



# WP.T3 - D.T3.2.3

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**State of the Art Report about mobility problems  
and policy challenges within ETP follower  
regions - Monghidoro and San Benedetto Val di  
Sambro**

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**2021**



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## 1. Introduction

Remote regions in central Europe share the same risks and issues related to the fact that they are located at the periphery of main transport networks. Inadequate and under-used services, excessive costs, lack of last-mile services and proper intermodality, poor communication and information to users and car commuting are some of the challenges that many central European regions face.

The SMACKER project addresses these disparities and promotes public transport and mobility services that are demand-responsive and that connect local and regional systems to main corridors and transport nodes.

Within SMACKER mobility issues related to peripheral and rural areas, main barriers are assessed and addressed and solutions drawn on the best international know-how are provided. SMACKER promotes demand-responsive transport services to connect local and regional systems to the main transport corridors and nodes. Soft measures (e.g. behaviour change campaigns) and hard measures (e.g. mobility service pilots) are used to identify and promote eco-friendly solutions for public transport in rural and peripheral areas, with the aim of achieving more liveable and sustainable environments and better integration of population to the main corridors. SMACKER helps local communities to re-design their transport services according to user needs, through a coordinated co-design process between local/regional partners and stakeholders; SMACKER also encourages the use of new transport services through motivating and incentivizing campaigns. The direct beneficiaries of the actions are residents, commuters and tourists.

Participation reflects the overall integration of citizens and groups in planning processes and policy decision-making and consequently the sharing of power. In particular, transport planning and transport relevant measures are often the subject of controversial discussions within the urban community. The concept of Sustainable Urban Mobility Planning has established the principle that the public should be included from the very beginning of the transport planning process and not only when the plans are largely completed and only minor amendments can be carried out. For that reason, public authorities need to open-up debate on this highly specialised and complex subject area and make participation a part of the planning process. In order to ensure participation throughout the process, the development of an engagement strategy would be necessary.

This deliverable “State of the Art Report” on mobility problems and policy challenges within ETP follower regions is the starting point for a better knowledge of the 10 selected Smacker Enlarged Transfer Programme (ETP) partners’ sustainable mobility challenges. The scope of these analysis is to map the needs, problems and expectations of each ETP follower region in low carbon mobility planning. Moreover, it defines the roles of ETP followers and policy leverages. It paves the way for local Action plans in ETP follower regions.



## 2. Project's area description

The present deliverable addresses as core area the ETP Grouping the Municipalities of Monghidoro and San Benedetto Val di Sambro (see municipalities areas with borders in red colour in the following figure), located in the Southern part of Metropolitan city of Bologna.

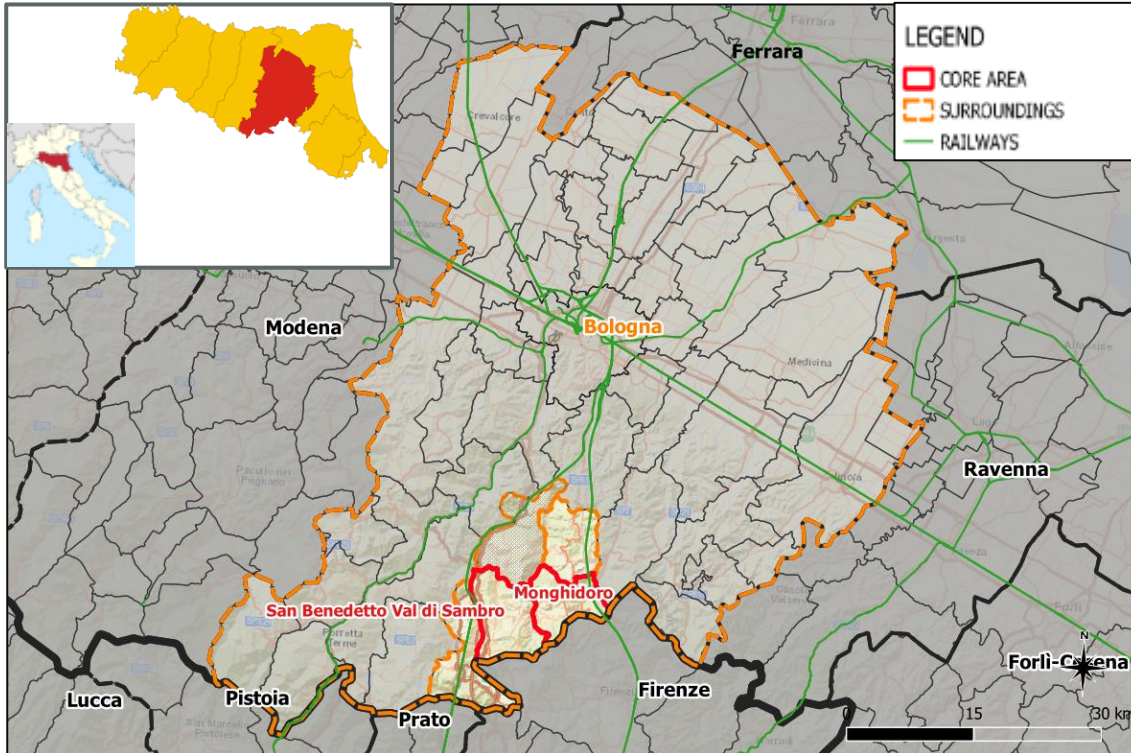


Figure 1. Map representation of the core pilot area as well as the surroundings

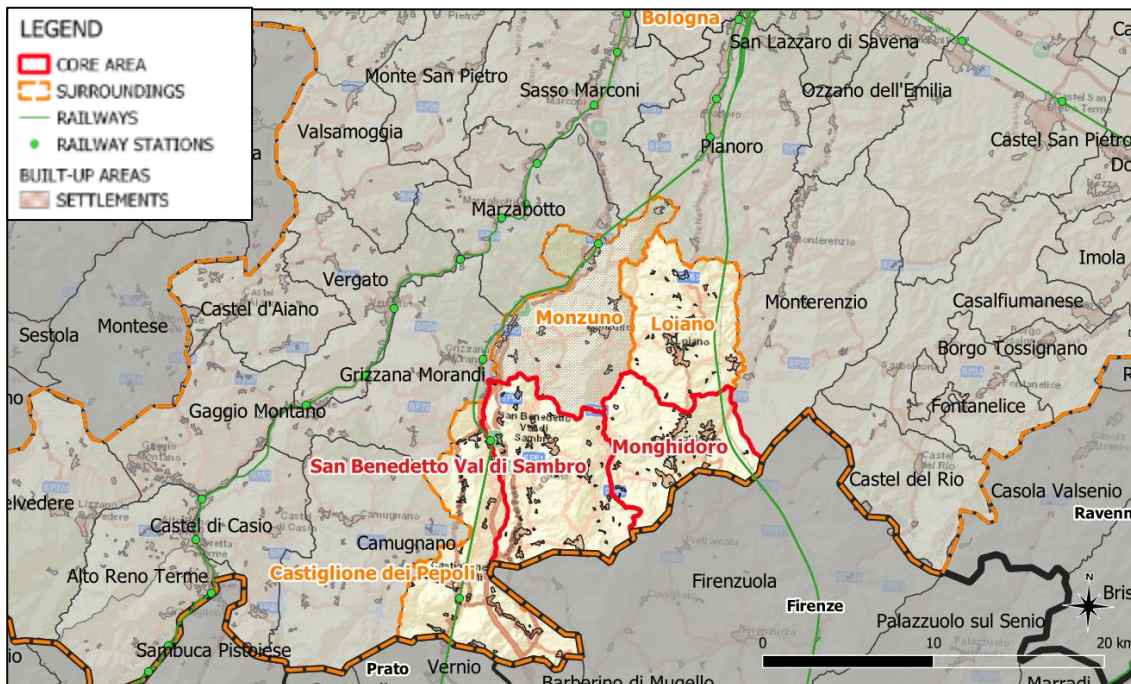


Figure 2. Map representation of the core pilot area as well as the surroundings - zoomed view



The Metropolitan city of Bologna is one of the 9 NUTS 3 areas making up the Emilia-Romagna Region in Northern Italy. Within the Metropolitan City, a relevant surrounding of the ETP core area, is represented by the neighbouring municipalities of Loiano and Castiglione dei Pepoli. To a less extent, also the municipality of Monzuno is to be partly taken into account with particular reference to its Southern part (while the Northern part, in the valley floor of the Setta river and close to Marzabotto is quite detached and different from the morphological point-of-view to the ETP core area).

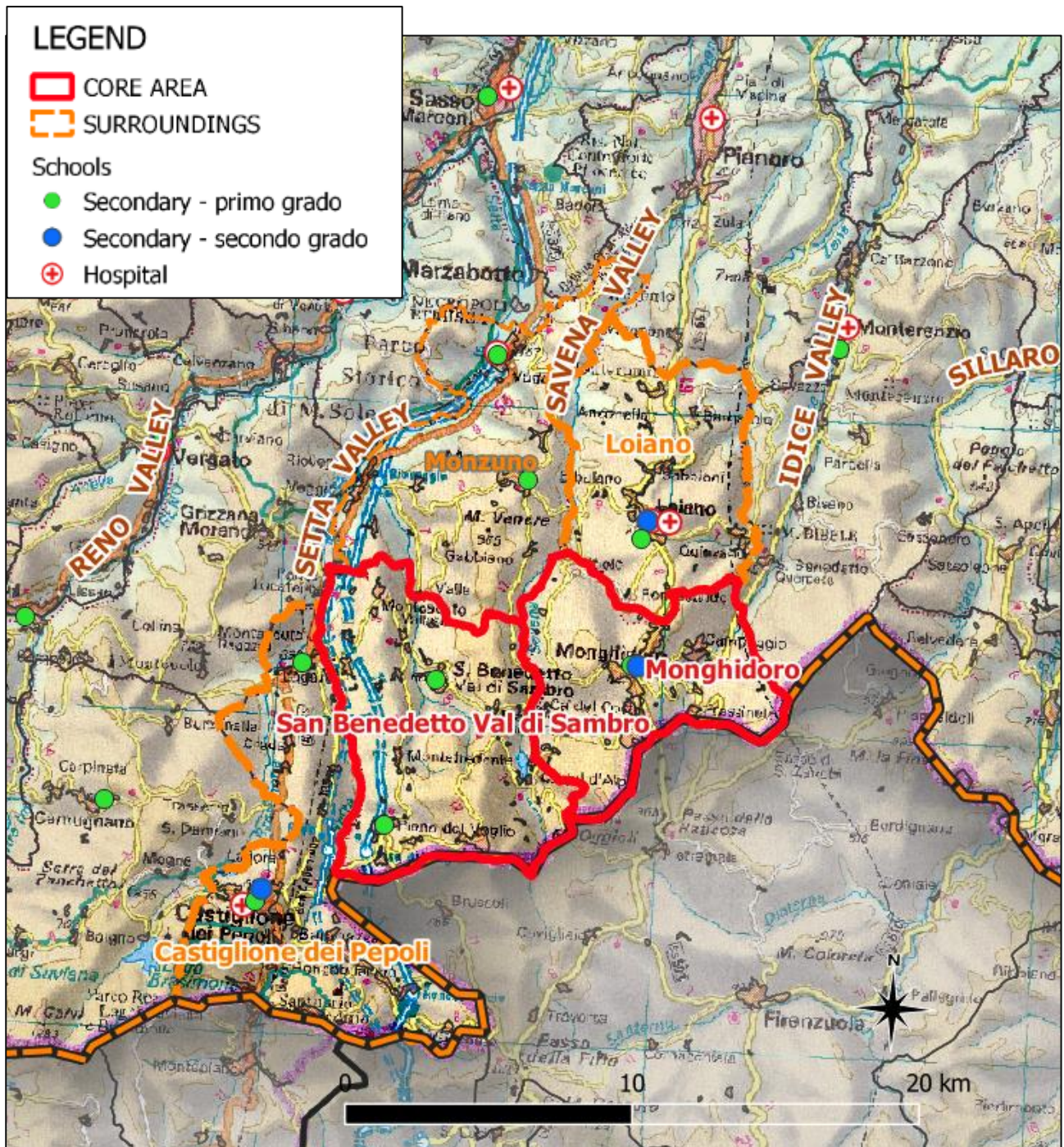


Figure 3. Geo-morphological representation of the core ETP area as well as the surroundings. Source: elaborations of the background provided by Geoportale Regione Emilia - Romagna (<https://geoportale.regione.emilia-romagna.it>)



Moreover, it is to recall also the important role of the city of Bologna, which represents a key reference polarity and destination due to the attractiveness of this main centre for all the metropolitan city, including the analysed area. Nonetheless, taking into account the key focus of the present analyses, in the analyses in the following will be particularly focusing on the 2 municipality of the core area the other two fully including the surrounding one (Castiglione dei Pepoli and Loiano).

