# UNIVERSITY OF GOTHENBURG
## SCHOOL OF BUSINESS, ECONOMICS AND LAW

# 'Station communities' as a strategy for sustainable regional development

A case study of small towns with train stations in the Västra Götaland region, Sweden

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# Abstract

Charlotta Capitao Patrao (2021) 'Station communities' as a strategy for sustainable regional development. A case study of small towns with train stations in the Västra Götaland region, Sweden. CHOROS 2021:1. Department of Economy and Society, University of Gothenburg.

This thesis concerns sustainable regional structures and takes its point of departure in regional development. It focuses on small towns along railway lines in sparse settlement structures, and on the interplay between land-use planning and transport planning.

Rail transportation has come to be widely acknowledged as a strategy for sustainable regional enlargement, for example, through transit-oriented development (TOD) strategies. This has brought about an emphasis on densification and compact settlements around stations, following theories of energy-efficient structures and transportation. In Sweden, the concept of 'station communities' has come to be a common element of TOD thinking in the development of regional cores, strategies based on the idea of 'station communities' have been advocated. Consequently, in the Västra Götaland region, the promotion of station communities is seen as a strategy for creating sustainable growth.

The main purpose of this licentiate thesis is to scrutinise the role of station communities as a means for sustainable regional development of sparsely populated areas. This was done as a multiple-case study of three settlements with a train station in Västra Götaland. The main method for collecting data was interviews and document studies.

The thesis has a starting point in the recognition of regional development, and three partly overlapping tensions, namely, the tension between scales and between land-use and infrastructure planning, and the status of train stations as nodes or places. Previous research has emphasised the urban domination of regional planning, and that the strategy of station communities was developed for urban and metropolitan contexts.

The results indicate that train stations, together with planning approaches inspired by TOD theory, are regarded as important in municipal planning when identifying future developments, although the prerequisites for TOD are absent and the demand for new housing and businesses is weak. One conclusion is that when advocating development of access to public transport outside urban areas, additional strategies are needed since current TOD theory does not work in the context of sparse settlement structures. Additionally, station communities are understood differently by actors at different levels. Collaboration between actors at different levels is seen as problematic in relation to development of station communities, as there are no clear regional priorities or agreements. There is also a lack of trust between actors and small municipalities have difficulties voicing their issues and concerns. This has implications for the opportunities for regional actors and municipalities to work with train stations and connecting structures as a strategy for sustainable regional enlargement and regional development in sparsely populated areas.

**Key words:** sustainable regional development, spatial planning, sparse settlement structures, TOD, collaboration, local prerequisites, case study research.

# Sammanfattning på Svenska

Denna licentiatavhandling, *'Stationssamhällen' som en strategi för hållbar regional utveckling. En fallstudie av små samhällen med en tågstation i Västra Götalandsregionen, Sverige* handlar om hållbara regionala strukturer och har utgångspunkt i regional utveckling. Avhandlingens fokus ligger på små samhällen längs järnvägslinjer i glesa bebyggelsestrukturer och på samspelet mellan planering av markanvändning och transportinfrastruktur.

Järnvägstransporter har blivit allmänt erkända som en strategi för hållbar regionförstoring, till exempel genom strategier för transit-oriented development (TOD). Detta har medfört en tonvikt på förtätning och kompakt bebyggelse runt stationer, efter teorier om energieffektiva strukturer och transporter. I Sverige har begreppet 'stationssamhälle' kommit att bli ett vanligt inslag i TOD-tänkande i utvecklingen av regionala kärnor, då strategier baserade på idén om 'stationssamhälle' har förespråkats. I Västra Götalandsregionen ses därför främjandet av stationssamhällen som en strategi för att skapa hållbar tillväxt.

Huvudsyftet med denna licentiatuppsats är att granska stationssamhällenas roll som en strategi för hållbar regional utveckling i glesa bebyggelsestrukturer. Studien har genomförst som en flerfallstudie av tre samhällen med tågstation i Västra Götaland. Data samlades in i huvudsak genom intervjuer och dokumentstudier.

Avhandlingen har utgångspunkt i regional utveckling och tre delvis överlappande spänningar, nämligen spänningen mellan skalor och mellan planering av markanvändning och infrastruktur, och synsättet på tågstationer som noder eller platser. Tidigare forskning har betonat ett urbant företräde i regional planering och att stationsamhällen som strategi har utvecklats för urbana förhållanden.

Resultaten indikerar att tågstationer tillsammans med planeringsstrategier inspirerade av TOD-teori anses vara viktiga i kommuners planering när framtida utvecklingsområden identifieras, även om förutsättningarna för TOD är frånvarande och efterfrågan på nya bostäder och företag är låg. En slutsats är att när man förespråkar utveckling av tillgång till kollektivtrafik utanför stadsbebyggelse behövs ytterligare strategier eftersom nuvarande TOD-teori inte fungerar när det gäller glesa bebyggelsestrukturer. Dessutom förstås stationssamhällen olika av aktörer på olika nivåer. Samarbete mellan aktörer på olika nivåer ses som problematiskt i förhållande till utvecklingen av stationssamhällen eftersom det inte finns några tydliga regionala prioriteringar eller avtal. Det finns också brist på förtroende mellan aktörer, och mindre kommuner har svårt att uttrycka sina frågor och problem. Detta får konsekvenser för regionala aktörers och kommuners möjligheter att arbeta med stationssamhällen som en strategi för hållbar regionförstoring och regional utveckling i glesa bebyggelsestrukturer.


**Nyckelord:** hållbar regional utveckling, fysisk planering, glesa bebyggelsestrukturer, TOD, samarbete, lokala förutsättningar, fallstudie.

# Table of Contents

# Appendices

**Appendix A** – Interview guide, local level

**Appendix B** – Interview guide, regional level

**Appendix C** – Paper 1: Capitao Patrao, C. Is transit-oriented development an applicable strategy in sparse settlement structures? The case of western Sweden

**Appendix D** – Paper 2: Capitao Patrao, C. & Larsson, A. Planning perspectives on station communities in the regional context. A case study of small towns in the Västra Götaland region, Sweden

# List of papers

Paper I:    Capitao Patrao, C. Is transit-oriented development an applicable strategy in sparse settlement structures? The case of western Sweden. Submitted to *European Planning Studies*.

Paper II:   Capitao Patrao, C. & Larsson, A. Planning perspectives on station communities in the regional context. A case study of small towns in the Västra Götaland region, Sweden. In manuscript.

## List of tables

## List of figures

# 1 Introduction

## 1.1 Regional development and 'station communities'

This thesis concerns sustainable regional structures and takes its point of departure in regional development. It focuses on small towns along railway lines in sparse settlement structures, and on the interplay between land-use planning and transport planning. Good interaction between these two planning perspectives is essential in order to advance towards sustainable development.

In many European regions, regional development is characterised by regional enlargement. Regional enlargement entails longer distances and greater differences between the areas included in a region. Ongoing car-based urbanisation generates scattered urban structures that drive unsustainable mobility patterns, putting great pressure on ecosystems and widening socio–economic gaps (Delegationen för hållbara städer, 2012; IPBES, 2019; UN-Habitat, 2020, 2021, p. 25). Sustainable regional enlargement thus entails achieving sustainable travel in combination with good quality of life in different local contexts (Blücher, 2013; Björling, 2020). Rail transportation has come to be widely acknowledged as a strategy for sustainable regional enlargement, for example, through transit-oriented development (TOD) strategies. This has brought about an emphasis on densification and compact settlements around stations, following theories of energy-efficient structures and transportation. TOD strategies have had a strong impact on planning theory in both research and planning in the 21st century (Qviström, Luka, and de Block, 2019).

The Västra Götaland region, Sweden, reflects this situation well, experiencing regional enlargement and growing tensions between its metropolitan region, the city of Gothenburg, and the region's smaller communities. In Sweden, the concept of 'station communities' has come to be a common element of TOD thinking (Cervero, 2004; Bertolini, Curtis, and Renne, 2009a; Leemans and Ivkovic, 2013; Sims et al., 2014); in the development of regional cores, strategies based on the idea of 'station communities' have been advocated. Consequently, the concept of station communities has drawn attention to settlements with a train station in a broad sense. Consequently, in the Västra Götaland region, the promotion of station communities is seen as a strategy for creating sustainable growth, since they are assumed to facilitate energy-efficient transportation, allowing regional enlargement with growing labour markets (Dahlstrand, Forsemalm, and Palmås, 2013, p. 8; Slätmo, 2015; Ranhagen and Gustafsson, 2020).

