URRUC - Urban-Rural Connectivity in Non-Metropolitan Regions. Annex VIII: Policy Guidelines and Recommendations

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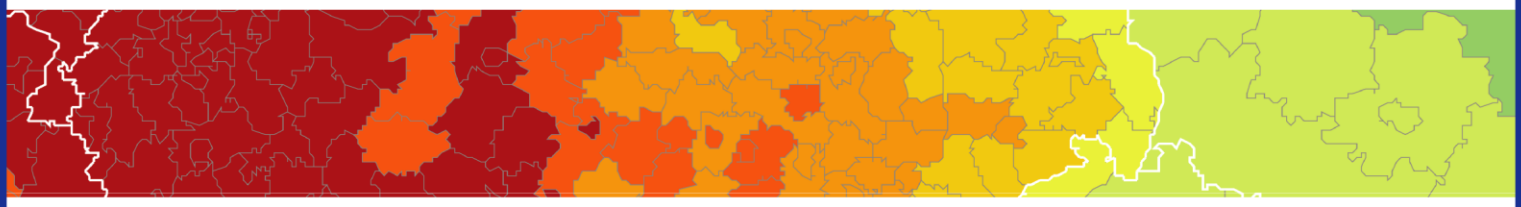

Urban-Rural Connectivity in Non-Metropolitan Regions (URRUC)

Targeted Analysis Activity

Annex VIII: Policy Guidelines and Recommendations

07/06/2019

This targeted analysis activity is conducted within the framework of the ESPON 2020 Cooperation Programme, partly financed by the European Regional Development Fund.

The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.

This delivery does not necessarily reflect the opinion of the members of the ESPON 2020 Monitoring Committee.

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Contact: info@espon.eu

ISBN: 978-2-919795-46-8

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Abbreviations

ALCOTRA	Latin Alps Transboundary Cooperation
BoD	Bus on Demand
CC	County Council
CREAMA	Consortium for Economic Recovery of Marina Alta
DRT	Demand Responsive Transport
EC	European Commission
EGTC	European Grouping on Territorial Cooperation
ERDF	European Regional Development Fund
ESPON	European Territorial Observatory Network
EU	European Union
ICT	Information Computing Technology
ITS	Intelligent Transport Systems
LAU	Local Administrative Unit
LEP	Local Economic Partnership
LPT	Local Public Transport
NMR	Non Metropolitan Region
NUTS	Nomenclature of Territorial Units for Statistics
NYCC	North Yorkshire County Council
RDA	Regional Development Agency
SBC	Scarborough Borough Council
SGI	Service of General Interest
SMS	Short Message Service
SNAI	National Strategy for Inner Areas
TDC	Transport Dispatch Centre
TMC	Transport Management Centre
ToR	Terms of Reference
URRUC	Urban-rural Connectivity in Non-metropolitan Regions

1 Introduction

As explicitly stated in the Terms of Reference, one of the main outcomes of the URRUC project was the development of "policy recommendations to further strengthening transport policy and systems related to urban-rural connectivity and interaction in non-metropolitan regions targeting actors and policy makers in the regions and countries of the stakeholders as well as at the EU-level" (ToR, p.7).

To achieve this aim, the project's activities were focused around the following research questions (ToR, p.6):

- What can be learned from existing practices in Member States in developing and maintaining flexible and sustainable urban-rural transport connectivity in non-metropolitan areas?
- How can existing and future transport policy and other relevant policies be further strengthened to support the development of flexible and sustainable transport connectivity and solutions in non-metropolitan regions, including transport policy initiatives at EU-level, such as the Intelligent Transport Systems initiative, as well as in the stakeholder regions and countries?

This resulted in the development of three separate, but strongly interrelated research activities, whose results are presented in the sections the follows:

1. Building on the case studies' analysis, the research team developed a set of policy recommendations aiming at solving accessibility challenges and improving urban-rural connectivity in the four stakeholders' territories, on the basis of their operational conditions as well as of the specific and general challenges there identified (section 2).
2. The identified operational recommendations were then reflected upon in relation to their potential for implementation in other non-metropolitan territories in Europe. A similar exercise was performed in relation to the recommendations for the solution of specific and general challenges, on the basis of the actions suggested for the territories at stake (section 3).
3. Finally, the research team developed a set of policy recommendations targeting EU decision and policy-makers, particularly in relation to the more effective use of EU resources in the development of policies to effectively improve accessibility and transport connectivity in non-metropolitan regions (Section 4). A specific set of recommendations was identified for United Kingdom transport policies in the post-Brexit scenario (section 5).

For further details on the methodology that allowed for the identification of the recommendations that follows, please see section 3 of the URRUC Final report and Annex 2.

2 Policy guidelines for the four stakeholder regions

On the basis of the stakeholders' concerns that emerged throughout the project, and taking into account the analysis of the operational conditions of the four stakeholder territories and of the general and specific context that, in turn, influence them (see Annexes IV-VII), the following recommendations are brought forward, aiming at improving the accessibility and urban-rural connectivity of the territories at stake. They are divided into:

- *Operational recommendations*, providing practical solutions tailored to the specific operational conditions of each territory;
- *Recommendations for the specific context*, aiming at reducing the specific challenges that each territory faces in promoting measures that improve urban-rural connectivity and accessibility;
- *Recommendations for the general context*, consisting of measures that intersect with the general economic, political, socio-cultural and technological challenges hampering accessibility and urban-rural connectivity.

2.1 CREAMA - Consortium for the Economic Recovery of Marina Alta

Most of the rural and mountain areas of Marina Alta (some of them being accessible, other more remote) lack adequate access to services and opportunities, especially for those without access to a car. Although the potential market for public transport is wide, public transport is almost not taken into account when planning a trip. Those who have access to a car use almost exclusively this means of transport, both because of lack of adequate alternatives and because of a poor sustainable mobility culture. Weak horizontal and vertical coordination, fragmentation of competences and different knowledge and priorities challenge the improvement of accessibility in rural areas, and flexible solutions face a rigid legislative framework and some resistance to change (See Annex IV for more details on Marina Alta).

2.1.1 Operational recommendations

Village minibus (mixed use): it represents an efficient solution to connect rural centres to intermediate transport hubs (functioning like a feeder bus) and then to urban areas. Nevertheless, this service should be subsidised, and the Transport Management Centre (TMC) should use cars as a 'substitute' for the minibus in underpopulated areas with a small number of users, i.e. less than 10. The village minibus meets and satisfies the needs of different users. This service is more efficient compared to a traditional bus service with fixed times and routes, since it employs smaller and less expensive minivans, it is booked in advance, and times and route flexibility permits a reduction of journey time and cost.

Social transport: It represents a solution for mobility impaired and disabled people in the county. It should be at least partly subsidised, and the use of car-sized vehicles in rural areas would make this mode more efficient. Its implementation would generate a notable social impact, especially for those with disabilities. It could be implemented through the existing governing body at county level (MASMA).

Bus on-demand (BOD): it represents the Marina Alta's intermediate and coastal urban areas variation of village minibus (mixed use), since this service would cover the transport of an average of 15 users. Bus-on-Demand is a localised method of transport, connecting urban centres to intermediate transport hubs and also extra-county urban areas (Oliva, Gandia, Altea and Benidorm). Time and route flexibility satisfies Marina Alta's urban users' mobility needs with a lower time and cost, it includes fixed stops but flexible routes and timetables which operate every day. Customers book the service through a transport dispatch centre (TDC). The financial sustainability of this solution (even if partly subsidised) would permit standard prices of the fares and a reduced cost for public administration.

Ride-sharing: constitutes a complementary solution to the ones proposed above, since it depends on a private driver's travel behaviour and cannot be guaranteed anytime. Some informal networks of ride-sharing already exist in the area; hence the aim would be to create a formal ride-sharing platform (website and app) at regional level (NUTS 3) in which passengers could find and book suitable travel solutions, both inside and outside the county. It will be essential to reduce pollution (as less cars will travel due to a higher occupation of the existing ones) and the general cost of driving for motorists (as the price is shared among them).

Service delivery: This system reduces citizens' mobility needs and it could be combined with freight transport, in which private companies pick up and deliver businesses' services, goods and cargos. The service delivery management would be developed at the district level, in which a centre ("headquarters") arranges shipping inside the district and between the district centre and the hub of reference, which in turn is connected to urban areas. This system would be based on technology platforms to provide support to logistic services in rural areas.

Railway: The construction of the railway running from north to south of the county would connect main urban centres of Marina Alta among them and with nearest city capitals (Valencia and Alicante). This connection would create greater flows of capital, tourists, greater accessibility and mobility among rural and urban areas of the county. The railway would permit a more direct and faster connection inside and outside the county reducing travel time and offering more accessibility to SGI, thanks to its strategic role in the local intermodal system.

Non-Material and Digital Solutions

Digital platforms and smart ticketing: These actions must be integrated in all the solutions proposed above. It is crucial to promote and spread information about these actions through

campaigns and digital alphabetisation for the use of apps and digital platforms for route planning. Smart ticketing would support the implementation and the functioning of local and regional multimodal transport systems. Digital platforms supporting local transport solutions should be managed by each local district, whilst regional transport solutions and smart ticketing digital tools are controlled at the regional level.

Territorial mobility management: Supporting the multimodal management system both at local and regional level, two levels of territorial mobility management centres would be applicable. Firstly, there will be a centre at the regional level, arranging and managing cross-county travel connections between urban transport hubs. Secondly, another centre at the district level would need to be established.

Dematerialisation of services: The public sector should continue the process of digitisation and make procedures already digitised more efficient and user friendly. The digitalisation of public administration and all SGI will reduce the need of displacement in the county and a wider access among local citizens, eliminating territorial-tied discrimination. Other important challenges are to boost telecommuting and smart working, which would further reduce the need to travel, improve the quality of life of workers, and to make rural areas more liveable.

Structural Interventions and Intermodality

The transport innovations previously proposed can represent a measure of social inclusion, deriving from the positive impacts of greater mobility but also from the employment of people in risk of social exclusion in local public transport initiatives, providing them training and occupation. Also local assets and companies could be engaged in the implementation of the public service, recognising emerging and potential business models for both commercial and publicly supported transport services.

The change of public transport perception among the local population is necessary, since the use of private means is widespread and rooted. First of all, it's important to improve the effectiveness of the public transport service and then to generate a public transport friendly culture among Marina Alta's citizens with advertising and awareness raising campaigns.

Facilities for electric vehicles such as charge stations should be encouraged.

The implementation of a multimodal public transport network is strategic objective for Marina Alta. It consists in the integration, combination and harmonisation of solutions at all territorial levels: municipal (bus transport, cycle and walking paths) county (taxicabs, village minibus, social transport, bus on-demand, ride-sharing, etc.) and regional (railway, roads and bus connections). The intermodal system is characterised by the coordination between all levels of territorial mobility management depending on travel patterns and users demand.

2.1.2 Recommendations for the specific context

Digitalisation and awareness raising: are two key elements for a successful implementation of transport solutions. Digitisation of many public services, such as the Tax Agency, would reduce the need to move from rural areas to the urban centres of Marina Alta. This would produce, in addition to lower transport requirements, a benefit in terms of time and a reduction in the stress margin due to the transfer. Digitalisation of bureaucratic procedures and access to public services would generate a positive return to local companies in Marina Alta, both in terms of time optimisation and net financial savings. At the same time, an improvement in the technological infrastructure and greater use of ICT would broaden the scope and commercial outlets to other markets for Marina Alta companies.

Considering that private cars are the main transport mode used by county inhabitants for any commuting purpose, awareness raising towards the benefits of the use of public transport and sharing transports alternatives proposed may have, not only in cost-saving but also in environmental and sustainability terms, given that the local population has a strong dependence on the private vehicle and shows a low propensity to use public transport.

Thanks to the application of EcoMobility solutions, such as the car sharing system, access to public services would be improved, due to the greater accessibility and the possibility of using a vehicle that meets the need for travel from home to the point where a public service is provided. A flexible car sharing system makes it possible to optimise each journey and, in the case of EcoMobility, thanks to the use of electric cars there is also an additional positive benefit for the environment, quality of life and health of citizens. In general, car sharing represents a transfer possibility and therefore of use of a service when a user does not have access to their own vehicle. However, such a service could be difficult to implement in more rural and geographically dispersed or isolated areas. Moreover, it represents an ecological and economical way to use a public service.

Multimodal transport: and the construction of a road transport network around the main railway, highway, airports and harbour hubs that allows greater use of the railway for the transport of freight is a fundamental and strategic point for accessibility to intermediate services and wider markets of Marina Alta companies and, as a last resort, it would give a decisive impetus to the commercial development of the local industrial sector.

The reduction or elimination of commuting time: from home to the workplace and the extension of the smart-working model would have positive effects on the reduction of the general cost of production of goods and the provision of services, as well as an increase in average productivity due to the improvement of working conditions and quality of life.

An integrated organic intermodal public transport system of Marina Alta would encourage the influx of tourists from urban areas to rural areas, allowing the structuring of diversified tourist pursuits that would complement the artistic, gastronomic and cultural offer of the inland areas of the county.

Considering the comments above, at operational level Marina Alta's challenge is to win the trust of the commuters. In order to achieve this, public transport must prove to be suitable for users' working hours, on-time, regular and easily accessible. Some actions (public campaigns, courses or workshops) in parallel with effective operational initiatives should be undertaken in order to strengthen a public transport friendly culture.

In order to reach a more incisive planning, vertical and horizontal cooperation between regional and municipal governments, local stakeholders and civil society needs to be strategic.

2.1.3 Recommendations for the general context

For the general context, recommendations are to reduce urban-rural flows and commuting. This could be achieved through a different urban development model, which is more concentrated than the current Marina Alta approach, contributing to compact urban fabrics. The enhancement of urban spaces with models of compact urban areas is strategic, since these would improve urban quality, economic efficiency and service provision.

Legislation: in transport provision should become more flexible in order to permit local private and mixed initiatives to emerge without interfering with regional territorial and transport planning legislations and strategies, as well as encouraging horizontal and vertical cooperation.

More funding: dedicated to the transport sector is an essential condition for the development of innovative and effective models that address the problems of connectivity between rural and urban areas.

A better access to public transport: should include not only a transport provision by itself, but a better inclusion of all kind of potential users; tailored solutions for specific needs are fundamental.

2.1.4 Deliverability plan

The table below captures a plan of action for the key recommendations mentioned above for which a level of priority and complexity has been attributed. Additional information of relevance for their implementation, such as time frame and provider, are also included. These have been worked out in consultation with the stakeholders in an attempt to facilitate the reading and understanding of the suggested measures. The colours scheme used in the table indicates the degree of deliverability, which is the result of the combination between the priority and complexity. The following four colours have been used.

