O.3.5.1 - Report su quadro di riferimento strategico transfrontaliero

O.3.5.1 - Poročilo o čezmejni strateških okvirih

EXCERPT – ENGLISH VERSION

This project is supported by the Interreg V-A Italy-Slovenia Cooperation Programme funded by the European Regional Development Fund.

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Version: N.3, DRAFT

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Date: 23/02/2022

A specific activity of the CROSSMOBY project (*WP3.1 - "Attività 5 - Analisi e strumenti a supporto della definizione di un quadro di riferimento strategico transfrontaliero" / "Dejavnost 5 – Analiza cezmejnega strateškega okvira in orodij"*) is providing an overall and unifying framework at cross-border level based on a thorough data collection and analysis of multimodal transport system of the whole IT-SI cross-border Area, as identified by the Italy-Slovenia Interreg Cooperation Programme 2014-2020.

The Programme area (see Figure 1) extends over a total surface of 19,841 km² across the border and has a total population of approximately 3 million inhabitants. Hence, it includes not only the areas located in the immediate vicinity of the border but encompasses its wider context, to be addressed according to a strategic approach.

Figure 1 – The Programme area of the CBC Programme Italy – Slovenia 2014-2020

This approach is meant to support a complex multi-level governance framework, which is briefly summarised by the following table reporting the number of administrative divisions and bodies according to different NUTS levels in the IT-SI area.

LEVEL	ITALY			SLOVENIA
National (NUTS 0)	National level [1]			National level [1]
Regional (NUTS 2)	Ordinary Regions [1]		Autonomous Regions [1]	-
Provincial (NUTS 3)	Metropolitan Cities [1]	Provinces [0]	EDR [4]	Statistical Regions [5][1]
Municipal (LAU)	Municipalities [44]	Municipalities [0]	Municipalities [215]	Municipalities [70, including 4 *"mestne občine"*]

Number of administrative divisions and bodies according to different NUTS levels in the IT-SI area

Moreover, it has to duly take into account the high heterogeneity in terms of geographical characteristics and density of settlements of the analysed territorial context (see Figure 2).

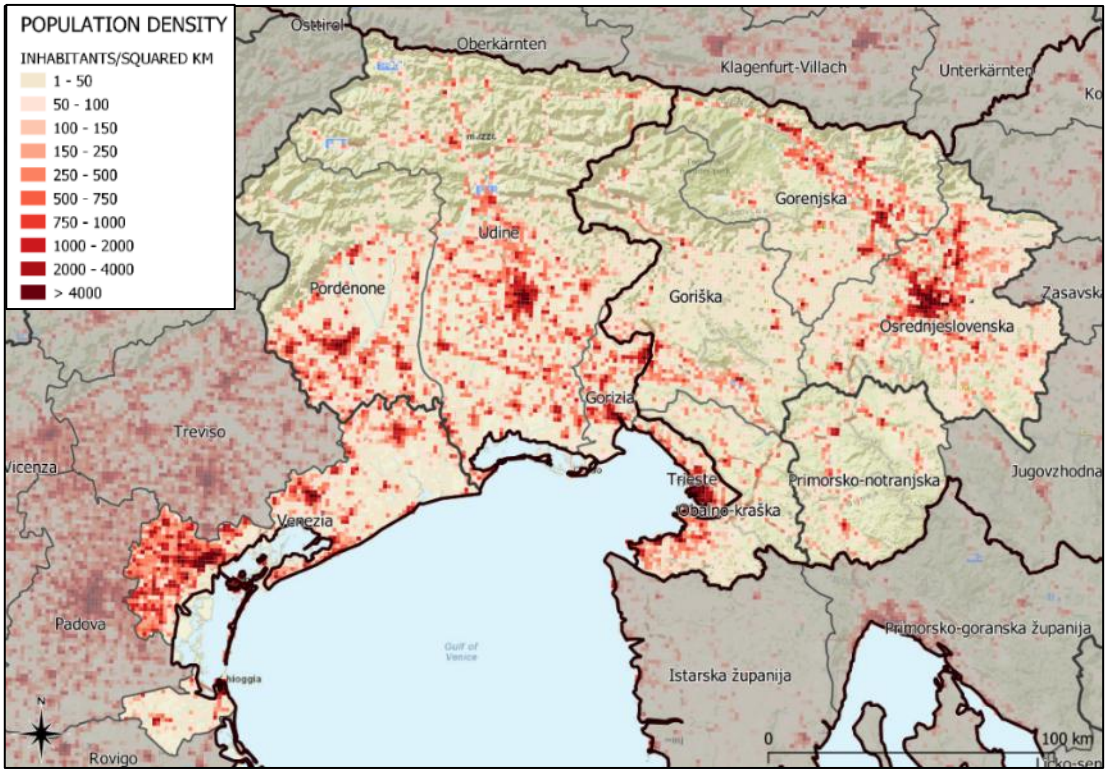

Figure 2 – Distribution of population density in the Italia-Slovenia Programme Area. Source: ISTAT, SURS, EUROSTAT.

In fact, along with several urban areas a high deal of peripheral and rural ones, including mountainous ones, is to be reported. The main urban areas include Trieste, Udine, Gorizia, Ljubljana, Pordenone, Venice, conurbation Koper-Izola-Piran, Nova Gorica, Kranj and Postojna. Moreover, relevant suburban contexts and urban sprawl phenomena characterise, for instance the south-western portion of the IT-SI area (especially in the part between Venice and the neighbouring provinces of Padova and Treviso). On the other hand, other contexts (e.g. Trieste), also because of the geomorphological context, are characterised by a quite sharp gradient between highly urbanised and rural/peripheral areas.

