure 52 – Isochrones by 60 minutes from the bus stop of the bike+bus service propose

The proposed service plan can be structured as follows: one trip in the morning and one in the afternoon in each direction, between the terminal points of Ravenna and Mesola, with an intermediate stop in Comacchio.

A simplified schematic representation of the operational timetable (time-distance diagram) is provided below.

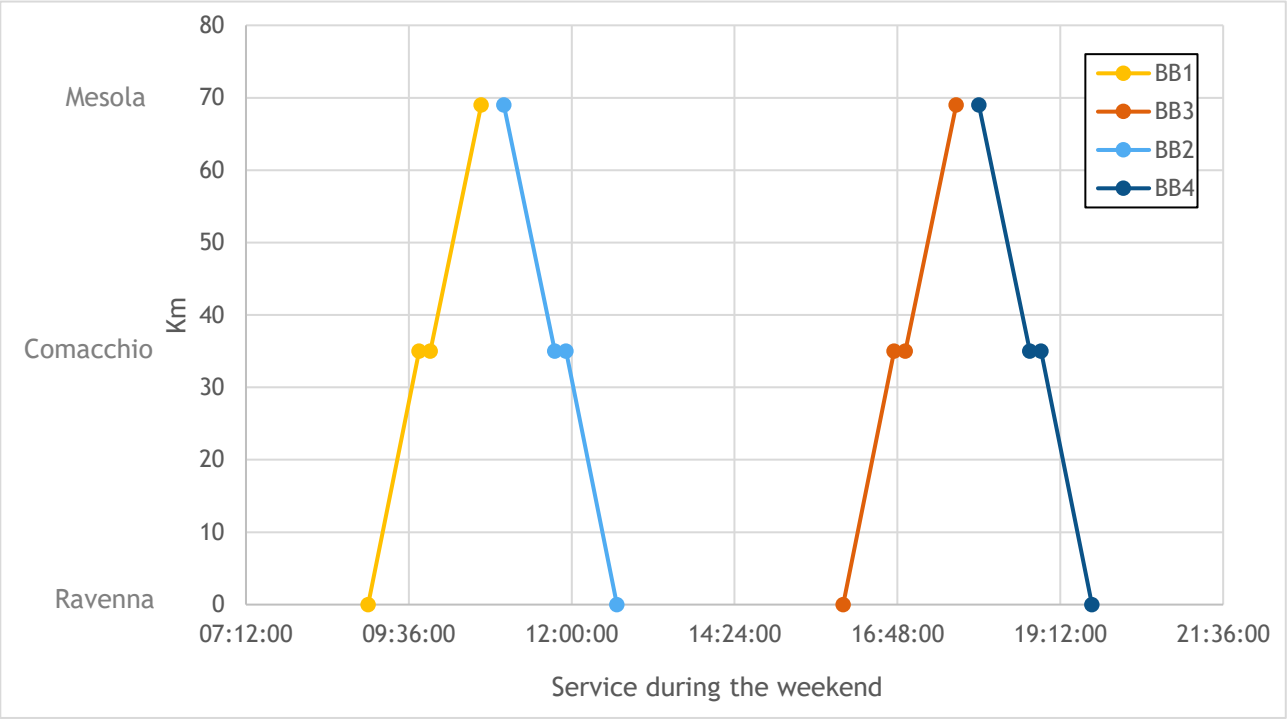

Figure 53 – Time-distance diagram for the proposed service

The proposed technical solution for the vehicle to be used in delivering the service—based on the case studies presented and aiming to offer maximum capacity while keeping costs under control,is a closed trailer. This solution is also adopted by the Friuli Venezia Giulia Region for its Bike+Bus services.

This type of trailer, with an internal capacity of 30 to 40 bicycles, allows the bikes to be secured inside and offers both ease of use for the driver and a high level of safety for the transported bicycles.

An example of a trailer designed for bicycle transport is shown below.

Figure 54 – Example of bus trailer for bike transportation (source: https://franz-harbeck.de/en/bus-trailers/o-liner/)

Figure 55 – Example 2 of bus trailer for bike transportation (source: https://franz-harbeck.de/en/bus-trailers/bikeliner/)

This technical solution with trailers can be coupled with standard interurban buses or tourist coaches, which typically offer a seating capacity of around 50 passengers.

4.2. Transportation and economic analysis

The proposed Bike+Bus transport service for the areas under study represents an initial solution to improve accessibility to the coastal areas of the Ravenna and Ferrara provinces for cycle tourists.

The service is structured with two daily connections between the terminal points of Ravenna and Mesola, with an intermediate stop in Comacchio. The proposed technical solution, using a covered bicycle trailer combined with an interurban or tourist bus ensures the following transport capacity.

The table below provides an estimate of the maximum daily transport capacity for both passengers and bicycles.

