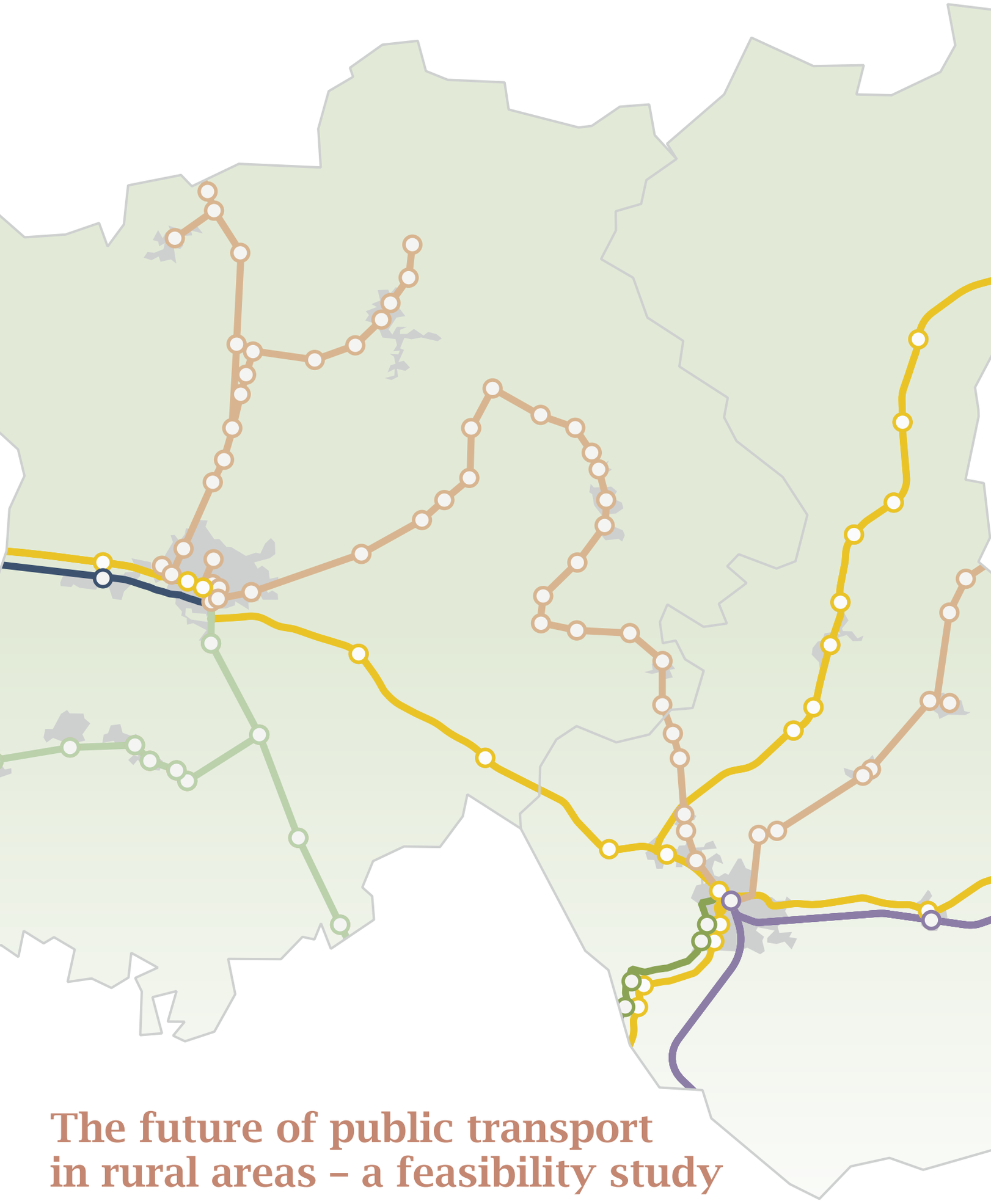

The future of public transport in rural areas – a feasibility study

SHORT VERSION

21 May 2019

COMMISSIONED BY
Municipality of Sjöbo & Municipality of Tomelilla

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Many thanks to our reference people at Region Skåne, Skånetrafiken, and K2 who supported us through the feasibility study project and to all the others who shared their knowledge and experience from previous projects and ventures.

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Contents

Conclusions of the feasibility study

Public transport in rural areas can currently be described as a vicious cycle in which the poor coverage of costs results in cuts that further diminish the prerequisites for travel and self-funding. In order to raise awareness of the perspective and needs of rural areas, we need to develop a shared vision and specific objectives for public transport in rural areas. The socio-economic benefits of public transport making social functions, education, and labour markets accessible should be given greater consideration. From an equality and gender-equality perspective, those who draw the most benefit from public transport in rural areas are the elderly, young people, those on low-incomes, and women.