This heterogeneity is also mirrored in the different level of transport demand, which is expressing the key needs to be addressed by planning activities through the development of an efficient and sustainable multimodal transport supply. Concerning demand data, a key source of information is provided by survey carried out through questionnaires at each national level (e.g. periodical or permanent census), which provide a comprehensive survey on commuting for studying or working purposes.

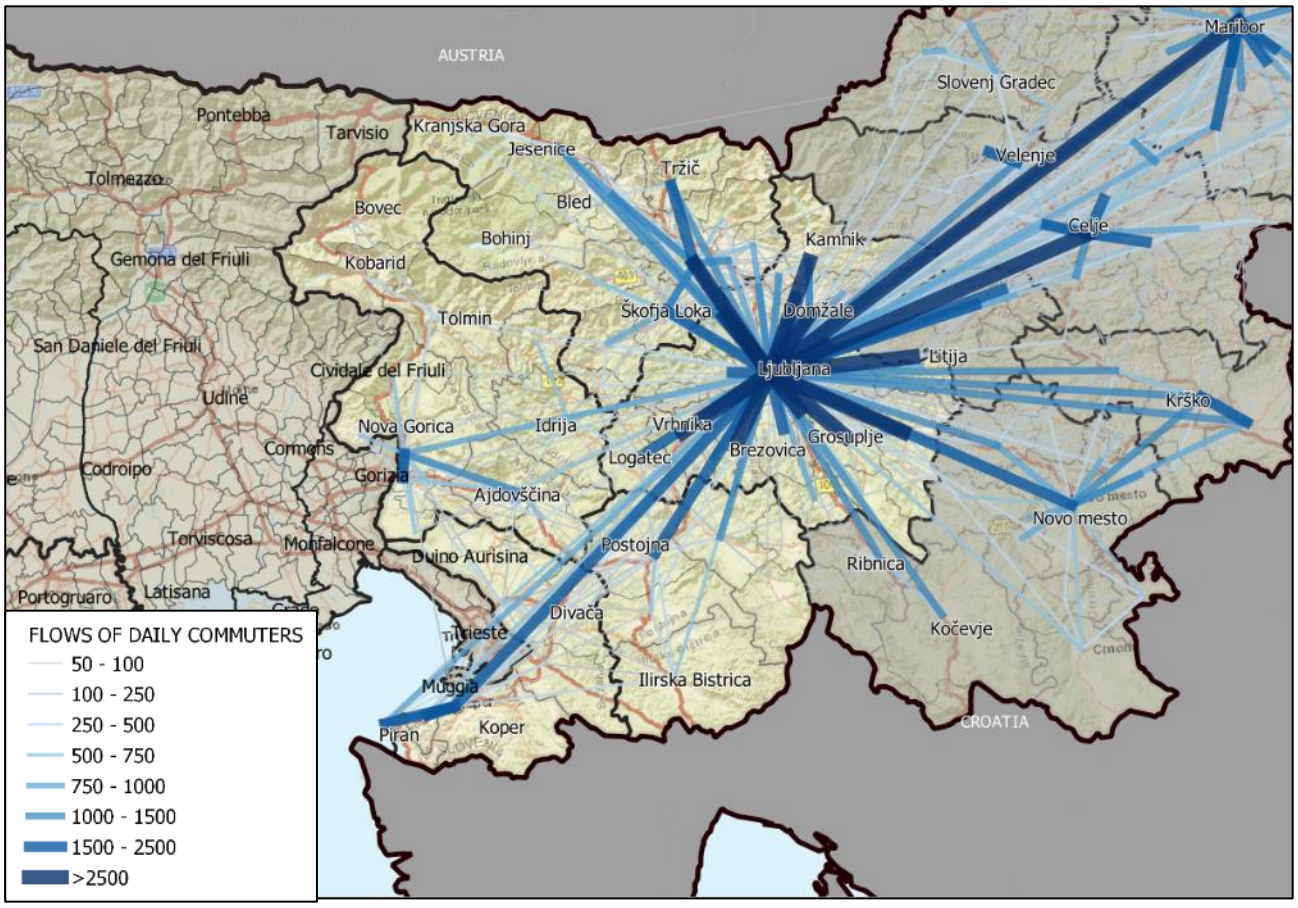

Figure 3 – Desire lines of related to commuters' transport demand between Slovenian municipalities. Source: Elaborations on SURS data (SiStat database).