From the geo-morphological point of view, the territory mainly consists of mountainous areas belonging to the Tuscan-Emilian Apennines characterised by different valleys going (indicatively) in South - North direction (see Figure 3).

In particular, looking at the Eastern part of the analysed area, the centres of Monghidoro and Loiano (mainly) sit on a ridge between two river valleys, Savena and Idice. Consequently, also from the institutional/administrative point of view they both belong to the Union of the Savena and Idice valleys Municipalities (“Unione dei Comuni<sup>1</sup> Savena-Idice”), which includes also three other municipalities (Pianoro, Monterenzio and Ozzano dell’Emilia). San Benedetto Val di Sambro and Castiglione dei Pepoli (in the Western side of the analysed area) belong, instead, to the (wider) “Unione dei Comuni del’Appennino Bolognese”, including a total of 11 municipalities. They stretch over different valleys and ridges, including the Setta Valley, where key transport infrastructures and nodes are located (see the next paragraph).

In general, as from the following table, in all the municipalities, it is to register a relevant difference between the altitude of the valley floors (lower than 350 m) and the elevation of the main centres (between 600 and 850 m).

Municipality	Union of Municipalities	Minimum Elevation [meters above sea level]	Maximum Elevation [meters above sea level]	Elevation of the main centre [meters above sea level]
Monghidoro	Savena-Idice	347 m	1229 m	841
San Benedetto Val di Sambro	Appennino Bolognese	270 m	1190 m	602
Loiano	Savena-Idice	238 m	860 m	714 m
Castiglione dei Pepoli	Appennino Bolognese	275 m	1215 m	691 m

**Table 1. Elevation of municipalities in the analysed area. Source: elaborations on ISTAT data**

This morphological characterisation is also mirrored on the population and related density, as shown in Table 2. The resulting population density of the overall catchment area is well-below the average at metropolitan city level. Moreover, as shown still in Table 2, a certain heterogeneity is also to be ascertained with reference to the demographic characterisation within the analysed area. For instance, as regards to age distribution, Monghidoro and Castiglione dei Pepoli are showing a higher share of elderly people.

Moreover, concerning the spatial distribution, it is to ascertain a high deal of minor and scattered settlements. In this purpose, it is to underline that, on average, the main centres account for less than 40%

<sup>1</sup> The “Unione dei Comuni” is an institutional form of association between municipalities (accroding to the Legislative Decree 267/2000) for jointly addressing functions or services of municipal competence.



of the population of the analysed municipalities. In particular, it is to highlight the case of San Benedetto Val di Sambro, which is endowed with 43 settlements and whose main centre (with about 700 inhabitants) correspond to only to about 13% of the overall population.

As far as mobility for studying purposes is concerned, the key data on student and schools are reported in the following Table 3. University students, instead, are commuting/moving towards main cities external to the analysed area (esp. Bologna).

Area	TOTAL POPULATION	0-14 years [%]	15-64 years [%]	>=65 years [%]	>=80 years [%]	OVERALL POPULATION DENSITY [inhabitants / km <sup>2</sup> ]	MOTORISATION RATE [vehicles / 1000 inhabitants]
Monghidoro	3703	9,9%	61,1%	29,0%	10,3%	63	63
San Benedetto Val di Sambro	4168	10,3%	62,5%	27,2%	8,5%	77	77
Loiano	4376	11,6%	62,7%	25,7%	7,6%	84	84
Castiglione dei Pepoli	5466	10,0%	60,2%	29,8%	9,3%	83	83
WHOLE METROPOLITAN CITY OF BOLOGNA	1021501	12,6%	62,9%	24,5%	8,6%	276	82

**Table 2. Population and demographic distribution in the analysed area in 2019. Source: elaborations on ISTAT data**

Area	Primary School		First Grade Secondary School <sup>2</sup>		Second Grade Secondary School <sup>3</sup>	
	Schools	Pupils	Schools	Pupils	Schools	Students
Monghidoro	1	121	1	93	1	36
San Benedetto Val di Sambro	2	166	1	106	-	-
Loiano	1	154	1	104	1	86
Castiglione dei Pepoli	3	212	1	119	4	380

**Table 3. Number of students and schools in the analysed area in 2019. Source: elaborations on ISTAT data**

Concerning tourism and related mobility flows, some relevant attractions are located in the analysed area, which is crossed by “Via degli Dei”, an important foot path connecting Bologna to Firenze. In addition to

<sup>2</sup> “Scuola Secondaria di Primo Grado”.

<sup>3</sup> “Scuola Secondaria di Secondo Grado”.



unspoilt natural areas and historical villages, other remarkable sights such as Marzabotto with its Etruscan settlements. Nonetheless, the number of tourists is limited, especially in comparison with the overall Emilia-Romagna region, which is one of the firsts in terms of presence of tourists at the national level. Unfortunately, there is no data referring to the single municipalities of Monghidoro and San Benedetto Val di Sambro, while data are available with a certain degree of detail for the wider area of municipalities of the Appennino Bolognese.

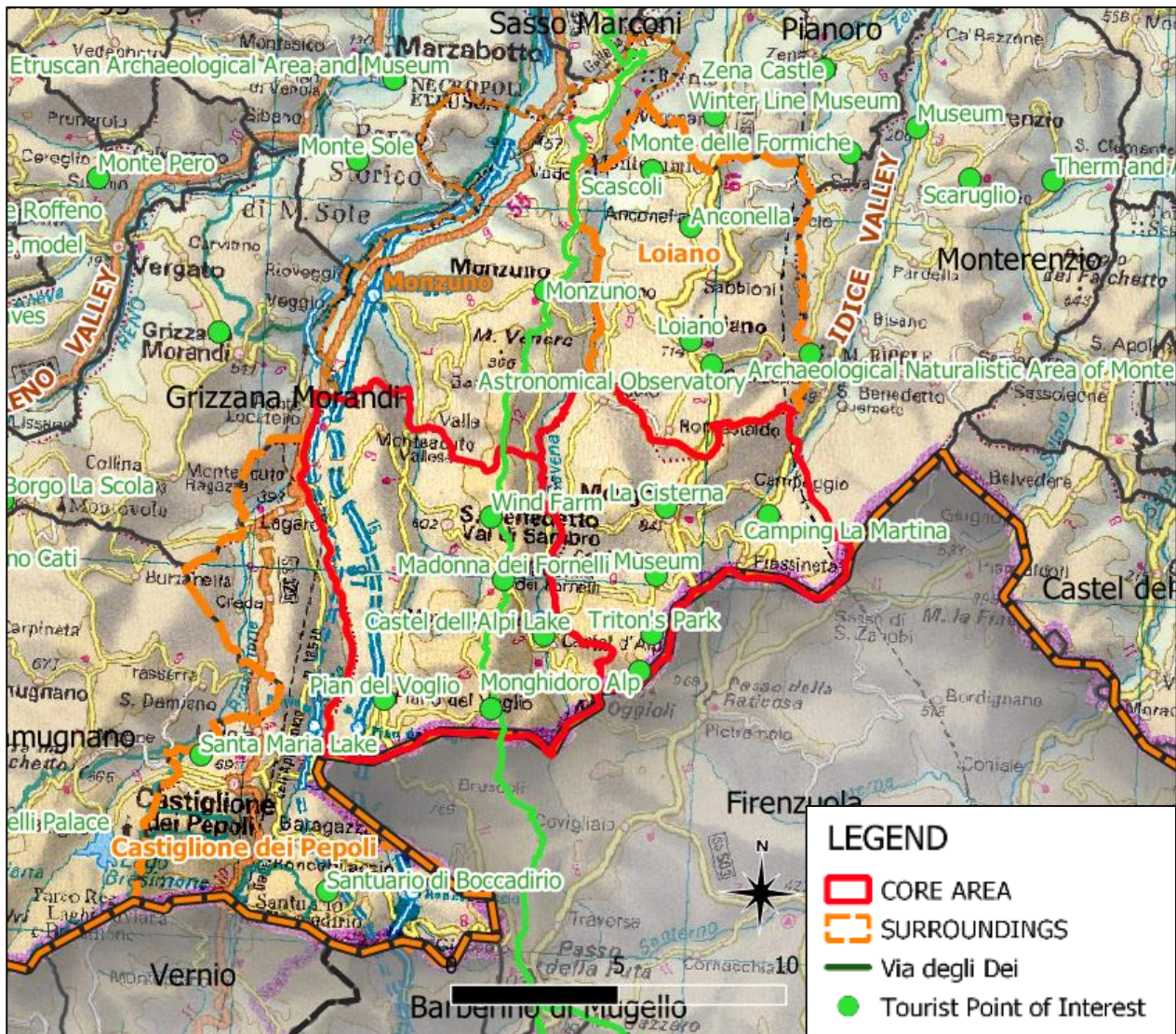


Figure 4. Point of Interests related to tourism the core ETP area as well as the surroundings. Source: elaborations of the background provided by Geoportale Regione Emilia - Romagna (<https://geoportale.regione.emilia-romagna.it>)

As from the statistics, Italian and international tourists accounted for more than 500 thousand yearly attendances in both 2018 and 2019 (respectively 558.663 and 537.423), while in 2020 the registered number of tourists dropped to 302.637 due to limitations caused by the COVID-19 pandemic. In particular, there is a relevant number of foreign tourists, which represent indicatively one third of the annual tourists' attendances of the area (excluding 2020), as underlined by Figure 4. Furthermore, as often occurs in such kind of territories, it is to recall that tourist flows observe strong seasonal patterns, with a strong peak in the summer months that influences the mobility needs of people within the area (see Figure 5).



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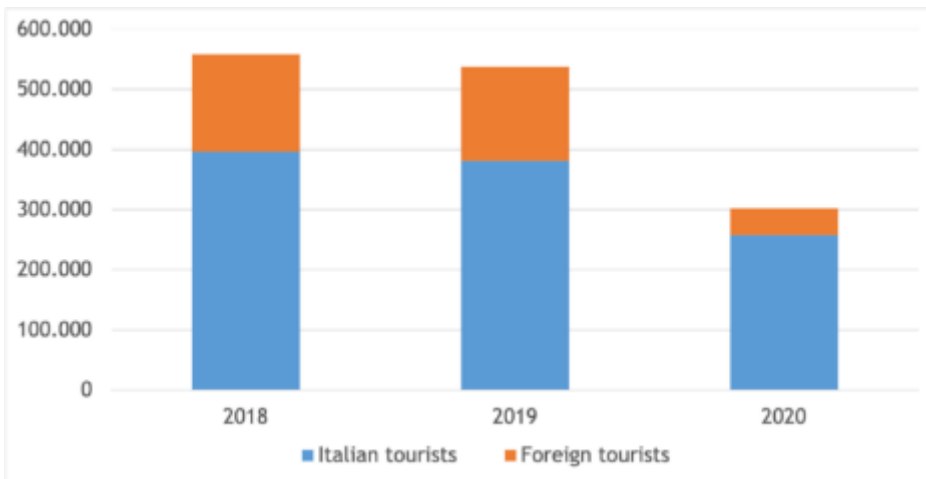