Train stations are of particular interest, since they are key features of this strategy. Planning strategies for these stations relate to a number of partly overlapping tensions in various dimensions that need to be considered and dealt with if the vision of sustainable regional development is to be realised. One tension is between different spatial scales of planning. Railways and railway stations are of interest to planners at both the regional and local planning authority levels, although in different ways, as land use and transportation are planned at different planning levels (Curtis and James, 2004). The regional planning level[1] primarily focuses on infrastructure and the structure of railways within overall transportation (VGR, n.d., 2019a). Planners at the municipal level, on the other hand, focus on integrating the railway and station in the local context and its surrounding landscape. Moreover, at the local level, a railway can be experienced as a physical barrier.

Another tension is found between transport planning and land-use planning (Renne, Curtis, and Bertolini, 2009, pp. 3–4), as the former is mainly carried out at the national and regional levels in

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[1] In this thesis, Region Västra Götaland, the regional government level, is considered the regional planning level. This is important to state, as sub-regional actors have also shown an interest in the development of station communities, although these actors are not in focus here.

Sweden, while the latter is conducted at the municipal level (Boverket, 2019a; SKR, 2019). Hence, the levels of planning need to work together for the successful sustainable development of railway infrastructure and associated stations. This brings us to a third tension, the one between an understanding of railway stations as nodes or as places (Bertolini, 1996, 1999). Depending on the scale and/or planning focus, a railway station can be viewed primarily as a node *or* a place. As a node, a station's salient characteristics are its connections to the overall railway infrastructure and to the transportation network in which it is incorporated. However, those characteristics are an insufficient condition for a railway station to be beneficial to its users. It could be argued that a station's *place* characteristics are as important as its node characteristics. How a station is incorporated into the surrounding landscape matters and has implications for how the train station is perceived by its potential users in their daily lives, although this is also dependent on the station's role and placement in the infrastructure system.

These partly overlapping tensions between scales, transport planning/land-use planning, and railway stations as nodes/places all need to be considered when discussing the strategy of station communities, especially in more sparsely populated areas (Hrelja et al., 2020). Another identified problem with the station community strategy is that there is no coherent definition of station communities and what they are (Slätmo, 2015; Björling and Capitao Patrao, 2021), although features such as densification (Dahlstrand et al., 2013) and mixed housing near public transportation (Cervero, 2004) are commonly cited. The urban bias is another concern discussed by researchers, who note that there is a discursive and imbalanced power structure between city and countryside, with the city and the urban being seen as the norm (Brenner, 2013; Rönnblom, 2014; Bergman and Dyrssen, 2016; Björling and Capitao Patrao, 2021). This can be further questioned when ideas developed for urban metropolises and regions, such as TOD, are transferred to sparser structures.

The idea of station communities as central to regional strategies for sustainable regional development thus needs to be analysed in relation to the regional, municipal, and local contexts. If we lack an understanding of local prerequisites, then there is a great risk that regional planning aiming at sustainable development will fail to meet its goals.

## 1.2 Aim and research questions

The aim of this thesis is to scrutinise the role of station communities as a means for sustainable regional development of sparsely populated areas. This is done through a case study of three settlements, each having a train station in the Västra Götaland region, Sweden.

To achieve this aim, the following research questions have been addressed:

- How do the tensions between scales, between transport planning and land-use planning, and between railway stations as nodes and places manifest themselves in the local contexts of settlements with a train station?

- How are these tensions addressed in regional policies and strategies?

## 1.3 Outline of the thesis

This licentiate thesis consists of a framing *kappa* and two papers (attached in the appendices). The papers are theoretically positioned, their results are discussed, and associated conclusions are drawn in the seven chapters of this *kappa*. In the next chapter, the theoretical framework of the thesis and a discussion of issues explored in the appended papers are presented, followed by an overview of Swedish station communities both from a historical perspective and in contemporary planning. Thereafter follows a description of the study area in chapter four, followed by a

presentation of the methods and data in chapter five. A summary of each paper is given in chapter six and, finally, the thesis is brought to a close with a concluding discussion in chapter seven.

# 2 Theory and research approach

## 2.1 Introduction

The concept of TOD was first articulated by Calthorpe in 1993, and since then the theoretical understanding of station communities and station areas in regional and local contexts has developed. In this chapter, a literature review provides insights into the field of regional development with a focus on the current drivers of regional development. Then, the tension between scales, the integration of land-use planning and transport planning, and the tension between train stations as nodes and places, including TOD strategies, are presented and discussed. The section ends with a summary of the theories related to the concept of station communities and of how theoretical considerations are used in this thesis.

## 2.2 Regional development

One strategy commonly used in Sweden to support regional development is that of regional enlargement, which entails expanding labour markets to promote economic growth (Andersson et al., 2007; Sandow and Westin, 2007; Amcoff, 2009). This strategy leads to more and longer commuting as the distance between housing and work increases (Gottfridsson, 2007). In Sweden, one idea for managing the increasing distance between housing and work has been station communities.

Today, an urban discourse can be argued to dominate, which means that the pursuit of strong regional cores is not called into question in planning (Soja, 2011; Brenner, 2013). This urban domination in regional planning, which entails strengthening urban centres or areas, is considered the ideal and is seldom questioned, while the development of rural areas commonly needs to be defended (Slätmo, 2015). Related to this, Hrelja et al. (2020) found a lack of studies of how TOD can be defined and applied in low-density and rural contexts, as there is no research on TOD in smaller towns, suburbs, and rural areas. A problematising perspective on station communities identifies the need to explore what problems are supposed to be addressed by creating station communities, from the local and regional planning perspectives, respectively (Qviström, Luka, and de Block, 2019). This brings us to the issue of scales connected to the strategy of station communities.

## 2.3 The tension between scales

The vision of sustainable regional development complemented with regional enlargement has led to the strategy of promoting station communities. This strategy involves railway infrastructure, which in Sweden is managed by national actors, as well as train stations and the associated settlements, which are planned at the municipal level. As a consequence, different elements of the overall strategy are planned and have effects on different levels/scales, creating potential tension between them. The strategy of promoting station communities requires cooperation between actors at several levels, i.e., national, regional, and municipal, in order to be realistic and address the conditions and goals at the respective levels.

The tension between scales becomes especially apparent at the local level when station communities, as a regional strategy, are implemented in a region with large disparities in population density and access to jobs. At the regional level, the strategy can be appealing and seen as inspiring and guiding planning, while the concrete implementation often takes place at the local level with its own specific conditions. The strategy of station communities was developed for urban and metropolitan conditions and as such supports urban domination at the expense of other contexts (Kauppila, 2011; Rönnblom, 2014; Bergman and Dyrssen, 2016). Bergman and Dyrssen (2016) suggested that the urban norm, as both a design convention and theoretical–conceptual

4

understanding, needs to be scrutinised, arguing that new ways of dealing with local/regional issues need to be developed.

## 2.4 The tension between land-use and infrastructure planning

In Sweden, regional actors have the responsibility for planning infrastructure and public transport, while town and country planning is mainly a municipal responsibility. Each municipality is required by law to have an up-dated comprehensive plan, which outlines the political vision of how the municipality should develop. This means that since transport infrastructure also involves land use, the different levels of planning need to work together. Larsson, Elldér, and Vilhelmsson (2015) pointed out that accessibility planning requires cooperation between planning in different sectors and calls for effective organisational integration.

The division between land-use and transport planning is not only an issue in Sweden. Renne et al. (2009, pp. 3–4) stated that the integration of transport and land-use development at railway stations is high on the agenda in many places. The common traits are the same in many contexts: concentrating urban development around stations in order to support transit use, and developing transit systems to connect existing and planned concentrations of development. The underlying logic is that a sustainable transport system has to include both an energy-efficient and sustainable built structure and a transport infrastructure that can decrease both car use and energy use (Dahlstrand et al., 2013, p. 26). Curtis and James (2004) confirmed that there has been a tradition of separating the land-use planning and transport planning functions, but they also stated that there has been increasing interest in merging planning agencies with the aim of improving the integration between the two strands, especially in the context of facilitating sustainable transport. The separation of transport planning and land-use planning tends to lead to actors maximising the achievement of their own objectives, instead of dealing with the compromises that can be associated with effective integration (Curtis and James, 2004, p. 295). As Trivector (2014, p. 23) stated in a report on the station community of Floby in Sweden, 'a larger supply of public transport cannot develop a community on its own, but the land-use planning must aim in the same direction'.