Deliverability	High	Medium-high	Medium-low	Low

Table 1 – Synthesis of operational, specific and general recommendations for Marina Alta – Deliverability Plan

Recommendations	**Priority** (1-4. 1=Highest Priority, 4 = Lowest Priority)	**Complexity** (1-4, 1=Least Complexity, 4 = Most Complexity)	**Time Frame** (Short, Medium, Long-term)	**Provider** (Public, Private or Third Sector)	**Actions** (Steps which need to be followed to put solution into place)	**Outcomes** (Who Benefits and impacts)
OPERATIONAL RECOMMENDATIONS						
Village Minibus (mixed use)	1 It will improve the quality of life of the all citizens, more drastically of those who cannot drive or don't own private car.	4 Local transport competence should be ceded to and planned by local governments.	Medium-term	Public	An assessment of viability of it and where to implement it (routes, intermediate transport hubs, frequency) is needed. Quantify the cost and relate a budget. Apply for funds Implement it as agreed	Transport network that reach all the settlements of the territories. Relatively easy access to inner and mountainous areas Students and elderly but also commuters and tourists will be main users. Better connectivity and accessibility, and all benefits related to them.
Social Transport	2 Social transport is necessary because supply mobility to a disadvantaged mobility-challenged group, avoiding social exclusion.	2 It could be implemented through the existing governing body at county level with competences on social services (such as MASMA).	Medium-term	Third/Public	Agreement between the different levels of administration Financial and viability analysis Implementation with the competences derived from a higher level administration	Physically and mobility-challenged people and the elderly. Positive impact in terms of social inclusion.
Bus on-demand (BOD)	1 It would offer an effective and efficient public service, since routes are fix but trips and stops are daily planned and based on users' needs.	4 It will need an active role of the citizens to demand it and get used to it.	Medium-term	Public/Private	Study travel patterns Plan transport routes Quantify the cost and relate a budget. Apply for funds and implement it gradually	Students, the elderly and all persons without car are the most benefited groups. Remote areas and

						small villages
Ride-sharing	2 The aim would be to create a formal ride-sharing platform (website and app) at regional level in which passengers could find and book suitable travel solutions.	2 Awareness rising campaign to promote the platform created for this purpose, as well as special campaign on “how to use it” for elder citizens should be fostered.	Short-term	Public/Private	See the existing ones and check the effectiveness of them Public sector should promote existing initiatives Evaluation and follow-up from public sector	Students, but also fixed-schedule-every-day-commuters. Less cost for riders and less pollution More travel options.
Service delivery	4 The characteristics of Marina Alta make the service delivery not a priority.	2 The cost of this service would result in a rise of the product cost for the final users since the demand for this service won’t be such to provide it at competitive prices.	Short-term	Public/Private sector	Public sector should encourage the private provision of the service with initiatives such as tax exemptions. Private sector should provide the service	Population of rural and inner areas with difficult access. The delivery of services would increase the quality of life of the people in those zones.
Railway	1 Historic demand. It will connect the region of Marina Alta with the other coastal regions and with both the capital of the province (Alicante) and the capital of the Autonomous Community (Valencia).	4 The infrastructure has to be built and implies high related costs (construction and service, as well as maintenance) makes it very difficult and complex.	Long-term	Public	Agreement between national and regional bodies about the planning of railway Allocate a budget Planning of the best route for the railway.	The entire county. Rural (indirectly) and urban zones, coastal and inner ones. It will connect the region with the main big cities in the region and the province.
Digital platforms and smart ticketing	1 Digital platforms are essential, above all for rural areas, because they void distance and time barriers for trip planning and booking, gather all the transport information, above all in a fragmented and scarcely-supplied territory like Marina Alta. Simplify the dispersed planning and booking process in a unique	2 Digital platforms are not expensive and difficult to develop. Nevertheless, mainly in rural areas, where the population is ageing, digital alphabetisation represent an important concern. Also coordination between public and private transport and trips providers could slightly hinder the process.	M	Public/Private	Analysis of existent formal and informal digital platforms. If already existing, adoption of a digital platform and diffusion of it among public and private transport providers and dwellers, using informational	All local and regional stakeholders, mainly territorially assigned people, occasional travellers, rural dwellers (which need to shift from one means to another). Citizens would find much easier to plan and book in a unique platform and ticket payment, above all

	solution.				campaigns If not existing, creation, at regional level, of a digital platform for multimodal trip planning and ticketing. Advertising and digital alphabetisation campaign to foster the use of platforms.	aged people, occasional users or tourists.
Territorial Mobility Management	1 It is extremely necessary to coordinate and make transport service more efficient but also effective, both at local and regional level. TMM is essential in a territory where transport solutions are scarce, fragmented in the territory and disconnected.	3 Arranging transport management centres is a quite complex process since, despite political willingness, concertation, coordination and funding transfer and management between administrations of different scales are necessary.	L	Public	Creation of the multimodal transport network at local and (integrated in) regional level. Concertation between regional and local administrations about timetables and routes (based on users' needs). Creation of mobility management centres (one at regional level, which coordinates and includes county-local centres mobility information).	All the citizens would be better off. TMM increases multimodal mobility options for all citizens (which would even summon private car owners), optimises public spending and streamlines transport planning and management, both at local and regional level.
Dematerialisation of services	1 Dematerialisation of public and private services is necessary to reduce displacements, to better the access to SGI to the whole population, to facilitate business development and to give to rural and remote	2 The implementation of digitisation could be easily carried out. The cost of digitisation of procedures is relatively low and the only barrier is the adaptation of legislation to digital procedures.	M	Public/Private	Creation of applications and webpages for the digital supply and use of a public service. Simplification of the regulation about legal	Displacement needs and time would reduce, giving to rural and remote areas further access to SGI, a faster and more practical access to SGI for all citizens and business.

	areas immediate access to services.				requirements for bureaucratic procedures (in order to ease digitisation of procedures). Dissemination campaigns about the new digital service.	
SPECIFIC RECOMMENDATIONS						
Careful analysis of the real users' needs	1 Show what solutions best fit to the wide variety of users and the most efficient implementation procedure.	3 Lack of budget to fund this study is the main issue. The complexity of the users and the territorial context make it more complex.	Long-term	Public	Quantification and data analysis of the fluxes, disaggregated as much as possible. Questionnaires, interviews and focus groups Desk research and analysis.	All the inhabitants and the entire county will be benefited as it will improve the transport planning and policies related (main outcome)
Win the trust of the commuters	1 It is necessary an awareness rising campaign to the habits' change	3 The car-dependence culture plays a crucial role here. Winning the trust of commuters requires a lot of time and budget and the effectiveness of the service.	Long-term	Public/private	Carry out visibility campaigns of new transport solutions. It depends highly on the business that carries out the service	Especially commuters Reduction of traffic congestion
Public transport on-time, regular and easily accessible	3 Regularity and on-time service are crucial variables conditioning the success of the service for more users to switch to this option.	4 There are many factors conditioning the success. The service has to work as planned and careful management and implementation are needed too.	Long-term	Public/Private	Public sector should encourage the planning but private companies should implement it. Plan schedules and routes	All public transport users. It will facilitate to create a good image about the service and gain more users
Strengthen a public transport friendly culture.	1 Key priority, related to the trust of commuters, to improve the offer of the services and make them plausible. The better the service the more likely users prefer public transport.	3 Main complexity is related to the different public administrations involved in its provision.	Long-term	Public	Design marketing campaign Advertisement and propaganda distributed through different channels and media	County inhabitants and tourists will benefit from it. It will increase the use and reduce the cost of the service

Implement Eco-Mobility solutions	1 The Eco-mobility approach is the background for the development of a flexible, multimodal, social and environmental friendly mobility system, since it includes “slow” solutions like walking and cycling paths, clean fuels, electric vehicles, car-sharing or digitisation.	1 Eco-mobility actions are relatively low-cost and benefit from a widespread consensus and appreciation, so quite easy to implement.	S	Public	To assess walking and cycle paths feasibility and advantages, both inside and between urban areas. To assess the feasibility of electric charge stations. If sustainable, funding and implementing projects of Eco-Mobility. Planning and implementing campaigns to promote eco-friendly and healthy mobility.	The whole county would benefit from more “soft” mobility options and multimodality facilitations. Urban areas dwellers would benefit from less contaminant and healthier means of transport. Tourists, rural and remote neighbours would have more mobility options, respectful with the environment.
GENERAL RECOMMENDATIONS						
Different urban development model	2 More compact urban development model would definitely change and ameliorate the problem of connectivity in the county.	4 Changing development path established in urban areas requires specific actions. All of them requiring time and political willingness and cooperation at different levels.	Long-term	Public	Agreement between all municipalities involved Agree the goals and methods Promote or/and legislate and/or regulate policies that will derive compact urban areas	Overall county Less need for transport policies and cohesion ones. Less need of transport fluxes area.
More incisive and concerted planning	1 Regional and local policy-makers cooperation and involvement in transport planning is essential to reach an effective and efficient mobility network.	4 Centralisation at regional level, top-down perspective and the lack of horizontal and vertical cooperation between governing agencies is the main problem.	Medium-term	Public	There has to be an elaborated strategic consensual plan agreed between the different public and private agents with local knowledge and transport planning experience,	It will facilitate the implementation and the efficiency of the other measures.
More flexible transport provision legislation	1 Different administrations involved in transport planning suppose a threat and a deterrent to implement transport public policies.	4 It will be complex and difficult, since the legislation should be changed at regional level and/or at national level.	Medium-term		Make an agreement between all the municipalities of Marina Alta about what should be changed Present the proposal to the general government	It will benefit the implementation and the scope of action. The connectivity could be improved as this is one of the problems that

						impedes to do so
Governance: encourage horizontal and vertical cooperation	1 In general, as the potential solutions depend on different levels of governance, a vertical cooperation between administrations of different levels is needed.	4 The main problem with vertical cooperation, in general, is the passivity of Generalitat (autonomous community government) regarding transport in the Marina Alta County.	Long-term	Public	Exist the willingness from all levels Agree on basic goals Create a transport management and planning body Demand for that agreement	Political parties in general, politicians, but society as well Cooperation policy and politics
More funding	1 Marina Alta has no own budget and the entities which conformed it (municipalities) have a very restrict and low budget.	3 Sources of founding may come directly from regional or national budget, which should be transferred directly to Marina Alta to fund these projects.	Medium-term	Public	Meeting between the municipalities Agree on basic goals Create some institutions or empower the existing ones (like CREAMA) Transfer those proposals to a higher level of administration Ask or/and apply for funding	It will benefit the entire county (all people) As the financing gets better, the connectivity could be improved (as this is one of the problems that impedes to do so).
Better access to public transport	3 To achieve this, a public transport policy that involves all territorial levels is needed. It should include not only a transport provision by itself, but a better inclusion of all kind of potential users;	4 It is highly difficult to address due to the different levels of administration involved. There is also a lack of cooperation between the agents that could be involved in the issue.	Long-term	Public	Define the most difficult access locations and the social groups facing more barriers to access services Make transport services accessible to all places and to all people the service Assessment of number and typology of potential users to implement efficient tailored solutions.	Inhabitants of inner rural zones and elderly, but also students and commuters, even tourists.

2.2 Scarborough Borough Council

Rural areas and suburbs of Scarborough Borough Council currently lack alternatives to private car for connections and accessibility to Services of General Interests. Social objectives prevail in such areas, whereas also economic ones are relevant for Scarborough, so connectivity is crucial and road expansion is seen as a priority by the local stakeholders. Commuters mainly use the car (or the bike where possible) and are satisfied with their mobility; public transport is unreliable and used mainly for leisure, so those who don't have access to the car are very disadvantaged.

The specific and general contexts which surrounds operational conditions pose some challenges, especially in terms of fragmentation of competences, competing priorities and limited influence of the local level on upper-tier ones. Economic and commercial criteria strongly prevail on social and place-shaping ones, worsening territorial and social inequalities.

2.2.1 Operational recommendations

Most suitable alternatives to private car and traditional public transport

Village Minibus: Introducing a village minibus service, specifically aimed at rural areas in Scarborough, can help to improve accessibility to urban locations and key services, particularly for people without access to adequate transport. Such a service should have a fixed route, targeted at villages without easy access to public transport, and cater for a small number of customers. However, due to the current funding climate such a service will require private sector funding, and cooperation between private and public bodies in terms of route planning.

Social Transport: Scarborough has an existing community transport provider and through additional support from local authorities, it should be encouraged to promote its availability to a wider range of potential eligible users who may be unaware of this provision. This can be achieved through working with SBC, and it should not require significant financial resources to implement.

Shuttle: Businesses seeking to expand operations, specifically those at the Scarborough Business Park, are limited by constraints surrounding car parking affecting their ability to employ more staff. Introducing a shuttle bus service, specifically for employees at this site, can help to overcome these issues. This will give business additional capacity to expand staffing numbers. However, such a service will require extensive route planning, private sector funding, and cooperation with public sector bodies.

Feeder: Scarborough Borough has three Park and Ride facilities currently in operation, but feedback from participants suggests that these services are undersubscribed. Principally, the location of Park and Ride sites is considered as being problematic, and it is easier for

individuals to use their own car and park in the town. A review into these services is taking place, and there needs to be engagement with users surrounding the future of these facilities.

Non-material and digital solutions

Digital Platforms: The use of digital platforms and solutions in Scarborough is currently limited with this seen as a more 'city based' approach. Currently providers have online and mobile app services for ticketing and timetabling, but there is no single ticket to enable multi-modal travel. The recent introduction of ticketless travel on rail routes between Scarborough, Malton, and Hull, part of the TftN 'Smart on Rail' project, does provide a basis for expansion of ticketless systems should there be interest from providers.

Territorial Mobility Management: The YNYERY LEP has an overview of the key issues and challenges facing Scarborough, and it plays a pivotal role in the economic development of the area. It is crucial that channels of communication and dissemination between Scarborough Borough Council and the LEP are continually reviewed in order to ensure that the LEP are aware of the most recent developments in the Borough.

Dematerialisation of Services: A recent trial in Whitby, using Amazon Alexa technology, was designed in order to encourage the use of e-services. The expansion of such provision, and the digitalisation of services provided by SBC, will improve accessibility for those without adequate transport. However, such services can have unintended consequences through increasing isolation, whilst parts of Scarborough also have high internet costs. To reduce costs, and improve coverage, private solutions can help to overcome these issues.

Structural Interventions and Intermodality

Roads: Within Scarborough there are long standing complaints from business, residents, and local politicians surrounding the A64. These groups have been campaigning to increase the level of 'dualling' on the road, but extending this provision into Scarborough is not seen as economically viable. However, improvements to the road will alleviate congestion, and will positively benefit business through opening up access to labour and resources. Economically, this will have a significant impact through improving Scarborough's ability to retain and attract businesses, whilst positively contributing to the removal of negative views surrounding the existing transport links. Continued lobbying, through the A64 Growth Partnership, and pressure from stakeholders is required to present a case for these improvements.

Cycle Paths: Although they are not a critical priority, further investment in cycle paths, particularly surrounding the National Park, can be of benefit for urban-rural connectivity. They can provide tourists and local residents with another viable transportation method.

2.2.2 Recommendations for the specific context

Based on the analysis of conditions, opportunities and challenges that are specifically related to transport and mobility in Scarborough, the following actions are recommended.

Tourism as a valued economic sector: Evidence in this case study illustrates the economic importance of tourism to Scarborough. This raises a critical issue, as the impact of tourism, particularly on the transport infrastructure of a region, is not factored into investment decisions made by the UK Government. Improving transport networks to support leisure travel can have a wide range of benefits for residents and businesses, which can help to facilitate growth across different industrial sectors. Therefore, the UK Government needs to consider tourism as a strategic industrial sector, and the impact of this activity needs to be factored into transport investment and planning decisions. To achieve this objective, bodies such as SBC, NYCC, and the LEP need to continue to gather evidence in order to influence policymaking and government decisions.

Education: Travel for educational purposes is expensive, whilst for students at the tertiary level there is no existing provision. Through working with other providers, such as the community transport operator active in Scarborough, gaps in this provision can be reduced. Addressing challenges in education travel can also have wider benefits. For example, an available service for tertiary education may encourage students to stay-on at the sixth form college, leading to the development of a more skilled local workforce.

Resource Capacity: Another important issue for Scarborough is the current resource environment and how this affects its ability to secure funding for transportation purposes. Current funding requirements include the need for authorities to 'match fund' in order to secure projects, and reductions in local authority budgets have negatively influenced their ability to provide this financing. The UK Government needs to recognise the concerns of local authorities surrounding this issue. Furthermore, future challenges in relation to the political and economic landscape could also have an impact on funding streams.

2.2.3 Recommendations for the general context

Building on the analysis of the conditions, opportunities and challenges of the general policy, economic, socio-cultural and technologic context that surrounds transport and mobility in Scarborough, the following actions and measures are recommended.

Planning Procedures: A number of participants raised concerns surrounding existing planning procedures, with these described as being 'ad hoc' and being influenced by the legacy of previous structures. For regions such as Scarborough, this increases the possibility of them being overlooked in relation to transport investment, whilst there are also failures to connect different stages of the planning process. Creating more streamlined plans, and using the Local Industrial Strategy to engage stakeholders at the local level is imperative in addressing

these issues. It is critical that authorities such as Scarborough have a ‘seat at the table’ in this process.

Devolved Local Taxation: Another critical recommendation surrounds the exploration of a devolved taxation system for coastal areas or those with high levels of tourism. As noted in Section 4.1, there are existing examples of a ‘Visitor Tax’ being levied in a number of locations in the EU. For Scarborough, such a taxation regime can be used to leverage investment in regeneration or transport infrastructure. This is of particular importance considering the current funding and political climate, where securing investment has become more difficult.

Continue to support business and education: SBC has successfully supported the introduction of a UTC for fourteen to eighteen year olds as well as the establishment of CU: Scarborough. It is crucial that these facilities, as well as other potential educational support mechanisms are supported by the Borough Council and other businesses. Moreover, there also needs to be continuing dialogue between the Borough Council and local businesses in order to encourage these organisations to influence local or transport planning.