The geographical conditions of rural areas limit the opportunities for serving inhabitants, companies, and destinations by way of today's traditional means of public transport. However, technological developments, increased digitalisation, and the shift towards a sharing economy are facilitating alternative means of public transport. The feasibility study has explored several development areas for the future of public transport. The following reflections on potential pilot projects are based on the experiences of completed studies and projects:

- Although the foundations for autonomous public transport in rural areas are good, testing is required in order to develop and adapt the technology to rural conditions.
- Although on-demand public transport has potential, there is a need for technological development and systematic, targeted marketing.
- Although vehicle sharing can create social value, it requires critical mass. Vehicle-sharing projects can be initiated by way of information initiatives and campaigns.
- Car-free leisure travel and tourism can be promoted by mapping the public transport needs of destinations and developing new mobility services. This, in turn, can provide vibrant rural areas by increasing visitor numbers and improving the conditions for recruiting staff for destinations. Rural workplaces that are not destinations should also be taken into account.
- The co-ordination of community-paid travel requires co-operation, commitment, and determination to change current systems.
- Several mobility services can be combined in the same location to create a real alternative to cars. By using people's complete mobility requirements in one place as a starting point, travel services can be tailored, developed, tested, and evaluated in a Living Lab for the specific location.

The basic requirements for a successful pilot project are broad co-operation between participants and the determination to create something new that improves, strengthens, and complements the existing public transport system.

Introduction

Background

The feasibility study The future of public transport in rural areas has been funded by the municipalities of Sjöbo and Tomelilla and with funds from the European Regional Development Fund's focus area 3: Sustainable growth – low-carbon economy. Rural public transport plays a key role here in facilitating a transition to a climate-smart lifestyle in order to achieve a climate shift in the longer term.

A prerequisite of this is, of course, that there is a climate-smart alternative to choose. Rural public transport often has low cost coverage. Regional public transport is primarily designed to meet the needs of travellers to commute to work, and when savings need to be made, the routes and stops that are least used are dropped. The result of this is that there is increasingly less incentive to use public transport in rural areas, which can mean that the only option is to use a car.

A development that risks increasing dependency on cars is negative not just for the environment but also for social integration, equality, and accessibility. Consequently, public transport is an important rural issue that needs to be considered for all three dimensions of the sustainability perspective in order to achieve a balance between ecological, economic, and social sustainability to ensure dynamic rural areas.

Purpose and objectives

The purpose of the feasibility study is to draw attention to the challenges of rural public transport and to outline which development areas and innovative solutions complement traditional public transport. The purpose is not to answer the complex question of how to solve rural public transport but to inspire the development of future rural public transport. The objective is to draw attention to the issue and put it on an agenda whose current focus is much more geared towards urban transport and resilient regional public transport.

The feasibility study will be used as a basis for identifying potential areas for development, with the objective of preparing for one or more applications for funding for pilot projects that result in the establishment of more accessible rural public transport in the municipalities of Sjöbo and Tomelilla. The study has the further objective of sharing the experiences and perspectives gained with other participants to lay the foundations for partnerships and collaboration.