## 2.5 The tension between train stations as nodes or places

Stations can be seen as both nodes and places (Bertolini, 1996; Bertolini and Spit, 1998), and the double meaning of stations needs to be integrated more clearly into discussions of station communities in order to increase the agreement among actors (Qviström, 2015; Selnes, 2016). The node characteristics of a train station include its connection to the railway infrastructure and transportation network in which it is incorporated, whereas the place characteristics include the physical area of the station as well as its surrounding areas (Bertolini, 1996; Bertolini and Spit, 1998). How a station is incorporated into the surrounding landscape matters and has implications for how the train station is seen by its users in their daily lives, although this is also dependent on the station's role and position in the infrastructure system. A large part of the applied research identifies proximity to stations as a central factor in achieving sustainable development (Renne et al., 2009; El-Geneidy et al., 2014), so station-adjacent areas have become a planning instrument recurrently used in planning to identify specific development areas (Qviström, Luka, and de Block, 2019). Although train stations can be understood in terms of both their node and place characteristics, they are rarely discussed as simultaneously including both. This becomes apparent when looking at TOD theory, as Bertolini (1999) has shown in a node–place model (Figure 1).
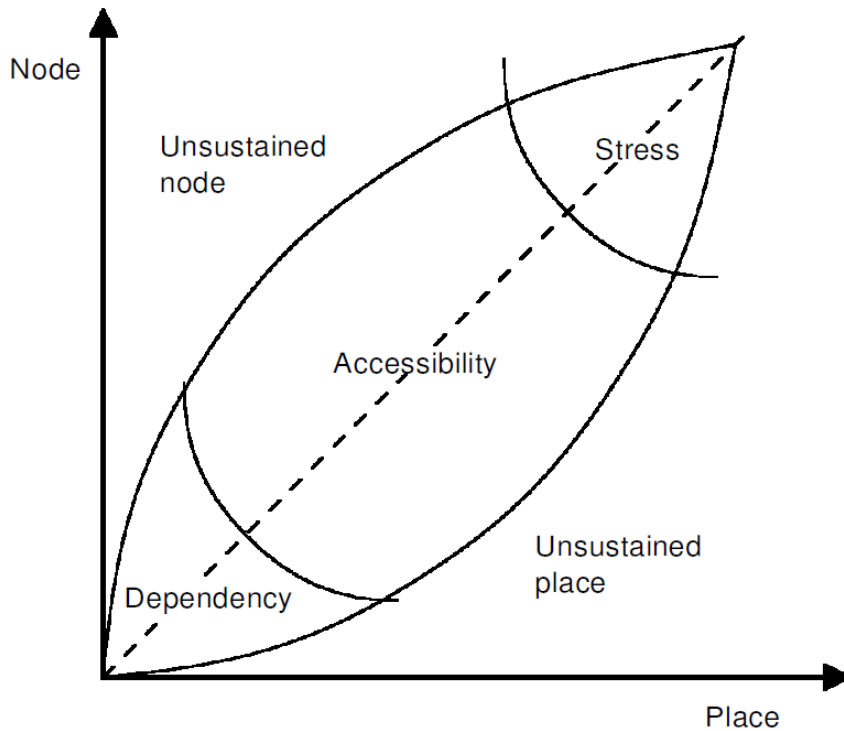
Figure 1. The node–place model of Bertolini (1999, p. 202).

## 2.5.1 Transit-oriented development (TOD)

A TOD is commonly described as a mixed-use development characterised by relatively high density that is pedestrian and bicycle friendly and located near transport nodes or transit facilities (Cervero, 2004, p. 5; Qviström, 2015; Staricco and Vitale Brovarone, 2018; Thomas et al., 2018). However, TOD not only defines particular built-up areas but is also a way of planning – a strategy (Stojanovski and Kottenhoff, 2013, pp. 9–13). TOD is commonly considered a planning strategy that facilitates sustainable transitions (Calthorpe, 1993; Cervero and Sullivan, 2011), and TOD strategies are usually based on the idea that their implementation will create social and economic benefits such as reduced $CO_2$ emissions, prevention of urban sprawl, and increased property prices (Thomas et al., 2018). Common goals when planning for TOD are increased ridership on public transportation, economic development, and job growth as well as social goals such as enhanced quality of life and a wider choice of housing for buyers (Cervero, 2004, p. 10), goals more often discussed in relation to a TOD as a node. TOD strategy can also aim at creating attractive urban environments (Schylberg, 2008, p. 39), which would rely more on the place characteristics of TOD. While the description and goals of TOD are often defined similarly by different actors, there is no universally accepted definition of TOD, because what is considered dense, pedestrian friendly, and transit supportive varies between places (Cervero, 2004, p. 5).

Staricco and Vitale Brovarone (2018) have discussed the strategic role and importance of regional planning for TOD, stating that rail transit services connecting municipalities can be planned, managed, and financed only at the metropolitan or regional level. This is because regional planning steers local decision-making to support objectives at a higher level (Starrico and Vitale Brovarone, 2018). Furthermore, they argued that regional planning is especially important and needed in the case of smaller suburban rail stations, since their adjacent areas usually attract less interest than do areas adjacent to stations in larger cities. In addition, these areas present characteristics such as low density, high levels of car use, uneven availability of land, unfavourable market conditions, and

resistance of inhabitants and local authorities to higher densities, making it difficult to integrate transport and land-use planning (Starrico and Vitale Brovarone, 2018, p. 46). There is clearly a need for input and incentives associated with regional planning. Thomas et al. (2018), on the other hand, questioned whether TOD theory and practice are transferable at all. They concluded that it is unlikely that the exact model of implementation that worked in one context will work in another, and that it is necessary for local planners and experts to develop their own context-specific TOD solutions regarding policy, financial tools, and design using international examples only for inspiration (Thomas et al., 2018). Qviström (2015) argued that the regional strategy in the Skåne region in Sweden has been squeezed into a model of progress and urbanisation that does not fit many of its towns, townships, and inhabitants. TOD must be specific to their urban forms, political and planning contexts, and cultural preferences in order for implementation to be successful (Thomas et al., 2018).

Renne (2009) inferred that the implementation of TOD does not always result in the density, mixed use, or pedestrian friendliness that was planned for, leading to a smaller share of transit commuting and higher car usage. Such 'failure' has been termed transit-adjacent development (TAD) by Renne (2009), who defined a TAD as a station area lying within a 10-minute walk that, even though it is physically near transit, lacks functional connectivity to it since it is not as pedestrian friendly or dense in mixed uses as a TOD. Renne (2009) further stated that most stations are in areas positioned somewhere between TAD and TOD in their characteristics, giving a range when researching other areas varying in design and preconditions. The problem with a TAD is that car usage there is generally higher and the share of transit commuting lower than in a TOD or hybrid TOD/TAD. Hence, the planned result for a TOD is not achieved.

## 2.6 Summary

To summarise the theoretical approach, a starting point of this research is the recognition of regional development, the tensions between scales and between land-use and infrastructure planning, and the status of train stations as nodes or places. Previous research has emphasised the urban domination of regional planning (Soja, 2011; Brenner, 2013; Slätmo, 2015), and that the strategy of station communities was developed for urban and metropolitan conditions and, as such, supports urban domination at the expense of other contexts (Kauppila, 2011; Rönnblom, 2014; Bergman and Dyrssen, 2016). Moreover, the double significance of stations as both nodes and places needs to be integrated more clearly into discussions of station communities in order to increase the level of agreement among actors (Qviström, 2015; Selnes, 2016).

The first paper discusses to what extent TOD ideas are applicable to conditions in sparse settlement structures, taking account of the tension between train stations as nodes or places and, especially, of the concept of TOD. Also, the tension between scales is noted in the discussion, which includes a critical perspective on TOD as illustrating the claimed urban domination that influences regional planning, but is perhaps not suitable for local implementation everywhere.

The second paper addresses the tensions between scales and between land-use and infrastructure planning while examining the concept of station communities in a Swedish context of small towns and sparsely populated areas. The emphasis is on practical implementation by planners and policy makers at different levels and on applying a non-urban viewpoint specifically to the TOD framework.

# 3 Swedish station communities

## 3.1 Historical background

Historically, 'station communities' was the term used for settlements that evolved around railway stations when the railways were first laid out in Sweden more than a century ago. These stations became central places in the surrounding settlements, and often the starting points for the development of towns (Aronsson and Johansson, 1999; Länsstyrelsen i Skåne län et al., 2010). Station communities then embodied the modernisation of the countryside, and they were associated with meeting places, urbanity, and business development (Aronsson, 1999). Since the 1960s, accessibility by car has been prioritised within transport and urban planning, as more people gained access to cars during the late 1900s. This has had consequences for the geographical structure of society and inhabitants' daily activity patterns in terms of longer distances between, for example, dwellings, workplaces, and services (Gottfridsson, 2007, p. 46). Today, station areas have potential to be important places for the inhabitants of a community at both the regional and local scales since they connect the community to a larger hinterland and give inhabitants access to a larger setting (Selnes, 2016).