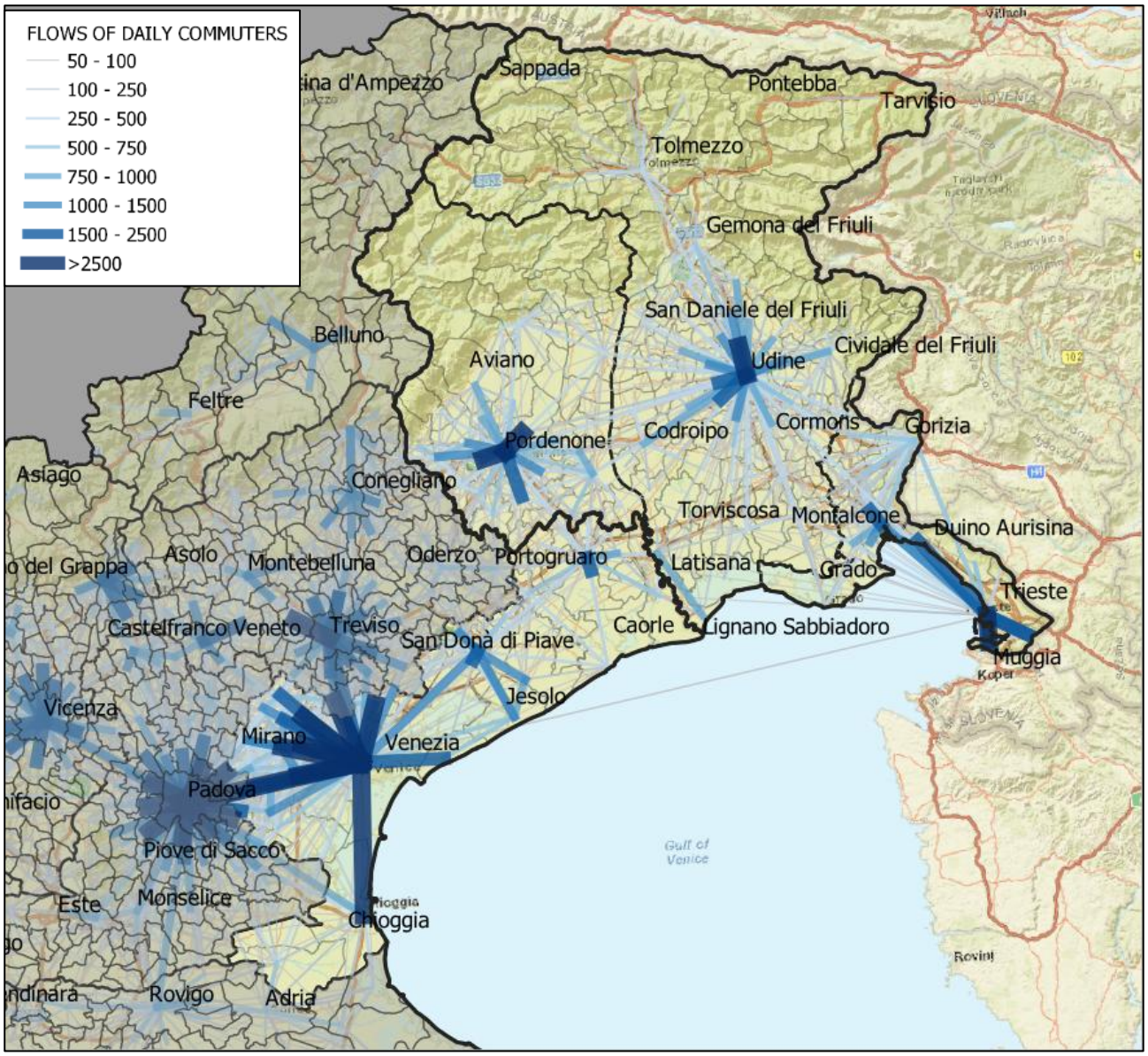

Figure 4 – Desire lines of related to transport demand for commuting between Italian municipalities in the morning peak of demand. Source: elaborations on ISTAT 2011 census data.

In this regard, Figure 3 and Figure 4 show the outcomes of the analyses carried out, respectively on the Italian and the Slovenian datasets. The provided representations allow to identify the key attractors and the different level of demand in different parts of the IT-SI cross-border area. In this purpose, it is to underline how the main centres of Venice and Ljubljana are characterised by remarkable Origin-Destinations relations with their hinterlands, which extend beyond the IT-SI cross-border area. Relevant polarities located close to the border area include Trieste, Koper and Gorizia-Nova Gorica areas. However, the available data sources (apart from being quite limited in

terms of level of detail) show a low share of cross-border commuting in terms of overall percentages.

However, apart from their specific level of update and detail, it is also to recall that census data, being referred only to the specific aspect of commuters' mobility, are lacking information about other relevant typologies of trips including occasional ones for different purposes (e.g. business, shopping, visits, tourism etc.), which obviously correspond to a relevant part of the overall transport demand. In order to widening the coverage to all these different aspects, a remarkable and innovative opportunity to be further analysed, is nowadays given by the usage of mobile phones cells data. In this purpose, it is to report the experience made in recent years by Friuli Venezia Giulia Region administration, which also allowed producing a report specifically addressing the cross-border mobility patterns.

Focusing on the transport supply side, a key role is provided by the characteristics of related networks. Obviously, fostering multimodality implies paying a relevant deal to characteristics and potentials of the rail network (Figure 5), which encompasses relevant corridors acknowledged at EU level (as Core Network Corridors of the TEN-T network).