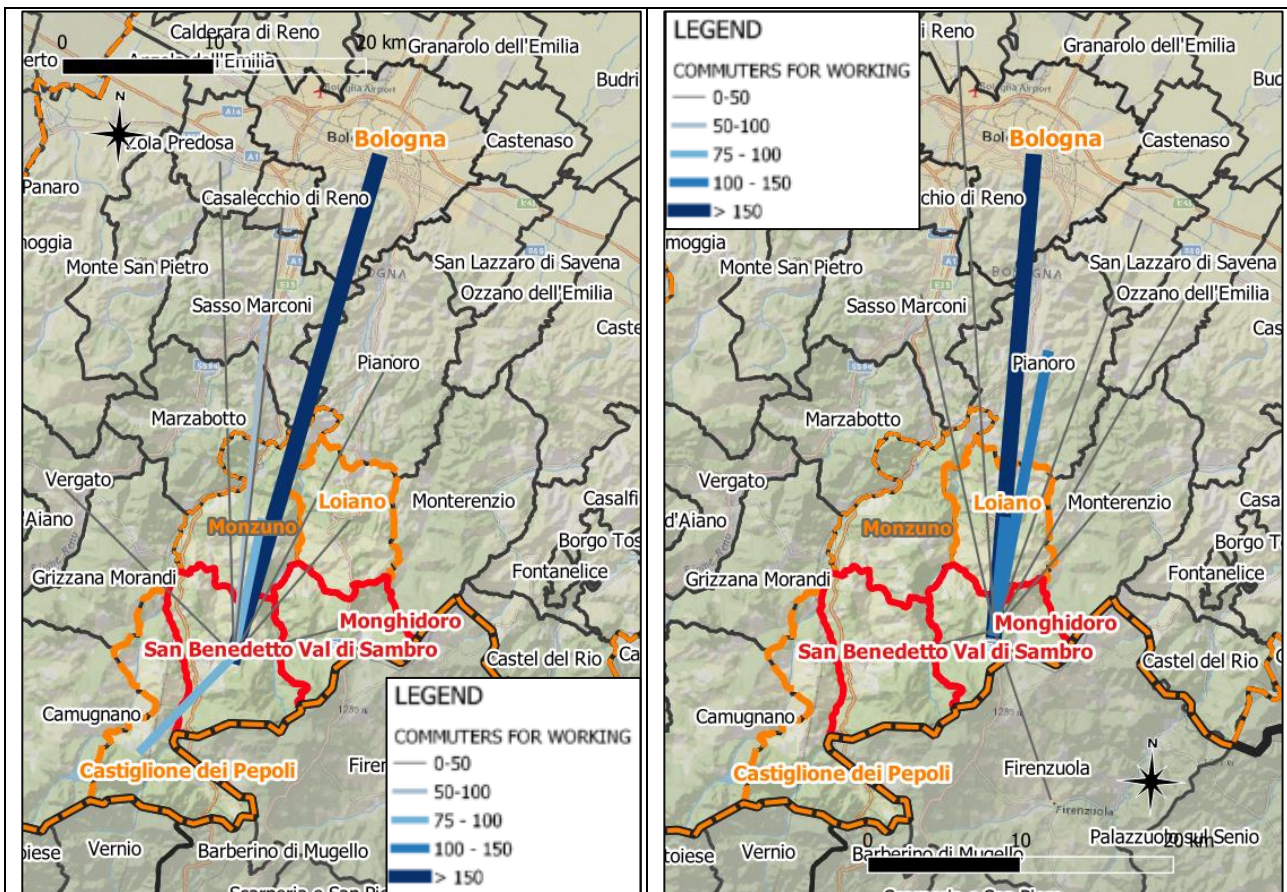
Figure 5. Presence of Italian and foreign tourists in the municipalities of the Appennino Bolognese. Source: data provided by the statistical department of Emilia-Romagna Region.



Figure 6. - Trend of tourists' attendances in the municipalities of the Appennino Bolognese over the months. Source: data provided by the statistical office of Emilia-Romagna Region

### 3. Description of the mobility demand and needs (relations and attractors poles)

As far as transport demand is concerned, among the different components, a particularly relevant one is represented by (daily) systematic mobility, mainly corresponding to commuting for work or study purposes. In this regard, the results from the 15<sup>th</sup> National Census (carried out by ISTAT in 2011) provide a remarkable source of information.



Total numbers of commuter's trips generated for working purposes from San Benedetto Val di Sambro municipality | Total numbers of commuter's trips generated for working purposes from Monghidoro municipality

Figure 7. - Thematic maps on commuting mobility demand for working purposes resulting from the National Census carried out in 2011. Source: Elaborations on ISTAT data.

The resulting demand flows are characterised by quite limited values, especially with respect more urbanised areas of Emilia-Romagna region. More in detail, both Monghidoro and San Benedetto Val di Sambro are characterised but mainly “internal” flows (i.e. with both origin and destination located within the municipality itself). With reference commuting trips towards the “external” (i.e. with a destination located in a different municipality), instead, the Figure 7 and Figure 8 are showing a thematic representation about trips, respectively, for working and studying purposes.

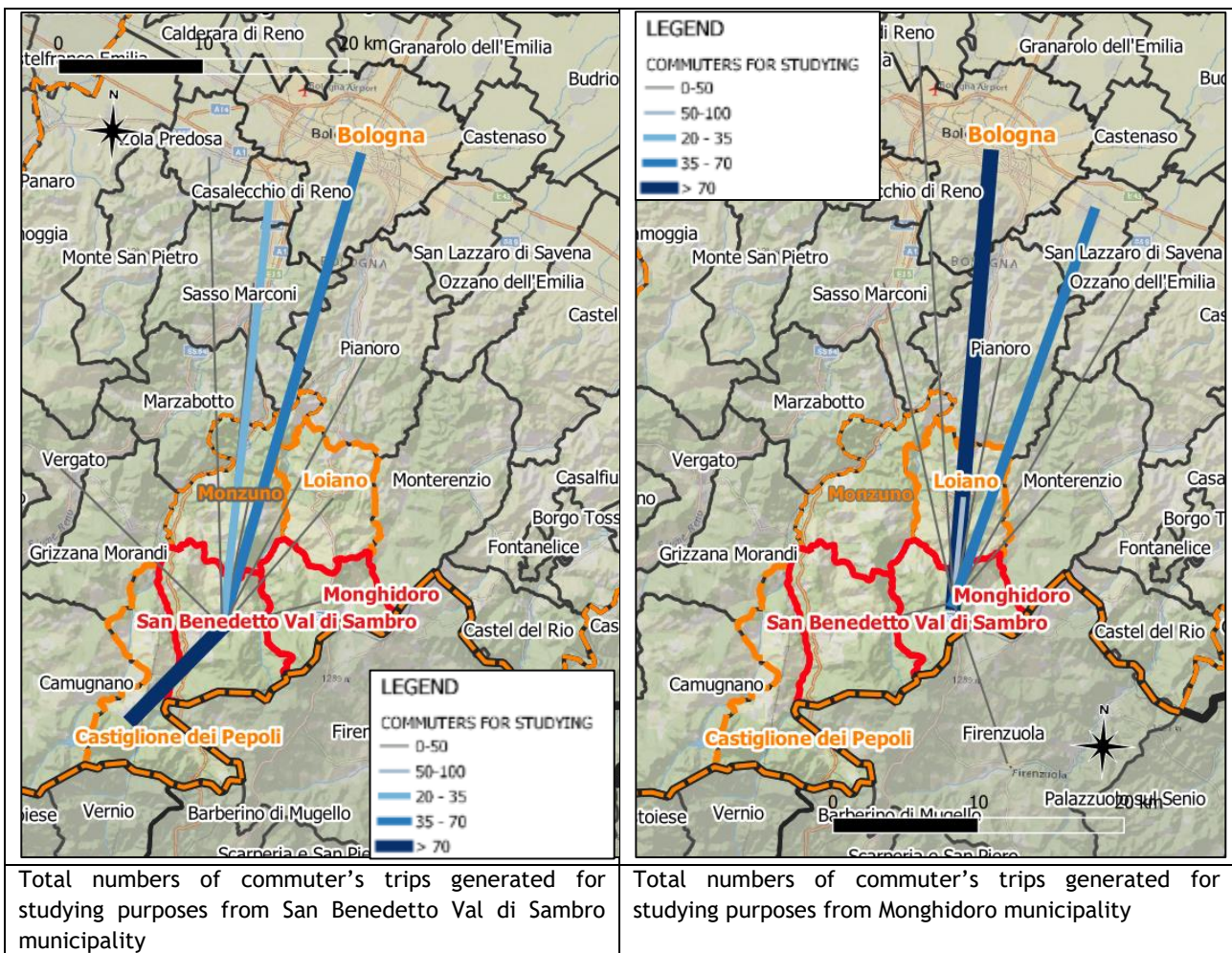


Figure 8. - Thematic maps on commuting mobility demand for studying purposes resulting from the National Census carried out in 2011. Source: Elaborations on ISTAT data.

In this purpose, it is to register the relevant of O/D relations in South-North directions, especially (but not only) with the city of Bologna. Moreover, it is to highlight the number of commuters from San Benedetto Val di Sambro towards Castiglione dei Pepoli (especially for studying purposes) as well as from Monghidoro and Loiano. The number of commuters between the two municipality of the ETP core area, instead, very low.

As regards to modal split (of both internal and external trips), Figure 9 and Figure 10 show similar patterns but also significant differences between the two municipalities of Monghidoro and San Benedetto Val di Sambro.

In particular, as regards to mobility for working purposes, it is to register a similar predominant usage of the car (about 80% share), while public transport solutions account for about 10%; in this purpose while in Monghidoro it is almost exclusively associated with bus services (7%), in San Benedetto Val di Sambro it is mostly related with train services (8%) with a limited share of bus services (2%).

With regards to commuting for studying purposes, in San Benedetto Val di Sambro it is to register a clear predominance of public transport, (with bus services reaching 61% while rail ones account for 7%), with the car alternative limited to less than 25%. In Monghidoro, instead, the bus services reach the relative majority



(41%) with only a little difference with respect to the share of car transport (39%). Rail transport, instead, does not represent a significant share.

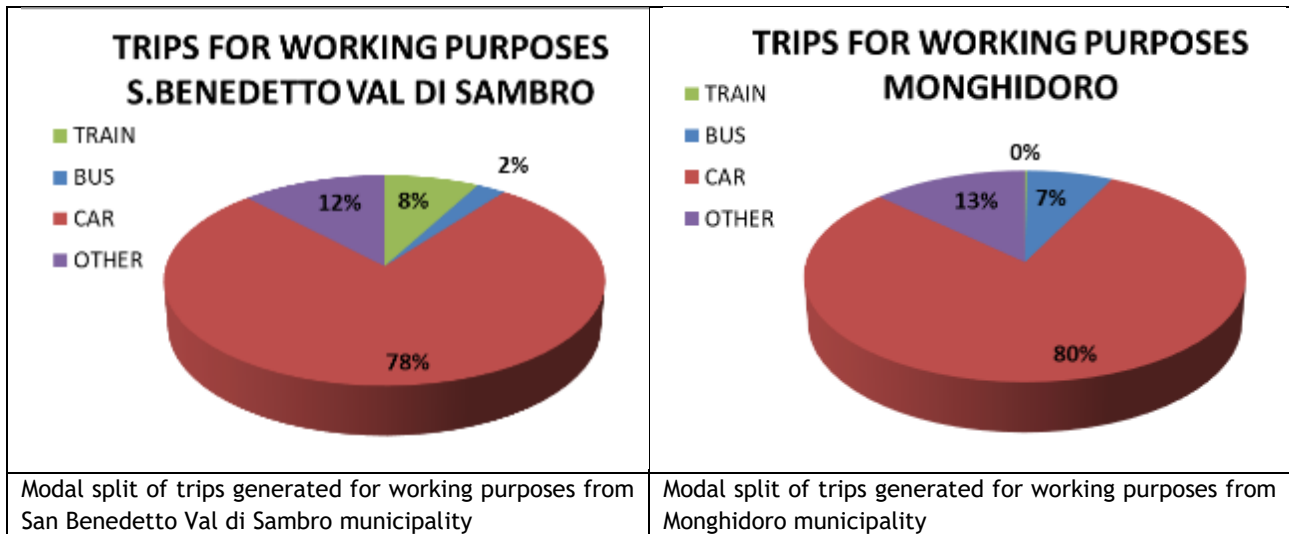


Figure 9. - Modal share of commuters' trips for working purposes resulting from the National Census carried out in 2011. Source: Elaborations on ISTAT data.