Several literature reviews have examined the issue of station communities in Sweden (Slätmo, 2015; Selnes, 2016; Dahlstrand et al., 2013). Slätmo (2015) found the research on station communities to be related to several themes: public transport, transport behaviour, travel patterns, regional development, people's everyday life, quality of life, community planning, transport planning, physical planning, and TOD. The field is therefore broad and incoherent, with a variety of starting points and emphases. Slätmo (2015) noted that there were few academic studies of smaller towns and station communities, which had received somewhat more attention in public reports and other forms of grey literature.

While the boundaries between urban and rural areas are in many ways blurred in contemporary society, the countryside's milieu still has some particularities that imply other needs than those of cities and urban areas from a planning perspective. The particularities of the countryside in terms of land use, population sparsity, and social relations can act as points of departure for regional and local planning going beyond urban perspectives (Slätmo, 2015). Knowledge of the prerequisites for developing station communities by means of integrated public transportation planning and spatial planning is important, especially more knowledge of local perspectives on how train stations can contribute to regional and local development in smaller towns and their hinterlands (Slätmo, 2015). Dahlstrand et al. (2013) suggested that today's research tends to focus on more efficient travel, floor area ratio, density, etc., while historical research applies a cultural–analytic perspective. We need more knowledge of how station communities are valued as places and as a solution to sustainability problems.

## 3.2 Station communities in contemporary planning

The planning of public transport nodes (e.g., train stations and station communities) has been prioritised within urban planning in Swedish municipalities (Schylberg, 2008, p. 36). The competitiveness of public transport is strengthened by efficient junctions where local and regional modes of transportation are coordinated and where transfers are facilitated. The station area's function as a local and regional destination point is strengthened by land-use planning that prioritises visitor-intensive target points and local accessibility (Schylberg, 2008). The region's (city) cores are linked by rail traffic, and rapid transit routes are complemented by feeder bus routes and well-developed walking and cycling networks (Boverket, 2012). According to Boverket, the Swedish National Board of Housing, Building and Planning, good development means that residents of core

areas can travel by public transport to a greater extent, thereby reducing the climate impact (Boverket, 2012).

What is considered 'near' a train station varies depending on the respondent (Länsstyrelsen i Skåne län et al., 2010). In a Danish study (Hartoft-Nielsen, 2002), near is defined as 600–1000 m from a train station. In Scania, Sweden, near is considered 500–1500 m from a train station, depending on the mode of transportation, while 2–3 km from a train station is considered near by the Swedish Road Administration (defunct, now Swedish Transport Administration) (Länsstyrelsen i Skåne län et al., 2010, pp. 9–10). The station proximity principle (Swedish, *stationsnärhetsprincipen*) states that housing should be concentrated near train stations to promote travel by rail as much as possible (Länsstyrelsen i Skåne län et al., 2010, p. 10), for example by:

- placing municipal and commercial services adjacent to the train station to strengthen their attractiveness as meeting points, allowing commuters to use these services while travelling to and from the station
- locating personnel-heavy workplaces within a walking distance of 600 m from the train station
- locating housing within 1–2 km by foot or bicycle from the train station; residential density should also be highest adjacent to the station itself

(Länsstyrelsen i Skåne län et al., 2010)

Schylberg (2008) identified several factors affecting the development of station-adjacent areas, and these roughly correspond to the ones mentioned above. Effective land use is achieved by concentrating municipal and commercial services within walking distance of the station. This strengthens the station's role as a local destination point and helps integrate the station-adjacent area with the surrounding neighbourhoods. Schylberg (2008) noted a consensus in the literature regarding the urban form factors that affect the choice of transportation at the personal and societal levels. Nevertheless, the individual choice of transportation is a compound choice, not only affected by the accessibility of the transportation mode itself (Schylberg, 2008).

Slätmo (2015) identified and summarised the positive and negative effects of striving for densely built-up areas near railway stations:

The potential positive effects were:

- area-effective land use
- short- and long-term growth effects of investments in public transportation

The identified negative effects were:

- settlement near railway stations and rails involves risks (e.g., noise, vibration, and transport of dangerous goods)
- not a given that just because areas around public transport stations are densely built up, the use of public transport will increase
- increased accessibility does not necessarily mean increased economic growth
- relevant actors and sectors must be identified, integrated, and coordinated
- the planning ideal of densification near railway stations is not necessarily consistent with smaller communities' prerequisites and potential

(Slätmo, 2015, pp. 14–16).

Several of the cases of station communities that Schylberg (2008) addressed are found in an urban context, and it is common for these to be characterised by a very high concentration of buildings and investments in exclusive commercial premises and exclusive housing. Dahlstrand et al. (2013) described what the urban station community is and what it implies, how one centre is connected to another, and how the urban qualities of the city spread via railways. What prerequisites exist in station communities that do not have as obvious an urban context, but are farther away from larger cities and closer to the countryside? What type of construction is desirable there? Lundström et al. (2016, p. 67) showed that there may be good opportunities to achieve an increased effect of station proximity (Swedish, *stationsnärhetseffekt*) at a distance of up to three kilometres from the station. This could be an interesting starting point for smaller station communities that may have lower population density, but could still benefit from their stations as both nodes and places.

The views of station communities vary, as do the views of rural areas (Stenbacka, 2001). Perhaps not all station communities must be planned similarly everywhere, and Qviström (2015) has criticised the implementation of TOD in the Skåne region. What is also interesting about station communities in particular is their role at different scales: at the local scale in the station community itself, what the community is like and how people live there and choose to travel to or from there; and at the municipal scale, through the role of the station community in the municipal context and how planners and politicians view the individual station community. Dahlstrand et al. (2013) identified a need to improve our knowledge of what people value in a station community, of the regional perspective (to strengthen it and create added value), and of the energy aspects of station-adjacent areas. How should towns with train stations develop? What role does the station community play in the regional context? What role do small and medium-sized station communities have as both places and nodes in the regional context? There are many questions to be asked if we leave behind the urban norm and question practices that may be guided by hidden discourses that have gained strength without examination.

## 3.3 Summary of Swedish station communities

Station communities have gone from meaning central places in settlements that evolved around railway stations to being a concept often associated with an urban environment with dense, mixed housing near public transportation stations. Hence, in a Swedish planning context, TOD has come to be about station communities (Slätmo, 2015). Station communities are viewed as a way to achieve sustainable community development by means of energy-efficient transportation and regional enlargement including growing labour markets (Slätmo, 2015). TOD projects can be recognised by the same features as station communities, namely, high-density housing, mixed land use, and a pedestrian-friendly cityscape, thereby promoting more local travel on foot rather than by car (Schylberg, 2008, p. 39). In urban planning, the development of public transport nodes (e.g., train stations and station communities) has recently been prioritised, and station communities have attracted interest as they have a potential role at both the regional and local scales. Yet, there are uncertainties regarding how smaller towns with train stations are to be developed, as many practices in relation to station communities are steered by an urban norm.

# 4 The regional context of Västra Götaland

## 4.1 Geography and regional development

The Västra Götaland region (Figure 2) comprises 49 municipalities and is divided into four larger associations of local authorities. The region includes Sweden's second largest city (Gothenburg) and has a population of about 1.7 million with a population density of 72 people per square kilometre (SCB, 2019a). However, there is significant variance in the population density within the region, with the highest density found in areas around Gothenburg at almost 1300 inhabitants per square kilometre, and the lowest found in the northern part of the region at seven inhabitants per square kilometre (Figure 3). There is rail infrastructure throughout the region with several railway stations along the lines (Figure 4), but the rail infrastructure becomes sparser the farther one goes from the Gothenburg area. Regional railway stations are found in the municipal administrative centres as well as in smaller towns. This means that there are towns with 5000 or fewer inhabitants that have a railway station.