Structure

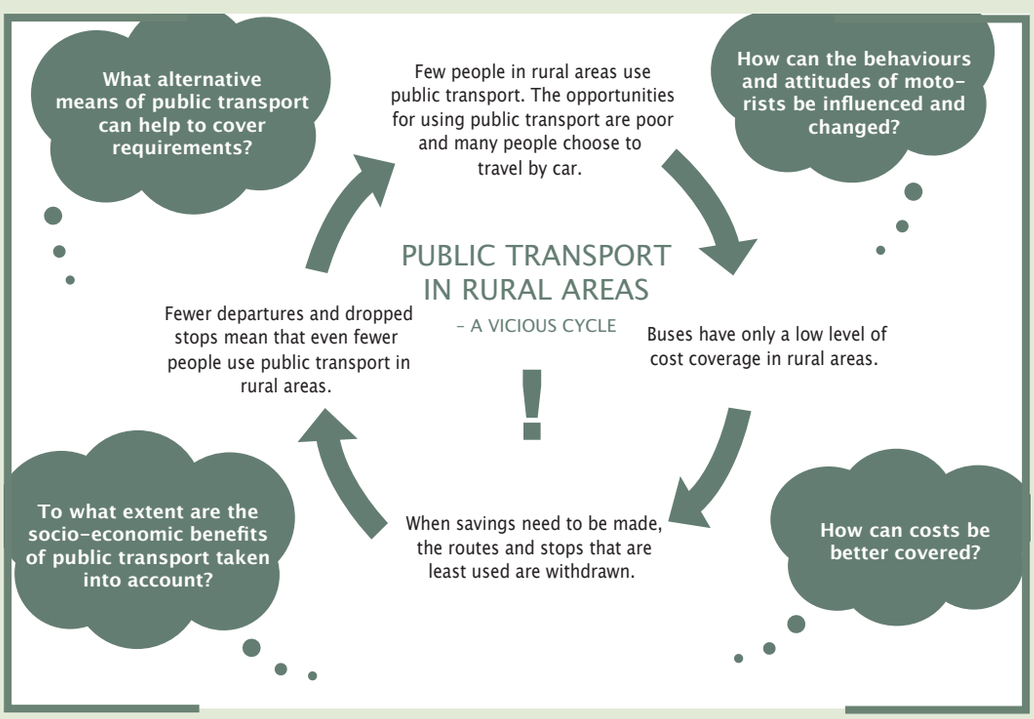
This short version reproduces the three chapters of the feasibility study in the form of summative reflections and proposals for pilot projects. The chapter "Analysis of the current situation" seeks to summarise the problems and opportunities faced by rural public transport. The chapter "Autonomous vehicles in rural areas" seeks to evaluate the potential of autonomous vehicles for rural public transport. The final chapter, "Development of public transport in rural areas – proposed pilot projects", presents proposals for potential pilot projects and the conditions required for their success. For those who wish to read more, the long version contains fact boxes and more in-depth information on specific topics, reports, and projects, as well as interviews with experts in various fields: www.sjobo.se/fkl.den som vill läsa mer: www.sjobo.se/fkl.

Analysis of the current situation

Based on the analysis of the current situation, the following summative reflections are made in relation to the problems and opportunities for rural public transport.

Break the vicious cycle

The geographical conditions of rural areas limit opportunities for serving inhabitants, companies, and destinations by way of current public transport. The limited range of public transport affects demand, and many choose to use a car instead. This in turn means that cost coverage is low, so when savings need to be made, the routes and stops that are least used are withdrawn. The result of this is that there is increasingly less incentive to use public transport in rural areas. Ultimately, the development of rural public transport ends up in a vicious cycle that has to be broken.



Specific objectives for rural areas and towns

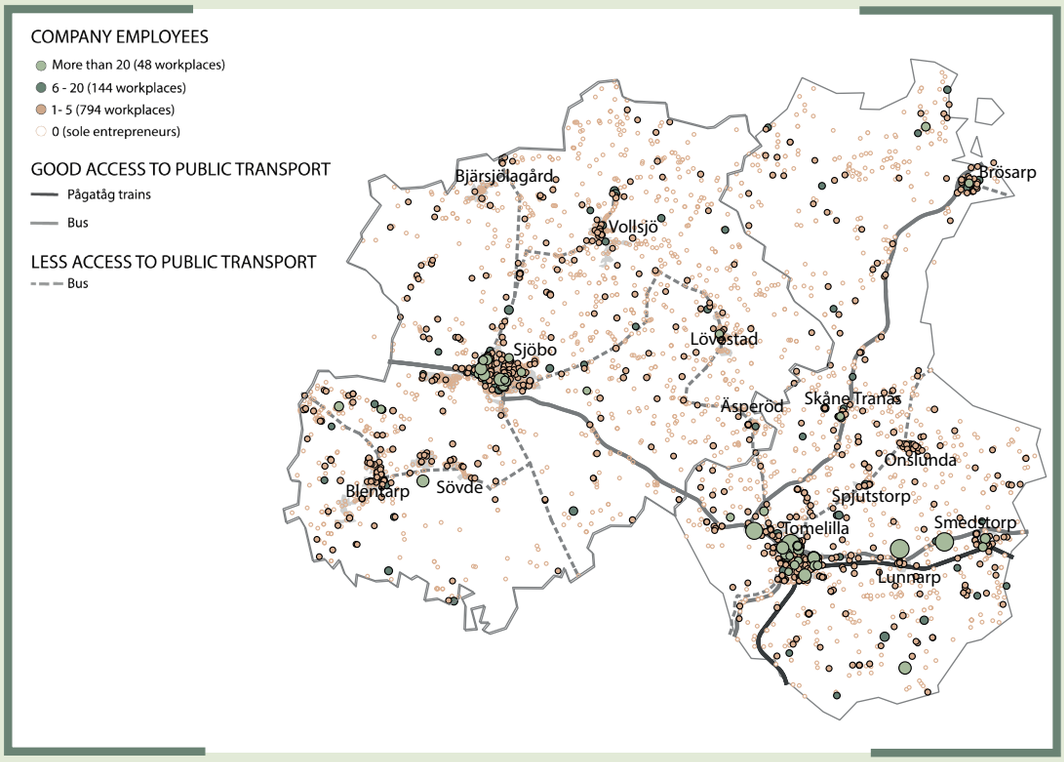
The municipalities' objectives for public transport centre around improving rural public transport in order to create vibrant and dynamic rural areas. Region Skåne has the objective of both increasing accessibility and reducing journey times, as well as focusing on increased market share. The impact of this is that Skånetrafiken is improving commuter journeys to major education and labour markets rather than improving rural public transport. Consequently the local perspective conflicts with the regional perspective with the focus ending up being on urban areas. In order to raise awareness of the perspective and needs of rural areas, measurable objectives need to be drawn up specific to the development of public transport in rural areas.