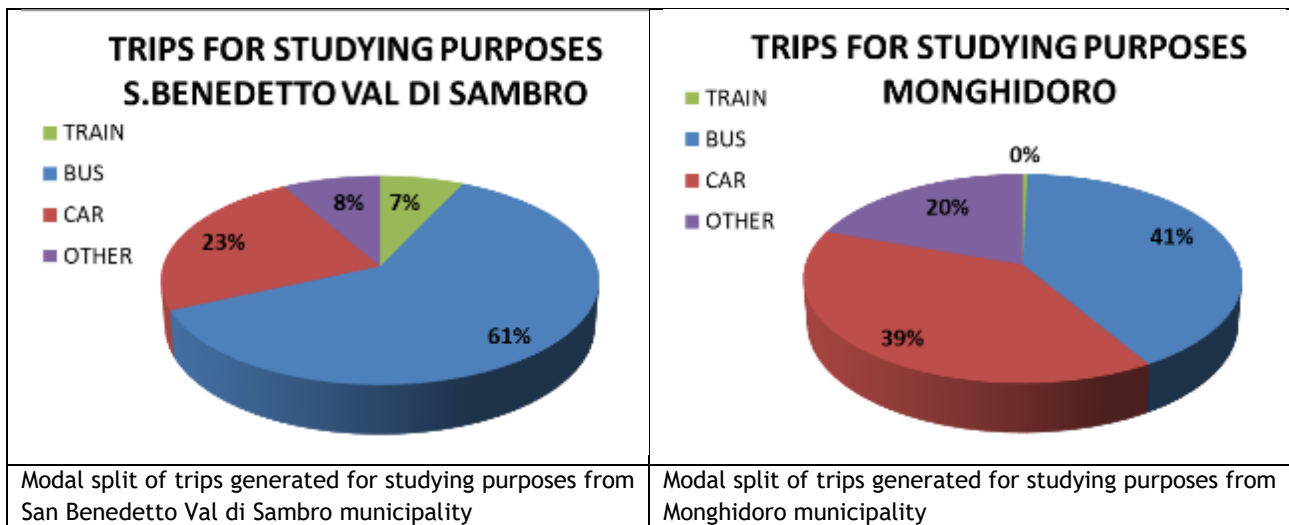


Figure 10. - Modal share of commuters' trips for working purposes resulting from the National Census carried out in 2011. Source: Elaborations on ISTAT data.

A further and more updated insight into the mobility demand, not limited to the trips for commuting purposes, is given by the outcomes of a survey carried out through 5.500 phone interviews in the overall Metropolitan City of Bologna in 2016. In particular, this sample included 64 persons interviewed in the 4 municipalities of Monghidoro, San Benedetto Val di Sambro, Castiglione dei Pepoli and Loiano.

A synopsis of the estimated daily mobility demand referred to the overall population (resulting from the data provided by the interviewed sample) is summarised in the following table, which accounts for a total number of about 34,500 trips from/to the analysed area (with about 27,500 made by residents of the municipalities).



Trips within the same municipality of the analysed area	16,500	48%	Trips with both Origin and Destination within the same municipality (belonging to the set of 4 analysed ones)
Trips between different municipalities within the analysed area	3,000	9%	Trips with Origin and Destination in two different municipalities (both belonging to the 4 analysed ones)
Trips between the analysed area and the external, excluding the City of Bologna	6,000	17%	Trips with Origin in one of the 4 analysed municipalities and destination in another external municipality excluding the City of Bologna, <i>and vice versa (i.e. the other way round)</i>
Exchanges with the city of Bologna	9,000	26%	Trips with Origin in one of the 4 analysed municipalities and destination in the City of Bologna, <i>and vice versa (i.e. the other way round)</i>

Table 4. Origins and Destinations of the trips within the 4 main municipalities of the ETP analysed area. Source: SRM

Hence, the total number of trips carried out within the overall area made up by the 4 analysed municipalities corresponds to 19,500 (58% of the total). Focusing on this specific subset, which could be targeted by a new PT service to be developed in the analysed area, a breakdown into the different typologies of reasons for the trip is provided by the following table.

PURPOSE OF THE TRIP	Trips within the same municipality	%	Trips between different municipalities	%	Total	%
Reaching the (usual) workplace	5,319	32%	1,518	53%	6,276	32%
Sport/leisure	5,118	31%		0%	5,118	26%
Purchases	3,884	23%	838	29%	4,722	24%
Visit to relatives / friends	1,004	6%	526	18%	1,531	8%
Accompaniment of minors	1,003	6%		0%	1,003	5%
Healthcare	219	1%		0%	219	1%
<b>Overall Total</b>	<b>16,548</b>	<b>100%</b>	<b>2,882</b>	<b>100%</b>	<b>19,430</b>	<b>100%</b>

Table 5. Breakdown of the trips within the analysed area according to different purposes. Source: SRM

Focusing on the demand using bus services, a relevant source of information is represented by the outcomes of passengers boarding/alighting counts carried out in the period 2014-2019, which allowed to estimate the daily O/D matrix represented in the following table. In particular, it implies a total of 2,400 trips with O/D within the analysed area. Indicatively, they encompass:

- 1,000 trips with both Origin and Destination within the 4 municipalities, corresponding to the 42% (out of which the 25% being carried out within the same municipalities and the 17% between different ones)
- 570 trips between the analysed area and the City of Bologna (24%);
- 830 trips between the analysed area and other municipalities (35%).



COMUNE	CASTIGLIONE	LOIANO	MONGHIDORO	SAN BENEDETTO	BOLOGNA	CM BOLOGNA	ALTRA PROVINCIA
CASTIGLIONE	156	-	-	104	4	72	-
LOIANO	-	16	80	11	159	136	-
MONGHIDORO	-	33	42	26	111	115	-
SAN BENEDETTO	143	5	3	400	23	55	1
BOLOGNA	2	124	131	18	269	727	-
CM BOLOGNA	34	189	166	60	798	1.486	-
ALTRA PROVINCIA	-	-	-	15	-	-	1

Table 6. O/D of bus trips in the analysed area. Source: SRM

A further understanding can be achieved by analysing the key polarities providing key attractors for mobility demand within the analysed area, such as schools (esp. high schools), hospital and premises (relatively) big enterprises. Hence, the analyses of the POIs, at least partly anticipated in the first chapter, is further addressed here with specific reference to the role of key determinants of mobility patterns in the analysed area.

### Schools

Within the four analysed municipalities the high schools reported in the following table are to be reported

<i>Municipality</i>	<i>Name of the (high) school</i>	<i>Number of students</i>
Castiglione dei Pepoli	Istituto superiore Caduti della Direttissima	352
Monghidoro	Istituto superiore Majorana	n.a.
Loiano	Istituto superiore Serpieri	60

Table 7. High schools in the analysed area

### Hospitals

Within the four analysed municipalities two hospitals are to be reported, both characterised by employees almost exclusively also resident within the 4 municipalities (to which belong also the majority of patients and visitors).

<i>Municipality</i>	<i>Total number of employees</i>	<i>Municipality of residence of the employees</i>
Castiglione dei Pepoli	28	<ul style="list-style-type: none"> <li>• 24 from Monghidoro</li> <li>• 4 from Loiano</li> </ul>
Loiano	88	<ul style="list-style-type: none"> <li>• 60 from Castiglione dei Pepoli</li> <li>• 3 from San Benedetto Val di Sambro</li> <li>• 1 from Loiano</li> </ul>

Table 8. Hospitals in the analysed area



Figure 11. Point of Interests providing key attractors for the mobility demand in the core ETP area as well as the surroundings. Source: elaborations of the background provided by Geoportale Regione Emilia - Romagna (<https://geoportale.regione.emilia-romagna.it>)

Premises of big enterprises

Within the four analysed municipalities the premises of big enterprises in the following table are to be reported. In particular, three of them are located in the settlement of Pian del Voglio within the municipality of San Benedetto Val di Sambro, which located in the Serra valley and close to a motorway exit.



<i>Municipality</i>	<i>Enterprises</i>	<i>Number of students</i>
Pian del Voglio (San Benedetto Val di Sambro)	<ul style="list-style-type: none"> <li>• Balestri SpA</li> <li>• Seri Art.</li> <li>• FMP</li> </ul>	<ul style="list-style-type: none"> <li>• 78 from San Benedetto Val di Sambro</li> <li>• 25 da Castiglione dei Pepoli</li> </ul>
Loiano	Silicon Europe	<ul style="list-style-type: none"> <li>• 45 da Loiano</li> <li>• 32 da Monghidoro</li> <li>• 13 da San Benedetto Val di Sambro</li> <li>• 1 da Castiglione dei Pepoli</li> </ul>

**Table 9. Big enterprises in the analysed area**

## 4. Description of the public transport services and related multimodal accessibility

### 4.1. PT transport supply

The multimodal transport system is made up by the road and rail network shown in the following figures.

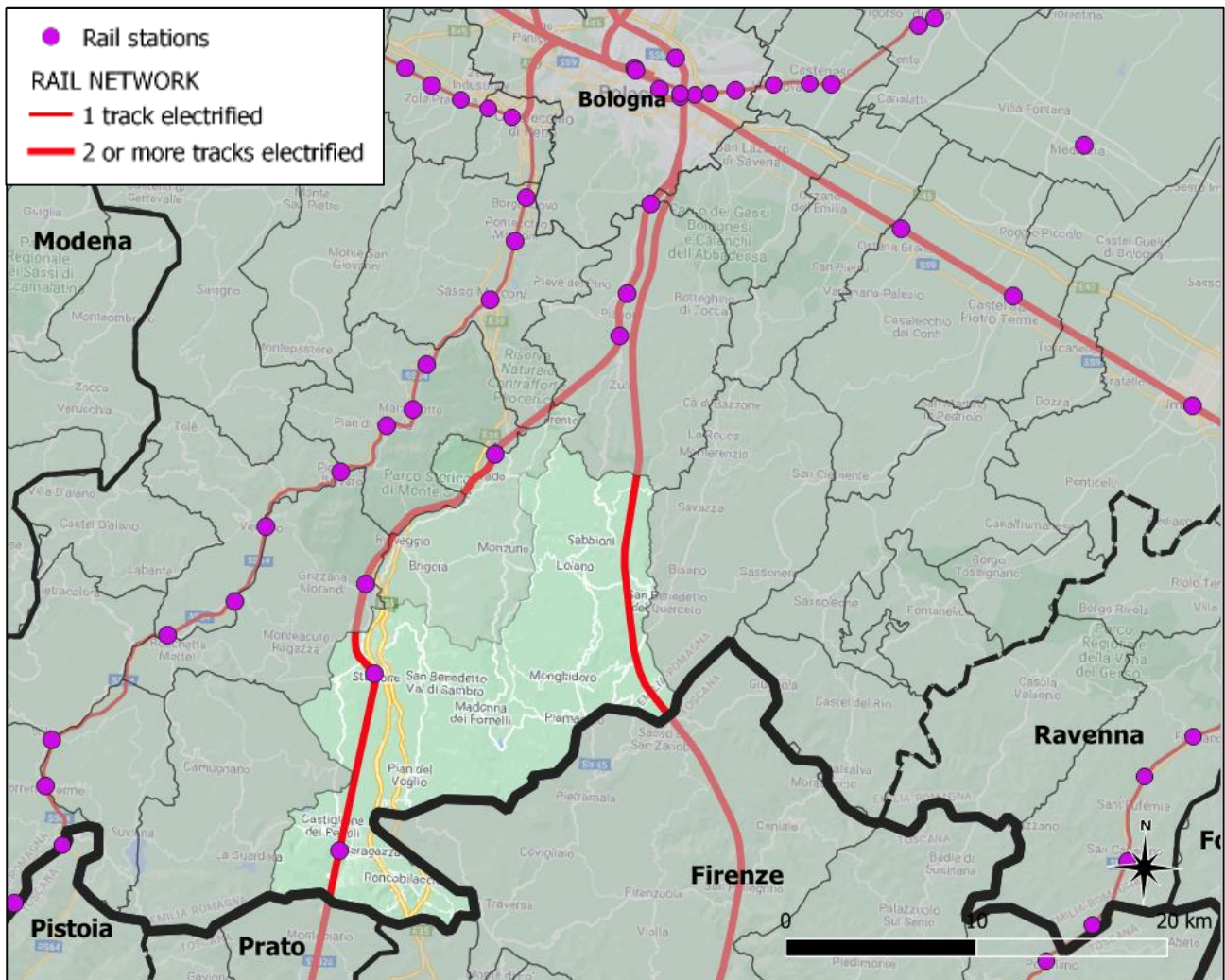


Figure 12. Multimodal transport network in the analysed area

Concerning the rail network, it is to register the presence in the ETP core area of the two lines linking Bologna and Venice, whose relevance is also certified by the fact that they are both part of the Mediterranean as well as the Baltic-Adriatic corridor of the TEN-T core network:

- The historical “Direttissima”, 2-tracks electrified line;
- The High Speed, 2-tracks electrified line, which is, however, mainly running underground and without any stop between Bologna and Firenze.