2.2.4 Deliverability plan

The table outlines the recommendations listed and provides a delivery plan for their introduction. The recommendations are split into four areas. Firstly, there are operational recommendations, which highlights the most suitable alternatives to private vehicles in Scarborough. Operational recommendations also refer to non-material and digital solutions and structural interventions such as road improvements. Secondly, recommendations for the specific context of Scarborough are outlined. This includes concerns directly related to the situation faced by Scarborough. Finally, there are recommendations related to the general context, which cover broader policy and governance issues. These issues may have relevance for other areas. Each of the individual recommendations is scored on a 1-4 scale in terms of its priority to the area and the complexity of its implementation. The table then identifies a period for implementation, providers (in terms of private, public or third sector), actions needed to be undertaken by relevant bodies, and potential outcomes (who is impacted). Each of the recommendations is then colour coded based on its priority and complexity to create a deliverability rating ranked from low to high. This coding scheme is illustrated below:

Deliverability	High	Medium-high	Medium-low	Low

Table 2 – Synthesis of operational, specific and general recommendations for Scarborough – Deliverability Plan

Recommendations	**Priority (1= Highest Priority, 4= Lowest Priority)**	**Complexity (1=Least Complex, 4 = Most Complex)**	**Time Frame (Short, Medium, Long-term)**	**Provider (Public, Private or Third Sector)**	**Actions (Steps which need to be followed to put solution into place)**	**Outcomes (Who Benefits and impacts)**
OPERATIONAL RECOMMENDATIONS						
Village Minibus	2 Connections between key rural settlements, and the town centre, are an important priority. Due to austerity, existing bus services between the outlying villages have been cut/removed since 2010.	2 Routing may require significant investment. This may not be seen as commercially viable.	Medium-term	Private/Public	Viability assessment, identification of possible delivery partners, secure funding, and implement service.	Improved accessibility for isolated communities. Reduced congestion.
Social Transport	2 Social transport is an important priority. Scarborough has an existing social transport provider but awareness of the service is limited to certain key groups.	2 'Section 19' regulations and need to promote service. Many possible users unaware service exists.	Medium-term	Third/Public	Provider works with SBC/NYCC to develop promotional material. Solutions then implemented.	Improved accessibility for isolated communities. People without transport can access employment opportunities.
Shuttle	1 High priority. Businesses see as possible solution to alleviate parking issues limiting expansion	3 Routes/sites/infrastructure need to be identified. Payment and funding models need to be defined.	Medium-term	Private with support from Public	Private firms identify routes/sites/infrastructure. Funding and payment models defined	Reduced congestion on key routes. Ability for business to expand staffing levels and support business development.
Feeder	4 Low priority. Low demand for existing Park and Ride sites.	3 Availability of land and concerns surrounding demand and economic viability	Medium-term	Private/Public Sector	Current 'Park and Ride' schemes are under evaluation as part of a review into this provision. Implement findings of the review	Commuter and tourist users who may use Park and Ride.

Digital Platforms	4 Seen as a city based solution to low priority. Providers are using online/app timetabling	3 Complex due to infrastructure and provision required.	Long-term	Private/Public	Await results of the initial phase of the Smart on Rail project. Any future implementation based on the results of this project. Project is organised by TftN and will not be influenced by SBC.	Rail travelers, commuters, tourists. If encourages more use of rail then possibility of reducing congestion.
Territorial Mobility Management	2 Communication and dissemination needs to be continually reviewed in order to inform LEP of Scarborough issues.	3 Complex as all levels of governance need representation.	Short-term	Public	Strengthen relationship with the LEP Ensure that all local authorities are involved in the 'deepest level' in planning. This is particularly important in terms of the Local Industrial Strategy. Important to ensure proper consultation.	Local Authorities, LEP, other key transport stakeholders including regional and national bodies as well as providers. Ensure that local issues are factored into planning and policy outcomes.
Dematerialisation of Services	2 Accessibility to digital services considered as a priority.	2 Issues surrounding unintended consequences and internet costs.	Short-term	Public/Private	Form public/private sector partnerships to address challenges in relation to internet connectivity. SBC can support through planning policy and digitalising services. Use technology to improve services/functions and to streamline activities	All Impacted. More e-services and improved online connectivity.
Structural Improvements	1 High priority for a range of stakeholders. Improvements to the A64 seen as positive for business and employment.	4 Very complex due to investment being seen as not economically viable with current demand levels.	Medium-term	Private/Public	Continue to work with industry and other public sector bodies to lobby government and other key bodies. Recognise that the road network needs improvement in order to achieve further economic growth.	All Impacted. Improved road connections could mean greater efficiency for existing business and a greater ability to attract staff from outside Scarborough.
Cycle Paths	4	2	Medium-term	Public	Need for collaboration between	Mainly tourists but

	Low priority but potentially a method of improving urban-rural connectivity	Routing is straightforward but concerns surrounding funding.			different local authorities. A feasibility study is required in order to assess costs. Possible development of a pilot scheme before wider expansion	also some local users. Impacts on health, improved accessibility, improved tourist experience.
SPECIFIC RECOMMENDATIONS						
Tourism as a valued economic sector	1 Of critical importance. National government needs to take tourism more seriously when determining investment decisions and its impact on the transport network.	3 Complex as it requires a shift in the national policy framework. Needs of NMRs could also be overlooked in favour of metro-regions.	Medium/Long-term	Public	Need to inform national policy debates through evidence gathering. This must be an ongoing process.	Local residents and tourists. Secure further investment in transport infrastructure.
Devolved local Taxation	1 High priority to investigate possibility of devolving taxation powers to support regeneration and infrastructure development in coastal/tourist areas	4 Highly complex. Needs national policy to change and support from other authorities. Needs mind-set to shift although some examples in the EU provide best practice cases.	Medium/Long-term	Public	Work with other local authorities from coastal/tourist areas. Create local impact assessment for the proposed tax. Inform national policy debates through evidence gathering. This must be an ongoing process. Dissemination of reports/evidence to achieve policy adoption.	Local residents, tourists, and those in other areas with high levels of tourism. Secure further investment in transport infrastructure.
Education Travel	3 Not seen as critical priority but high costs for students/families and no provision for tertiary level users.	2 Some complexity due to 'safeguarding' and 'Section 19' if involving social transport. Also funding concerns if service expanded/costs lowered.	Medium-term	Private/Public /Third	Explore possible models such as social transport and other alternatives which could be used to provide school services Role for SBC is to bring relevant groups together and facilitate services.	Students and parents. If transport can be used to encourage children to stay in education. Benefit for business through more highly skilled workforce
Resource Capacity	1 Key priority as cuts to local authority budgets have impacted the ability to bid for projects related	3 Complex. Government approach unlikely to change in short-term and consequences of Brexit will	Medium-term	Public	Need to flag issue up to national government.	Additional resource capacity will provide SBC with greater ability to secure funding.

	to infrastructure development.	impact potential funding streams.				Potential for wider benefits from greater investment in transport projects.
GENERAL RECOMMENDATIONS						
Planning Procedures	1 A key priority for Scarborough relates to planning procedures and the nature of sometimes 'ad hoc' strategic planning. This is influenced by overlaps and the legacy of previous structures. Transport planning and strategic planning often poorly connected	4 Complex issue that relates to national policy frameworks. Important that Coastal towns, such as Scarborough, have a 'seat at the table' in influencing planning decisions.	Long-term	Public	Need to establish a holistic approach to planning to reduce overlaps and gaps. Local Industrial Strategy can be used as a platform to achieve a more holistic approach through the involvement of local stakeholders.	Local Authorities, such as SBC. Improved transport/local planning which has fewer overlaps and gaps.
Continue to Support Business and Education	1 Another important priority is to maintain SBCs work surrounding business and educational development. This could be extended through encouraging business to engage in transport planning.	2 Some complexity due to continued need for funding and communication. Additionally, SBC need to ensure that all types of business have a voice and that key requirements are met.	Medium/Long-term	Private/Public	Communication/engagement through the Business Ambassadors group and other industrial bodies. SBC continue to promote Scarborough and encourage investment.	Local businesses and educational facilities as well as students. Improved economic growth, protection of existing businesses, and improved skills, which are specific to Scarborough requirements. More opportunities for local students.

2.3 Valle Arroscia, Imperia province

The towns and hamlets of Valle Arroscia are dispersed over a wide, mountainous territory, some of them being far from the main road axis of the valley. Most trips are made by car, and the current public transport system fails to meet the needs of the few who rely on it. Hence, while car users are not in search of alternatives, some user groups suffer from territorial assignment. Public transport is seen as a last resort and at the same time poses serious challenges to those who rely on it to get to main urban nodes.

Fragmentation of competences, different priorities, as well as a lack of vertical coordination between stakeholders involved in transport planning and operations raises certain challenges for the territory. Furthermore, the local authority has limited influence on upper-tier decisions and legislation; subsequently licensing and operation of public transport pose limits to the introduction of flexible transport solutions (a detailed description of the challenges facing Valle Arroscia are reported in Annex VI).

2.3.1 Operational recommendations

Most suitable alternatives to private car and traditional public transport

A number of alternatives to private car and traditional public transport that may contribute to combating existing accessibility challenges has been selected between the possible solutions for rural areas described at the end of this document (section 5 - Definitions), as the result most suitable for Valle Arroscia.

Feeder: replacing some of the current bus lines with a feeder service, linking the internal valleys with the main nodes of the routes that connect Valle Arroscia with Albenga, Imperia and Ormea seems to be the most suitable option, but the low level of demand of Valle Arroscia may affect its financial viability. Efforts must be made to make it a viable alternative not only for territorial assigned persons and students but also for commuters. Otherwise there will be the risk both of further marginalisation of territorial assigned persons (from a social perspective), and of insufficient patronage, undermining the long-term sustainability of the service.

Bus-on-demand: turning the current bus lines (or parts of them, i.e. from the last main node onwards) bus-on-demand may be a viable option, but to avoid financial difficulties routes should be kept as fixed as possible, and efforts should be made to increase public transport patronage. Otherwise its financial sustainability, hence its feasibility, would not be guaranteed.

Car clubs and ride sharing: these solutions can prove particularly effective in addressing the issue of dispersed and flexible demand, and in reducing territorial assignment. Furthermore, they can rely on a strong sense of community of the inhabitants of Valle Arroscia. In Valle Arroscia, it would be possible to introduce car clubs in the densest settlements, and to

organise ride sharing in the whole territory through a common platform. Still, these measures do not solve the issue of car-dependency; they are not suitable for collective use and imply openness to change and digitalisation. Hence, it is recommended to push these options as complementary measures for an efficient and equitable accessibility system.

Service delivery: the mobile delivery of public services (mobile post office, medical prescriptions at pharmacies, mobile library, etc.) is recommended to reduce the need to travel of territorial assigned persons. This should be considered as a complementary measure, as it does not solve *per se* territorial assignment and on the contrary could even worsen it by making people stay home even more and hinder their social life. A possibility is to provide service delivery only for those services that currently have to face criticalities due to scarce demand (such as traditional post offices). Another possibility is to provide services that have a relevant socio-cultural value and to link them with social events gathering scattered demand. An example could be a mobile library associated to reading club events in the libraries of the Valley.

Preconditions necessary for all the above-mentioned solutions: all these solutions rely on certain essential preconditions pertaining to the specific and general context, described in paragraphs 4.2 and 4.3. These include; improvement of horizontal and vertical coordination; flexible rules and procedures; openness to change (of both institutions and users); digitalisation (provision and competences).

Non-material and digital solutions

In addition to the solutions presented above, the following cross-cutting actions may contribute to further improve accessibility in the area.

Integrated smart ticketing and digital platforms: they can help users in each phase of their trip and ease data collection and analysis.

Thanks to EU funds provided by European Territorial Cooperation programmes, especially through INTERREG transnational and transboundary programmes (INTERREG Maritime, INTERREG Alcotra) and ERDF funds, Liguria Region and Province of Imperia are developing:

- an electronic ticketing system that will allow citizens to use a single device (smartcard, smartphone) to access all regional public transport services, enabling users to travel on the entire railway and road network of Liguria with a single travel document, valid for all means of public transport. It will make it easier for the user to find, pay and validate their ticket. Digitalised validation will also make it possible to collect and analyse demand, so to plan the service in the best possible way.
- an integrated DRT platform for weak demand areas;
- an integrated platform with intelligent services for the interoperability of multimodal links (ship, bus, train, air), with particular attention to cross-border connections

These projects have not been completed, so it is not possible to evaluate their success nor to get detailed information on their operational and business model. Still, together with the SNAI they can establish the foundations to develop effective and long-term solutions. Key to the success of these actions is to bridge the digital divide of Valle Arroscia and to enhance the know-how of both of providers and users. In this respect, Liguria Region is placing much emphasis on this process, and inner areas are the first pilot areas in which ultrabroadband will be installed. It is very important to integrate all these initiatives, to build synergies and to accompany the local population in this digital transition.

Territorial mobility management: to date mobility management is not considered as an option by the territory, neither at the local level nor at the provincial one. Still, the introduction of a territorial mobility manager could prove very effective in improving mobility and accessibility of inner areas. The introduction of such measures would be more effective at the provincial level than at the local one, since it is at that level that local transport planning is managed, and it is the appropriate level to address urban-rural connectivity. Furthermore, it would be very helpful not only for Valle Arroscia but also for the other valleys. Since know-how and resources are lacking, it is recommended to take advantage and make synergies with any funding opportunity, such as those related to the SNAI, EU projects, etc.

While it is recommended to implement this action at the provincial level, it is at the same time essential to improve capacity for dialogue between the Unione Montana Valle Arroscia. Otherwise, the measure would fail to address the specific needs of Valle Arroscia.

Dematerialisation of services: it would reduce the need to travel and marginalisation, and it can be done at different territorial levels, from the local to the regional. The dematerialisation of public services has several economic, environmental and social benefits. As regards mobility and accessibility, the dematerialisation of public services allows the reduction of the need to travel, making services virtually accessible everywhere. Considering the marginality of the territory of Valle Arroscia, particularly in winter months when snow removal services are not always guaranteed and timely, it is essential to strengthen such services. As far as health is concerned, the telemedicine service would prove particularly helpful to solve the problems generated by the distance from the hospitals. To complement telemedicine also telecare services (i.e. SMS reminders at times when medicines must be taken) should be activated, also through collaboration with local pharmacies that can provide support to more fragile user groups.

For education, e-learning can be of help to reduce the risk of marginalisation connected to putting children from different year groups together in one class, that is typical in Italian small communities in inner areas, whose schools have very few pupils. Such provision would also be beneficial in the case of isolation of the most remote hamlets, i.e. for winter snowfalls, landslides and avalanches. Bridging the digital divide is essential to the dematerialisation of services. Liguria Region has identified inner areas as priority areas to provide ultrabroadband,

and it is currently providing this coverage in some municipalities of Valle Arroscia (the others will follow in the near future). Nevertheless, the divide is also due to the lack of digital skills. Measures to bridge the digital divide are described in paragraph 4.3 (recommendations for the general context).

Structural interventions & intermodality

As far as the road network is concerned, a large part of the internal provincial network would require considerable maintenance, and the Valley is already pushing the Province to improve road maintenance. Besides, the promotion of intermodality is considered a relevant issue, to be pursued through the following measures:

Intermodal passenger transport: Although to date bikes are not seen as a suitable alternative for the mobility of local inhabitants of Valle Arroscia, for some user groups, and where the gradient allows it, it would be a viable solution to ride the first and last miles by bike. To foster multimodality and active mobility, and to face the issue of dispersed origins and destinations, buses and vans may be provided with bike racks, so as to make it possible to ride the first and last mile(s) by bikes (possibly electric). This action would be very helpful also for tourism purposes, as among the main assets of Valle Arroscia are its cycle trails.

2.3.2 Recommendations for the specific context

Based on the analysis of conditions, opportunities and challenges that are specifically related to transport and mobility in Valle Arroscia, the following actions and measures are recommended.

Market-demand: In order to avoid the risk of further marginalisation of some user groups and to grant the permanency of the service, it is recommended to draw up policies that are both directed to respond to the needs of disadvantaged groups and have some appeal for those who are currently not searching for alternatives to their preferred transport. If policies are only targeted to user groups that have no alternatives, on one hand they would “stigmatise” such users, and on the other hand they would strive to reach a sufficient demand. Moreover, as happened in other territories with similar accessibility challenges, such services would fail to secure adequate levels of demand. As regards tourists, although actual flows would not justify the introduction of dedicated transport solutions some flexible services can prove useful, especially on the occasion of local events and/or in the form of shuttle (i.e. from Imperia or from Ceva).

Due to high average age and isolation that is typical in non-tourist mountain valleys, time-space geographies of people living in Valle Arroscia are rather traditional. Here the 24-hour society (with its consequences in terms of service provision and mobility) does not seem to have spread yet. Hence, the needs that alternatives to traditional public transport services

should meet in Valle Arroscia are not characterised by high degrees of flexibility in terms of time and space distribution of trips. Policies should not focus on high degrees of flexibility.