Consider the socio-economic benefits

Quantifiable and non-quantifiable benefits must be taken into account when prioritising investments in public transport. It's important to take the social benefits of rural public transport into consideration and to look at their costs in a broader perspective. Society has many costs, one of which is public transport. However, improved public transport can lower other costs. Public transport makes education and labour markets and other social functions accessible, reducing the risk of social exclusion, especially for those without a driving licence or access to a car. Women use public transport more than men. From an equality and gender-equality perspective, those who draw the most benefit from public transport in rural areas are the elderly, young people, those on low-incomes, and women. Local businesses and the municipalities face major challenges in terms of skills supply.

Map the public transport needs of destinations and workplaces

Public transport is based on the needs of commuters, especially to and from rural areas. However, the rural tourism industry is crucial for jobs and tax revenues. By identifying methods for improved dialogue with Skånetrafiken, increased knowledge about the needs of destinations can enable Skånetrafiken to reach out to more potential users of public transport by offering such solutions as moving stops or facilitating flexible, seasonal public transport adapted to the peaks during high season and in conjunction with major events. Rural workplaces that are not destinations should also be taken into account.



The map shows access to public transport at workplaces in the municipalities. (Statistics from UC, 2018)

Work to change behaviours away from the norm of using cars

The range of public transport available is not the only problem affecting the low uptake of public transport. Attitudes towards public transport and the car norms of residents, businesses and entrepreneurs, and employees in rural areas also play a role. Many factors affect people's choice of how to travel, such as proximity to public transport and the travel time ratio, as well as the habits and culture of a place. In addition to the actual structural dependency on cars due to a lack of public transport, there is also a perceived dependency on cars. Habitual travel tends to persist, and a society dominated by a high proportion of car use promotes a greater dependency on cars. Efforts are needed to change cultures, habits, and attitudes in order to promote a more sustainable means of travelling. This can be done by way of marketing and targeted campaigns.

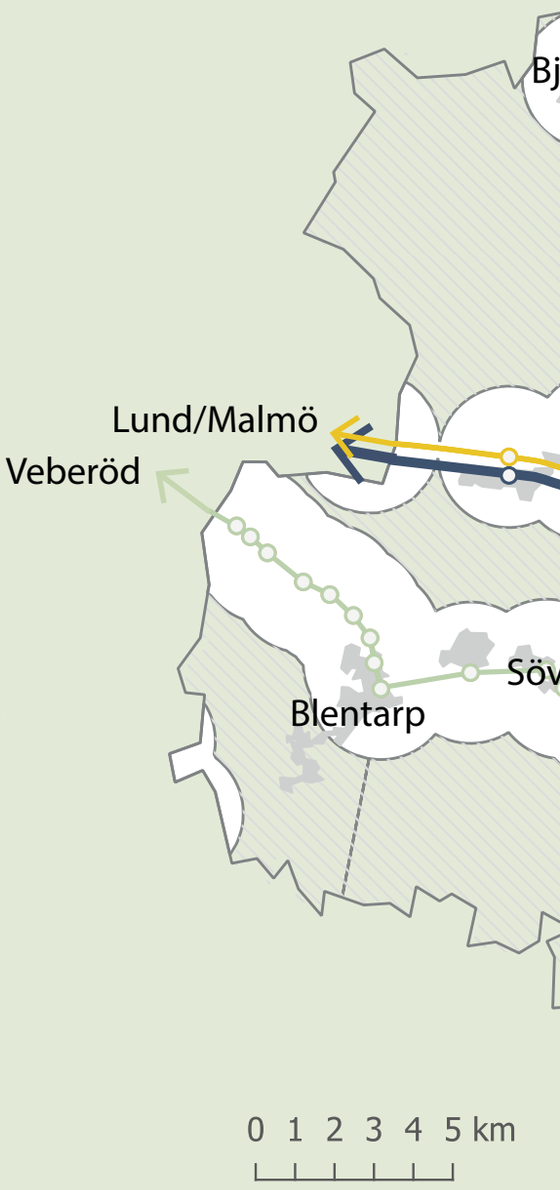
Information campaigns should initially be based on the target groups that have the greatest need to travel using public transport, as these groups are the easiest to reach out to and the efforts can be combined with offering new or improved mobility solutions. Services and information should both be based on the mobility needs of these target groups. Information campaigns targeted at car users should be designed to encourage car users to swap those car journeys that can be swapped for public transport, which may also make day-to-day life easier. The elderly and children and young people are suitable target groups to start with. By learning to use public transport early in life, combined with walking, cycling, and carpooling, the foundations are laid for making this a habit, thus reducing the risk of future perceived dependency on cars.