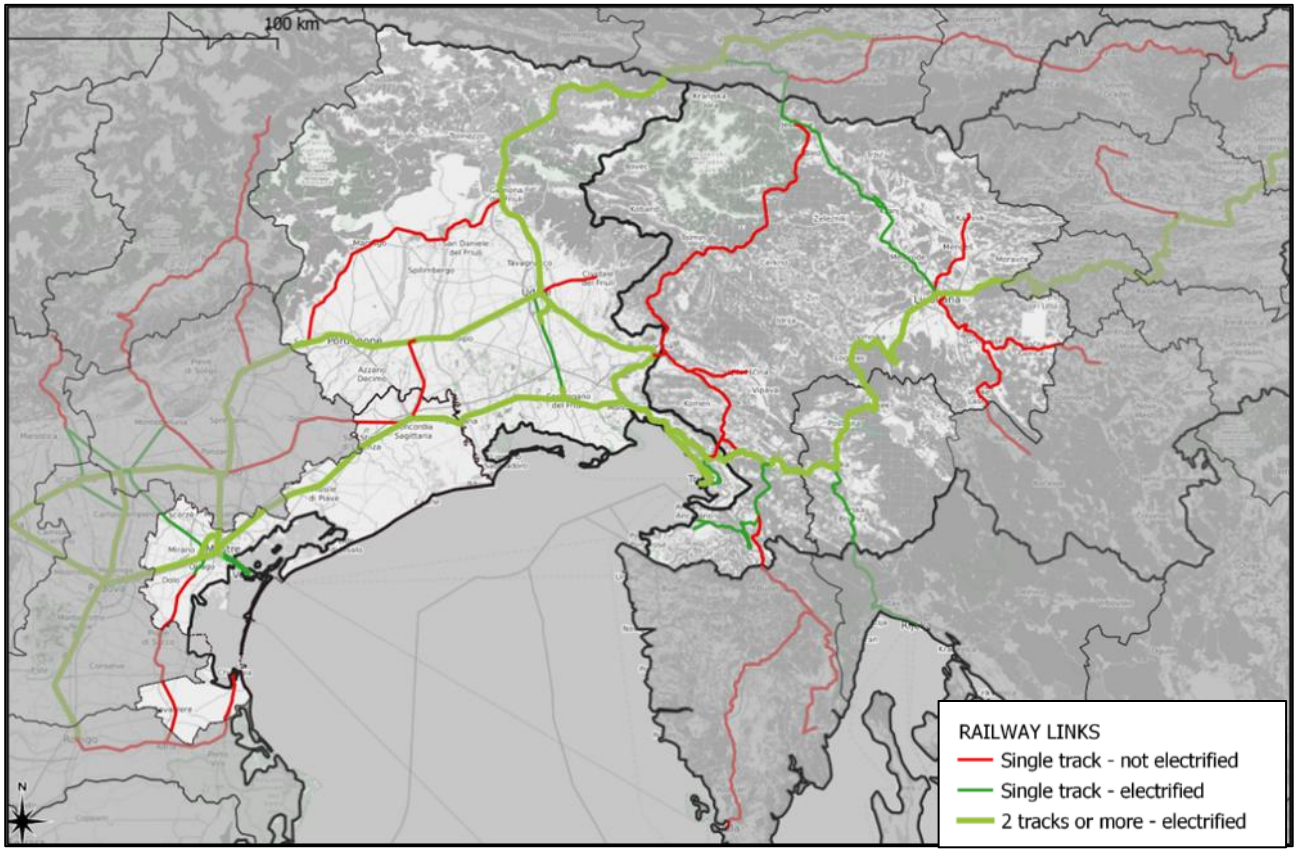

Figure 5 – Railway network across the IT-SI Programme area

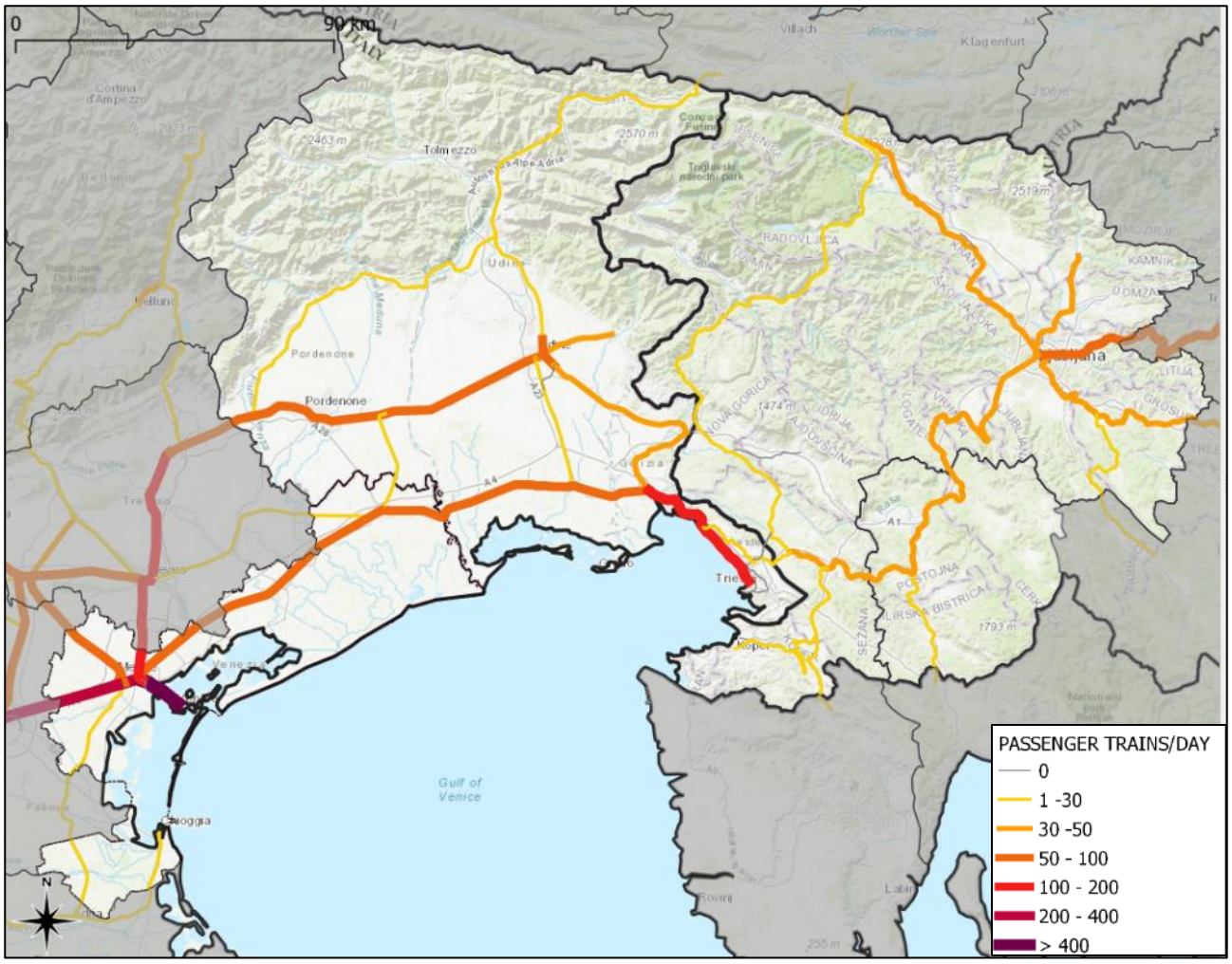

Figure 6 – Railway network passenger trains flows the IT-SI Programme area.