Concerning the road network, it is to register the presence of the following main roads along the North-South direction:



- A1 motorway link Bologna-Firenze, whose relevance is also certified by the fact that it is part of both the Mediterranean and Baltic-Adriatic corridor of the TEN-T core network, which is also presenting two branches (the historical one and the new variant “Variante di Valico”); in this purpose it is to underline the presence of an entry “Pian del Voglio” located within the municipality of San Benedetto Val di Sambro;

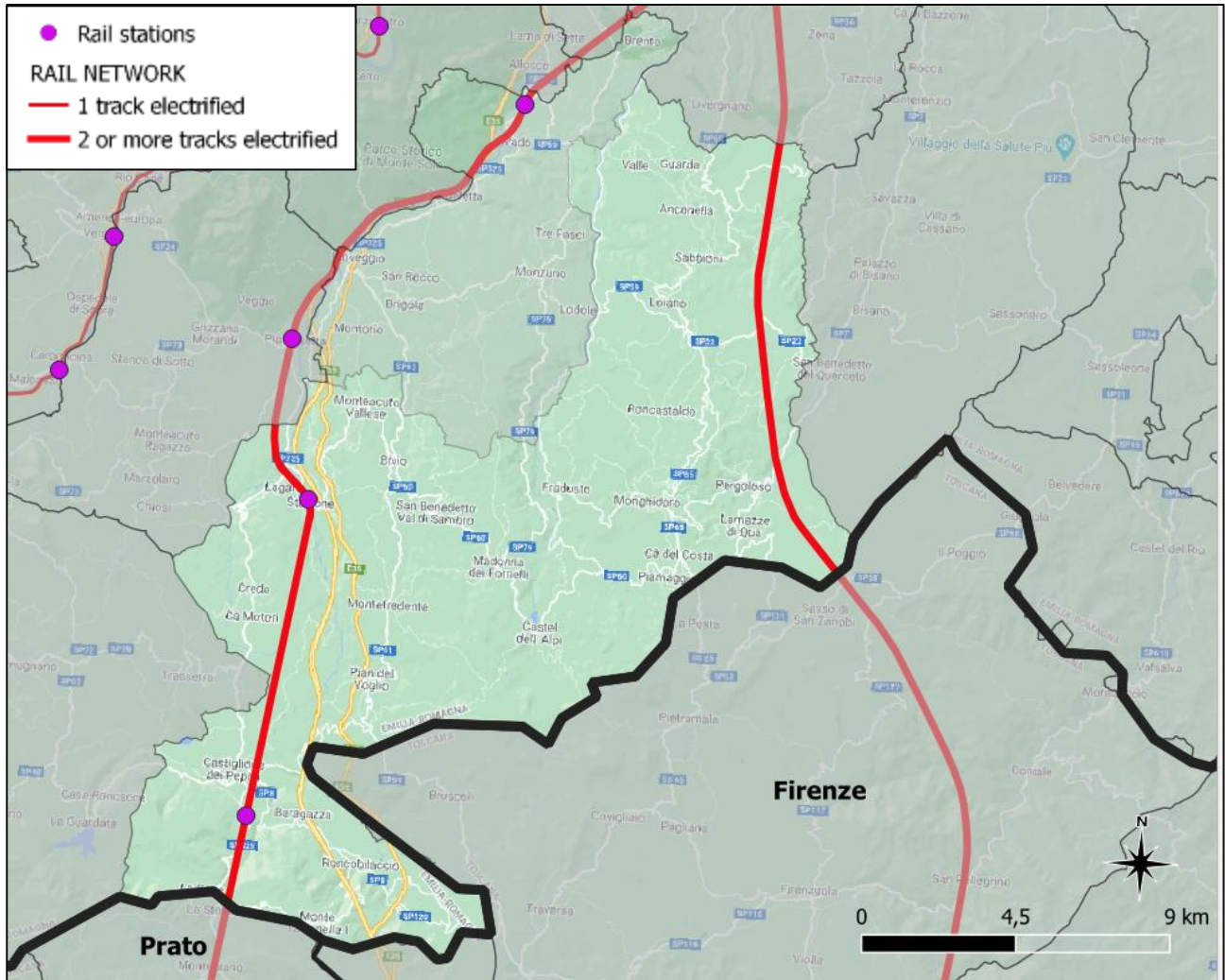


Figure 13. Multimodal transport network in the analysed area - zoomed view

Moreover, the various links of the secondary network are provided by various provincial roads providing connectivity along the valleys as well linking different valleys.

The rail and bus public transport in the Metropolitan City of Bologna (both urban and extra-urban) is operated by TPB consortium<sup>4</sup> (“Trasporto Pubblico Bologna”) under the oversight of SRM - Reti e Mobilità Srl (which is also the LP of the Smacker project), the local Authority for Public Transport established in 2003 by the Municipality and the Province of Bologna. In particular, in the following figures are represented the lines of the rail metropolitan service (Figure 14) and bus services (Figure 15) providing the network which allows the multimodal accessibility to the ETP area.

<sup>4</sup> <http://www.tplitalia.it/TPB/TPB.htm>



Figure 14. Lines of the metropolitan Rail Service (reference year 2016) - zoomed view. Source Sustainable Mobility Urban Transport plan of the Metropolitan City of Bologna

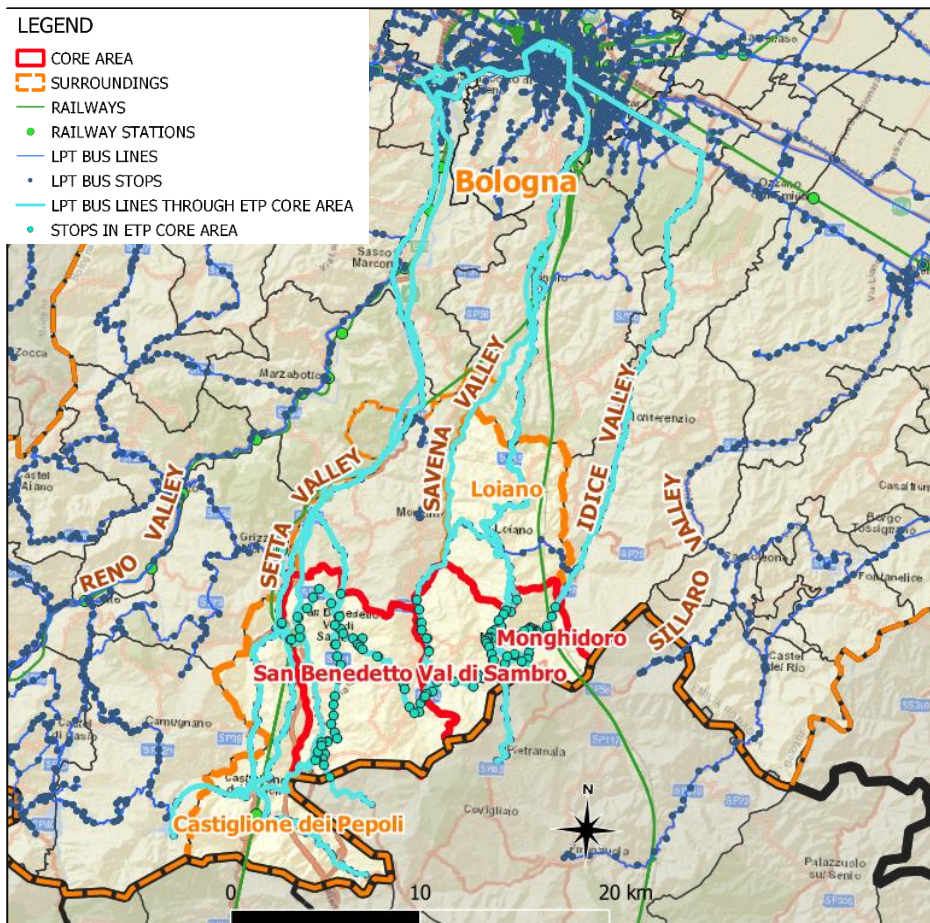


Figure 15. Local Bus Public Transport Network serving the ETP area (reference year 2019). Elaboration on data provided by SRM

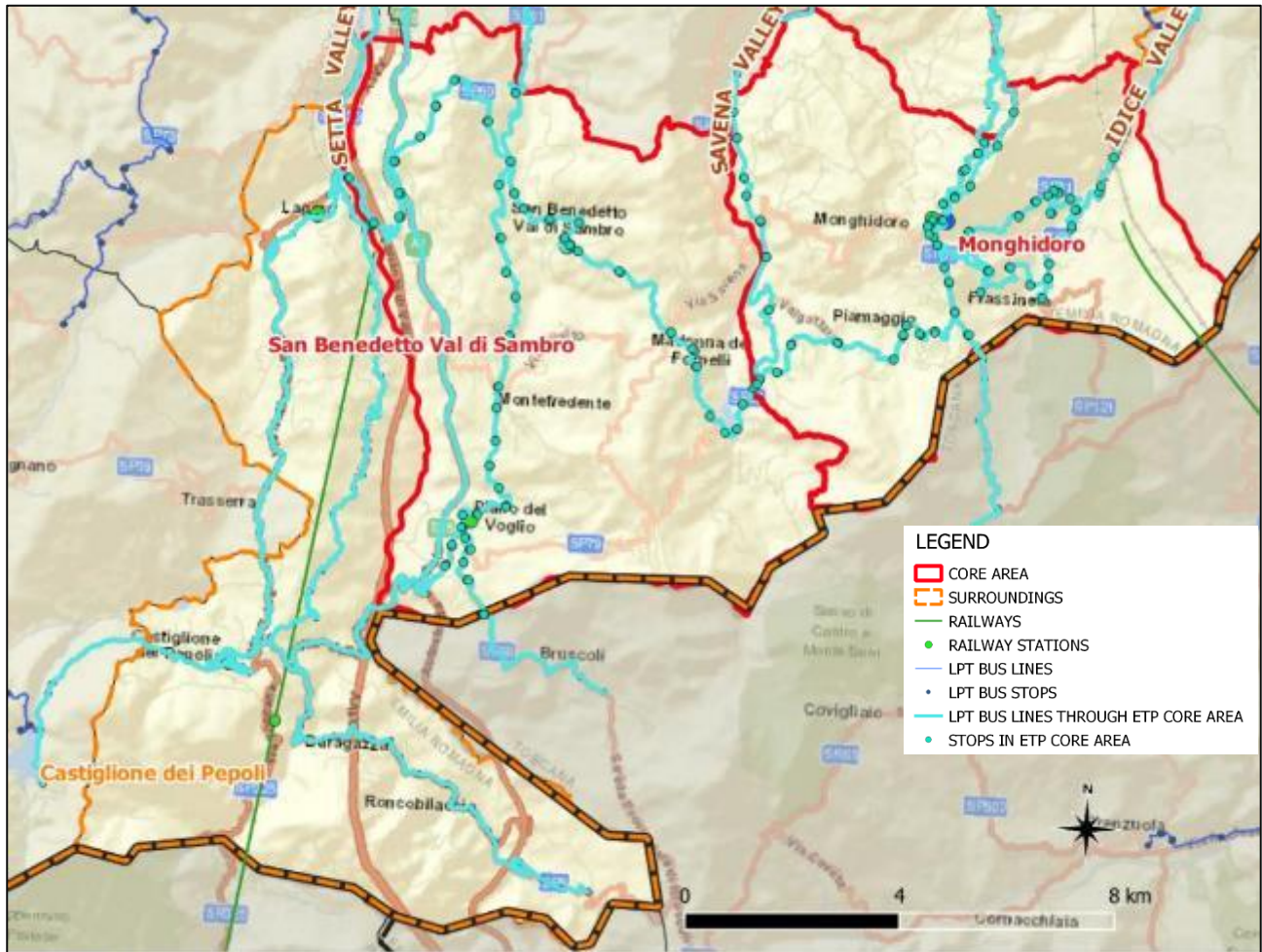


Figure 16. Local Bus Public Transport Network (reference year 2019) - zoomed view of the ETP core area. Elaboration on data provided by SRM

In general, the 13 bus lines going through the ETP area are providing connectivity especially along the directions heading towards/from Bologna (which encompasses “fast” runs, skipping some intermediate stops). Moreover, a certain variability between different hours of the day is to be outlined.

In this purpose, the following Figure 17 and Figure 18 represent the overall number of departures at bus stops located within each municipality within different 15-minute intervals between h 4 a.m. and 12 p.m. distinguishing between working days and holidays/Sunday.

Obviously, during working days it is to ascertain a peak in the morning, which is particularly significant and concentrated in the early-morning hours especially in the case of Monghidoro.