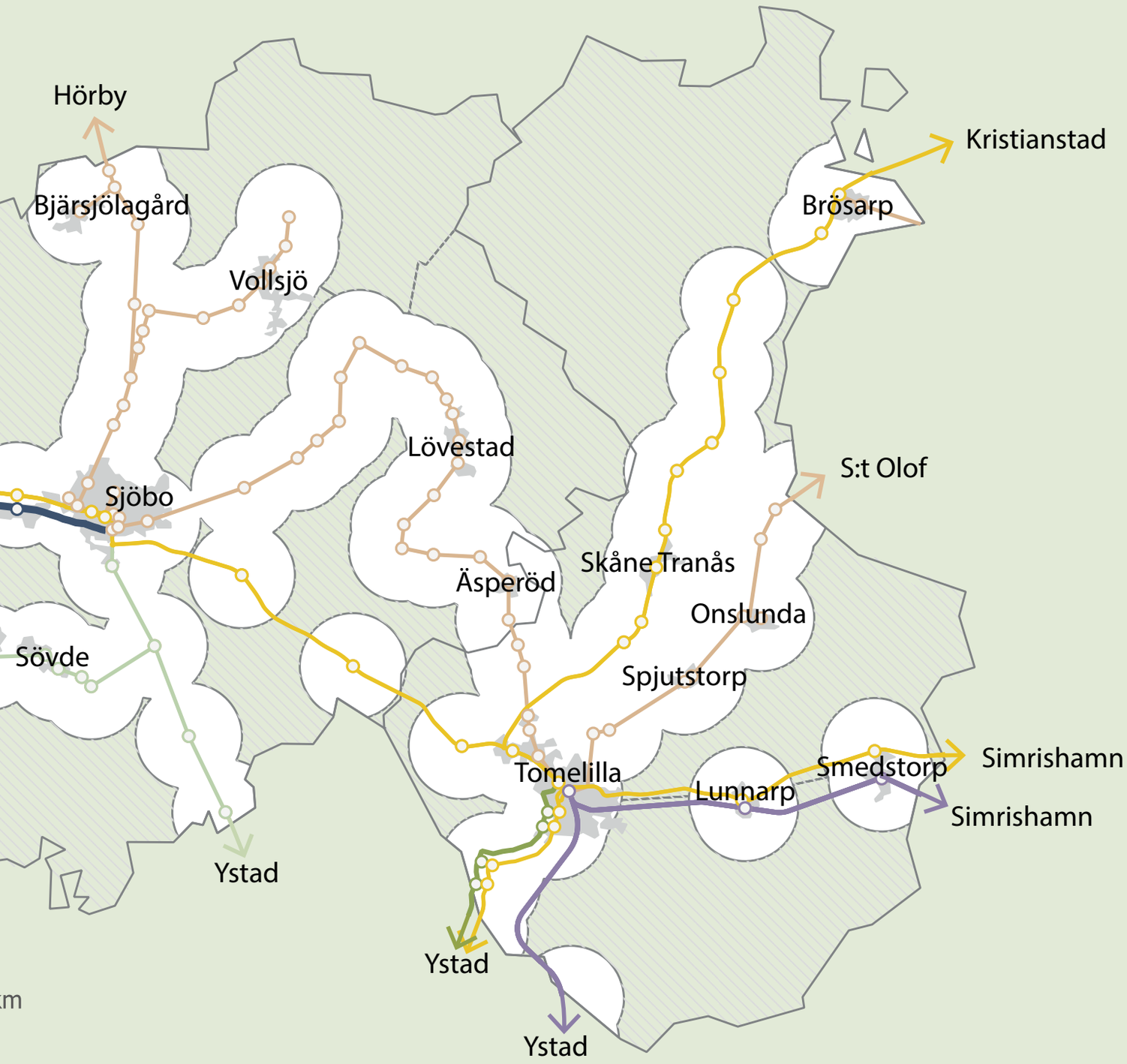
Build in locations close to public transport provisions

Travel from many of the municipality's stops is low or very low. Only around 40% of residents in both municipalities live in a location that is classed as being close to public transport – i.e. within a 500-metre walk of a stop served by at least one departure an hour on weekdays between 06:00 and 20:00. There is a clear correlation between building density and the extent of public transport use. The majority of all physical expansion should therefore take place in areas that are well served by public transport. The alternative is to plan mobility services in connection with expansion.