Region Västra Götaland (VGR) is the regional council governing the territory of Västra Götaland and the area's public transport authority. Its main growth and development task in providing a good future for the region's inhabitants is to build a region where more people have an opportunity to use the region's collective offering of services and functions
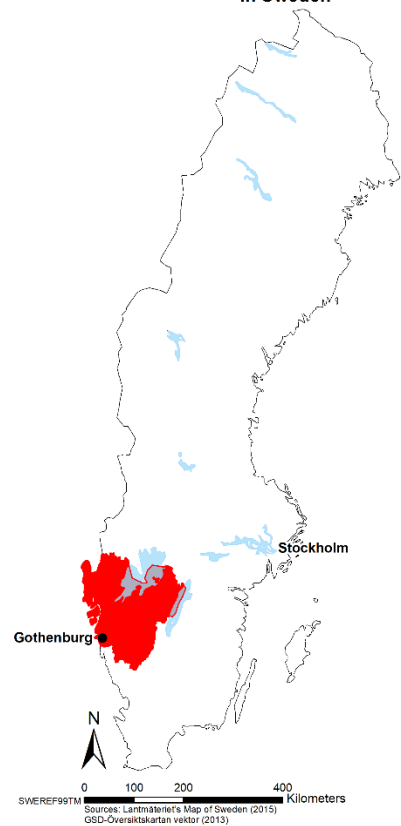


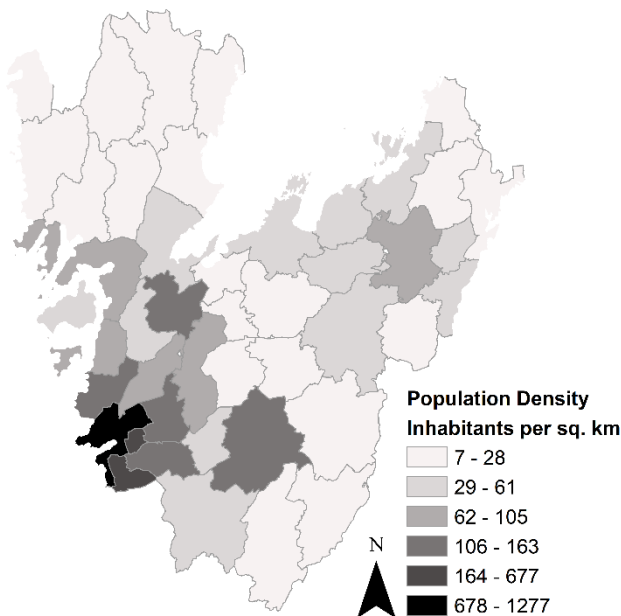Figure 2. The Västra Götaland region in Sweden.



Figure 3. The population density in the Västra Götaland region, Sweden. Sources: Lantmäteriet (2018); SCB (2019a).
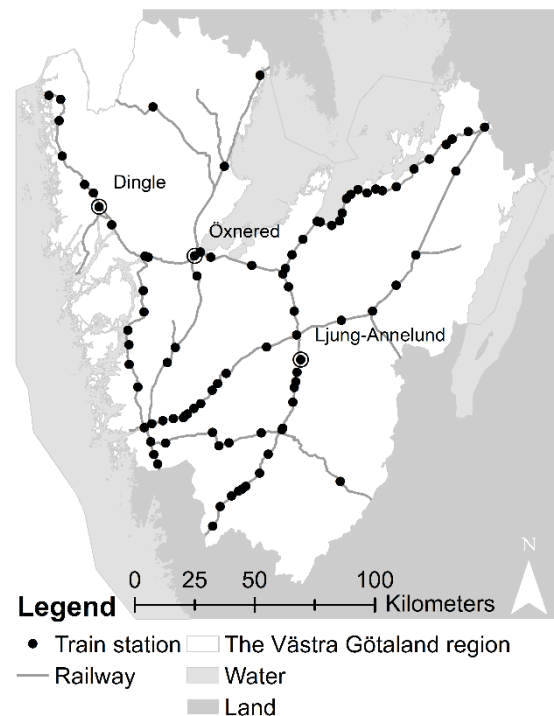


Figure 4. The railway infrastructure in the Västra Götaland region. Sources: Trafikverket (2017); Lantmäteriet (2018).

11

(e.g., education, employment, and culture) (VGR, 2013b). The expectation is that when more housing and functions are concentrated around the transportation nodes (i.e., station communities), the prerequisites for attractive and competitive public transportation increase (VGR, 2016, p. 2).

## 4.2 Policy documents of relevance to regional development, public transport, and infrastructure

### 4.2.1 Introduction

In the following sections, regional policy documents relevant to the region's overarching development regarding public transport and infrastructure are presented. The documents presented are:

- Västra Götaland 2020 (VGR, 2013b) – the regional development strategy, providing guidelines for the region's overall development efforts
- Trafikförsörjningsprogrammet (VGR, 2016b) – the Regional Programme for Public Transport – is the most important regional control document for public transport
- Regional plan för infrastruktur (VGR, 2018) – Regional Plan for Transport Infrastructure – is the central document for managing infrastructure; it is based in part on Målbild tåg 2035 (VGR, 2013a) – Long-Term Train Infrastructure Plan 2035
- Västtågsutredningen (VGR, 2017) – an investigation of potential new stations. contains current data and investigations for ongoing work to update a new Regional Programme for Public Transport

### 4.2.2 Regional development strategy

Västra Götaland 2020 (VGR, 2013b) is the regional development strategy and a guiding document for the region's overarching development. The accessibility of the various parts of the region and the opportunity to utilise the entire range of education, work, culture, and leisure amenities are identified as fundamental priorities. By creating the conditions for dense and populous markets and supporting opportunities to operate businesses, the regional economy should become less sensitive to external events. The strategy includes investments in transport infrastructure, public transport, and IT development (VGR 2013b, p. 5). Public transport is a development priority with the intention of creating a well-functioning metropolitan region, which is intended to be a 'test arena' for sustainable transport solutions. The goal is that one third of all trips in the region should be by public transport by 2025 (VGR 2013b, pp. 22–23, 35). Public transport is also highlighted as a tool for eliminating segregation and barriers (VGR, 2013b, p. 30).

### 4.2.3 Regional Programme for Public Transport

The Regional Programme for Public Transport (Swedish, Trafikförsörjningsprogrammet) (VGR, 2016) is the most important regional policy document for public transport (VGR, 2016) and is updated every mandate period. The Regional Programme covers the 2017–2020 period with a view towards 2035. The region is now working on an update for 2021–2024, i.e., Trafikförsörjningsprogram för Västra Götaland 2021–2024, the basis of which states that there will be great needs for investment in public transport infrastructure to meet the objectives of regional enlargement and demographic change in coming years.

### 4.2.4 Regional Plan for Transport Infrastructure

The Regional Plan for Transport Infrastructure (Swedish, Regional plan för infrastruktur) (VGR, 2018) is the central document steering investments in infrastructure. The current plan is valid for 2018–2029 and the basis of the programme includes the Long-Term Train Infrastructure Plan 2035

(Swedish Målbild tåg 2035) (VGR, 2013a). Updates are currently underway for a new traffic supply programme for 2021–2024. Current documentation and investigations supporting the ongoing work include Västtågsutredningen (VGR, 2017).

The introduction to the Regional Plan for Transport Infrastructure says that the intention is to develop the entire region, both urban and rural. The planning is based on transport policy goals, the government's planning directive, the Western Sweden Package (Swedish, Västsvenska paketet).[2], and existing economic conditions. The new targets specifically mention the coordination between infrastructure investment and housing construction.

Regional planning should be coordinated with national infrastructure planning and many interests are shared between the regional and national levels (VGR, 2018, p. 6). According to the plan, the Western Sweden Package and The National Negotiation on Housing and Infrastructure (Swedish, Storstadsförhandlingen)[3] will provide more attractive public transport, more reliable transport for the business community, a better environment, and increased commuting opportunities for everyone who wants to live, work, and study in various places in Western Sweden. The state covers half the costs of the Package through the national infrastructure plan, while other costs are covered through regional and local co-financing.

### 4.2.5 Long-Term Train Infrastructure Plan

To refine the target formulations and ambitions for public transport and rail infrastructure, VGR developed the Long-Term Train Infrastructure Plan 2025 (Swedish, Målbild tåg 2035). Improvement of good communications, shortened distances, regional enlargement, and densification are seen as driving factors for positive regional development. According to the document, the goal is for train travel in Western Sweden to increase to 130,000 trips per day in 2035 (VGR, 2013a, p. 6). This will primarily be done by building a backbone train network between the region's 'core cities' and larger cities and to surrounding regional capitals. As suggested by the plan, train traffic can become a backbone of the future regional public transport network (VGR, 2013a, p. 7). According to the report, the infrastructure investments required to implement the target will cost approximately SEK 45 billion, in addition to the investments in the current infrastructure plans and in the Western Sweden Package.

The Long-Term Train Infrastructure Plan describes four different measures that can increase the capacity of the railway as demand increases: 1) double-decker trains that, in the long term, can provide more seating in regional trains; 2) longer trains with several wagons coupled together, providing more seats but in some places requiring investments in platforms that are currently too short; 3) more frequent traffic that can serve more travellers but would require either the speeds of different train types to be more uniform or the number of tracks to be expanded (more uniform speeds could provide significantly higher-frequency service in the existing system); and 4) faster traffic, with higher speeds allowing more people to be transported in less time.