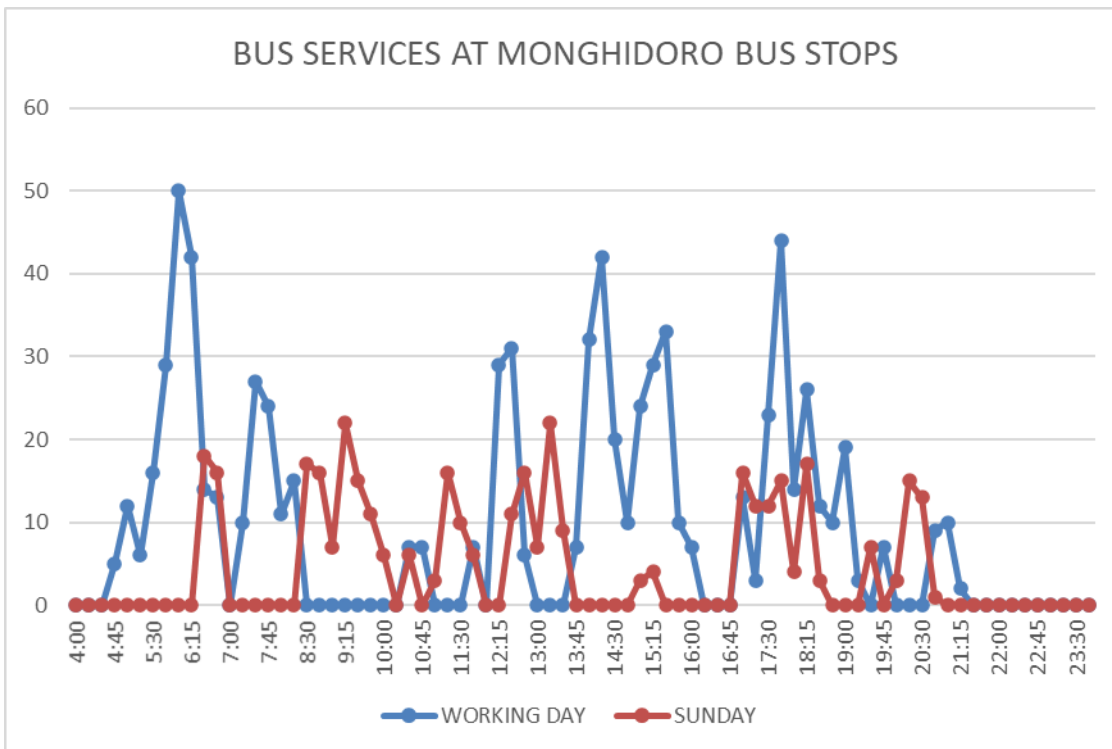


Figure 17. Number of departures from the bus stops in Monghidoro during different 15-minute intervals on a working day and on Sunday (reference year 2019). Elaboration on data provided by SRM

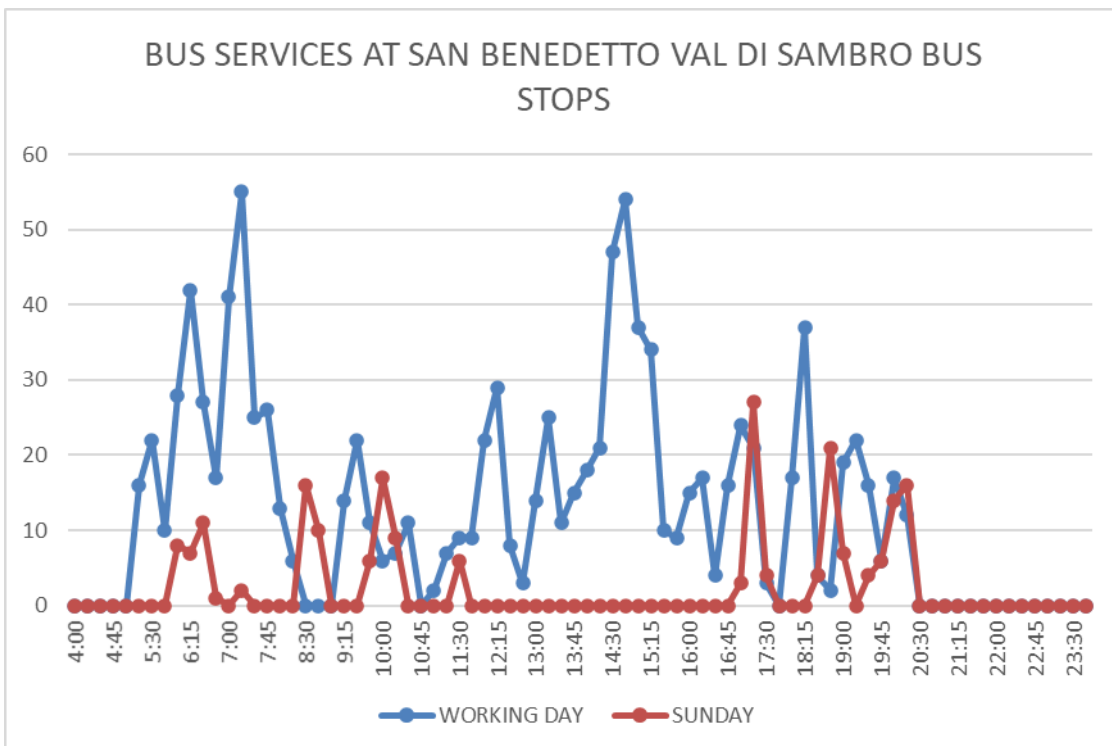


Figure 18. Number of departures from the bus stops in San Benedetto Val di Sambro during different 15-minute intervals on a working day and on Sunday (reference year 2019). Elaboration on data provided by SRM



## 4.2. Accessibility

The multimodal accessibility of the analysed area can be represented through an isochrone map (i.e. a thematic map that shows the areas reachable from a certain point within different time thresholds). In particular, the following Figure 19 and Figure 20 show isochrone maps based on bus transit travel times computed using the routing engine OpenTripPlanner. In general, these isochrone maps show a remarkable variability between different parts of the day (for instance peak versus off-peak hours).

Hence, in the following Figures 17-20 different representations, related to various hours of a working day are provided with reference to isochrones centred either in Monghidoro or in San Benedetto val di Sambro.

In this purpose, it is to report relevant differences between peak (e.g. 6-7 a.m.) and off-peak hours (e.g. 11 a.m.). Obviously, these outcomes are consistent with the results on the number of departures previously shown in Figure 17 and Figure 18. In particular, during peak hour a good-connectivity towards the Bologna centre (i.e. indicatively along the valleys) is available, while it is to report a limited reachable area in E-W (i.e. between different valleys).

The representation in Figure 23, instead, is obtained by applying the same methodology and tools to car-only trips. Obviously, the resulting representation is covering wider areas due to the higher speed especially if compared to the different steps to be carried (reaching the bus stop and waiting and running times).

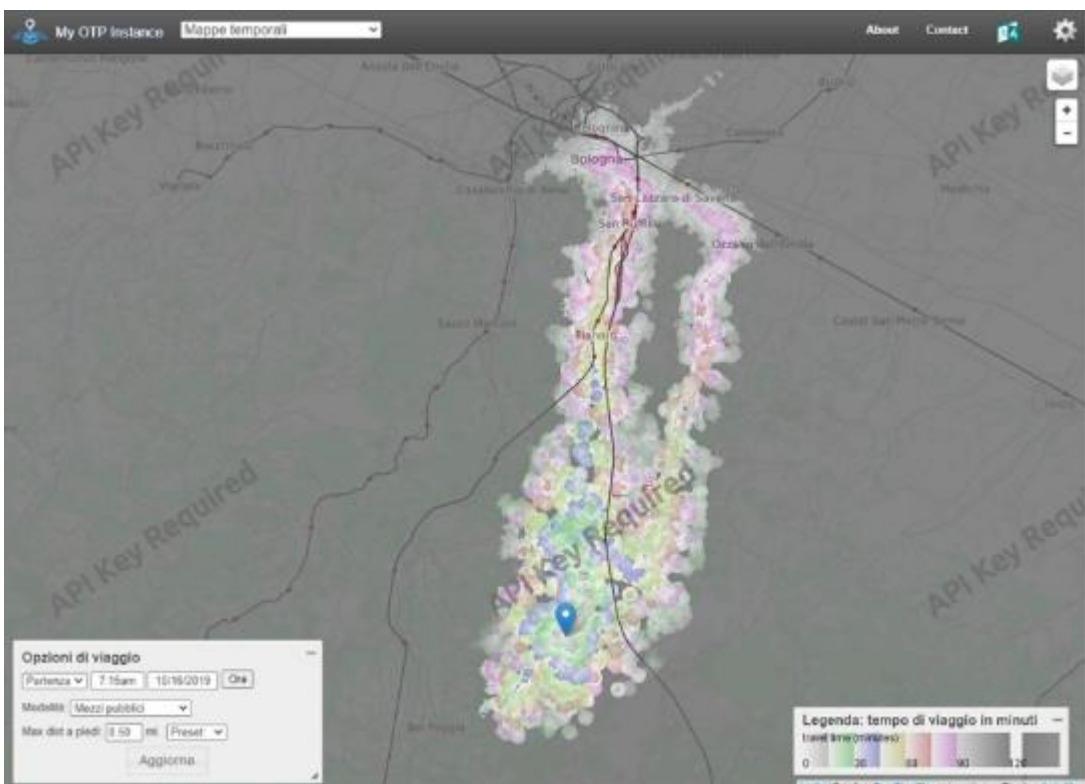


Figure 19. Example of isochrone map of the accessibility of Monghidoro using bus service during the morning peak-hour (reference year 2019). Elaborations using OPENTRIPPLANNER on data provided by SRM and OpenStreetmap

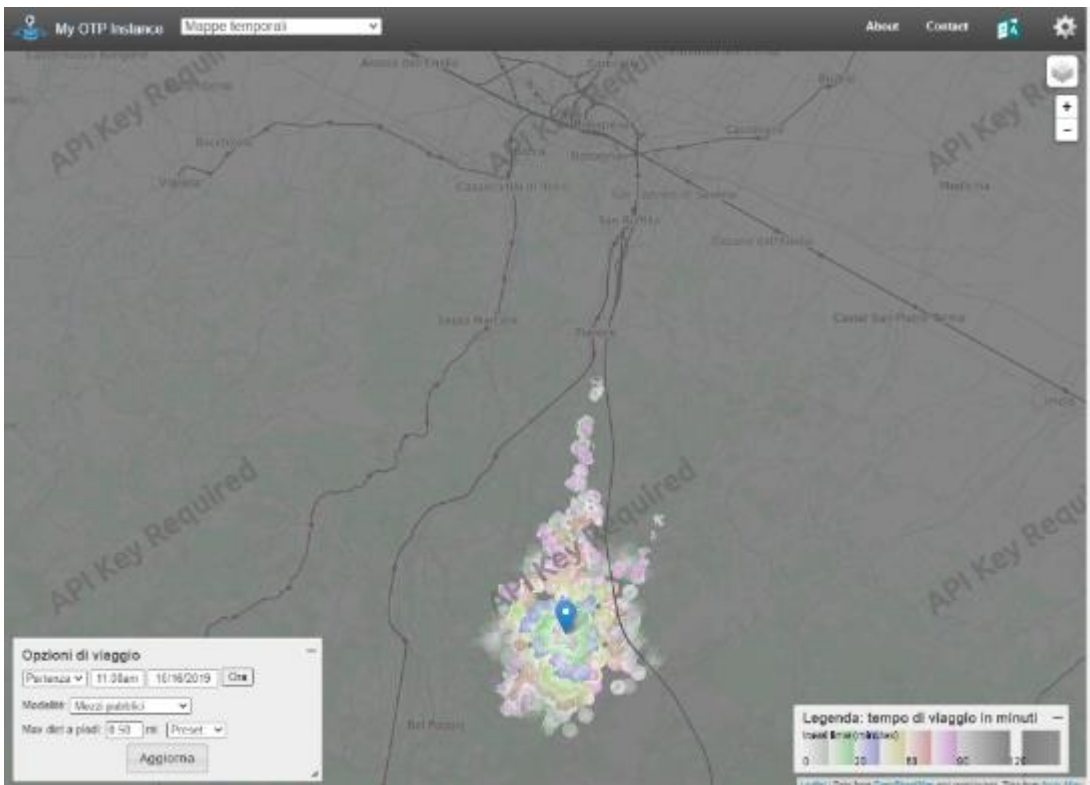


Figure 20. Example of isochrone map of the accessibility of Monghidoro using bus service during the morning off-peak hour (reference year 2019). Elaborations using OPENTRIPLANNER on data provided by SRM and OpenStreetmap