Increased accessibility by considering the entire-journey perspective

The entire-journey perspective is important for everyone, especially those with disabilities, as it can be the route to and from the stop, changes, or inaccessible information that makes the trip feel daunting. Access to public transport can be improved by way of better information services, short cuts, expanded bicycle infrastructure, and attractive commuter parking facilities close to public transport services. Transport interchanges can be turned into attractive mobility hubs by way of supplementary services and other mobility services.





Public transport options in the municipalities of Sjöbo and Tomelilla (Skånetrafiken, 2019).

Autonomous vehicles in rural areas

The following summative reflections on autonomous vehicles and their potential as a development area for rural public transport within the scope of the continuation of efforts following this feasibility study are based on studies of literature and completed projects.

Autonomous vehicles can suit the needs of rural areas

Overall, literature on autonomous vehicles points to the fact that the technical, physical, and economic conditions for their use in rural public transport are good:

- The largest target group for autonomous vehicles should be those who currently lack access to public transport and are most likely living in rural areas and those who lack the ability to drive a vehicle themselves, such as young people and the elderly. Autonomous vehicles are believed to offer social benefits because the target group that currently lacks the opportunity to travel independently would be given this opportunity, which would help to mitigate social isolation.

- Autonomous vehicles would be suitable as a first-mile/last-mile solution in rural areas – i.e. providing transport between the stop and the destination. This is particularly relevant for those who have a long distance or a difficult journey to a stop. Introducing autonomous public transport with flexible stops would allow travel right up to the final destination.

- Purely in terms of transport and technology, it may be easier to implement autonomous vehicles in rural areas as traffic conditions are less complex than in urban areas.

- There are studies supporting the idea that autonomous public transport in rural areas may be the most economically beneficial option, even to the extent that public transport could become self-sufficient.

The technology needs to be developed

Most of the tests carried out have used autonomous minibuses at low speeds over short distances in urban environments (10-15 km/h at their fastest). Volvo has tested cars over longer distances at higher speeds. However, for autonomous vehicles to be relevant as a complement to public transport in rural areas, the technology needs to be developed to make it possible to test larger vehicles that will run over longer distances at higher speeds. Once the technology is at the point where autonomous minibuses can be operated on public roads at higher speeds, it is felt that they will then serve as an efficient and flexible complement to rural public transport by connecting to major routes and by providing accessibility between rural locations.

Current autonomous minibuses have a limited capacity to bypass obstacles or depart from the “virtual rails” that they are programmed to follow. When they encounter obstacles, a driver usually has to help the vehicle bypass them, which limits their application. There have been no tests of one person monitoring several autonomous minibuses simultaneously, which would be necessary to reduce driver costs.

The need for additional pilot projects adapted to rural areas

The municipality of Skellefteå is planning a pilot project called "rolling bus shelters" starting in the autumn of 2019, which will include the testing of autonomous minibuses in rural areas. Based on the experience of this project, the municipalities of Sjöbo and Tomelilla will be able to initiate further pilot projects to contribute to the development and adaptation of autonomous vehicle technology according to the needs and conditions of rural areas. The pilot project could include another type of vehicle and other geographical conditions, as well as other target groups in order to provide additional knowledge with regard to attitudes and behaviours. The following prerequisites have been identified for a successful pilot project with autonomous vehicles:

- ***Clear purpose***– Many test drivers in both the Kista test and the test at Køge hospital found that the slow buses did not serve any function as they could just as easily walk. Consequently, when testing autonomous vehicles in rural areas, it is important that the test serves a clear purpose. In order for a test using the current slow vehicles to serve a function, a first test could be targeted at groups that have more time, such as the elderly and tourists, whereby a ride in an autonomous vehicle would form part of the journey experience. Once the development of the technology has progressed, a second test at higher speeds can be conducted based on the lessons learnt from the first test in order to challenge the technology and ensure that the tests contribute to learning and development.

- ***Collaboration and working with the target groups*** – Regardless of the target group(s) chosen for the test (the elderly, young people, a large employer, a cluster of employers, a specific village community, or a certain destination), travellers need to be involved from the start. It is also important to have a research partner evaluating the tests.