Customer perceptions: The introduction of alternatives to traditional public transport and innovative solutions grounded in ICT will encounter some scepticism due on the one hand to the bad reputation of alternatives to private car and to the other hand to the poor digitalisation of the territory (broadband coverage but also digital skills). It is recommended to carry out extensive communication, information and training campaigns on innovation grounded in participation (such as living labs), targeted to all user groups.

Stakeholders: As public transport provision is monopolised by a single company, which is not keen on introducing alternative services, it is recommended to support dialogue between inner areas in asserting and advocating their needs with upper-tier institutions. Furthermore, this discussion can be used as a mechanism to explore alternative services that do not involve the concessionary company (e.g. car clubs, car-pooling, etc.). In addition, a valley's transportation and mobility consortium may be of benefit in this respect, if its technical and economic feasibility are verified.

2.3.3 Recommendations for the general context

Finally, building on the analysis of conditions, opportunities and challenges of the general policy, economic, socio-cultural and technologic context that surround transport and mobility in Valle Arroscia, the following actions and measures are recommended:

Policy and government: A more flexible legislative framework, and/or more flexibility in applying legal rules and principles are crucial, as well as more coordination between the Region and the Province. Interaction among levels and sectors is crucial in order to fulfil the potential of the multi-layered, multi-faceted governance structure and to prevent missing links, incoherencies and inefficiencies. The SNAI provides both economic resources, know-how and a governance approach which should be fully exploited to build and launch long-term processes of improvement of the accessibility of rural areas. Since the three main stakeholders (Liguria Region, Province of Imperia and Unione Montana Valle Arroscia) have different priorities and vertical coordination is weak, the unique opportunity provided by the SNAI in terms of the governance process must not be missed. Furthermore, the financial resources provided by the SNAI could be also devoted to the improvement of know-how of local public officers as regards mobility management and alternative transport services.

Economic context: In a context of economic downturn and decline of public investment in services, flexible transport services and alternatives to public transport may prove particularly effective and offer a good solution. In fact, such services can make public transport services more efficient from the economic point of view, and they can be responsive to the needs of user groups who do not have access to a car.

Territorial shrinkage and marginalisation are expected to worsen the challenges that public transport provision has to face. Still, economic pressure could also provide opportunities, at least in two ways: increasing public transport patronage, and breaking down some barriers, especially in terms of resistance to change and cooperation among sectors and layers of governance. It is recommended to achieve the necessary preconditions to face and reverse the processes of depopulation and marginalisation, as the SNAI is doing in Valle Arroscia with reference to health, education, mobility and local development capabilities. However, policies for accessibility and urban-rural connectivity should be fully aware of the potential for economic downturn (i.e. increase in public transport patronage, enhanced horizontal cooperation and openness to change).

Socio-cultural context: Valle Arroscia is an unspoilt territory with very low density and traffic flows. In addition, tourism flows are limited and are currently not perceived as factors of pollution. Hence, environmental concerns with respect to the impacts of car use are not of particular relevance in Valle Arroscia. Policies to rebalance the modal split in favour of public transport and to promote alternatives to the single-user private car would face resistance if they wanted to leverage environmental aspects. Other elements, such as social or economic aspects should be prioritised for justifying and communicating such policies.

Technological context: Technological advances for flexible transport systems and alternatives to private car are offering new potential solutions that can be adopted in Valle Arroscia. Liguria Region is highly interested in and active in projects to introduce smart solutions for transport services. So there is the potential to introduce alternatives to traditional public transport grounded in ITS and innovative digital solutions. However, since, as mentioned above, innovative transport solutions would encounter physical and social barriers, accompanying measures are recommended, both in terms of digital provision and for communication and information actions.

2.3.4 Deliverability plan

The table below captures a plan of action for the recommendations mentioned above for which a level of priority and complexity has been attributed. Additional information of relevance for their implementation, such as time frame and provider, are also included. These have been worked out in consultation with the stakeholders in an attempt to facilitate the reading and understanding of the suggested measures. The colours scheme used in the table indicates the degree of deliverability, which is the result of the combination between the priority and complexity. The following four colours have been used.

Deliverability	High	Medium-high	Medium-low	Low

Table 3 – Synthesis of operational, specific and general recommendations for Valle Arroscia – Deliverability Plan

Recommendation	**Priority** (1=Highest Priority, 4 = Lowest Priority)	**Complexity** (1=Least Complexity, 4 = Most Complexity)	**Time Frame** (Short, Medium, Long-term)	**Provider** (Public, Private or Third Sector)	**Actions** (Steps which need to be followed to put solution into place)	**Outcomes** (Who benefits and impacts)
OPERATIONAL RECOMMENDATIONS						
Feeder Replacing the current bus lines in internally valleys with a feeder	1 Would make the service much more efficient and to improve accessibility and connections	3 Know-how, operators and resources are available, but legislative and administrative barriers are strong (dialogue with Province and RT)	Short-term	Public Sector /Third Sector	Viability assessment Proactive dialogue with Region, Province and RT Secure funding Implement service	Territorial assigned persons Improved connections and accessibility Cost savings
Bus on demand Turning some of the current lines in BoD (on demand, or on demand at fixed times)	2 Would reduce the number of rides with no passengers and consent	4 It would need a complex viability assessment. The operator should be RT, that currently is not interested in turning the traditional service in BoD	Medium-term	Public Sector	Viability assessment Proactive dialogue with Region, Province and RT The operator must be confirmed Secure funding Implement service	Territorial assigned persons and commuters Improved connections and accessibility Cost savings
Car clubs and ride sharing Car clubs in the densest areas; ride sharing in the whole territory through a common platform	3 Ride sharing is already organised in an informal way. A more structured implementation increases benefits	2 There exist digital platforms, provided by both the public and private sector, which can be referred to. Information campaigns are needed.	Short-term	Private Sector (possibly Public)	Identify existing services and best practices Organise the platform Information/training	Territorial assigned persons and commuters Improved connections and accessibility
Service delivery Itinerant delivery of public services (mobile post office, prescriptions at pharmacies, mobile library, etc...)	4 Improve quality of life and accessibility to services but does not solve territorial assignment, which is a priority	1 Can be implemented incrementally and does not rely on a complex organisation. Can be accompanied by social events to avoid isolation	Medium-term	Public Sector /Third Sector	Analyse demand Dialogue with stakeholders Test a first set Monitor Widen the services	Territorial assigned persons Improved accessibility to services Social life could be hindered
Smart ticketing /	2	2	Medium-term	Public Sector	Dialogue with reference	Local population (all

digital platforms E-ticketing; integrated DRT platform; integrated multimodal platform	Digitalisation is a priority, but such measures needs to be coordinated with wider initiatives carried out at upper levels	Synergies with ongoing Alcotra and Maritime projects can make implementation easier and cheaper. Broadband is provided but digital skills must be improved			persons of ongoing projects Implement service Information and training campaigns	user groups) and tourists User helped in each phase of the trip Data collection and analysis eased
Territorial mobility management Introduction of a territorial mobility manager to improve mobility on the territory through the collaboration and coordination of local institutions	1 Could prove very effective in improving mobility and accessibility of inner areas; would be very helpful also for other valleys of the Province	3 Know-how and resources are lacking, synergies are needed with any funding opportunity. Should be implemented at the provincial level, but the Province is currently not collaborative	Medium-term	Public Sector	Analise best practices Proactive dialogue with Region, Province and RT Secure funding Train staff Implement service	Local population (all users groups); public and private operators; other valleys Better accessibility and mobility System more efficient
Dematerialisation of services Telemedicine, telecare, e-learning and e-government	1 Reduce the need to travel and improve quality of life, especially in winter months	2 Can be implemented incrementally and at different territorial levels. Broadband is provided but digital skills must be improved	Medium-term	Public Sector	Identify ongoing initiatives Secure funding Implement service Information and training campaigns	Local population, especially territorial assigned persons Reduced need to travel Better quality of life
Intermodal passenger transport Provide buses and vans with bike-racks.	4 To date bikes are not seen as a viable alternative, but where the slopes allow it, would ease first/last mile	1 It is an easy and not very expensive action, provided that RT, or the cooperatives which would operate the feeder service agree with it.	Short-term	Public Sector/Third Sector	Dialogue with service operators Secure funding Install bike racks Information campaign	Local population (especially young and commuters); tourists Wider catchment area of public transport
SPECIFIC RECOMMENDATIONS						
Degree of flexibility Do not focus on high flexibility, as there is not such demand in V.A. (space and time distribution of trips)	1 Providing a service which does not meet the demand would undermine the financial and operational success of the service	2 A least flexible service would not necessarily mean an easier one. Demand and the timing of services must be carefully analysed. The SNAI will provide resources for it.	Short-term	Public Sector	Analise demand Dialogue with stakeholders Define the degree of flexibility Monitor Adjust (if needed)	Local population; tourists; local administrations; providers Service more efficient and effective

Target policies to various users Focus on disadvantaged groups (market niche) but also on latent demand	2 To focus only on disadvantaged groups could imply insufficient demand and social marginalisation	2 To satisfy different needs is not easy, and complex viability studies are needed. The SNAI will provide resources for it.	Short-term	Public Sector	Analise demand Dialogue with stakeholders Communication and information campaigns	Local population (all users groups); tourists Increased viability of the service Better social inclusion
Transport services for tourism Shuttles from Ceva or Imperia in summer and in the occasion of events	4 Tourism is more a goal than a reality; hence, to provide services for tourists is not a high priority	1 Can be organised and operated by the local cooperatives. Can be implemented incrementally.	Medium -term	All Sectors	Define core events Test the service Advertisement Increase	Tourists; local enterprises; local population Increased tourist flows
Transport consortium To develop a valley's consortium, so to join forces and resources	1 The consortium would ease service provision and give a stronger voice to isolated claims	2 The Unione Montana already represents the local administrations and dialogues with the cooperatives. But capacity for dialogue in advoking their need to upper-tier institutions is limited	Medium term	All Sectors	Dialogue between stakeholders (local administrations, cooperatives, RT) Viability study Consortium	Local population; local administrations Increase capacity for dialogue of local administrations More efficient provision and management
GENERAL RECOMMENDATIONS						
Legislative framework More flexible legislative framework, and/or more flexibility in applying legal rules and principles	1 Legislative barriers and a rigid attitude are among the main obstacles to the provision of alternative transport solutions	3 Resistance to change of regional and provincial authorities, and limited room for local stakeholders in policy development and service programming, undermine a structural change	Medium-term	Public Sector	Proactive dialogue among levels of governance Room for change of the legislative framework Laws and attitudes changed	Local administrations, population and enterprises Openness to change Possibility to introduce innovative alternatives
Interaction among layers and sectors More coordination between sectors and between local, supralocal and regional authorities.	1 This is a crucial action, to prevent missing links (i.e. the Province), incoherence and inefficiencies.	3 The current attitude of the Province and of RT is far from collaborative. And they have the upper hand, hence it is not an easy task.	Medium-term	Public Sector	Inter-actor trust and proactive dialogue Permanent working table	Local administrations and population Long-lasting process of improvement of the governance approach
Reverse marginalisation	1 Any measure to improve	3 Local population is struggling to	Long-term	All Sectors	Strategic vision of local development	Local administrations, population and

processes Provide the preconditions to face and reverse the processes of depopulation and impoverishment	accessibility will fall short if it is not accompanied by concrete actions to reverse marginalisation. The SNAI offers a unique occasion to build and launch long-term process of improvement, which must not be missed	keep living in the valley, with profound attachment and dedication. SNAI offers a unique opportunity. The support provided by CTAI, the Region and ANCI and the will of local authorities set a good ground. To turn seeds into roots for development is not a trivial step, as marginalisation is deep-rooted			Set strategic keystones Identify and program actions (cfr. SNAI) Implement actions Keep supporting local development initiatives	enterprises Long-lasting process of improvement of quality of life Repopulation
Bridge the digital divide Provide adequate digital coverage and train local administrations and population	1 Most of the operational recommendations rely on adequate digital provision and skills	2 The Region is currently providing broadband coverage in the whole valley. There is some scepticism about digital services (aged/ unaccustomed users)	Short-term	All Sectors	Broadband coverage (ongoing) Information and training campaigns	Local administrations, population and enterprises Reduced marginalisation, increased access to opportunities

2.4 Region Västerbotten (NUTS3)

Västerbotten territory features rural settlements, most of them being accessible and some very remote. Territorial density is very low and long distances and unfavorable weather strongly affect some user groups (i.e. those who don't have access to the car or inhabitants of remote hamlets in winter). To date, public transport is almost not considered as an option, and there is lack of information of existing services. Still, public transport is generally seen with some interest, as well as digitalisation of services.

Vertical and horizontal cooperation is hampered by lack of time and resources, and there seems to be no intention to increase investment in public transport nor to finance potential solutions to improve connectivity in a cost-efficient way.

2.4.1 Operational recommendations

Most suitable alternatives to private car and traditional public transport

A number of alternatives to private car and traditional public transport that may contribute to overcoming existing accessibility challenges has been selected between the possible solutions for rural areas described at the end of this document (section 5 - Definitions), as the ones most suitable for Västerbotten.

Transport on demand (bus or car): Bus on demand or "call cars" with fixed routes exist in Västerbotten. However, public awareness is low. With the high costs of trips for call cars, municipalities want to prioritise the usage of them. Finding the right target group where the cars make the most difference is therefore of importance. A process to map where the cars are used has started, and after that a ranking of which routes should stay on is required. Transport on demand has been widely discussed for several years but less so recently. It is however considered an important solution to investigate since it contributes to connecting urban and rural areas, hence improving living conditions in the region.

Intermodal Parking Facilities: Commuters from urban to rural areas would benefit from living in urban areas, as they wish to do, and have a good accessibility by public transport to rural areas. More intermodal parking facilities with engine heaters and a roof to protect from snow (necessary in winter) is needed, for both cars and bicycles.

Redesigning the bus layout: Redesigning the bus layout and fleet could contribute to increasing its attractiveness for a larger group than school children and students. Since bus services between urban and accessible rural areas are usually not overcrowded, maximizing the number of seats should not be the priority. It should rather be comfort and services (WIFI, silent zone, etc.).

Non-material and digital solutions

Dematerialisation of services: Because of long distances and good internet access, digital services can reduce the need for some travel while at the same time making public services more accessible throughout the region. The use of the existing high performing level of broadband for people to access services digitally (e-learning, e-health) should be seen as a tool to reducing their need to travel. Digital solutions should be accompanied by training programmes for the target users, who will be utilising these services. Projects of E-health, E-learning and implementation of E-services exists but can be improved and extended

2.4.2 Recommendations for the specific context

Based on the analysis of conditions, opportunities and challenges that are specifically related to transport and mobility in Västerbotten, the following actions and measures are recommended.

Combining service and good delivery with passenger transport: Sharing transport of passengers and goods is highly relevant in Västerbotten. The project, MOBEVI, between Umeå institute for design, Swedish Agency for Economic and Regional Growth and the Swedish Transport Administration are doing a pilot study on how transport for visitors and food transportation can be coordinated. Passenger transport could also be coordinated with public services such as the mobile post office, medical prescriptions at pharmacies or mobile library. It is especially worth investigating how passenger transport and freight transport can be integrated due to its specific context, i.e. a non-metropolitan region with low population density and a lack of critical mass.

Issue of funding for pilot project: There is a lack of knowledge surrounding mobility solutions between urban and rural areas in (sparsely populated) Non-Metropolitan Regions (NMR). EU and national funds for mobility and transport projects contribute to gaining insights into this topic. However, they do not allow for testing of possible solutions. This is especially important in this kind of region where commercially profitable solutions are limited.

Workplaces as Strategic Partners: A key priority for the Region is to improve commuting between urban and rural areas. The improvement of commuting habits between urban and accessible rural areas is something that public actors cannot resolve alone. The inclusion of workplaces in accessible rural areas is highly relevant and would allow discussion not only of commuting habits but also larger structural changes.

2.4.3 Recommendations for the general context

Finally, building on the analysis of conditions, opportunities and challenges of the general policy, economic, socio-cultural and technologic context which surround transport and mobility in Västerbotten, the following actions and measures are recommended.

More support for rural areas: More support could be given from national authorities for planning in rural areas, as well as between urban to rural areas. Even though rural areas are quite diverse in Sweden, similar tools and instruments could contribute to implementing concrete mobility solutions between urban and rural areas, with a more systematic approach to rural-regions.

Solutions beyond administrative borders: Administrative borders should be less important in the development of transport solutions since they occur in functional areas. The allocation of resources and the capacity for local and regional stakeholders in the field of transport should therefore not be neglected.