Service	Service	Passanger Capacity	Bike Capacity
BB1	Ravenna – Comacchio - Mesola	50	30
BB2	Mesola – Comacchio - Ravenna	50	30
BB3	Ravenna – Comacchio - Mesola	50	30
BB4	Mesola – Comacchio - Ravenna	50	30
Total		200	120

Table 6 - Bike+Bus service and capacity of the selected technical solution

A preliminary estimate of potential revenues from the service during the spring-summer period can be made based on the following assumptions:

- Operational period from April to October;
- Occupancy rate of 60% during the summer months (June, July, August);
- Occupancy rate below 50% during the shoulder months (April, May, September, October);
- Per-kilometre tariff of €0,1578, based on comparable services and corresponding to an average fare per passenger of €10,90;
- Fixed fare for bicycle transport: €3,00.

A preliminary revenue estimate, assuming the service operates from April to October 2025, can be represented by the following values:

Month	Days of service	Services per day	Occupancy Rate per service	Max pax capacity per service	Max bike capacity per service	Passenger	Bike	Passenger Revenue €	Bike Revenue €	Total Revenue €
april	8	4	10%	50	30	160	96	1.742,3	288,00	2.030,3
may	9	4	40%	50	30	720	432	7.840,2	1.296,0	9.136,2
june	9	4	60%	50	30	1.080	648	11.760,3	1.944,0	13.704,3
july	8	4	60%	50	30	960	576	10.453,6	1.728,0	12.181,6
august	11*	4	60%	50	30	1.320	792	14.373,7	2.376,0	16.749,7
september	8	4	50%	50	30	800	480	8.711,4	1.440,0	10.151,4
october	8	4	15%	50	30	240	144	2.613,4	432,00	3.045,4
Total	**61**			**350**	**210**	**5.280**	**3.168**	**57.494,9**	**9.504,0**	**66.998,9**

*Table 7 - Estimated revenues for the proposed Bike+Bus service, 2025 (*including the 15th of august)*

In terms of costs, assuming total expenditures of 100.000 € for the entire operational season from April to October, preliminary estimates indicate that the projected revenue under the current fare scheme would cover approximately 67% of service costs.

Moreover, in the event of public sector support through dedicated incentives, it would be possible to reduce the per-kilometre fare by approximately 25–35%, making the service more economically attractive for users.

5. CONCLUSIONS

This study has conducted a knowledge-based analysis of the coastal areas in the Provinces of Ravenna and Ferrara, focusing on the current state of transport services, including cycling infrastructure. A comprehensive overview was developed to identify both the supply of public and private transport services, as well as the demand generated by the territory and the tourism sector.

The analysis of the services offered, supported by cartographic elaborations, made it possible to identify gaps in terms of territorial accessibility and usability.

In particular, the findings highlight that some coastal areas—especially for cycle tourists—present connection challenges due to the fragmentation of existing cycling infrastructure and the limited integration with rail transport.

To address these issues, a number of multimodal service case studies targeting cycle tourists already implemented in other parts of Italy were reviewed, allowing the development of a Bike+Bus service proposal tailored to the study area.

The technical and economic sustainability of the proposed service is further supported by the significant existing tourist presence in both coastal areas, as well as by the presence of major natural parks and reserves, which already offer a well-developed tourism ecosystem.

Based on these elements, and considering national-level trends showing continuous growth in the cycle tourism segment—it is reasonable to assume that the proposed multimodal service would integrate coherently into an already mature cultural and touristic context.

The proposed technical solution involves a Bike+Bus service using a closed trailer with a loading capacity of approximately 30 bicycles, operated between the months of April and October on weekends (Saturday and Sunday) with two round trips per day, one in the morning and one in the afternoon,connecting the towns of Ravenna, Comacchio, and Mesola.

This represents a preliminary proposal with limited operational costs, yet with the potential to significantly enhance the cycle tourism accessibility of the study area. It is therefore recommended to proceed with further, more detailed technical and economic feasibility assessments.

6. ANNEXES

Data catalogue of data sources

[1] 'Il Parco del Delta del Po emiliano-romagnolo | Parco del Delta del Po'. Accessed: Jun. 09, 2025. [Online]. Available: http://www.parcodeltapo.it/it/pagina.php?id=18

[2] 'The Natura 2000 protected areas network', European Environment Agency. Accessed: Jun. 09, 2025. [Online]. Available: https://www.eea.europa.eu/themes/biodiversity/natura-2000/the-natura-2000-protected-areas-network

[3] 'Centri Visita e Musei | Parco del Delta del Po'. Accessed: Jun. 09, 2025. [Online]. Available: http://www.parcodeltapo.it/it/centri-visita.php

[4] 'schede ambiti indicatori socio-economici'. Accessed: Jun. 09, 2025. [Online]. Available: https://territorio.regione.emilia-romagna.it/paesaggio/risorse/studi-analisi-e-approfondimenti-tematici/intr_amb_pae/schede-ambiti-indicatori-socio-economici