### 4.2.6 Västtågsutredningen

In 2017, VGR produced an investigation to clarify whether and where there is potential for new stations along existing railways in the Västra Götaland region. The analysis of new stations is based on projections of trips from new stations, calculations of reduced transit (i.e. more stops lead to

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[2] This is a collective investment in infrastructure intended to strengthen Gothenburg as a regional development hub in Western Sweden (www.vastsvenskapaketet.se).

[3] This is a value-generating negotiation in which cost-effectiveness and increased benefits are key. One aspect is to increase public transport, improve accessibility and increase housing construction in Stockholm, Gothenburg and Malmö. (sverigeforhandlingen.se).

longer travelling time), and reduced bus traffic. Overall, the report states that it is important for the region's development that major cities and towns be linked and that local labour market regions be expanded, both within Västra Götaland and extending to neighbouring regions. The investigation examines and analyses the potential for new station locations but does not identify specific new stations. A total of 40 potential locations are considered in the study. According to the investigation, new stations could benefit local residents by reducing travel times, but could also have a negative effect on accessibility as travel times between other locations increase. A new station location therefore needs to supplement net travel in terms of the number of trips and passenger kilometres (VGR, 2017, p. 1).

# 5 Methods

## 5.1 Point of departure

This work on station communities has been conducted as part of the research programme Co-Creative Urban Planning for Energy-Efficient and Sustainable Urban Station Communities, funded by the Swedish Energy Agency. It involved Region Västra Götaland (VGR) and several municipalities within the region, which were also involved in the formulation of specific research questions (Energimyndigheten, n.d.; Mistra Urban Futures, n.d.). It has been important from the beginning to be aware of what Stratford and Bradshaw (2005) stated, i.e., that none of us formulates questions or conducts research in a vacuum, but we are part of disciplinary communities having particular areas of interest, theories, methods, and techniques. The position of this work within the larger programme involving researchers and actors from different fields makes it part of an interdisciplinary research effort (Stratford and Bradshaw, 2005). This work has benefitted from being connected to a larger field, with more than one discipline to relate to, from which I can choose to include relevant methods, values, and conceptual frameworks.

## 5.2 Case studies

### 5.2.1 Choice of method

In this study, three settlements with train stations are used as cases of train-station-based spatial development in sparse settlement structures. These are places where land-use planning and transport planning interact and need to work together, as well as places where actors from different planning levels and areas have an interest. What, therefore, is a case? Stratford and Bradshaw (2005) stated that 'cases are examples of more general processes or structures that can be theorized' (p. 121), so it should be possible to say what exactly a case exemplifies. Cases are useful since scientific disciplines need examples (Stratford and Bradshaw, 2005). Since little research has examined communities with a train station in sparse settlement structures in Sweden (Hrelja et al., 2020, p. 37), the aim of this PhD project was concretised by looking at a number of cases that could advance our understanding of what sustainable station communities can be under these conditions.

Considering the aim and research questions and the character of the research problem, closely examining a few station communities in the region appeared to be the most appropriate approach. Limiting the study to a few cases provided the opportunity to scrutinise the idea of station communities in more detail, specifically their role in supporting sustainable regional development in sparsely populated areas. This is especially justifiable since existing small station communities allow us to study how municipal and regional actors, who are responsible for different stages and areas of planning, think about these communities both as places in the local and municipal contexts and as nodes in the municipal and regional contexts.

The choice of the Västra Götaland region was motivated by its explicit identification of station communities as an important strategy for societal development at the regional level (VGR, 2013a). Railway traffic is considered important as a means to achieve the desired regional enlargement, and station communities are viewed as a key element of such a strategy (Dahlstrand et al., 2013, p. 8; Slätmo, 2015).

### 5.2.2 Case selection

The cases examined here were chosen after a workshop held within the larger project, with participants from municipalities located along the two railway lines Bohusbanan and Älvsborgsbanan/Viskadalsbanan. For the selected cases, it was deemed important to take account of the dynamic between the local, municipal, sub-regional, and regional planning levels. Hence, it was

considered favourable not to choose municipal administrative centres with train stations, but rather a smaller town with a train station in each municipality. More specifically, the following criteria were used in case selection:

a) size, 200–5000 inhabitants
b) located in the hinterland; not a municipal administrative centre
c) current identity as a station community
d) located beyond Gothenburg's labour market region (i.e., beyond a certain distance from Gothenburg)
e) in a municipality that participated in the workshop

In addition, the cases were selected in relation to other cases studied within the other work packages of the larger overarching project. As there were already cases with 500, 5000 and 13,000 inhabitants respectively in three of the municipalities in the region, the cases chosen for this work package should preferably have different numbers of inhabitants and be situated in other municipalities. This was because the workload would have been too great for the involved actors and informants if there were to be two cases in their municipalities. The chosen cases are listed in Table 1, consisting of three settlements, each with a train station, located in three different municipalities (Figure 5).

Table 1. The cases chosen for the project.

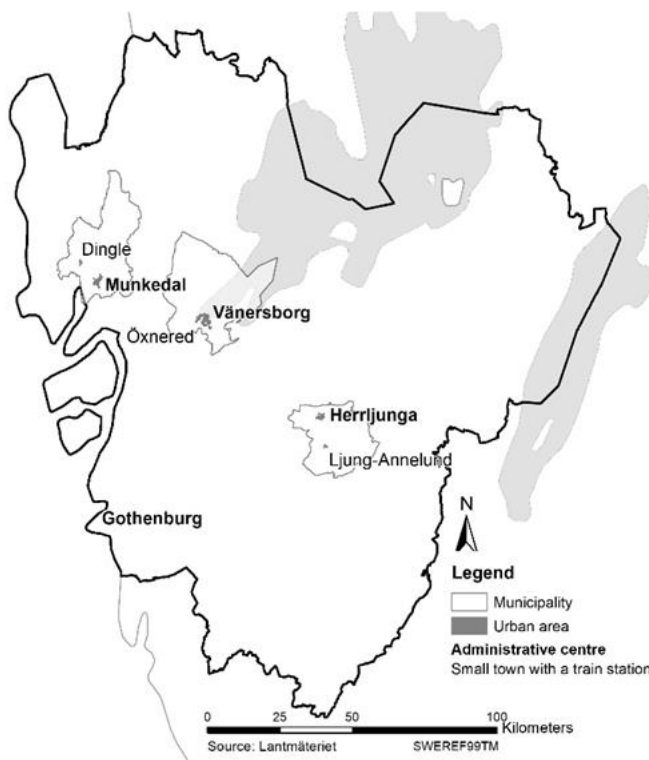| Case | Settlement with train station | Number of inhabitants | Municipality |
|---|---|---|---|
| 1 | Dingle | 900 | Munkedal |
| 2 | Öxnered | 400 | Vänersborg |
| 3 | Ljung-Annelund | 1200 | Herrljunga |



Figure 3. The cases of small towns with train stations in the Västra Götaland region, Sweden.

The case towers were located in municipalities that had shown interest in the research by participating in the workshop, meaning that the cases were selected on both theoretical and pragmatic bases (Stratford and Bradshaw, 2005). The workshop participants who had represented the selected case towns were important facilitators throughout the information collection process, helping me get in touch with other participants at the municipal level, thereby acting as gatekeepers (Kearns, 2005, pp. 323–324).

## 5.3 Case descriptions

### 5.3.1 Dingle

Dingle is a town with about 900 inhabitants (SCB, 2019c). The town is quite young and was built and developed at a junction between the road and railway. Today, the town is described as agricultural, but as having committed inhabitants and entrepreneurship (interviews 4–6). Dingle has been characterised by agricultural industries, although a number of newly established space-demanding and transport-dependent businesses have put a new mark on the town and its surroundings (Munkedal municipality, 2017). Central Dingle lies at the southern end of a valley stretching northwards, with buildings climbing towards the hillside to the east and spreading out on the plain to the south-west where industrial sites are located. Many of the buildings in central Dingle developed in connection with the train station located on the eastern hillside, although the significance of the station has decreased since it was built. The Knowledge House (Swedish, Kunskapens hus) is a centre that offers a variety of adult education and training programmes. This new development is located at a former school of land management and agriculture, which once was the best-known thing about Dingle in a regional context. European Route E6 used to pass through Dingle, but has been relocated west of the town. Since the relocation, the streets of Dingle have been upgraded and pedestrian and bicycle paths have been created (Munkedal municipality, 2017).