However, the usage for passenger service of the railway lines across the border and, in certain cases, even close to the border is very limited. In fact, only through the CROSSMOBY pilot rail service it was possible to close the existing gap in the Trieste-Ljubljana line, while the Gorizia-Nova Gorica link is currently not used by passenger trains. Once again, this situation is quite different from the number of service converging to the nodes of Venice (above all), Trieste and to a less extent Ljubljana and Udine.

An effective representation of the denser network of bus services is nowadays becoming more and more feasible through the growing (though not complete) availability of data in the "General Transit Feed Specification" (GTFS) format, which provides a well-spread de-facto standard.

In this purpose, the following Figure 7 shows the map with the stops (georeferenced points represented by circles in thematic representation) and related connections (links represented

through georeferenced polylines). The colours of the thematic map allow to distinguish the three main datasets covering:

- TPL FVG, covering all the FVG region bus services and as well as waterborne service mainly in Trieste area;
- ACTV services (including a relevant deal of waterborne transport) in the Venice area;
- Slovenian PT operators.

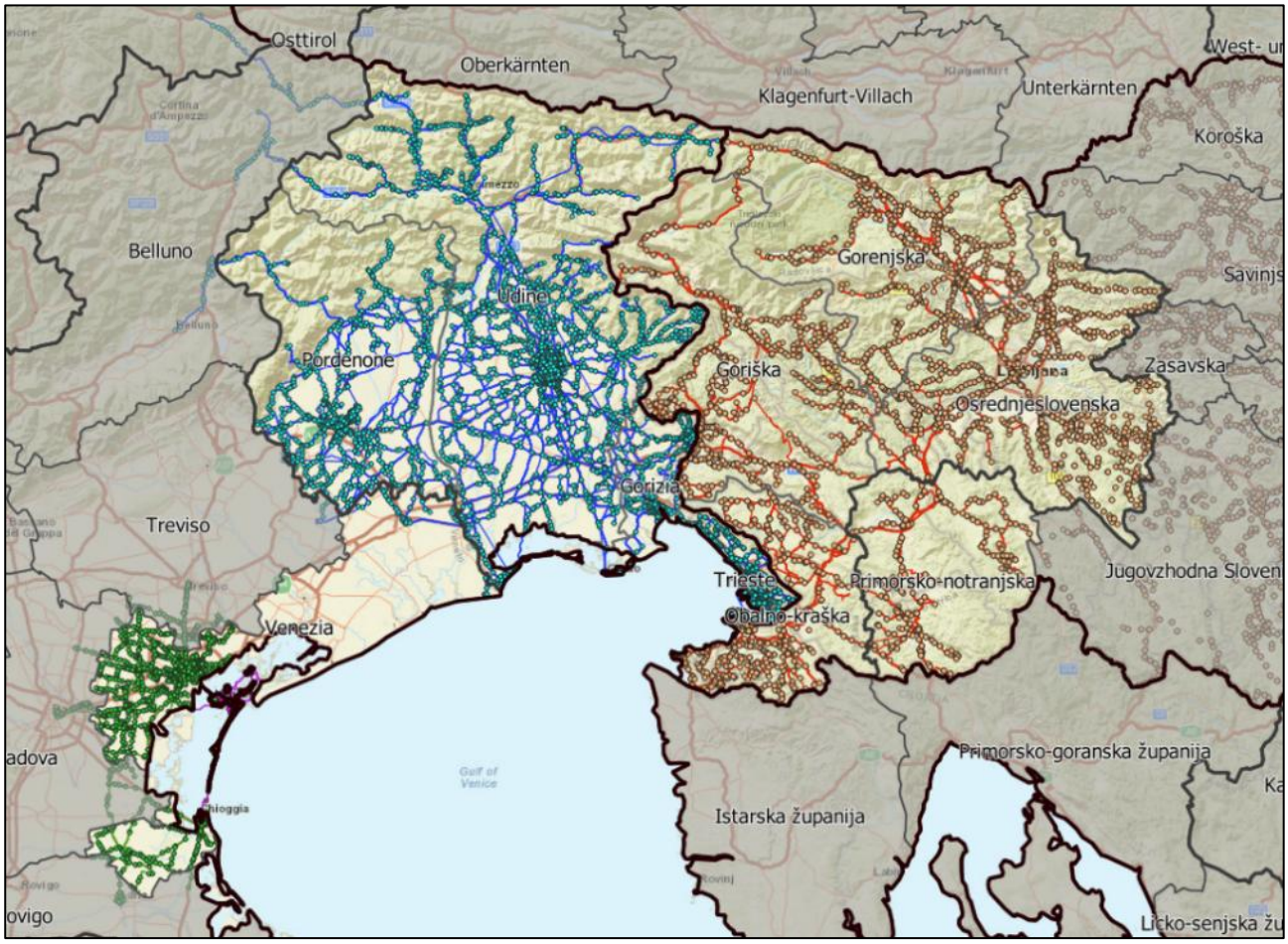

Figure 7 – GTFS dataset providing information on LPT services in the IT-SI Programme Area

In this purpose, it is to underline that currently, apart from limited exceptions (i.e. international urban line linking Gorizia and Nova Gorica and a Slovenian line running with no stops for less than 2 kms on the Italian territory for reaching Podsabotin area near Gorizia) no bus public transport is operated across the border.

In particular, the Figure 8 and Figure 9 provide a thematic representation of the gaps expressed in physical distances (in kms) between PT services in the Italian and Slovenian side with referenced to the list of relevant border transit points identified in the FVG PT plan.

More in general, about 40 crossing (with no PT services) have been identified along the whole IT-SI border. In this purpose, considering that border is stretching over 232 km, it is also to report a limited number of total available cross-border links.