Figure 21. Example of isochrone map of the accessibility of San Benedetto Val di Sambro using bus service during the morning peak-hour (reference year 2019). Elaborations using OPENTRIPLANNER on data provided by SRM and OpenStreetmap

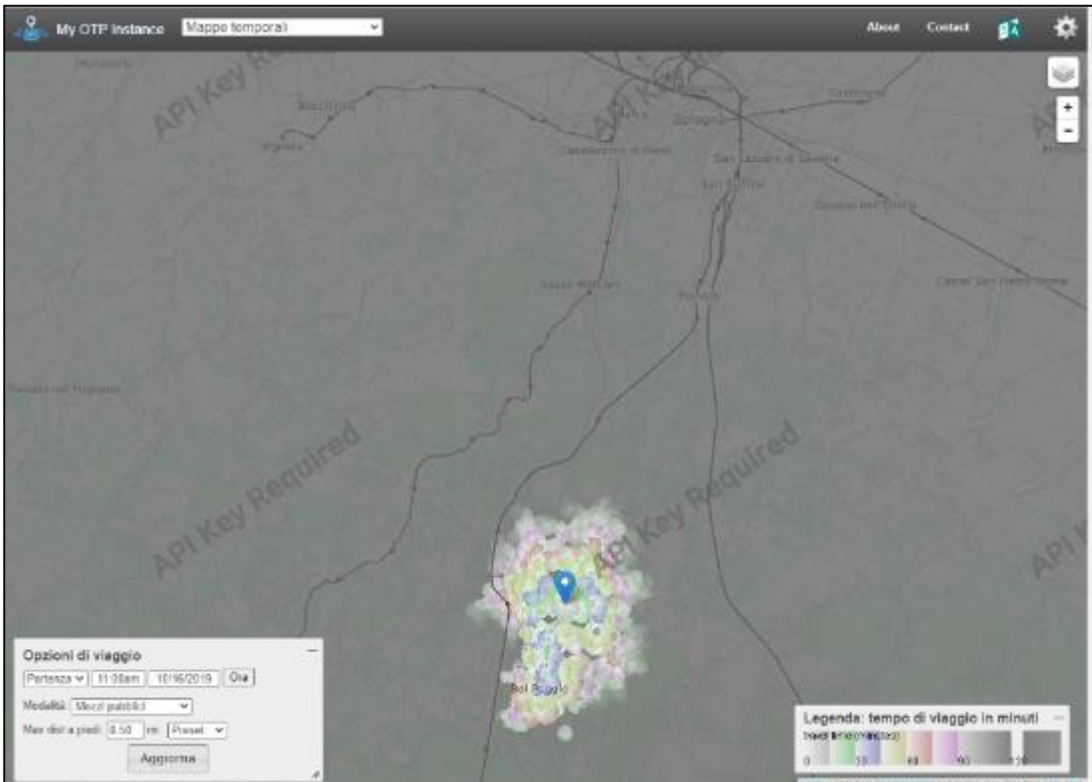


Figure 22. Example of isochrone map of the accessibility of San Benedetto Val di Sambro using bus service during the morning off-peak hour (reference year 2019). Elaborations using OPENTRIPPLANNER on data provided by SRM and OpenStreetmap



Figure 23. Example of isochrone map related to the accessibility by car of Monghidoro (reference year 2019). Elaborations using OPENTRIPPLANNER on OpenStreetmap data



## 5. Mapping the governance framework and relevant actors

### 5.1. Planning and regulatory framework

As far as the regulatory framework is concerned, first of all, it is to recall that it is the result of a complex and still ongoing reform process that in Italy the Public Transport sector, which started in 1997 with the National Acts (law 59/1997 and Legislative Decree 422/1997), implementing the EU Directive 1831/1991. In Emilia Romagna, at regional level the key milestone is provided by the **Regional Law 30/1998** (“**Disciplina generale del trasporto pubblico regionale e locale**”).

A key goal of the reform was shifting from a concession-based system to a competitive tendering one, to be managed by Regions and the Local Administrations. Through the years such reform process has been accompanied by various national and regional provisions implementing the subsequent EU regulations (e.g. EU Reg. 1370/2007 and EU directive 2012/34).

Within this overall framework, SRM Reti e Mobilità, as local Authority for Public Transport, has specific competences with particular reference to tendering and overseeing both urban and extra-urban bus PT services in the metropolitan area, which are currently operated by TPB - (“Trasporto Pubblico Bologna”) - on the basis of a year contract signed in 2011.

With reference to the planning framework, starting from the regional level, it is to underline the general framework provided by the **Integrated Regional Transport Plan** (“Piano Regionale Integrato dei Trasporti - PRIT2025”), foreseen by the above-mentioned Regional Law 30/98, and whose updated release has adopted in July 2019. In order to meet with relevant and ambitious sustainability goals and emission reduction targets, pivoting on the functional integration of different modes and services it is fostering relevant innovations and enhancement public transport system also with reference to extra-urban contexts.

At metropolitan level, it is to mention the recently approved (2019) **Sustainable Urban Mobility Plan of the Metropolitan City of Bologna**, a strategic plan that addresses sustainable mobility according to a comprehensive vision on a medium-long time horizon. In particular, the SUMP envisages relevant improvements and re-organisation of integrated PT services based on network made-up of three components:

- Main network (1<sup>st</sup> level) including the Metropolitan Rail System, the new Bologna tramway network as well as the high-traffic suburban lines.
- Complementary network - consisting of 2<sup>nd</sup> and 3<sup>rd</sup> level urban buses of the main centres (Bologna and Imola) as well as suburban and extra-urban lines.
- Integrative network - made of the so-called low frequency or flexible services/DRT service.

In this purpose, it is to recall that San Benedetto Val di Sambro is being reached by the metropolitan rail network as well as and 3<sup>rd</sup> level extra-urban lines while Monghidoro, while not been reached by the railway line, it is being served being served by a 2<sup>nd</sup> level bus line.

Pivoting integration is calling for smooth interchanges taking place at nodes, also with reference to minor centres. In this purpose, it is to mention the planned realisation of 30 hubs of sustainable mobility at local level (“Centri di Mobilità”). With particular reference to the ETP addressed by the present report, it is worth mentioning that one of these hubs is planned to be realised in San Benedetto Val di Sambro (see Figure 25).

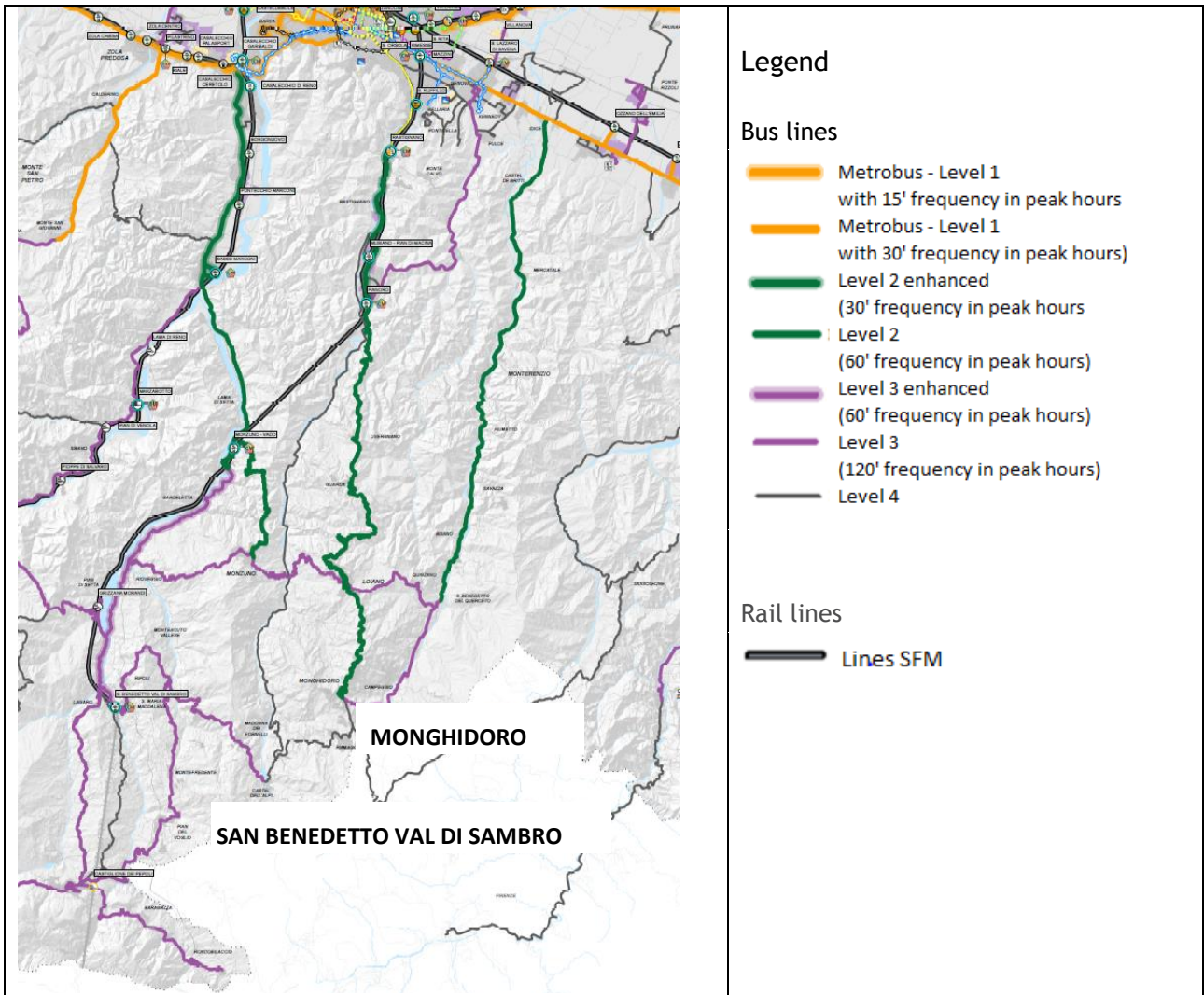


Figure 24. PT network as foreseen by the SUMP. Source: Metropolitan City of Bologna SUMP

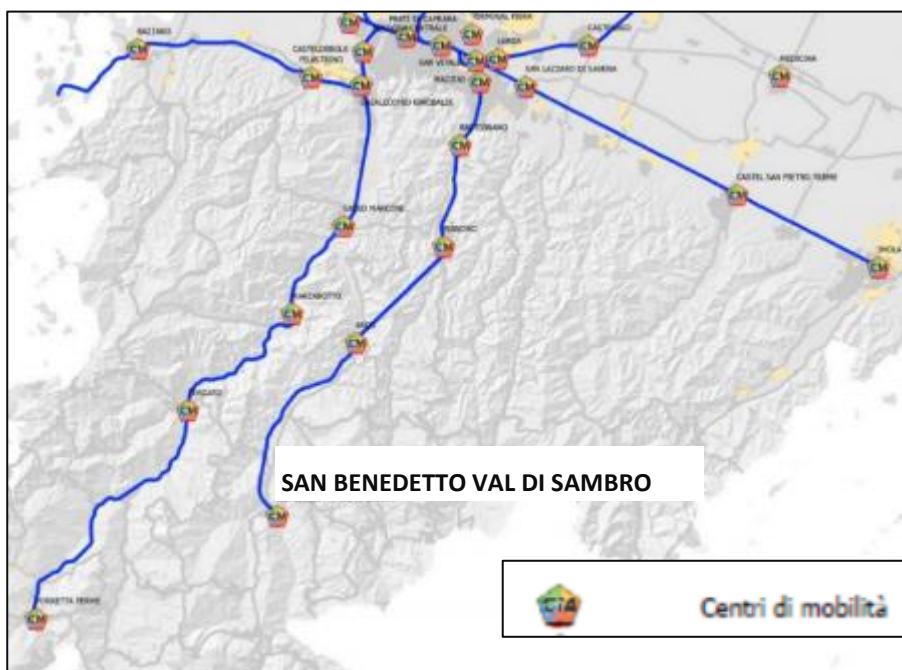


Figure 25. “Centri di Mobilità” foreseen by the SUMP and the metropolitan rail network (in blue). Source: Metropolitan City of Bologna SUMP



Moreover, the deal paid to DRTs solutions is also concretely testified by the existing **Prontobus** service (<https://www.tper.it/percorsi-orari/prontobus>), which is operated by mini-van and according to a schedule and a predefined route. The service is carried out in different areas of the Metropolitan city of Bologna.