The most important concern for the development of the municipality's countryside is population growth to strengthen the basis for local services in all the area's towns (Munkedal municipality, 2017). It is important for the municipality to maintain its main town, Munkedal, as a service centre, since this is a prerequisite for the development of the municipality and the countryside (Munkedal municipality, 2017, p. 28). Nevertheless, Dingle itself provides services for a hinterland, possessing services such as a grocery store with an ATM, postal service, a preschool, an elementary school (serving students aged 6–12 years), an elderly care home, service flats, a petrol station, garages, and healthcare services. There is also employment, for example, at a hairdresser, one large company and several smaller ones (there are many entrepreneurs in Dingle), a library, several restaurants (especially pizzerias), running track, a gym, a sports field, a community centre, and a youth recreation centre run by volunteers (interviews 4–6; Munkedal municipality, 2018). For other services and functions, the inhabitants in Dingle need to go to other towns in the municipality, such as Munkedal, or to larger towns or cities in another municipality.

### 5.3.2 Ljung-Annelund

The physical structure of Ljung-Annelund is oblong with the centre of Ljung in the west and the centre of Annelund in the east. Between them lies a recreation area and a sports field. The town has 1200 inhabitants and is characterised by single-family and terraced housing; both parts of the town have uniformly low buildings and the housing is one and two storeys. Ljung, the older part of Ljung-Annelund, developed around the train station and an old courthouse. Annelund, which developed around an industrial establishment, is much younger (Herrljunga municipality, 2017b).

Ljung-Annelund is the second largest town in the municipality in terms of population and available services. Earlier, Ljung was an administrative centre of a smaller area, but after 1974 it was incorporated into Herrljunga municipality (Herrljunga municipality, 2017a). Over half of the municipality's population live in Herrljunga's administrative centre and in Ljung-Annelund (Herrljunga municipality, 2017b; SCB, 2019b, 2019c). The remainder live in smaller villages or in the countryside with few or no services (Herrljunga municipality, 2017b). The largest sectors in Ljung-Annelund are industry and farming (Herrljunga municipality, 2017b) and many of the inhabitants are connected to the largest industry in Annelund (interviews 1 and 2). Ljung-Annelund provides services such as grocery stores, a petrol station, a preschool, an elementary school (serving students aged 6–12 years), an elderly care home, a fire station, leisure services, a restaurant, and a café. The Church of Sweden parish of Herrljunga has its administrative centre here. Overall, there is a strong local spirit supporting this part of the municipality, and active associations run several functions in the town, such as sports. Employment is found in the local industries. For other services and functions, the inhabitants of Ljung-Annelund must go to other towns, such as Herrljunga, or larger towns or cities in another municipality. Examples of services and functions found elsewhere are education above the age of 12 years, healthcare, non-industry–related workplaces, various entertainment amenities, restaurants, and retail shops. People living in Ljung-Annelund most frequently access services and shopping in the town of Herrljunga and in Fristad and Borås in Borås municipality, south of Herrljunga municipality.

### 5.3.3 Öxnered

Öxnered differs from the other two cases in that the town is located closer to the municipal administrative centre. Öxnered, with a population of just 400, is treated as a district of the main town of Vänersborg (interviews 7 and 8). Öxnered used to be a town in its own right, but has grown to merge with Vänersborg. Vänersborg municipality is the largest municipality in this study and its largest centre is Vänersborg (SCB, 2019c; Vänersborg municipality, n.d.). The town of Vänersborg is also important to VGR, because it is where the board meets (VGR, 2019b).

Öxnered is situated at a junction of the north–south and east–west railway lines, and the establishment of the train station was the reason for the development of Öxnered. This small town is today characterised by its train station, nearness to nature, and proximity to the main town of Vänersborg. Öxnered is a commuter town and its daytime population is small. The buildings in Öxnered mostly consist of single-family housing, with some duplexes and apartment buildings (interviews 7–9; field study).

Öxnered has a preschool, an elementary school (serving students aged 6–12 years), home care for the elderly, some employment in the municipal sector and small private companies, a small shop (no groceries), a pizzeria, a garage, a carpentry shop, several craftsmen and entrepreneurs, and sheltered housing (interviews 7–9; field study). Large gardens are appreciated by the inhabitants (interview 7). The old station building provides a link to the community's history, when the station was a local centre. Since not all required services and functions are found in Öxnered, the inhabitants rely on services in other centres, for example, Vänersborg, Uddevalla, Trollhättan, and Gothenburg. All children older than 12 years go to school in Vänersborg, and the older the children get, the more of their leisure activities are found in Vänersborg. Shopping, healthcare, and higher education are examples of services found elsewhere.

## 5.4 Data collection

### 5.4.1 Interviewing as a method

Most of the data were collected through interviews, since that was considered the most appropriate method for accessing information about people's opinions, experiences, and perspectives (Dunn, 2005). To answer the research questions, information was needed about opinions and perspectives on station communities at various administrative levels, and it would not have been possible to get this information solely through, for example, observations or the discourse analysis of documents (Dunn, 2005). The interviews were semi-structured (Longhurst, 2003, p. 145), allowing open-ended responses in varying orders as long as all the themes and questions were covered.

### 5.4.2 Participant selection

To conduct interviews, there was a need to identify, find, and contact relevant participants from whom we could learn what a sustainable station community could be, depending on the context at each scale and administrative level. Purposive sampling was used, including both criterion sampling and snowball sampling (Stratford and Bradshaw, 2005, pp. 123–125; Valentine, 2005, pp. 117–118), varying between scales and titles/roles, because the sampling depended on prior knowledge and contacts. All participants at the municipal and regional levels are listed in Tables 2 and 3.

The interviews were conducted in two rounds, with the municipal actors being interviewed in nine interviews during the first round in spring 2018 (Table 2) and the regional actors being interviewed during the second round in spring 2019 (Table 3). The municipal planners and officials were interviewed in groups of four or five informants so that they could articulate the perspective at the municipal planning level. It can be questioned whether these were focus groups or group interviews (Longhurst, 2003, pp. 145–146); however, they were organised as group interviews in which the primary focus was to answer questions, not for the informants to discuss questions or themes among themselves. Two of the interviews with regional actors were conducted as group interviews with two or three informants (Table 3).

Table 2. Interviews with municipal actors.

| Interview | No. of informants | Municipality | Title(s)/role(s) |
|---|---|---|---|
| 1 | 5 | Herrljunga | Municipal planners and officials<br>- municipal architect<br>- public transport coordinator<br>- street and land issue secretaries<br>- head of technical management<br>- comprehensive planning secretary |
| 2 | 1 | Herrljunga | Politician: Largest political opposition party |
| 3 | 1 | Herrljunga | Politician: Ruling party |
| 4 | 5 | Munkedal | Municipal planners and officials:<br>- public transport secretary<br>- street and land issue secretary<br>- planning manager<br>- business development secretary<br>- cultural and leisure manager |
| 5 | 1 | Munkedal | Politician: Largest political opposition party |
| 6 | 1 | Munkedal | Politician: Ruling party |
| 7 | 4 | Vänersborg | Municipal planners and officials:<br>- strategic planning secretary<br>- planning and building permit secretary<br>- street manager<br>- town architect |
| 8 | 1 | Vänersborg | Politician: Ruling party |
| 9 | 1 | Vänersborg | Politician: Largest political opposition party |

Table 3. Interviews with regional and state actors.

| Interview | No. of informants | Organisation | Title(s)/role(s) |
|---|---|---|---|
| A | 2 | Region Västra Götaland, Department of Public Transport and Infrastructure | Regional developers focusing on railway traffic, societal development, and public transport |
| B | 1 | County Administrative Board of Västra Götaland, Department of Samhällsbyggnad | Regional growth, regional and national transport infrastructure |
| C | 1 | Swedish Transport Administration | Senior investigative leader |
| D | 1 | Västtrafik | Societal developer |
| E | 3 | Region Västra Götaland, Department of Public Transport and Infrastructure Planning, and Department of Business and Industry | Regional developers focusing on regional development and the regional service programme, business support and rural development, station communities |

### 5.4.3 Contact with participants

The informants were contacted for the interviews in different ways. Starting with the officials from the municipalities, the gatekeepers for each of the three cases were contacted and asked to inform the relevant officials and planners, inviting them for a meeting at which the group interview could be carried out. When the officials and planners had been invited, and a date for the meeting was set, an e-mail was sent to them containing complementary information about the project and what themes would be covered during the meeting. In this way, they had the opportunity to think through the themes beforehand. It was helpful when I met them for the first time that they had heard about the project, not only directly from me, but also from their colleague who had participated in the first workshop. This meant that it was somewhat easier to summarise the project at the meeting and that they could give me their informed consent (Dowling, 2005) to participate in the study.