2.4.4 Deliverability plan

The table below captures a plan of action for the recommendations mentioned above for which a level of priority and complexity has been attributed. Additional information of relevance for their implementation, such as time frame and provider, are also included. These have been worked out in consultation with the stakeholders in an attempt to facilitate the reading and understanding of the suggested measures. The colour scheme used in the table indicates the degree of deliverability, which is the result of the combination between the priority and complexity. The following four colours have been used.

Deliverability	High	Medium-high	Medium-low	Low

Table 4 – Synthesis of operational, specific and general recommendations for Västerbotten – Deliverability Plan

Recommendations	**Priority** (1-4. 1=Highest Priority, 4 = Lowest Priority)	**Complexity** (1-4, 1=Least Complexity, 4 = Most Complexity)	**Time Frame** (Short, Medium, Long-term)	**Provider** (Public, Private or Third Sector)	**Actions** (Steps which need to be followed to put solution into place)	**Outcomes** (Who Benefits and impacts)
OPERATIONAL RECOMMENDATIONS						
Transport on demand (bus or car)	2 Connecting urban and rural areas in Västerbotten where the current bus and train services are not well developed requires a more flexible system. Transport on demand is seen as having a great potential, especially for covering the "last mile" between a public transport stop and the passenger destination. Trips to cities to access services (grocery, shopping, restauration) for small groups of rural dwellers is another target group.	3 - An on-demand service is costly. It therefore refrains municipalities to fully implement it. - On-demand trips can occur across municipal borders, increasing the complexity of the solution that is decided at municipal level. - Digital solution that integrate the "last mile" or for booking transport on demand might not fit all target users, especially elderlies.	Medium-term	Municipalities in cooperation with Region Västerbotten, as well as bus companies and professional drivers (public and private sectors)	For existing solution, the local level should: - better integrate this transport option within their public transport offer. - better inform the population about the existence of this service Two options for new solutions: - Decide on a regional initiative towards a comprehensive system to take place in all municipalities in Västerbotten (top-down approach) - Start with a pilot project in one municipality and to learn more about potential users and how to market this service and then scale it up to other municipalities.	- Inhabitants/passengers: improved accessibility for infrequent trips (e.g. trips to urban services for rural dwellers; and trips to natural areas for urban dwellers) - Transport on demand providers: supporting commercial taxi services.
Intermodal parking facilities	3 Commuters from urban to	3 - It is difficult to price the	Medium-term	Mostly public sector: most	Improve the conditions of existing intermodal parking	-Provide better accessibility for urban-rural commuters, in

	rural areas would benefit from living in the urban areas, as they wish to do, and have a good accessibility by public transport to rural areas.	intermodal parking facilities since too high prices will not attract commuters and too low pricing will instead make non-commuters use the space. - It is not the competence of the Region, but it can promote it.		probably a cooperation between private landowners, the national road authority or a municipality, depending on who owns the road, with a participation of the regional level.	facilities (e.g. fair pricing for commuters only, good facilities adapted to the specific weather conditions) Identify the most suitable locations for new facilities.	both directions but with a bigger focus on urban dwellers working in rural areas.
Redesigning the bus layout	3 Such busses, more targeted to commuters, should rather focus on being more comfortable and providing good conditions for tele-working (WIFI, silent zone, tables to work, etc.). Furthermore, the commuting distances can be rather long, so comfort is even more important.	2 - This can be done, but it is difficult to do unless the regional and local stakeholders have identified the needs for commuters and eventually from other target groups. - A bus tends to be used for different purposes over the course of a day, making the customisation of its layout for commuters only more complicated.	Long-term	Municipalities in cooperation with Region Västerbotten, as well as bus (public and private sectors)	Identify the routes with the highest potential for commuters using a comfortable bus, for working while commuting, on a rather regularly basis. More generally contracting a company for a bus service should be less about the number of passengers than about the comfort of the bus ride for potential commuters.	More attractive bus rides for commuters Increase the quality of working conditions by allowing the commuter to use the time more efficiently.
Dematerialisation of services	1 Low population densities and long distances makes it highly relevant to have digital solutions for a number of services, such as health.	2 -National legislation and limited resources of municipalities can be a barrier for extended digital services in practice.	Medium-term	Mostly public sector, in cooperation with the private sector	Improve and expand the existing digital solutions Include the possibilities for users to be accustomed to such new solutions (e.g. focus on digital skills)	A more efficient delivery of public services Reduction of travel time and waiting time for the users.

SPECIFIC RECOMMENDATIONS						
Combining service and good delivery with passenger transport	1 Due to low population densities and a lack of critical mass, it is worth investigating how passenger transport and freight transport can be integrated/coordinated.	3 - There is always complex to combined goods and passengers, because the use of space in the vehicles is different. - The regional actor is not responsible for the transport of goods. - high cost to customise a vehicle for different purpose. - Investment risk, especially if the newly built vehicle might be under-used.	Medium-term	Mainly the public transport provider (public sector) contracting bus companies (private sector)	A more flexible layout that can be adjusted to the needs of a specific route would be beneficial. The solution should mainly be created for passenger transport since goods traffic is not the competence of the regional level. An overview of existing fleet that can combine good and passenger transport should be made to find cheaper solutions. The assumption being that vehicles already available on the market might be a cheaper solution.	More commercial traffic making transport more beneficial for its provider(s). Can improve the delivery of goods to both dwellers and businesses in rural areas.
Issue of funding for pilot project	1 There is a lack of knowledge on mobility solution between urban and rural areas in (sparsely populated) NMR. EU and national funds for mobility and transport projects contribute at gaining some insight on this topic. However, they do not allow for testing the possible solutions.	3 No funding for testing means that the rural area has to take a relatively important risk in investing for new mobility solutions. Need to acknowledge the rural dimension, i.e. probable lack critical mass to implement commercial solutions. The testing of a solution is more difficult than for intra- and inter-urban areas flows, since there are fewer potential users living in less densely populated areas.	Medium-term	Mostly public sector	European and national funding schemes can be better design to allow (more) resources to be spent on testing a pilot project, contributing a more tailored solutions for urban-rural mobility solutions.	Local and regional stakeholders: getting more customised solutions getting more time to test pilot projects before implementing them. Reducing investment risk. Passengers: possibility to test pilot solutions, provide inputs and get familiar with the solutions.

Workplaces as strategic partners for improving urban-rural commuting in Västerbotten	1 Projects including workplaces in accessible rural areas to discuss and optimise ride sharing solutions are highly relevant. Including this partner would also provide the opportunity to discuss other structural changes at the workplaces to facilitate commuting or reduce the need to commute when possible; e.g. increase the possibility to work from home or work while commuting by public transport.	3 The limited role of Region makes it complex. The Region can try to promote the solution through projects (such as the on-going HAR project): But in the long run it is not the main focus of the region, since it is about influencing behavior	Short-term	Mostly private sector (workplaces) and individual commuters. The Region can promote this solution through projects.	- The Region can create and initiate projects or discussion forums and help through projects like the on-going project (HAR). - Workplaces could be involved in discussion on ride sharing and other flexible urban-rural mobility solutions.	- The highest potential benefit is for the workplaces. It contributes at securing that the workforce composed by urban dwellers remains in accessible rural areas, by making rural workplaces attractive. - Better use of commuting time by commuters if it is possible to work in the public transport vehicle or work from home. Especially relevant for long-distance commuting.
GENERAL RECOMMENDATIONS						
More support for rural areas	2 More support could be given for planning in rural areas, as well as between urban to rural areas.	4 The limited role of Region makes it complex. It is a decision taken by national stakeholders.	Medium-term	Public sector (e.g. national authorities)	National actors should identify this issue as a priority and take the steps to make it happen.	Even though rural areas are quite diverse in Sweden, similar, similar tools and instruments could contribute at implementing concrete mobility solutions between urban and rural areas, with a more systematic approach of rural-regions.
Beyond administrative borders	1 Administrative borders should be less important in the development of transport solutions. The allocation of resources and capacity for local and regional stakeholder in the field of transport should therefore not be neglected.	4 The limited role of Region makes it complex.	Long-term	Public sector (e.g. national authorities)	National actors should identify this issue as a priority and take the steps to make it happen.	More flexible mobility solutions where the functional territory replaces municipal and regional borders.

3 Policy Recommendations for Non-Metropolitan Regions in Europe

Building on the solutions listed above in the form of operational recommendations and recommendations for the specific and general contexts, this section provides policy guidance to EU non-metropolitan regions struggling with accessibility issues and aiming at enhancing urban-rural connectivity. It first proposes a comparative, aggregated representation of the recommendations presented above, highlighting their priority for each case (3.1). Building on this exercise, it then addresses concrete steps on how to design and improve flexible and sustainable transport systems and mobility programmes for public and private transport, including innovative initiatives, such as demand-responsive transport solutions for remote areas as well as immaterial, transversal and potential structural solutions (3.2). Then, building on the analysis of conditions and challenges specifically related to transport and mobility in the stakeholder areas, a number of actions and measures are suggested (3.3). Finally, building on the analysis of conditions, opportunities and challenges of general policy, economic, socio-cultural and technologic context which surround transport and mobility, a last set of measures are recommended, to solve more general challenges and improve urban-rural connectivity in non-metropolitan regions (3.4).

Whereas the proposed list of suggestions is far from being exhaustive, its objective is to stimulate policy and decision makers in other EU non-metropolitan regions affected by accessibility challenges to check these recommendations against the operational conditions and the specific and general challenges that characterise their territories. In so doing they will be able to reflect on the actual good fit of the proposed solutions against a more concrete background and, eventually, selected what options to pick and how to implement them. To facilitate this process, for each of the proposed items, one or more examples of their potential territorialisation in the stakeholders' regions is proposed.

3.1 Comparable concerns and recommendations from the case studies

The following subsections describes transport and connectivity solutions emerged from the Case Study analysis (see table 5). As such, these solutions are proposed as potentially impactful measures to solve connectivity challenges in similar Non-metropolitan regions in the EU. These constitutes a step towards the elaboration of an operational set of guidelines, upon which to develop the future EU transport and connectivity policies (see section 4). Key points and main findings are presented in three groups: operational (practical transport solutions), specific (referring to the specific conditions affecting the transport context) and general actions (referring to general economic, political, socio-cultural or technological actions that support connectivity development).

Table 5 – Synoptic analysis of case studies' recommendations, according to their priority.

	Recommendation	Marina Alta	Scarborough	V. Arroscia	Västerbotten
OPERATIONAL	Bus on demand / call cars				
	Village minibus				
	Feeder				
	Shuttle van				
	Car and ride sharing				
	Social transport				
	Service delivery				
	Digital platforms				
	Mobility management				
	Dematerialisation of services				
	Structural interventions				
SPECIFIC	Careful analysis of user needs				
	Targeted policies (various users)				
	Strengthen PT-friendly culture				
	Mixed use of transport services				
	Strengthen local skills and roles				
	More funds for transport projects				
	Eco-Mobility				
	More importance to tourism				
GENERAL	Governance (horizontal, vertical)				
	Flexibility (rules and processes)				
	Compact urban development				
	Reverse marginalisation				
	Bridge the digital divide				
LEGEND					
Priority		High	Medium-high	Medium-low	Low

Source: Authors' own elaboration, 2019

3.2 Operational recommendations

Possible alternatives to private car

Bus on demand: most useful for suburban, accessible rural and hill-mountain areas. It is useful for most types of user (except for some users, i.e. very young children or persons with severe disabilities without an accompanying person). It is geared towards collective users and mostly booked through phone bookings (or possibly by internet) in advance in advance (> one day or on a regular basis). Timetabling is at best mixed (on demand at fixed times), or possibly on demand. Operations would be best along fixed routes with the potential for deviations. Journeys would link many origins to many destinations (stop locations being fixed). These services would optimally want to be discounted and subsidised, costs would be partly covered by standard fares. Such services best operate for more than 20 passengers per vehicle-hour. It is mostly geared to social objectives.

In Marina Alta, Bus-on-Demand (BoD) would represent the intermediate and coastal urban areas variation of village minibus, due to higher levels of demand. However, minivans could be preferable to conventional buses in borderline situations in which demand is not so much higher than in remote areas. BoD would connect urban centres among them and also extra-county urban areas, such as Oliva, Gandia in the north and Altea and Benidorm towards the south.

In Valle Arroscia, turning some of the current bus lines in bus on demand might be a viable option, but it would be challenged by low level of demand. Hence, if this solution would be implemented much effort should be made to increase public transport patronage.

In Västerbotten, the already existing BoD service is challenged by low public awareness. Because of the high costs of trips with call cars (distances are very long), municipalities want to prioritise some lines (the ones that are more used and in which the service makes the most difference) and focus on them.

Village minibus: most useful for rural remote and internal mountain areas, they are most appropriate for territorial assigned users, mostly through phone bookings. On demand services, best if in advance (> 1 day) or repeating are the most important consideration, along fully flexible routes. These journeys would be most useful for a single pick up to multiple sites (and *vice versa*). These services would optimally want to be discounted and subsidised, and are primarily social in value, offering improved connectivity for scattered hamlets to the main town centres. Best operational conditions are with small groups of users (up to 20 passengers per vehicle-hour). It is a subsidised service, mainly geared to social equity objectives, to a lesser extent environmental.

In Marina Alta, to respond to the needs of a rural territory with dispersed settlements, this service should be organised in Transport Management Centres (TMC), which will organise the service at the supralocal level. Village minibus would transport passengers from rural areas to intermediate transport hubs (functioning as a feeder) and then, to coastal urban centres. In under-populated areas where the demand is particularly low (less than 10 passengers per vehicle/hour), the TMC should substitute minivans with cars.

Feeder: highly relevant for rural accessible areas, as well as for remote hilly and mountain areas, linking remote or dispersed areas to the main public transport hubs. It is of value to territorial assigned persons, commuters and students, mostly booked through phone bookings (or possibly by internet) in advance (> one day or on a regular basis). It is geared towards collective users, and operations would be best along fixed routes with the potential for deviations. Journeys would be most useful for a single pick up to multiple sites (and *vice versa*). These services would optimally want to be discounted and subsidised, costs would be

partly covered by standard fares. Such services best operate within a range from 10 to 50 passengers per vehicle-hour. It is mostly geared to social objectives.

In Scarborough, in Valle Arroscia and in Västerbotten, the feeder would be a highly relevant solution to link villages and hamlets with the main nodes, such as the urban poles of Imperia, Albenga and Ormea and the industrial areas.
Low levels of demand and competitiveness of the car are the main challenges. Hence, efforts must be made to make it a viable alternative not only to territorial assigned persons and students but also to commuters, and the coordination between modes of transport therefore need to be efficient.

Shuttle van: most useful for suburban, accessible rural and hill-mountain areas. They would primarily be targeted at tourists or some specific groups of commuters (i.e. going from the station or bus stop to an industrial area). They would be most appropriate for groups. Bookings would be best done through phone (call/stext/app) or on-vehicle, then internet. All booking solutions have value and would need to be as flexible as possible in terms of booking and timetabling. Routing would be best along a fixed route with the capacity for deviations. Discounted and to a lesser extent fully paid would be the best price model. The service would be targeted and would largely be for up to 20 trips per vehicle-hour. Its purpose would be mostly social, to a lesser extent environmental and economic.

In Scarborough, shuttle services would primarily be targeted at tourists. The existing 'Moors Bus' service has a limited operating window and does not stop in Scarborough or Whitby town. A shuttle van, operating in peak summer months, could fill this existing gap in service. In order to make the service economically viable, demand should be from medium to high (20-50 passengers per vehicle/hour).

Car and ride sharing: car sharing are potentially valuable for work commuters, linking remote or dispersed areas to urban centres. While car sharing is hardly feasible in very low demand areas, car clubs may prove effective in accessible rural and mountain areas. They are organised through informal and formal means primarily over internet resources. They allow for high degrees of flexibility but they rely on the availability of a sufficient number of vehicles and on social cohesion. These services would have economic value, improving commuting options to anchor workers and business in the area, and they would have a role in social connectivity. Ride sharing, on the other hand, can be useful in any type of area but in rural and mountain ones it may prove of particular relevance as it improves mobility and it would potentially reduce territorial assignment of some user groups. It is often operated only in an *ad hoc*, informal way, whilst in a more organised configuration it would have much more beneficial effects. Provided that it is joined by a large percentage of car owners, it allows for high degrees of flexibility in terms of routing pattern, timetable and booking. It is meant to be

commercial and paid (standard or premium fee), but in weak demand areas it would also be partly subsidised. It would combine social, environmental and economic goals.