- ***Working with behaviours*** – Attitudes to autonomous vehicles are slightly more negative among those living in rural areas, not least the elderly (deemed one of the primary target groups), which means there may be some reluctance to use this type of service. If shared journeys using autonomous vehicles are to gain acceptance, it is crucial to work on measures that seek to change behaviours. If the use of autonomous vehicles is not shared by multiple users, they will not be cost-effective and the number of individual journeys and vehicles will not decrease.

- ***Clear information*** – Tests using autonomous vehicles help with development efforts and ultimately improve rural public transport. They are not a replacement for withdrawn routes in their own right. Resources in the form of time and funding need to be allocated for information campaigns aimed at target groups in connection with the tests. Otherwise, the risk is that travellers in rural areas that already have a poor travel time ratio will be disappointed by slow autonomous vehicles. Resources in the form of time and funding need to be allocated for information campaigns aimed at target groups.

Development of public transport in rural areas

Trends such as increased digitalisation, and the shift towards a sharing economy, are facilitating new types of mobility services. Some reflections on potential pilot projects for the development of rural public transport are presented below based on the development areas described in the feasibility study and the experiences of completed projects. Specific project plans can be developed together with relevant project partners.

Testing autonomous vehicles in rural areas

Autonomous vehicles need to be tested in rural areas in order to develop and adapt the technology to rural conditions. Aside from challenging the technology to ensure that the tests contribute to learning and development, it is important that the travellers involved in the tests feel that they are serving a clear purpose. Regardless of the target group(s) chosen for the test (the elderly, young people, a large employer, a cluster of employers, a specific village community, or a certain destination), travellers need to be involved from the start. It is also important to have a research partner evaluating the tests. Resources in the form of time and funding need to be allocated for information campaigns aimed at target groups. If shared journeys using autonomous vehicles are to gain acceptance, it is crucial to work on measures designed to change behaviours.

On-demand public transport requires technological development and targeted information efforts

Current on-demand transport is heavily subsidised. An increase in this type of transport directly increases costs. A limitation of existing on-demand services and projects is that the digital technology for searching for, booking, and paying for transport has hardly been tested, and there are no or very few alternatives. Consequently, there is the potential for developing technology that better co-ordinates and streamlines the use of on-demand public transport. Should a local provider be interested in offering on-demand mobility services, systematic marketing directed at a specific target group is essential. Being integrated into or linking to Skånetrafiken's travel planner and information channels increases the visibility of the service, which increases the chances of gaining permanent users.

Initiate and test vehicle-sharing projects

In rural areas, many people know one another better than in urban areas, which can mean that they are more likely to travel together. The Mobilsamåkning project looked at vehicle sharing and showed that it has a social benefit in that it reduces the social distance between people and makes it easier for people to ask for and offer help to one another, even in relation to other issues. The number of routes and departures where vehicle sharing is an option depends wholly on the number of active customers – the critical mass – which is lower in rural areas. If there are many people using one platform, there is also a lot of potential for people to travel together.

By initiating a partnership with the Skjutsgruppen (the hitch-a-ride group), it is possible to utilise its existing platform and come into contact with its 70,000 users already connected to the service. Skjutsgruppen is a non-profit movement which gives

the municipality the ability to offer information initiatives and campaigns, including test traveller programmes and ambassadors, in order to promote Skjutsgruppen's activities in Sjöbo and Tomelilla by starting local hitch-a-ride groups. A potential focus area is businesses, where it might be possible to work with a large workplace or a cluster of workplaces.

Investment in public transport serving destinations and workplaces in rural areas

The tourism industry is important for a dynamic and vibrant rural area. However, some destinations and experiences are inaccessible without a car as they are not served by public transport. Functioning public transport is essential for visitors and employees without access to a car. Consequently there is a need for flexible and seasonal public transport that is tailored to the peaks of the tourism industry's high season.

The mapping of the public transport needs of destinations in close co-operation with local participants can result in the development and testing of new mobility services for car-free leisure travel and tourism. Here, marketing, communication, and activities in collaboration with the destinations, municipality, and Skånetrafiken are important for reaching out to potential travellers. Rural workplaces that are not destinations should also be taken into account in any pilot project.

Co-ordination of community-paid travel requires commitment and determination

If the co-ordination of community-paid travel such as school transport, community transport, subsidised transport, and medical transport is to work in practice, municipalities, county officials, and other stakeholders must be willing to work together in new ways. Understanding needs requires time, resources, involvement, and careful mapping. There are clear benefits of making public transport accessible to everyone. A challenge of creating fully co-ordinated rural public transport comes in all the variations in terms of assignments, regulations, procurement processes, and other special solutions. Consequently, a clear allocation of responsibilities and anchoring with the relevant planners and parties are required.