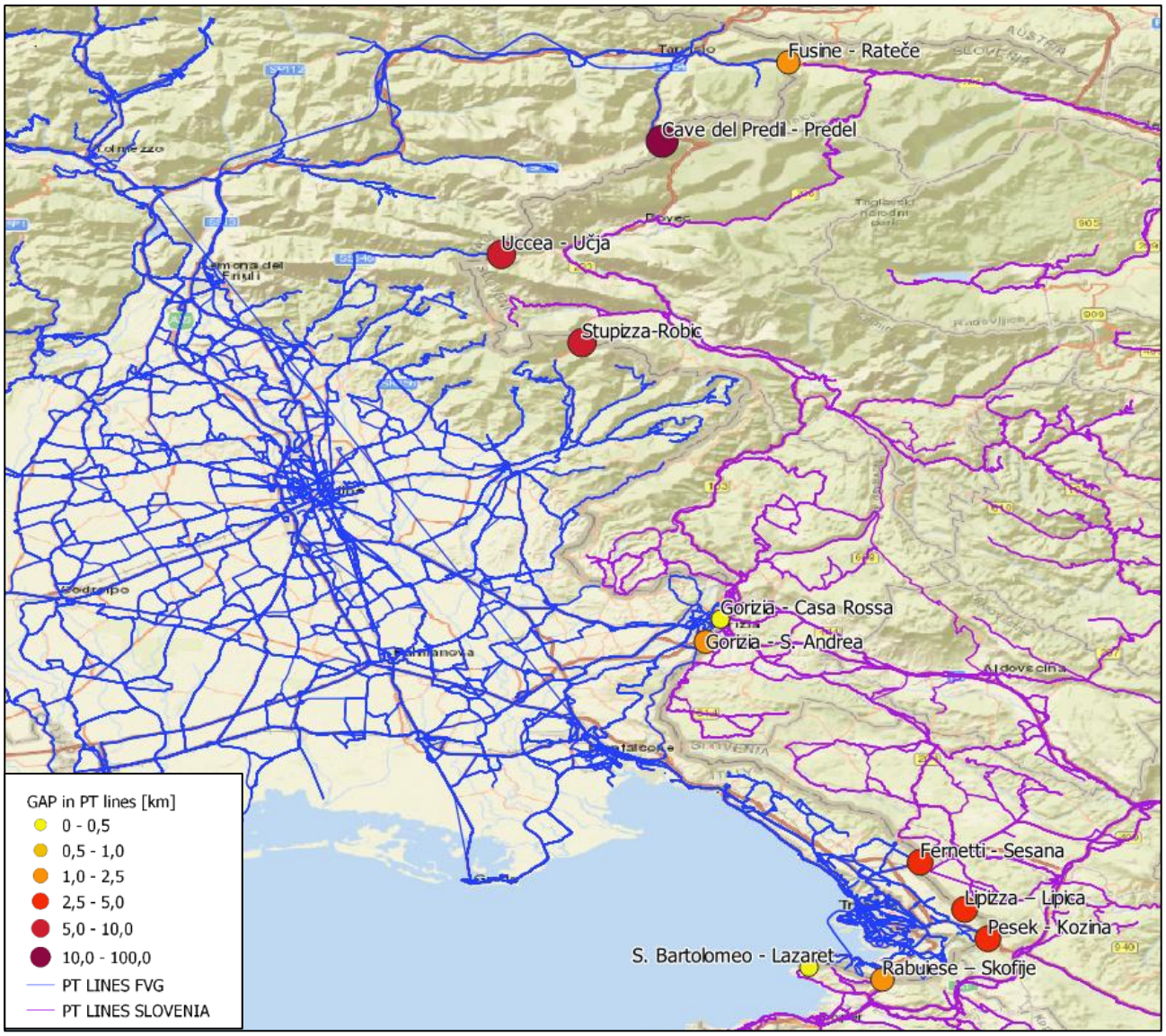

Figure 8 – Overview of relevant transit points acknowledged in the FVG regional PT plan.

Figure 9 – Detailed view of gaps between the PT service across the border in the area.

In order to achieve a deeper insight into the level of connectivity and accessibility provided by public transport the actual number of services must be evaluated and represented. In this purpose, it is also to recall how a higher number of services is not only supplying a higher transport capacity but also representing a key feature of the level of service perceived by a user.

When representing the overall number of services within a region, a great variability in the number of services and their frequencies can be ascertained between high frequencies characterising urban services of main cities and those serving low-demand rural/mountainous areas (whose number is particularly limited out of the peak-hour).

Hence, acting in compliance with the scope of a wide area analysis, a particular deal must be paid to connection between different municipalities. In this regard, the Figure 10 is providing a synopsis of the daily bus connection between the different municipalities in the Friuli Venezia Giulia region (summing up the two opposite directions linking each couple of municipalities).

Obviously, also this representation and analyses emphasises the major role of connections from/to the main centres, starting from Trieste and Udine. In particular, it shows the relevant connectivity to their hinterland. Moreover, it worth mentioning the contrast between the conspicuous number of services close to the border in the Trieste and Gorizia areas in comparison with the lack of connectivity across the border due to the gaps descried in the previous pages and

figures (even though these differences are not only due to the "border effect" by also to the heterogeneity of the geo-morphological and urbanisation characters moving from the coastal area to the Karsts). More in general, remarkable differences are also to be ascertained with other rural and mountainous contexts within the FVG region itself. These differences are particularly related also to the corresponding differences in the demand side between different areas (see Figure 4). In fact, ensuring at least partial economic viability to services in low-demand areas is particularly challenging. On the other hand, the need for ensuring accessibility need is fostering the search for cost-effective solution or to highlight the social character of ensuring an alternative to car-dependency also for remote areas.