In Marina Alta, some informal networks of ride-sharing already exist in the area; hence the aim would be to create a formal ride-sharing platform (website and app) at regional level, in which passengers could find and book suitable travel solutions, both inside and outside the county.
In Valle Arroscia, car sharing is not a possible solution due to dispersed settlements and low demand. Car clubs may be a solution and can rely on a strong sense of community of the inhabitants of the valley. Still, it would be possible to introduce car clubs only in the densest settlements, not in the scattered ones. And ride sharing should be organised in the whole territory through a common platform.

Social transport: can operate in any type of area, but in rural remote and internal mountain the availability of suitable vehicles and operators cannot be taken for granted. Social transport is primarily for special needs assistance. Services would be provided through phone and on-site/on-vehicle. All booking solutions have value and would need to be booked in advance (> one day) or repeating, at on-demand, fixed or mixed times. Routing would need to be fully flexible or fixed with possible deviations. Minibus and to a lesser extent car (provided that they are equipped to transport people with reduced mobility) are the best solutions. It would need to be discounted and subsidised. It is explicitly geared to social objectives.

In Marina Alta, use of cars instead of vans in rural areas would make this modality more efficient. Its implementation would generate a remarkable social impact.
In Scarborough, an expansion of support to this service, such as supporting promotional campaigns or linking Dial-A-Ride to public transport provision to provide origin-to-destination solutions are potential improvements. Currently, the service is open to younger people who cannot access public transport but their interested is limited by a ‘stigma’ attached to using it. This needs to be overcome to widen demand.

Service delivery: would be of specific interest for territorial assigned persons. Bookings would be made most appropriately through phone. The routing pattern would be fixed or flexible, as preferable. Service delivery would be most appropriately operated with cars or vans and in very dispersed and low-density areas it would be mixed with passenger transport. It would need to be subsidised at least partly. It would provide a social good.

In Marina Alta service delivery management would be developed at the supralocal level, in which a centre (“headquarter”) arranges shipping inside the territorial district and between the district and the hub of reference, which in turn is connected to urban areas. This system would be based on technology platforms to provide support to logistic services in rural areas.

In Valle Arroscia the mobile delivery of public services (mobile post office, medical prescriptions at pharmacies, mobile library, etc.). is recommended to reduce the need to travel of territorial assigned persons. This should be considered as a complementary measure, as it does not solve *per se* territorial assignment and on the contrary could even worsen it by making people stay home even more and hinder their social life. A possibility is to provide service delivery only for those services that are currently facing scarce demand (such as traditional post offices). Another possibility is to provide services that have a relevant socio-cultural value and to link them with social events gathering scattered demand (e.g. a mobile library associated with reading club events in the libraries of the Valley).
In Västerbotten sharing transport of passengers and goods is highly relevant. The project MOBEVI, between Umeå institute for design, Swedish Agency for Economic and Regional Growth and the Swedish Transport Administration are doing a pilot study on how transport for visitors and food transportation can be coordinated.

Taxi and shared taxicabs: most useful for suburban areas, but also potentially relevant for accessible hilly and rural areas, or even inner areas, provided that they are facilitated (i.e. discounted or offered easier licensing) or subsidised. Taxi services would mainly benefit tourists but would also be of value to commuters or territorial assigned persons (at subsidised rates). They are geared towards small group and single users and would primarily be accessed through phone and internet, real time or day-to-day, possibly repeating. They would need to be on-demand and operating to flexible, or also possibly fixed routes for certain commuters, mainly those travelling to work or supporting specific service delivery. This would offer the best socio-economic solution for very small or small groups of users (up to 10 passengers per vehicle-hour), but random, long trips in time and distance are not the most functional. Shared taxicabs allow increased numbers of passengers per vehicle/hour.

Although taxis and shared taxicabs were not selected as priorities by the stakeholders of the four case studies, their relevance emerges from the literature and from experiences described in EU projects that were reviewed in the first phase of the URRUC project (See Annex I). For example, as reported by the INTERREG IVC project “Flipper” in Formentera (Spain) a collective taxi service was introduced to replace conventional buses in low season, and in Borgo Panigale (Italy) they replaced demand responsive minibuses with taxis, due to very low demand levels. And as reported by the INTERREG Central Europe “Peripheral Access” project, in Austria, in the Land of Salzburg (Lungau), Styria (Murau) and Carinthia (Nockberge) they tested with success a combination of public transport and taxi systems based on a common ticketing platform.

Non-material and digital solutions

Digital platforms and smart ticketing: Digital platforms can help users in each phase of their trip. Examples of integrated platforms are:

- trip planners, which help the user to choose the best solution for his trip, providing information on the route, cost, journey time, public transport lines and timetables, etc. trip planners can be multimodal or single-mode;
- ticketing platforms, which help the user to get his ticket for single or multiple transport services or modes;
- ride-sharing platforms, which bring together supply and demand, and ease their interaction.

While the above-mentioned actions are mainly aimed at easing usage, smart ticketing can help both the user and the provider of the transport service. With smart ticketing the purchase operation can be dematerialised, and validation is digitalised so that information on demand can be automatically collected and analysed. It is recommended to implement them at supralocal level or regional level, to provide adequate digital coverage, and to improve digital skills of targeted users.

Territorial mobility management: the aim of territorial mobility management is to improve mobility within the territory through collaboration and coordination of local institutions (municipalities, schools, health services), local transport companies and associations of companies/categories present in the territory. Within the competences of a territorial mobility manager there is also the harmonisation of LPT services with school/work schedules. Plans for home-work and home-school trips can be also developed independently from the establishment of a territorial mobility manager. In rural areas with small municipalities it is recommended to implement territorial mobility management at supralocal level and to provide adequate resources to such a strategic action, also in order to upskill staff.

Dematerialisation of services: The dematerialisation of public services has several economic, environmental and social benefits. As regards mobility and accessibility, the dematerialisation of public services allows reducing the need to travel, making services virtually accessible everywhere. Examples of dematerialisation of public services are telemedicine, telecare, e-learning and e-government. Such actions can be implemented at different territorial levels, from local to regional and above; it is recommended to provide adequate digital coverage and to improve digital skills of targeted users.

Structural interventions & intermodality

A set of possible interventions to structurally improve the mobility system and support multimodality embraces:

- infrastructural interventions: road or rail extension;
- intermodal parking facilities for bikes and cars;

- integrated multimodal ticketing;
- intermodal passenger transport: bike racks on public transport.

3.3 Recommendations for the specific context

Based on the analysis of conditions, opportunities and challenges that are specifically related to transport and mobility in the four stakeholder areas, the following actions and measures are recommended to improve urban-rural connectivity in non-metropolitan regions:

Careful analysis of users' needs: in order to avoid spending resources on inadequate services and to understand key priorities, also regarding latent demand for alternatives to the single-use private car.

In all the four case studies, the possible options identified by the first literature and projects review fell short in providing one size fits all solutions. E.g. in Valle Arroscia policies should not focus on high degrees of flexibility (that are typical features of DRT), as the Valley is not characterised by such flexibility in terms of time and space distribution of trips. In Västerbotten, the need emerged to pick low-hanging fruits by focusing on simple and not too challenging solutions, and on long-distance commuters, which would gain much in using public transport.

Targeted policies (various users): to draw up policies that directly respond to the needs of targeted groups.

To date, in all the four case studies the market niche for public transport is limited to people with almost no alternatives. Territorial assigned persons should be the first target groups, and to target the service to a larger audience would cause difficulties due to the oversizing of the service's operational model. But at the same time, in cases in which demand is particularly low, such scarce demand may undermine the feasibility and financial viability of the service. In Scarborough, policies targeted to post-16 year old school travel are needed. In Västerbotten, policies should also be targeted at commuters, which are a potential market niche.

Strengthen a public transport friendly culture: addressing the main issues that today make public transport unappealing and underused.

Except for Västerbotten, in which public transport is generally seen with some interest, in all the other case studies the users' (actual and potential) perceptions of public transport range from skepticism to a kind of 'stigma' attached to using it (such as in Scarborough, especially for young people). Hence, to improve services without solving problems linked to customers perceptions would risk resulting in a waste of resources. In Marina Alta, to strengthen a public transport friendly culture is a key priority.

Mixed use of transport services: widening the numbers of user groups allowed to use services (i.e. school bus open to other user groups than students) and possibly combining passenger and freight transport (where adequate).

In all the case studies, widening the numbers of user groups allowed to use services is seen as a viable option to reduce costs and optimise use of services. In Valle Arroscia, the minibuses that are currently used for school transport could be used also for other purposes and could transport other user groups while bringing kids to schools. In Västerbotten, a pilot study is being carried out, within the MOBEVI project mentioned above, on how people and freight transport can be coordinated.

Strengthen local skills and roles: training and up-skilling key staff in order to reduce dependence on external consultants and to set the conditions for long-term improvement of local know-how and planning skills.

The need to make local authorities stronger in developing transport solutions for their territories, combining them with upper-tier levels, and managing, emerged as a challenge in all the case studies. Especially in Valle Arroscia, to develop the valley's transport consortium can help to join forces and resources, easing service provision and giving a stronger voice to isolated claims. This up-skilling would also reduce the dependence on external consultants (perceived as an unnecessary cost, especially in Scarborough). Having these skills in-house would save resources and also improve capacity for dialogue with decision makers.

More funds for transport projects: to dedicate more funding to local transport policies and projects, also through the integration of diverse funding.

Funding is an issue in all the case studies. In Scarborough, resource capacity (which has been negatively influenced by austerity), is a key priority; cuts impact upon SBCs ability to bid for projects, as they cannot reach required match funding levels or commit large numbers of staff. In Västerbotten, EU and national-funded projects contribute to gaining insights on promising solutions for accessibility, but there are no funds for testing such solutions, and rural areas are not keen on taking a relatively important risk in investing for testing innovative mobility solutions.

More importance to tourism: to give more importance to the needs and effects of tourism on transport, adapting the system to the seasonality of flows and/or dedicating specific transport services for tourism (especially in touristic areas).

As Scarborough attracts a large number of tourists during the peak summer season, there needs to be further consideration of 'seasonal solutions' which go beyond the current provision. Enhanced provision or different timings need to be considered. In Valle Arroscia, despite the actual flows would not justify the introduction of dedicated transport solutions

some flexible services can prove useful, especially on occasion of local events and/or in the form of shuttle (i.e. from Imperia or from Ceva).

To better inform population: to favour the diffusion of information among residents, tourists and foreign users, about the services, also through extensive communication, information and training campaigns on innovation, grounded on participation, targeted to all user groups.

In Västerbotten, many people are not aware of some on-demand services that were provided by local authorities to improve accessibility. Furthermore, information about stops locations (distances are very high in this context) and schedules are lacking, especially for people that can't speak Swedish but also for local ones. Limited information and unreliable real time information undermine public transport patronage. In Marina Alta, Scarborough and Valle Arroscia, the issue is not only providing information but also making people more confident in innovative and digital solutions, keeping in mind that the digital divide is higher in rural areas than in urban ones, both in terms of provision and skills.

3.4 Recommendations for the general context

Finally, building on the analysis of conditions, opportunities and challenges of the general policy, economic, socio-cultural and technologic context which surround transport and mobility in the four stakeholder areas, the following actions and measures are recommended to improve urban-rural connectivity in non-metropolitan regions. These recommendations are more general, but they are no less important and strategic than the ones presented in the previous paragraphs. In fact, in all the four case studies of the URRC project, the challenges which these recommendations address were considered very relevant.

Recommendations for the general context are:

Governance (horizontal and vertical): to foster interaction among levels and sectors, possibly through permanent working groups, so to prevent missing links, incoherence and inefficiencies.

The lack of horizontal and vertical integration between sectors and levels of governance is directly linked to the difficulty of local authorities in setting an effective dialogue with upper-tier levels, which in all the four case studies have control over transport planning and provision. In Marina Alta, Scarborough and Västerbotten, competing priorities and fragmentation of roles and budgets raise serious challenges. In Valle Arroscia, such challenges are worsened by a missing link between the regional and the local level; the Province, which has the power and responsibility for local public transport planning has not attempted any form of coordination. The promotion of a place-based approach, involving local authorities in transportation policies and planning, and improving their capacity for dialogue in asserting their needs with upper-tier institutions, is key to the provision and success of alternative transport solutions.

Flexibility (rules and procedures): to work towards a more flexible legislative framework, and towards more flexibility in applying legal rules and principles.

In all the four case studies, the rigidity of the legislative framework is an obstacle to the introduction of alternative transport solutions, which makes short-lived any effort in finding and defining such solutions. In the case of Valle Arroscia, the rigidity is not as much in the legislative framework, as in the mentality and in the way of applying the rules. The law gives some space to the introduction of alternatives to traditional public transport, but the decision-making system seems to be resistant to change, feeling comfortable with a rigid interpretation of the law. In Marina Alta, centralisation at regional level, top-down perspective and the lack of horizontal and vertical cooperation is the main problem.

Compact urban development: to pay more attention to the containment of land consumption and dispersed settlements, so to reverse conditions that lead to such a dispersed demand.

Especially in Marina Alta, the scattered urbanisation is one of the major challenges to public transport provision. Since land use is defined at the local level, local administrations have the power and responsibility to set the ground for a structural change, containment of land consumption should be also set as a binding principle in supralocal and regional plans.

Reverse marginalisation: to provide the preconditions to reverse the marginalisation processes.

In all the four case studies, the underlying issue is the need to reverse marginalisation processes, by giving more support and resources to rural and marginalised areas. Marina Alta and Västerbotten has very limited power and resources to support rural areas; hence, regional (in the case of Marina Alta) or national policies should pay more attention and give more funds to rural areas. In Scarborough, to maintain SBCs work surrounding business and educational development is key to improving its competitiveness and attracting more investment, which can be used for improving accessibility. In Valle Arroscia, the local population is resisting further depopulation. Any measure to improve accessibility will fall short if it is not accompanied by concrete actions to reverse marginalisation, hence the key issue is to provide the preconditions in terms of education, health and mobility.

Bridge the digital divide: to bridge physical and social barriers linked to digitalisation, both through digital provision and communication and information actions;

Most of the innovative transport solutions which were presented in 3.1 are based on digitalisation. Except for Västerbotten all the other case studies show that there are both physical and social barriers which would hamper the success of innovative transport solutions. On the one hand, rural areas are still not adequately provided with digital coverage; on the other hand, in such areas digital skills are much lower than in urban ones. Valle Arroscia is currently being covered with broadband, as inner areas have been chosen by the Region as a priority for digitalisation. Such measures must be accompanied by communication information and training initiatives.

4 Recommendations for EU policy-making

One of the main objectives of the URRUC project is to elaborate guidelines for EU transport and connectivity policymaking. Emerging from the identification of challenges and perspective of CS analysis, from the desk research of scientific and official publications and the characterisation and assessment of actions and solutions proposed in the previous steps of the project, guidelines and recommendations for the accessibility and connectivity EU policy are presented below.

The first section captured common concerns from case study areas, following a bottom-up approach, considering the inputs suggested by local stakeholders (local public administration, businesses, companies, civil society, politicians, etc.). Successively, the top-down analysis, which integrated a bottom-up approach to findings, is based on the outcomes of the desk research, which consisted in the assessment of EU transport and connectivity projects in NMRs, research documents on transport and connectivity actions, official reports, programs' official documents, projects handbooks, institutional webpages and existing scientific literature, such as reports, scientific articles, publications and other relevant literature about the topic studied. The results of the top-down approach were corroborated, compared and validated with requests and outcomes originating from the bottom-up analysis. The aim was to identify synergies between local territories perspective and scientific and technical approach to the issue, in order to boost, at EU level, transport and connectivity policies directed to NMRs. The second section briefly gathers reflections on the post-Brexit scenario, impacts and measures them in terms of funding schemes for this new bloc-country distribution reality.

The initial stage of URRUC aimed to conceive innovative, flexible transport and connectivity systems, in order to provide socially, environmentally and financially sustainable mobility and accessibility to rural and urban areas in NMRs. The scenarios proposed in the four case study territories outline possible flexible transport operational solutions, complementary connectivity and mobility policies, effective organisational instruments and technological tools. These case study proposals and concerns are the result of the joint cooperation between research groups and the local public stakeholders of each case study territory, which contributed to provide local, accurate and concrete perspectives on the subject under study. Therefore, this section summarises and pools i) the common findings of the case study and the ii) top-down approach considerations, aiming to provide a range of recommendations and guidelines directed to EU policy makers that encourage them to reconsider EU policies and actions related to urban-rural connectivity in NMRs and plan out new policy strategies to cope with accessibility and mobility issues in these regions, through a comprehensive perspective that integrate NMRs stakeholders' concrete evidences and needs on transport and accessibility issues coming from their territories, and the experts', scientific and technical perspective. All the strategies proposed in the analysis could effectively address, through flexible and cutting-edge transport and connectivity solutions, the severe and long-lasting mobility and

accessibility problems that four CS territories and other EU NMRs with similar characteristics may undergo.