With particular reference to the mountainous area addressed by the present ETP, it is to mention the **ColBus** pilot di SMACKER characterised by a specific focus on touristic mobility and developed within the pilot activity of the SMACKER project Work Package I1. It represents a new version of a service previously tested in Summer 2019 (with 3 lines), which is made up of 5 lines also serving part of the ETP area.

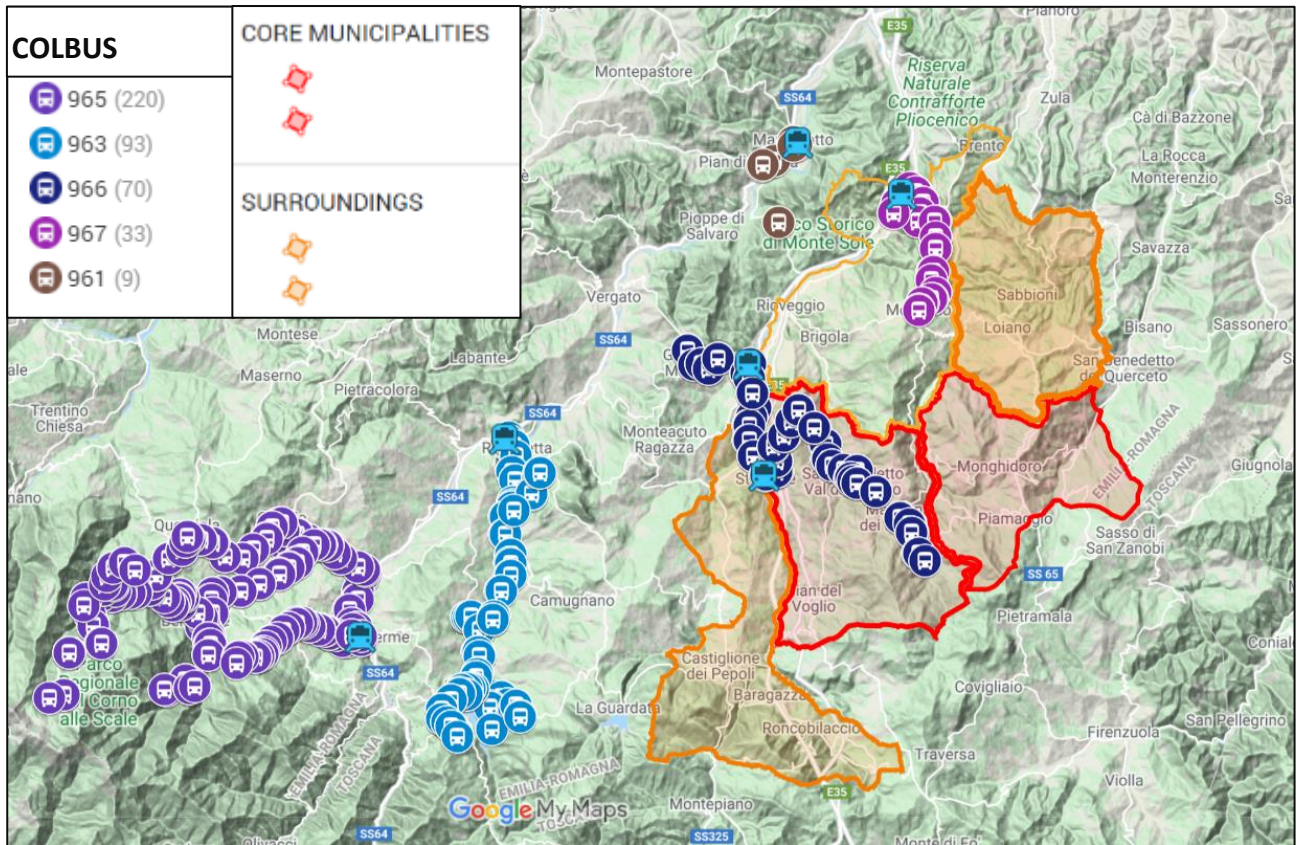


Figure 26. ColBus service of Summer 2021 with respect to the Core area (in red) and surrounding area (in orange) of the ETP.



## 5.2. Identification of Stakeholders and key target groups

With reference to the stakeholders to be involved as to ensure a successful development of the action plan and possible follow-up service, different categories are to be considered (see the following table).

First of all, the institutional level includes, in addition to key actors represented by the Municipalities, starting from those of Monghidoro and San Benedetto Val di Sambro, and in case, (i.e. depending on the actual development of the action plan), also other ones belonging to the surroundings. Another relevant institution is undoubtedly the Metropolitan City of Bologna, given its role in coordinating the overall public transport service and the specific provisions foreseen in the new Sustainable Urban Municipality Plan. From a more general perspective, the Emilia-Romagna Region administration is also a key player to mentioned, considering its role in coordinating public transport policies.

Obviously, the actual implementation will require a close cooperation with the public transport authority, SRM (which is involved as LP in the Smacker project) as well as the public transport operator TPB.

Moreover, taking into account the specific goal of addressing the needs of specific user category users (e.g. elderly), different players and associations operating in this specific fields are likely to provide a relevant contribution to the further steps.

SMACKER TARGET GROUPS	REPRESENTATIVES
LOCAL PUBLIC AUTHORITY	Municipalities in the ETP area, especially Monghidoro and San Benedetto Val di Sambro
REGIONAL PUBLIC AUTHORITY	Emilia-Romagna Region, Metropolitan City of Bologna
INFRASTRUCTURE AND (PUBLIC) SERVICE PROVIDER	SRM Reti e Mobilità Srl
GENERAL PUBLIC	Swimming Pools managers (Monghidoro), Houses for old people
EDUCATION/TRAINING CENTRE AND SCHOOL	Local Sport Agency representatives (POLISPORTIVA ENERGYM),
OTHER	
SME	4 Small enterprises (about 40 workers each).
HIGHER EDUCATION AND RESEARCH	
SECTORAL AGENCY	/
INTEREST GROUPS INCLUDING NGOS	/



**SMACKER**

NATIONAL PUBLIC AUTHORITY	/
LARGE ENTERPRISES	/
INTERNATIONAL ORGANISATION, EEIG UNDER NATIONAL LAW	/

Table 10. Key target groups and stakeholders.



## 6. SWOT analysis

Summarising what previously described, a SWOT analysis (see the following table) allows to provide a synopsis of different aspects (strengths, weaknesses, opportunities and threats), thus paving the way following ETP Smacker technical activities related to the Action Plans development.

First of all, it is to mention the existing multimodal network providing a relevant backbone for the development of further services. In this purpose, with particular reference to San Benedetto Val di Sambro, it is also to recall the presence of a rail station (named “San Benedetto Val di Sambro - Castiglione dei Pepoli” station) located at within the municipality even though quite distant from the main settlement of the municipality (e.g. about 10 km far from the main centre).

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>Existing multimodal transport network with connectivity along the valleys up to Bologna</li> <li>Railway station in San Benedetto municipality )</li> <li>A certain basin of (also potential) demand specifically related to certain time slots and typologies of trips (e.g. commuting esp. for studying purposes or visitors to the hospitals in the ETP core area and neighbouring municipalities)</li> </ul>	<ul style="list-style-type: none"> <li>Appeal and accessibility of the private car alternative</li> <li>Difficulties of traditional public transport in matching the need of (potential) users (e.g. frequencies and travel time) with particular reference to off-peak hours</li> <li>Limited multimodal accessibility, esp. in East-West direction (across the valley and ridges) within of the analysed area</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>Novelties being brought-in by new PT organisation according to the recently issued SUMP Metropolitan City of Bologna</li> <li>Addressing the impaired and elderly potential users and/or tourists</li> </ul>	<ul style="list-style-type: none"> <li>Declining demographic pattern</li> <li>Future developments of COVID-19 pandemic</li> </ul>

Table 11. SWOT analysis

Obviously, a key weakness point for the choice of intermodal solution is related to the higher accessibility and performances associated to the car alternative. In this regard, it is also to report some internal weaknesses of the current bus service in terms of frequency and timing, especially with reference to off-peak hours and connectivity along East-West direction (see isochrones map in previous part of this report). Obviously, this situation is also related to inherent criticality due to the orographic characterisation implying high tortuosity and long travel times, which inevitably play certain role in limiting also the attractiveness and mobility demand along this direction (differently from the routes along the valleys heading to Bologna). Furthermore, it is to underline that the limited distance of many trips (in many cases carried out with the same municipalities and/or with a travel time of less than 15 minutes) as well as disperse settlements pattern do not represent a favourable condition for setting up appealing PT services (esp. in comparison with the car alternative). Moreover, it is also to recall the absence of those limitations to usage of the car (and related parking), which represent a key driver for the usage of PT in other context as main urban centres.

Among opportunities to be underlined, there is the possibility of exploiting synergies and complementarity with services for commuters or visitors to specific point of interests (e.g. premises of enterprises and



hospitals) which could provide a certain (initial/basic) demand basin to new services to be developed. In this purpose, possible improvements are also related to further addressing the needs of specific (potential) users' category such as the elderly people, thus giving also a particular relevance from the social point of view to the present initiative, and/or tourists. Furthermore, a common ground for the improvement of the PT service, also ensuring a higher integration

Potential threats could worsen specific weaknesses related to the higher appeal of car-related alternatives. More in general, an element potentially bringing some uncertainties in the following months is obviously related to the future developments of the COVID-19 pandemic.



## 7. Policy challenges

The policy challenges are mainly related to the issues that motivate the participation of the Municipalities of Monghidoro and San Benedetto Val di Sambro in the Smacker ETP programme. In particular, they are related to the need of addressing the limited accessibility of the ETP core area, which is also related to the geo-morphological characteristics of such mountainous context with a quite disperse settlement patterns. In this context, characterised by low-demand, especially along certain directions, keeping a certain level of multimodal accessibility, as to limit car-dependency is particularly challenging. In this purpose, a well-structured PT system supply should envisage a synergic network different modes of transport and typologies of service could maximise the attractiveness and efficiency of the PT solutions through well-tailored solutions according to the specific characteristics and level of demand of each specific connection/area. In particular, DRT services could efficiently complement the network of “conventional” PT services (with a fixed timetable and route) by providing the degree of flexibility which could allow the development of viable solutions in those cases where a traditional service is not feasible. Conventional PT services, instead, can provide the connectivity along the main lines providing the backbone of the PT system also including the intermodal interchanges. In this purpose, it is also to consider that with particular reference to mountainous area the legislation allows some exceptions to the rules on LPT to encourage a different organization of the service.

Therefore, the development of new flexible services should (synergically) consider, on the one hand, the existing traditional PT lines as well as related future development as envisaged in the SUMP and, on the other hand, the already developed initiatives in terms of flexible services in the Metropolitan City of Bologna (e.g. Prontobus and ColBus).

Last but not least, a specific aspect, that could be further explored and tackled though a DRT service is the need for facilitating the usage of the services by the elderly and impaired people.



## 8. Conclusions and addresses for the Action Plan development

The present deliverable has addressed the ETP area of the Municipalities of Monghidoro and San Benedetto Val di Sambro SMACKER project.

The carried-out analyses have allowed to underline the challenges and accessibility needs of the two addressed municipalities. In particular, it is to underline the socio-demographic characteristics as well as multimodal accessibility situation of the analysed area, which is strongly related to its mountainous rural character and disperse settlement pattern. In fact, the two municipalities are characterised by a high deal of a low or medium-low transport demand areas, which typically do not lend themselves to being served by conventional public transport systems such as busses, as they would be expensive and not efficient for the level demand of the area.

However, improved multimodal accessibility, especially along certain directions and during off-peak hours is a key goal in order to car-dependency and provide accessibility to categories (e.g. elderly, impaired, youngsters, etc.).

To this end, the development of flexible and well-tailored solutions represents a promising opportunity to be further developed in the Action Plan and which need to complement the existing supply represented by conventional services as well as other initiatives on DRT already being developed (e.g. ColBus).



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## 9. References

- ISTAT national census data
- Emilia Romagna Region Statistics Unit
- Metropolitan City of Bologna Sustainable Urban Mobility Plan (2019)
- OpenStreetMap



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## 10. Annexes

### 10.1. Annex 1 - Stakeholders list

See attached file [ANNEX\\_1\\_Stakeholder\\_List\\_en\\_MONGH\\_SBS.xlsx](#)