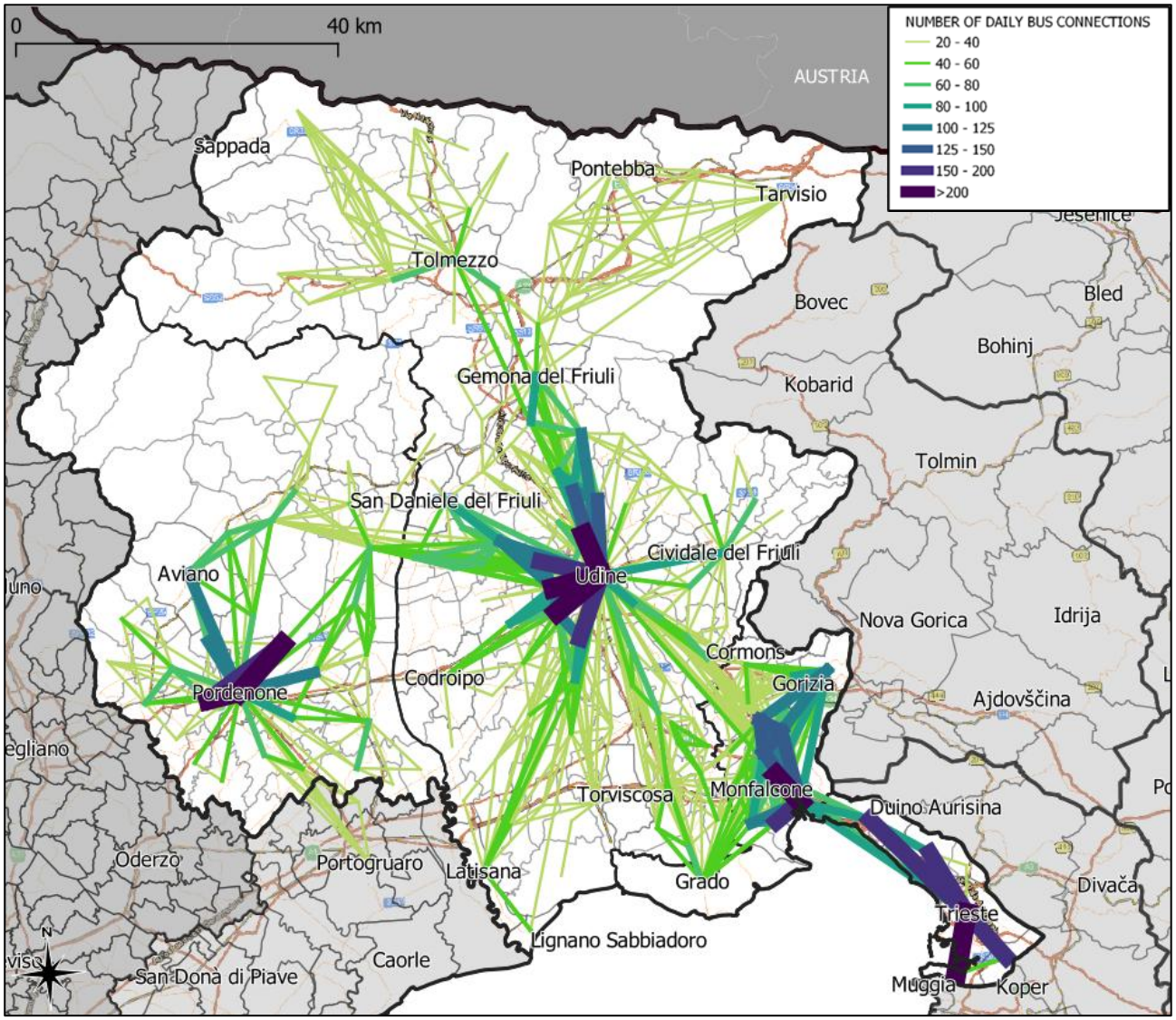

Figure 10 – Thematic representations of daily PT connections between different municipalities in FVG region.