4.1 Guidelines directed to the EU transport and connectivity policy making

The following guidelines try to be concise and thorough; they include all main ideas, issues, proposals and key points identified throughout the project and investigated in this last stage, that EU policies impacting in connectivity between urban and rural areas of NMRs should consider and implement. One of the main findings of the URRUC project was the sharing of common challenges by NMRs in terms of transport infrastructure, services and social wellbeing. All the territories, despite their socioeconomic and geographical characteristics and differences, have been facing funding shortage and scarce political willingness from higher institutional scales to cope with their connectivity issues. One of the main reasons is the proximity to larger conurbations, which absorbed and concentrated transport and accessibility investments in the area. This matter outlines how the reasoning behind transport policies at national and regional levels is still cost-driven and funding is firstly directed to those urban territories that already show progressively increasing development patterns, which could guarantee a major economic impact of such investments. This perspective put rural to urban areas connectivity at a disadvantage, since investing in rural mobility is frequently considered inefficient and scarcely impacting in local wellbeing. This limitation represents a short-sighted perspective of rural development, that ignores one of the main triggers, that is territory connectivity. Rural-rural and rural-urban connections in NMRs should be considered as **an element that strengthens territorial cohesion**. **Public transport and accessibility solutions mitigate social exclusion** through connecting disadvantaged people to SGI and facilitating mobility to work, hence transport and connectivity planning also work as social inclusion drivers. In this sense, operational proposals emerged from case studies, such as Village mini-bus for rural remote and sparsely populated areas with no public transport connection to settlements of rural and intermediate areas, Social Transport, that provides mobility to physically-challenged groups or Service Delivery that brings SGI and goods to sparsely populated areas with scarce access to them. Furthermore, digitisation of public and private services and digital trip planning and ticketing reduces displacement needs and supply access to many services. All these transport and connectivity solutions lead to more cohesive territories, improving rural areas' accessibility and quality of life, providing mobility and SGI access to areas and disadvantaged groups with no mobility and accessibility. Since a better connectivity generates spillover effects in local development, financial resources devoted to social, economic and transport projects in rural areas should be integrated in order to **provide basic infrastructures and services** that endorse sustainable and long-lasting development in rural communities, rather than overlap and fragmentise investments among different small

projects with a reduced impact on the territory. In this sense, further synergies within EU programmes should be sought, through strategic tools such as the **Integrated Territorial Investment (ITI)** and **Joint Action Plans (JAP)**. Likewise, beyond national and regional commitment, EU Cohesion Policy should dedicate a special focus to NMRs transport issues and guarantee **additional funding to rural transport planning**, harnessing place-specific development opportunities, orientating policy focus to take greater account of connectivity needs between urban and rural centres in more peripheral territories and ensuring that national, regional and local mobility policies promote the social value of transport policies as ones of rural development, rather than considering it as a market-led solution end in itself. For these reasons, partnership agreements should include **binding clauses** that guarantee the investment of a **minimum percentage of the allocated funds for the development of solutions** that improve the connectivity between rural and urban areas of the NMRs.

1. In those CS territories where tourism is an economic driver, significant seasonal differences in terms of transport demand and number of users of public transport services occur. This occurs especially during the summer season, when many tourists visit these areas (such as in Scarborough or the Marina). This phenomenon has generated high pressure on public transport services, extreme difficulty in forecasting the number of users and an oversizing of the expense on public transport, thus producing an increase of this item in the budget of local administrations. These characteristics of the transport demand call for the **development of flexible transport solutions**, such as ToD and Village minibus, with flexible routes and timetables, which better adapt fluctuations and meet the needs of the changeable demand. From the case studies analyses emerged how transport planning needs a deep, detailed and precise **understanding of mobility patterns** within these areas. This task is essential and unavoidable to obtain accurate transport planning. The role of a well-structured transport and mobility network, through **vertical and horizontal institutional cooperation** between territorial public agencies, and of an **efficient and functional Territorial Mobility Management**, that meets local accessibility requests and perspectives about connectivity, are strategic in planning and implementation of ground-breaking projects. The employment of **digital services** through which users can easily consult the available travel combinations and purchase and pay the entire amount of the trip in one go, without having to consult different platforms, web pages, etc., represents an element of considerable streamlining of the public transport offer. This also facilitates the **supply of data and statistics on transport demand**, essential for planning. EU projects aimed at developing effective mobility and connectivity services within rural areas and towards urban centres of NMRs, should take these digital solutions into account by introducing them as a requirement in funded transport projects. The same applies to the TMM, which would guarantee an efficient and effective management of the transport service, both inside and outside the territory, in coordination with regional and national public institutions and TMM.

Furthermore, in line with the previous achievements, EU Cohesion Policy should consider the possibility of proposing projects exclusively dedicated to fund **studies and consultancy** for the determination of mobility patterns and befitting transport networks within the NMRs, as preliminary instruments leading up to fully aware and incisive transport planning.

2. One of the main findings that emerged in the case studies analyses is the concentration of policy and financial resources in urban centres of functional regions and the consequent relative poor attention and lack of strategic actions dedicated to peripheral and rural areas in the same regions, not just in the areas of transport planning. This trend progressively impoverishes the demographic, social, cultural and economic fabric of rural and remote areas, putting the wellbeing of rural dwellers at risk. As noted in the case studies territories, linkages between rural and urban areas of NMRs are extremely intense and concern several territorial features, such as access to natural, environmental and energy resources, commercial and economic activities, cultural life, SGI and employment possibilities. Since linkages may impact on territories' quality of life, connectivity and accessibility represent crucial aspects for both rural and urban areas in NMRs. This explains why socio-demographic, economic and cultural shrinkage and backwardness are even more evident in those inaccessible, rural and remote areas where transport and connection infrastructures are absent or lacking. This issue puts territorial cohesion and the organic development of the territory at serious risk, causing the social and economic fragmentation and abandonment of rural areas to urban centres. Strategies of local development need to be sectorial and territorially smart, inclusive and organically integrated, aspiring to take advantage of the synergies between different funds and policies. This means that transport and connectivity actions must be framed in a more holistic and complex set of policies, and vice versa. A systematic territorial development must include solutions that **improve inner and outward connectivity**, aiming to offer the whole territory the same social, cultural and economic possibilities, and the same chances for quality of life. Once again, **strengthening rural-urban collaboration in development policies planning** is fundamental to allow both rural and urban population, economic activities and organisations to access all local infrastructures. This outlines the need to reconsider local and regional strategies, for example transport and innovation strategies that actually focus on sustaining urban development but pay little attention to the needs of the neighbouring areas of the region, with the risk of being cut off. This demonstrates the need for territorial policies to reconsider rural centrality by **promoting a more inclusive and shared governance perspective** t**hat seeks a systematic development** through enabling local institutions to plan and implement actions, or by fostering broad participation and consensus in policy generation. EU Cohesion Policy should integrate, **in partnership agreements** with EU states and regions, **mechanisms and tools that**

foster horizontal and vertical institutional cooperation and involvement in policy-making, that include rural requests and perspective in territorial planning and guarantee funding to urban-rural connectivity initiatives, also through the creation of an **EU program** dedicated exclusively **to fund transport and connectivity** projects **between the rural and urban areas** of NMRs.

3. Another fundamental element highlighted in the project concerns the lack of awareness of regional and state institutions on the challenges of accessibility, mobility and transport infrastructures and services in rural, mainly remote areas but also the connectivity between these and urban areas. It is essential that the regional administration recognises which of these issues remote, less and sparsely populated areas are forced to face. The effectiveness of urban-rural connection systems can't only rely on municipal action, but rather on the mediation and agreement between all local and regional interests and actors, through a systemic and strategic approach. EU, national, regional and local policies should be coordinated in order to optimise resources and give coherence to the actions promoted. To best understand the transport and accessibility challenges for NMRs requires both a top down and bottom up approach with an emphasis on placing local stakeholders' needs and concerns in the broader context of European policy-making through the creation of mechanisms of cooperation between different territorial institutions (partnerships, platforms, consortia, etc.). The general aim is to mobilise EU institutions, states, regions, towns and local institutions in order to improve the visibility of local requirements between EU policy makers, mainly through Cohesion Policy, encouraging these institutions to network, cooperate and participate in the implementation and development of EU funded transport strategies. Rural areas present different problems related to territorial specificities therefore, EU transport policies perspective should necessarily be "**place-attentive**" and manage to create mechanisms that involve local stakeholders and their interests and priorities. It is extremely important that EU Cohesion Policy seeks to increase its effectiveness by being **spatially aware** and taking into account local needs, capacity and the potential of each territory, through the **direct involvement of local stakeholders**. **Area-based strategy** formulated by local stakeholders through a **community-led approach** should steer in multi-faceted solutions backed by regional, national and EU resources that efficiently account for the diversity of rural areas conditions. **Multi-level governance** integration in policy planning and implementation is fundamental to vehicle cost-efficient and territorially effective transport and connectivity solutions. Actually, the use of case studies at the lowest levels of policy implementation helps to contextualise and convey a better understanding of local features, while also offering more detailed information for higher levels of governance and the interaction with local institutions. A key recommendation then is to **boost the development and the coordination of TMM** to better understand and harmonise local, regional, national and European priorities

for transport and accessibility. TMM is a key element for flexible and users-friendly transport networks which implies the joint-work of different territorial agencies and which guarantees the development of befitting and well-coordinated transport and connectivity systems. At this stage, the challenges that connectivity and transport policy needs to face are mainly governance, legislative, knowledge and financial barriers that could hinder its implementation. For these reasons, the EU policy action should be directed towards the **creation of policy tools that include TMM**, in order to facilitate **promotion of governance concentration** between local and higher territorial scale institutions, to **overcome legislative limitations for local action**, to foster mobility management. Central to this is training in know-how and how to allocate **adequate funding** for the development of TMM systems that connect local, regional, national and European transport and connectivity networks.

4. Interconnectivity within functional regions was also identified as an important concern. Linkages between rural areas and urban centres of the NMRs are not always evident and don't receive sufficient consideration from policymakers. As the study of the case studies demonstrates, a deep and meticulous examination of local territorial features and mobility needs, patterns and challenges, leads to a more suitable understanding of which transport and connectivity solutions best fit and meet local demands. Moreover, this analysis also generates predictions of possible impacts and outcomes for which solutions could produce a social, economic and cultural local fabric. Determining the characteristics of connections and regional internal linkages is essential for the planning of innovative and flexible transport and connectivity networks and cannot be left to chance. Linkages and mobility patterns represent territorial information of primary importance. A representative model of urban-rural linkages should be investigated and characterised, likewise for the analysis of functional areas, in order to deeply research the operatiional nature of NMRs, particularly to outline commuting flows, the accessibility to core public and private services and employment opportunities. Successively, it would be strategic to promote **local transport modelling and simulation**, in order to put into practice and assess infrastructures and mobility solutions previously planned. Modelling and simulation permit efficiency and effectiveness of transport networks and the exploration of social and economic outcomes and impacts on the territory, as well as detecting and exhaustively determining travel patterns. Moreover, these forecasting tools are the prerogative of smart TMM systems. EU Cohesion Policy should foster and support **territorial studies** and **travel patterns diagnosis** (which explore factors and characteristics of mobility patterns) within specific projects or include these tools in the planning stage of transport infrastructures and connectivity related projects already funded. Additionally **transport network modelling and simulation** of a concrete area, since it represents the basic knowledge for the elaboration of beneficial transport and connectivity policies.

5. As noted repeatedly during the project and widely stated in the literature dealing with the subject, beyond the need to invest in transport infrastructures, regions involved in the case studies have a pressing need to curb economic and demographic drain by maintaining economic activities in the area. At the same time, fostering the local productive fabric by developing local potential and attracting extra-regional investment and capital. **Effective connectivity and transport systems** are fundamental triggers of local development, since they guarantee access to the public and commercial services of the surrounding territory, constitute a determining factor for the economic development of a territory. All the connectivity proposals identified in URRUC (Village minibus, ToD, Service Delivery, Ride-Sharing, Digitisation, TMM, etc.) represent valid alternatives to traditional transport systems to be taken into account in policymaking, since they attempt to provide mobility and accessibility to the whole population and territory, however dealing with **financial efficiency** and **quality of public services represents a different challenge**. In many areas of NMRs the implementation of transport and connectivity solutions are hindered by the lack of funding. Transport planning has been so far limited within the traditional fixed routes and timetables, generating oversupply and wide inefficiencies. EU transport policy should stimulate **flexible, cost and energy-saving solutions,** which emerged from the case studies analysis. EU Cohesion Policy programs should promote **calls for tenders** dedicated to the development of effective and efficient connectivity and mobility plans in NMRs, inspired by **the operational and management solutions identified** in this project, which could represent a valid approach to improve mobility and accessibility in NMRs and that confirm connectivity as a strategic element of local development. As previously stated, **modelling and simulations** are essential tools for the evolution towards social, environmental and financially sustainable transport systems, efficient solutions effectively adapted to local users' needs. A key recommendation to EU connectivity related policies would consist in the use and improvement of **calculation and forecasting techniques** of the economic trends of the territories which benefit from transport and connectivity policies, so as to define the growth prospects, the spending capacity and the extent of the possible demand for public services. Likewise, **studies on mobility patterns**, demographic and economic trends, represent fundamental tools for the optimisation of transport and connectivity plans. All these actions try to balance the need to provide the marginal areas with a public transport and connectivity service that can promote the economic and social development of the areas involved, while guaranteeing the optimisation of the use of resources involved in planning and implementation through correct forecasting of local demand and economic prospects.
6. Case studies and the EU transport and connectivity policy assessment carried out demonstrate that the complexity of EU projects procedures could, in some circumstances, hinder the participation of local communities in EU initiatives that

could deeply impact on and benefit those communities. Many local public institutions, especially in rural, remote, inland and underpopulated areas, receive a very small budget, and are characterised by a limited administrative organisation. Often, they are not endowed with neither the experience nor the proper training on local transport planning systems and to develop innovative and impacting policies. In some cases the bureaucratic burden and the excess of administrative procedures tend to discourage the participation of local administrations in projects directed precisely to rural and sparsely populated areas. These circumstances, common in most EU rural areas, must be kept under strict consideration by EU Cohesion Policy, when direct actions are established for European areas with these characteristics. Once again, it is clear that the rural areas perspective should be integrated into the planning phase of transport and connectivity policies for NMRs. These claims suggest how a **further effort towards the simplification and lightening of the bureaucratic burden** in EU funded projects could be crucial for local stakeholders, whose organisations and structures can't often afford excessive procedures. Local institutions and organisations need **shorter, concise and simpler regulation** that permits a more direct access to EU funding with simplified application procedures. A **more streamlined process** with improved, clear processes for local authorities without expert knowledge and resources would be valuable.

7. Climate change and connected territorial resilience concerns, the environmental impact of human activities, resources and materials depletion, progressive cultural, socioeconomic and professional margination of scarcely connected regions and communities in even more globalised and fast-changing societies and markets represent sufficient motivations to force policy-makers to consider flexible, eco-friendly and low-consumption mobility and connectivity solutions. **Multimodal and flexible transport** networks, composed of flexible transport solutions such as ToD, Ride-sharing or Service Delivery, etc., as demonstrated by the case studies analyses, allow efficient but high-performer mobility systems that reduce mobility ecological impact on territories. **Digitisation of services** (e-care, e-education, e-administration, etc.) reduces displacements, optimises public administration resources, speeds up the access to public services, tears down geographical barriers and makes rural places more liveable and attractive for businesses and workers, positively impacting on the overall level of citizens' quality of life. Multimodality, flexibility and digitisation of SGI, together with the employment of ground-breaking ICTs, represent the mainstay on which the broad transport and connectivity EU Policy should be based and inspired, and the indispensable requirement for transport and connectivity EU funded projects, since they represent the strategies to cope with the previously claimed global issues and **local environment conservation**.
8. The overall effectiveness of transport and connectivity actions in NMRs strictly depends on some key factors. In some circumstances, NMRs are scarcely

considered in regional development planning or governance cooperation between different administrative levels is troubled. Moreover, due to the economic crisis that took place more than ten years ago, many state and regional governments have significantly reduced the budget available to invest in improved infrastructures endowment, crucial for the development of the territory. This distortion of public policies has significantly impacted above all on the quality of life and in the development trend of the most vulnerable areas, such as the less populated rural areas, which have seen an increase in the phenomena of economic and demographic recession that have already been experienced for several decades, in some cases. Collaboration between rural areas and urban areas must return to take on leadership in the context of regional development planning. Regional development strategies should turn to an inclusive view of the whole territory, having special consideration of the most disadvantaged areas. Equipping the entire regional community with accessibility and mobility represents an essential functional factor to the organic development of the whole territory, not only of the most marginal and rural areas. As stated by the case studies stakeholders and evidence found in many rural areas throughout Europe, all local actors, both public and private, blame a lack of investment in critical infrastructures for development, especially in the transport sector. Often the disadvantaged condition of rural areas is due to a greater concentration of investments with greater expansionary impact in urban areas. In order to guarantee the implementation and development of transport and connectivity solutions in EU NMRs, partnerships and strategic documents undersigned by European, national and regional institutions should **include mechanisms that bind the funding of transport and connectivity of projects in rural areas**. Similarly, **specific programmes and projects for NMRs** could be considered, in order to more directly involve local stakeholders and institutions in transport and connectivity planning and implementation. Successful cutting-edge transport and connectivity projects promoted by EU Cohesion Policy and carried out in rural areas could constitute the model for new rural-territories-devoted programmes and policies.