Combine several mobility services in the same location

A single mobility service is insufficient for catering for a household's transport needs, which is why tests involving only one new travel service do not show how this would affect people's choices in day-to-day life. If several mobility services based on people's total mobility needs are offered in one and the same place, this would present a real alternative to travelling by car. Appropriate travel services tailored to the individual location can be developed, tested, and evaluated in a Living Lab. User involvement is important for tailoring solutions to each rural area.

Information on and offers relating to various mobility services can then be combined in a single digital platform that clearly shows what alternatives there are to travelling by car and that provides information on specific physical service points in connection with customer service, purchasing, stops, and/or commuter parking. Examples of services that could be offered range from the delivery of post, food, medicines, large parcels, and online shopping deliveries through to offering mobility for social needs, such as transport to work, school, and recreational activities, and for specific target groups such as the elderly and those with disabilities.

Prerequisites for successful pilot projects

A basic requirement for a successful pilot project is the determination to create something new in order to improve, strengthen, and complement the existing system. Beyond this, the following basic prerequisites have been identified for successful pilot projects:

CO-OPERATION AND SHARING OF EXPERIENCE

Co-operation between participants is a basic prerequisite for the future of public transport in rural areas. The region, municipality, local participants, and local businesses need to be involved in the development. Allowing the public to participate in the process is important for ensuring that people feel included and that the services that are developed are adapted according to the actual needs of those living in rural areas. The needs of businesses also have to be catered for.

The proposals for the next step following this feasibility study are the initiation of a network for local rural participants focusing on future rural public transport with a view to identifying potential local mobility providers and establishing new project organisations. The network should encourage networking with current mobility projects that focus on rural areas to promote the sharing of information, experience, and success stories. Many of the issues relating to public transport specifically and to mobility more generally are at an overall strategic level, which is why it is appropriate to share experience with Region Skåne/Skånetrafiken, and fora such as Regionsamverkan Sydsverige, Greater Copenhagen, the academy, and research participants.

LONG-TERM INVESTMENTS

In addition to project funding from county councils, the region, and/or the municipality, it is possible to apply for funding from various EU funds such as InterReg, ERUF, and LEADER, as well as Vinnova and the Swedish Energy Agency, in order to initiate various pilot projects for sustainable mobility.

Unfortunately, however, several completed pilot projects have demonstrated that once funding ends, it is difficult to continue the project and, as a rule, the initiative is forced to end. Several rural projects have also depended on the voluntary work of enthusiasts, which is unsustainable in the long term. The development of services that can contribute to lasting changes in behaviour requires long-term investment. Consequently, it is important to develop a plan early on for sustainable funding and project organisation.

The municipalities can be a driving force in future pilot projects and be the primary co-ordinator of smaller projects. For larger projects, the municipalities can be either a driving force or a contributing force by co-ordinating and/or representing local participants by supporting testbed investments in their own municipality.

THE INVOLVEMENT OF TARGET GROUPS AND TARGETED INFORMATION

Allowing the public to participate in the development process is important for ensuring that people feel included and that the services that are developed are adapted according to the actual mobility needs of those living in rural areas.

If people are to start using mobility services, they must know that these services exist. Earlier studies show that trials of public transport alternatives or new public transport solutions have failed to reach out to users because few people in the target groups were aware of the new service. Consequently, there is a need for systematic, targeted marketing with campaigns that are tailored to target groups in order to increase the service's visibility so that it can gain permanent users.

MOBILITY FOR ALL

Investments in public transport or complementary mobility services benefit everyone in rural areas but primarily the elderly, young people, those on low incomes, and women. These target groups have the greatest need for public transport or demand it the most. Parents and relatives who currently drive their children and relatives where they need to go also benefit, while the children and relatives gain independence and self-determination. By learning to use public transport early in life, combined with walking, cycling, and carpooling, the foundations are laid for making this a habit, thus reducing the risk of future perceived dependency on cars. Employers benefit as public transport opens up a broader labour pool, while job seekers and low-skilled workers benefit from access to a wider education and labour market.

Accessibility is a key component in this context, not least considering that the proportion of people with disabilities is expected to increase in line with an ageing population.

The buzzword in the development of new "smart" services should be universal design, in that all new services should be designed with an awareness of the diversity of the population and in a way that allows those with disabilities to participate in daily life on the same terms as those who are able-bodied.

In the development of new "smart" digital services, it is important to maintain an emphasis on accessible and user-friendly information and initiatives in order to prevent digital exclusion in connection with the introduction of new services.

Many of the development areas cited also require critical mass if they are to work and be cost-effective, as there are fewer travellers in rural areas. This means that it is important to develop services that attract and can be used by as many people as possible, also from a rural perspective.

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