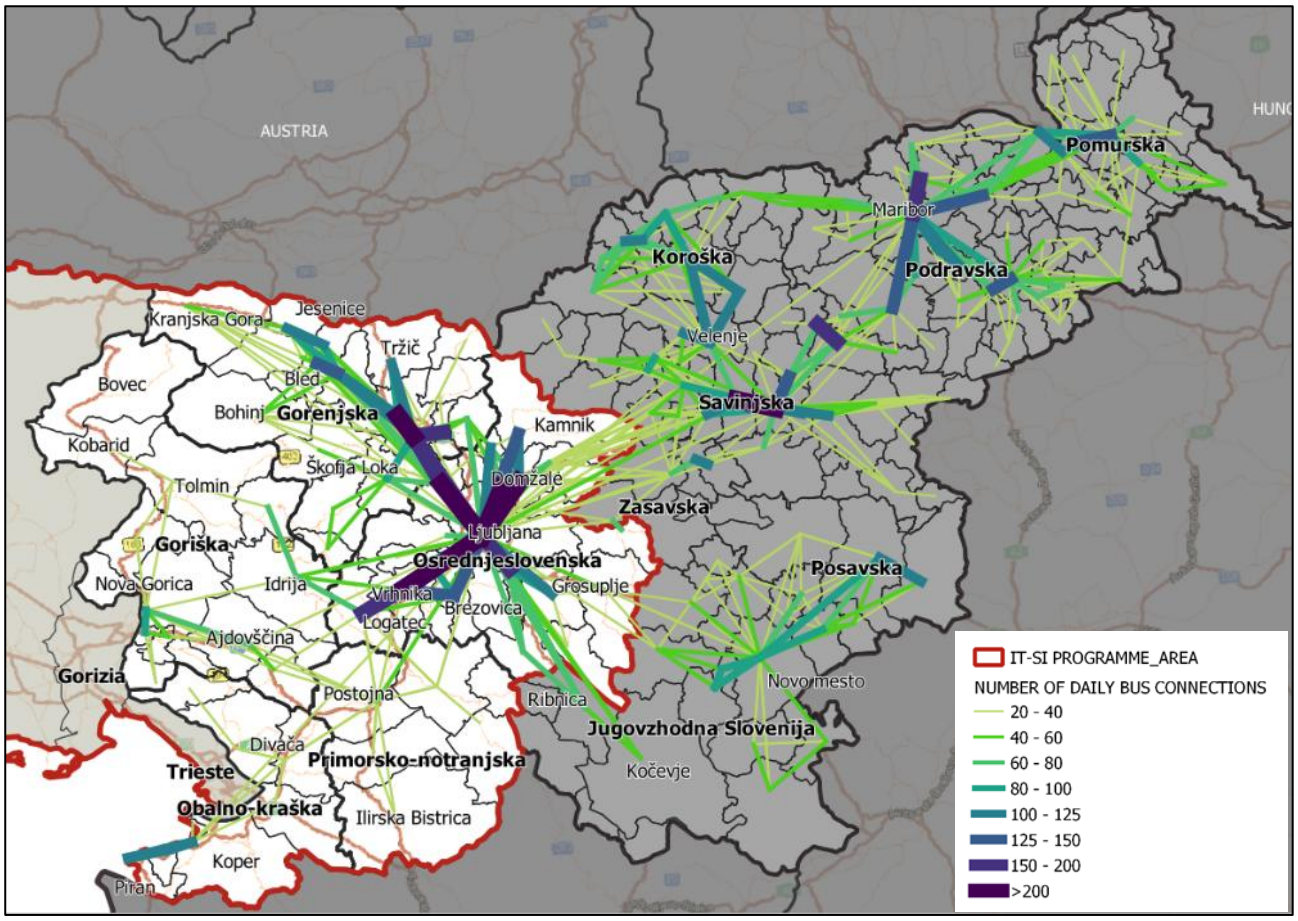

Figure 11 – Thematic representations of (bi-directional) daily PT connections between different municipalities in Slovenia.

Similar remarks have to be made with reference to the Slovenian context (see Figure 11), where remarkably higher number of connections can be ascertained in relation to Ljubljana. Closer to the IT-SI border, a relevant number of services is running in the coastal area, especially between Koper and Piran. Moreover, though characterised by lower values, a certain number of connections is associated with the relation linking Nova-Gorica with Šempeter-Vrtojba and Ajdovščina.

Moreover, a thorough analysis of the existing supply is fundamental for properly evaluating the accessibility of the analysed areas, which a key aspect expressing the territorial needs to be addressed by mobility planning. In fact, the EU guidelines have emphasised the central role of accessibility, being one of the primary objectives to be addressed by the innovative approach brought-in by SUMPs.

A first assessment of accessibility can be carried out just by an isochrone map representation (i.e. a thematic map that shows the areas reachable from a certain point within different time

thresholds). For instance, the following Figure 10 showcases an example of isochrone maps based on bus transit travel times.

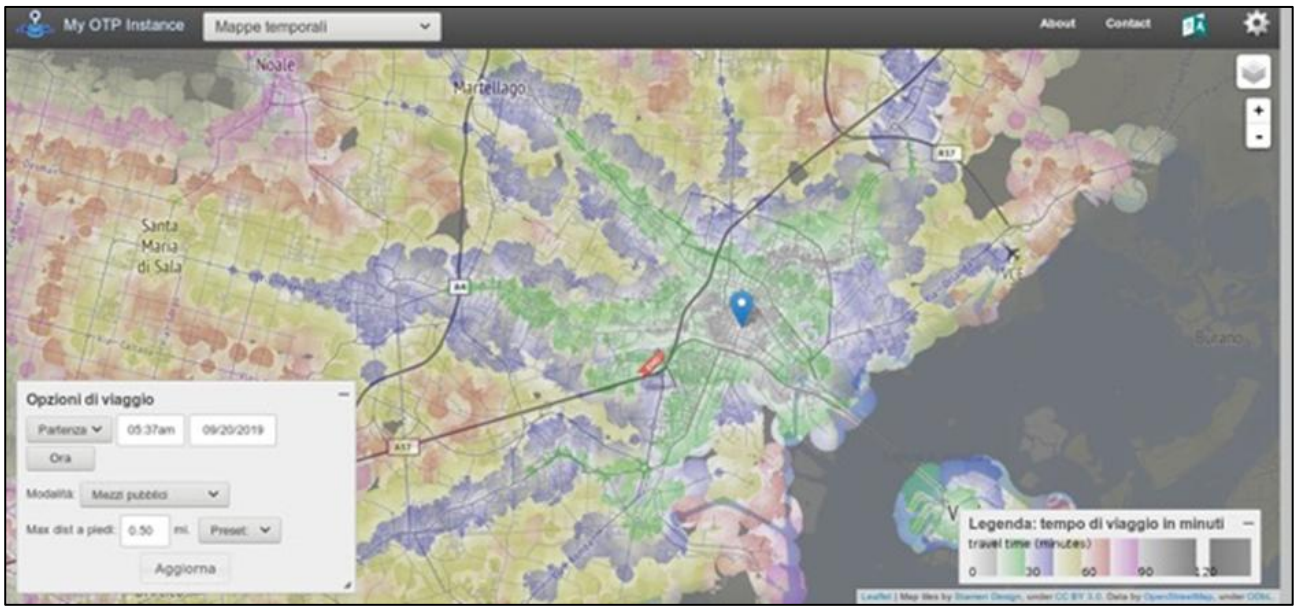

Figure 10 – Example of isochrone map representation.

Other and more deepened kind of analyses, which allow to assess the possibility to carry out a trip from a node to other destinations with a return in the same day (withing convenient thresholds) have been tested as well, thus showcasing the possibility related to the usage of GTFS and OpenStreetMap data.