9. On some occasions, the effectiveness of the transport and connectivity measures adopted do not directly depend on factors linked to the specificities of the territory. The long-lasting success and effectiveness of transport and connectivity projects in NMRs should rely on some concrete guidelines. Despite the financing of transport and connectivity infrastructures in NMRs' rural areas is fundamental, this must not counter balance the importance of projects' efficiency and financial sustainability. It would be irrational if a planning and implementation of a transport system project would not prove sustainable in the long term. In some cases, the financing of projects proposed through partnership agreements appears fragmented, which generates projects with poor overall impacts. Promoted projects should be as much financially sustainable as possible and seek for private actors' involvement in planning and

implementation of flexible transport solutions, conferring further financial sustainability to the projects but also a greater impact in the economy, in the social network and in the labour market of the area involved. For these reasons, the funding of transport and connectivity projects should be strongly **result-orientated**, not subjected to exclusively financial dictates but more concentrated and focused on a relevant and limited number of strategic investment priorities, in order to develop less but higher socially impacting projects. In order to promote long-lasting and high-impacting transport systems, projects should take into consideration not only in funding but also in the **future use and maintenance costs and financial sustainability** of the infrastructure and the service implemented, in the medium and long-term. This would give a greater lasting impact to transport and connectivity projects between the urban and rural areas of the NMRs financed by EU Cohesion Policy. **Planning and testing periods** as well, should be considered, in order to verify the feasibility of proposed solutions. New services need a "trial period" for the population to know and mature the choice to opt for the public service and change their mobility habits. Projects that boost transport and connectivity solutions in disadvantaged areas could include the financing of testing periods, since in many cases it is functional to the success of the initiative.

The previous section illustrated recommendations and guidelines directed to the EU transport and connectivity policies impacting in urban-rural connections in NMRs that at EU level, as it is broadly acknowledged, are mainly promoted through EU Cohesion Policy. This set of recommendations gathers the main findings of the top-down analysis of EU transport and connectivity issues related to the Cohesion Policy and the results arising from bottom-up approach, provided by the experience of local actors and their mediation and joint work with research groups. Therefore, the guidelines proposed integrate different perspectives, encompassing both scientific view and local stakeholders' analysis, opinions and proposals, with the aim to provide data, information and indication to the EU policy makers about transport and connectivity policies, generated at continental level but impacting on rural and urban territories of European NMRs. These guidelines suggest both organisational, political, concrete and operational proposals to the European institutions with the aim of producing programmes and projects that deal with the implementation of strategies addressing the connectivity issues between urban and rural areas in NMRs. The double perspective, bottom-up and top-down approach, permit the identification of critical points and the real necessities of EU NMRs in terms of mobility and accessibility, but also the really feasible solutions that could work in each territory, thanks to the perspective of local stakeholders. The top-down analysis inspected technical, scientific and higher scale institutions' assessment, contemplations and proposals for the EU transport and connectivity related policy in NMRs. This work put them together, giving them coherence and solidity, to the different requests

directed to EU Cohesion Policy development. On several occasions it was reiterated that it is necessary to reconstruct the linkage between the rural and urban areas of NMRs, with the aim of generating a more inclusive and organic regional development aimed at the widespread promotion of well-being. In this sense, policies that finance infrastructures and transport and connectivity systems between urban and rural areas are one of the necessary tools, indispensable for the promotion of this type of development. In addition to regional dynamics, the proposed solutions aim to tackle, with determination and incisiveness, global issues such as climate change and the environmental impact of human activities. At the same time, questions regarding the short and long-term financial sustainability of projects funded by public institutions constitute the core of the discussion. Attention often turned to local and regional institutional relations, but also to national and continental ones, emphasising the need for greater collaboration between the various administrative agencies, the coordination and sharing of the decision-making space and the construction of general guidelines. This reinforces the extreme centrality of the mobility and connectivity needs of local communities in the wider European panorama. The proposed recommendations are not peremptory indications, rather they address the main issues that emerged from the case studies territorial analyses of NMRs and the collection of scientific inputs on the subject. The result is a widely agreed set of proposals to be introduced at European level with the aim of providing effective and efficient solutions, which are most suited to the real local needs to foster internal connections in EU NMRs.

4.2 The UK as a member of the European Union

One of the most pressing political issues that faces UK was the decision taken in the aftermath of a 2016 national referendum to enact Article 50 and end its membership of the European Bloc. This has obvious repercussions for UK local authorities in particular, who avail of EU funding for a range of transport and accessibility related projects that improve social and economic cohesiveness, as well general quality of life. The delayed agreement on the future partnership of the EU and UK means that the URRUC project will be completed before the final treaty is signed between these two actors. Therefore it is not possible to determine with absolute accuracy how the lead partner, Scarborough Borough Council, in particular will be impacted by withdrawal from the European Union.

One measure that can be used to estimate the impact of leaving the EU is that of European funding. Scarborough has been the recipient of significant funding flows historically. These have occurred through three avenues;

- Direct bids from the Council. These are usually small in scale with a specific purpose
- Larger, national projects or through other agencies operating in the region. However, it can be difficult disaggregate national and EU funds
- Private/Public organisations engaging in joint funding applications.

Of particular note is the expenditure of European funds on two business park sites in the borough. Additionally the ERDF has supported on £10-15m investment on road infrastructure while Scarborough's ports have also seen improvements due to EU funds. These monies have directly leveraged new employment and private investment, as well as supported the development of Brownfield sites and circa 500 new homes. Additionally, there is a legitimacy aspect to this funding, as it encourages private investment. As explained by representatives from the Local Enterprise Partnership, one of a number of regional development authorities;

> *"One of the strengths of EU funding was that it 'ringfenced' some of the most important agendas, which sometimes get lost when looking at high growth... Scarborough has done really well with that, around community-led development, around social inclusion and tackling some of these hard-to-work issues…"*

Losing access to these funds, as looks likely to happen after withdrawal would result in an important shortfall in direct investment. Tellingly too, the stakeholder states that European funding is significantly different in terms of access and usage, compared to national funding opportunities. For example, European funding is more liable to support longer term projects, as noted by the stakeholder. This has proven a particularly important source of funding for local authorities over the last decade, as national austerity programmes have, year-on-year, cut spending on local authorities. Additionally European funding bodies are seen as honest brokers by local authorities, less bound by national and regional priorities. There are fewer constraints on EU funding. In other words, it is not just the value of the funding that will be extremely difficult to replace, but also the accessibility and flexibility offered.

It will prove difficult to fill the void created by withdrawal, particularly should economic downturn follow the departure in the UK, as anticipated by most economic analyses, including UK government reports. Included below are some approaches to mitigate the challenge;

- Improve dialogue between funding authorities and regional and local actors to optimise funding approaches
- Clarify and appropriately structure the remit of regional and local authorities for investment and economic development, as well as promoting regional cooperation and coordination between authorities
- Address the constraints created by matched funding requirements. Scarborough local authorities cannot access the required capital to anchor the other half of national funding
- Central funding is frequently cyclical to coincide with national elections. The funding offer must be made more consistent

- Market led solutions are too short term and create social gaps. This study shows that not all the development challenges emerging in the stakeholder region are currently tackled through specific funding.
- Longer term investment is crucial to the well-being of local authorities such as Scarborough, therefore there is a need to promote longer term interventions
- A strong place-based approach is required for Scarborough. The specific example of tourism shows how the enormous fluctuations in visitors annually, to the National Park and the seaside town, mean that the borough requires a very different set of transport and accessibility solutions than currently offered by central funds.

5 Definitions

The following definitions refer to the various Demand Responsive Transport means that have been identified in the literature. These transport solutions have been utilised throughout the project and emerged as the best fit in relation to improving connectivity and accessibility in the case study territories but also, in general, in non-metropolitan regions in Europe.

Bus on demand

Bus on demand services are a Demand Responsive Transport service where passengers are transported after they reserve a seat. The vehicle operator awaits reservation and this allows potential passengers to request services via internet or mobile phone, with requests for ride being processed by a server computer. The requests are composed of pick-up location, delivery location and desired delivery time (or pick-up time). The demand response operation is characterised by the following:

1. The vehicles do not operate over a fixed route or on a fixed schedule except, perhaps, on a temporary basis to satisfy a special need, or within a predefined catchment area.
2. Typically, the vehicle may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations and may even be interrupted *en route* to these destinations to pick up other passengers.

Car club

Car clubs provide access to shared vehicles to members on a pay-as-you-drive basis. Normally a location-based organisation, the company owns a number of cars and vehicles, and you can rent them out when you need them; as more of an on-demand service than a traditional hire car vendor. Car clubs tend to be organised on an area basis with cars located in clusters so that if one car is not available, a member will only have a short walk to access another car. There are three main types of car clubs;

1. Round-trip car clubs
2. Fixed one-way car sharing
3. Floating one-way car sharing

Car sharing[1]

Car sharing is intended as short-time car access. Car sharing generally involves accessing a car owned by another person or entity in exchange for an agreed monetary payment. During the time when a person has access to a car, they are responsible for it and its use is for their

[1] Please note, car sharing is not the same as car-pooling. It should be noted that the terms car share and car club are frequently used interchangeably. The distinction made here is that car sharing is usually a group of members supplying privately owned cars, e.g. whip car, whereas a car club is more often a company, e.g. cowheels. Part of the problem stems from the use of different terminology globally that has been adopted and interpreted in the broadest sense across nations, meaning there is no one agreed definition that can be universally applied.

exclusive benefit. The car is personally driven. Usage is billed in time increments of minutes or hours, and sometimes also based on distance travelled. Usage is round-trip as the customer must (with few exceptions) return the car to the same place that it was accessed, and pay for the entire time between when they gain access to the car and when they return it at the end of their reservation.

Dematerialisation of services

The dematerialisation of public services has several economic, environmental and social benefits. As regards mobility and accessibility, the dematerialisation of public services allows to reduce the need to travel, making service virtually accessible everywhere.

Examples of dematerialisation of public services are telemedicine, telecare, e-learning and e-government.

Digital platforms and smart ticketing

Digital platforms can help users in each phase of their trip. Examples of integrated platforms are:

1. trip planners, which help the user to choose the best solution for their trip, providing information on the route, cost, journey time, public transport lines and timetables, etc. Trip planners can be multimodal or single-mode;
2. ticketing platforms, which help the user to get their ticket for single or multiple transport services or modes;
3. ride-sharing platforms, which bring together supply and demand, and ease their interaction.

While the above-mentioned actions are mainly aimed to ease the user, smart ticketing can help both the user and the provider of the transport service. With smart ticketing the purchase operation can be dematerialised, and validation is digitalised so that information on demand can be automatically collected and analysed

Feeder - public

A local transport service that picks up and delivers passengers to a rail station or express bus stop, transfer point, or terminal. For example, feeder bus services carry passengers from one locality and take them to a transfer point where they then make an onward journey, for example rail station, park and ride etc.[2]

[2] Feeder services can also refer to transportation operations in which cargos are shipped by water in smaller vessels to and from a load-centre port for loading to or unloading from larger ocean-going vessels. There were no examples of these services in evidence for any of the case study areas, but may be of relevance to other non-metropolitan regions.

Ride-sharing[3]

Refers to the common use of a motor vehicle by a driver and one or several passengers, in order to share the costs. The terms not only refer to the common use of a motor vehicle for cost compensation in the context of a ride that the driver performs for its own account, but also to common use of a professional hired vehicle among various passengers which have the same (or different) destination in order to share the costs of the ride (such as for airport transfers). Ride-sharing has also become synonymous as a term for companies such as Uber and Lyft, encompassing a range of companies and services, including traditional taxis and car services. Here the customer hires a driver to take them exactly where they need to go, something accomplished by hailing from the street, calling up a car service on the phone, or virtually hailing a car and driver from an app.

Service delivery

Brings services to users by distributing service provision across multiple locations. Can be door-to-door or limited to some predefined collection points. This can also include electronic delivery of services through e-services or telemedicine, for example. As far as public services are concerned, examples are mobile post offices, mobile libraries, mobile medical prescriptions at pharmacies, mobile dental clinics, etc. Private service delivery can also include goods or facilities.

Shared taxicabs

Shared taxi cabs are a shared ride taxi service that provides a taxi form of transportation[4] in which more than one passenger is in the vehicle at the same time, usually at a reduced rate for each of the passengers. Shared ride taxi is also used as a way of using taxis for paratransit[5] services.

Shuttle van - private

Shuttle bus service in which the vehicle runs between two or more fixed points, typically connecting major transport centres, airports, railway stations, bus terminals, private homes, and hotels, or connecting work commuters to employment locations. They are frequently minibuses that can carry between 9 and 12 people.

[3] Again, the conflicting usage of terms can be confusing. Firms such as Uber and Lyft refer to themselves as 'ride sharing' companies, but these are better understood as 'ride-hailing'. 'Ride-sharing', in its more traditional sense, is comparable to car-pooling, i.e. sharing a ride with another passenger, but this has become less frequent in usage.

[4] See explanation of taxi service

[5] Paratransit is a special transportation service for people with special needs, often provided as a supplement to fixed-route bus and rail systems by public transport agencies.

Social transport

Older people, those with long-term health or social care needs and people who live in remote and rural areas may need support to access core services such as health and education. This can include financial support, or making specialised transport available on key days for specific purposes. These services can be operated on a not-for-profit basis with volunteer drivers, or with the support of local or national authorities. Funding for these services is often generated through fares, grants and donations. It requires significant planning and is usually aided by local officials and other governmental networks.

Taxi

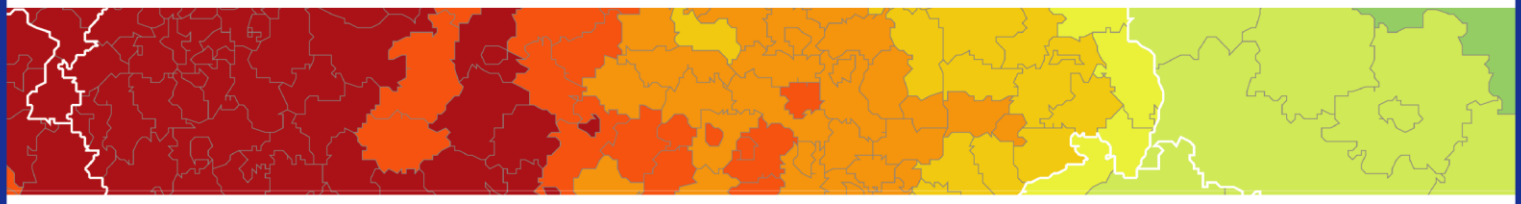
Taxis are licensed to operate in public spaces and to take passengers either who hail them on the street or who walk to predetermined taxi stands or ranks. Taxis may also be pre-booked at radio dispatch reservation centre. The activities included are also those of the contracted taxis, i.e. taxis that have a contract with the public authorities in order to carry out specific transport on demand to complement public urban transport.

Territorial mobility management

The aim of the territorial mobility manager is to improve mobility on the territory within his competence through the collaboration and coordination of local institutions (municipalities, schools, health services), local transport companies and associations of companies / categories present on the territory. Within the competences of the territorial mobility manager there is also the harmonisation of LPT services with school/work schedules. Plans for home-work and home-school trips can be also developed independently from the establishment of a territorial mobility manager.

Village minibus (mixed use)

All-purpose vehicle operated to supplement existing public transport services in remote towns and villages, or replace defunct public transport journeys. The service provides for the carriage of passengers at specified intervals along specified routes, passengers being picked up and set down at predetermined stopping points, by whomsoever organised, which provide for the carriage of specified categories of passengers for predetermined specific tasks.



ESPON 2020 – More information

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The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.