The municipal politicians were first informed about the project by the gatekeepers, who explained what it was about and that they would be contacted by a PhD student from the University of Gothenburg. They were prepared when they received the first call or e-mail (depending on the contact information received from the municipal contacts), and it was easy to explain the project and why I wanted to meet with them for an interview.

Regarding the regional-level participants, there were existing contacts in VGR, which had funded parts of my position and participated in the larger project. My contacts at VGR knew more about the other organisations at the regional level and had useful contacts. Therefore, the strategy for contacting participants at the regional and state levels was to go through the connections in VGR and contact one within each predefined organisation and title/role as listed in Table 3, which resulted in five interviews listed in Table 3. The informants were sent an e-mail in which information was given about why they were being contacted, the project, and what themes the interviews were intended to cover.

### 5.4.4 Choice of location

When choosing the interview locations, pragmatic considerations and considerations regarding the power relations between the participants and researcher were taken into account (Elwood and

Martin, 2000, p. 649). Locations near the participants were chosen because the participants were already doing me, the researcher, a favour by contributing their time. Another consideration was that it is much easier to have productive discussions and interviews when meeting in person rather than talking over the phone, as face-to-face verbal interaction allows the informant to say whether a question is misplaced, minimising misunderstandings (Dunn, 2005). The chosen locales were places where the participants would feel comfortable and could reflect on the themes in relation to their roles as municipal planners, officials, and politicians.

When planning interviews with politicians, their offices or workplaces seemed likely to be good locations; as I was interested in the answers they would give as party representatives, these would be their natural spaces for that role. Municipal officials and planners were asked to meet me at their workplaces since they were interviewed as a group and thus had places where they usually met. Regional actors were also asked to meet for an interview at their workplace. This corresponds to the idea that 'interview participants may offer different kinds of information, depending on where they are interviewed' (Elwood and Martin, 2000, p. 255).

## 5.4.5 Document studies

In addition to the semi-structured interviews, document studies were also conducted. The documents studied were municipal, regional, and national documents considering land-use and transport development at the municipal and regional levels. These were used at the beginning of the study to formulate relevant questions for the interviews and later on in triangulating the results obtained from interview transcriptions. The following documents were examined:

- National documents
    - Vision för Sverige 2025
    - Samordna planeringen
    - Regional fysisk planering i utveckling
- Regional documents
    - Västra Götaland 2020
    - Västtågsuttredningen
    - Målbild tåg 2035
- Municipal documents for each case
    - Comprehensive plans
    - Detailed plans (where they existed for the case towns)

# 6 Paper summaries

## 6.1 Paper I: Is transit-oriented development an applicable strategy in sparse settlement structures? The case of western Sweden

'Station communities', i.e., settlements with train stations, are today of great interest in Sweden due to the opportunities they are perceived to offer to combine economic growth through regional enlargement with decreased climate impact. By facilitating public transportation in extended labour market regions, station communities are seen as elements of sustainable regional enlargement. This thinking is in many ways inspired by TOD. One conceivable problem, however, is that TOD theory focuses on large cities and densely populated areas, while much of Sweden is sparsely populated.

The Västra Götaland region displays significant variation in population density. Aiming for a vibrant region, regional planning authorities are focusing on development in areas with access to public transportation. This paper reports on a study elucidating to what extent TOD ideas are applicable to conditions in sparse settlement structures, by examining how the context and structure as well as the municipal planning of the small towns of Dingle, Ljung-Annelund, and Öxnered relate to TOD. The study was conducted through a multiple-case study and semi-structured interviews with municipal planners, officials, and politicians.

The results indicate that train stations, together with planning approaches inspired by TOD theory, are important in municipal planning when identifying future developments, even if the prerequisites for TOD, i.e., high density and mixed use, are absent and the demand for new housing and businesses is weak. Two conclusions are: 1) in striving for sustainable regional enlargement, regional planning must take local prerequisites into account and 2) the two planning levels should be better harmonised. When advocating development in areas with access to public transport, additional strategies are needed since current TOD theory does not work in the context of sparse settlement structures.

## 6.2 Paper II: Planning perspectives on station communities in the regional context. A case study of small towns in the Västra Götaland region, Sweden

The concept of 'station communities' has been introduced to the planning discourse in Sweden in the last decade. Framed as a model for the development of sustainable public transport and land-use planning (Boverket, 2014), the station community concept has been invoked to support increased density and mixed land use around train stations, theoretically inspired by the transit-oriented development literature (Bertolini et al., 2009). As Swedish regions are interested in developing railway traffic and municipalities are interested in developing towns connected to public transport, especially railways, small towns with a train station have become a nexus for local, municipal, and regional interests.

This raises issues concerning how planning perspectives can find common ground and how institutional factors might be improved in order to support collaboration and better meet the contemporary challenges facing smaller towns. Hence, the aim of this paper is to examine the concept of station communities in a Swedish context of small towns and sparsely populated areas. The focus is on the process of practical implementation by planners and policy makers at different levels.

The results indicate that station communities are understood differently by actors at different levels, although station communities are regarded as valuable at both the regional and local levels. Collaboration between actors at different levels is seen as problematic in relation to the

development of station communities, as there are no clear regional priorities or agreements. In addition, there is a lack of trust between actors and small municipalities have difficulties voicing their issues and concerns. This has implications for the opportunities for regional actors and municipalities to work with train stations and connecting structures as a strategy for sustainable regional enlargement and regional development in sparsely populated areas.

# 7 Concluding discussion

## 7.1 Station communities as a means for sustainable regional development

The aim of this thesis has been to scrutinise the role of station communities as a means for sustainable regional development in sparsely populated areas. How the three relevant tensions – between scales, between transport planning and land-use planning, and between railway stations regarded as nodes and places – manifest themselves in the local contexts of station communities and how these tensions are addressed in regional planning have been examined in the two papers.

Based on cases in sparsely populated areas, the results indicate that certain matters should be taken into consideration when it comes to local and regional sustainable development in connection with railway infrastructure. For a start, municipal planning is often influenced by TOD ideas such as circular areas around train stations slated for development and densification. The use of such circles represents a rather simplistic understanding of TOD in terms of radial distance. However, reflection on what these circles mean or why they are of interest is lacking. This is problematic, since the application of TOD, especially in smaller towns without the appropriate prerequisites, should be thought through, as the strategy was developed for urban and metropolitan contexts (Qviström, 2015; Hrelja et al., 2020). Hence, there is a need for additional strategies when planning the development of settlements with a train station in sparsely populated areas. This conclusion is in line with the argument of Thomas et al. (2018) that it is necessary for local planners and experts to develop their own context-specific TOD solutions.

Another complication in the Swedish case of station communities is that the concept has different meanings. There is the historical meaning of station communities as situated in the central areas of settlements that evolved around railway stations (Aronsson and Johansson, 1999; Länsstyrelsen i Skåne län et al., 2010), and there is the concept of station communities associated with urban environments having dense and mixed housing near public transportation stations (Qviström, 2015). Therefore, there are towns that have historically been station communities, but are not necessarily considered station communities according to the current understanding of the concept today. The conclusion of Paper I, that it is important to distinguish between a 'station community' and a town with a train station, points towards the importance of clarifying what one means by station community. In addition, station communities were not defined in the same way by all actors participating in the study. This, together with the three interlocking tensions discussed below, has implications for the opportunities for regional and municipal actors to work with train stations and connecting structures as a strategy for sustainable regional development in sparsely populated areas.

### 7.1.1 Scales

The issue of scales has been discussed in both papers, and in relation to the cases there is tension between the regional, municipal, and local scales that is closely interlinked with the other two tensions. However, since regional agreements are weak in the region, this results in a lack of trust, in difficulties developing the small towns with train stations, and in difficulties for the regionally planned structures to be realized. This is problematic for both regional and municipal actors: the municipal actors find it problematic that they are uncertain of what can be relied on when they make their comprehensive plans, whereas the regional actors find it problematic that there is no agreement among the municipalities on the regional prioritisation of train stations and railway infrastructure. Hence, local and regional development is dependent on the municipalities, which are in charge of the comprehensive plans, although the responsibility for rail infrastructure planning lies at the regional level.

The issue of scales is also relevant when looking at the implementation of TOD ideas. Since TOD theory was developed in urban and metropolitan contexts with high population densities, the theory incorporates urban values such as high density, mixed-use development, and public transport nodes (Cervero, 2004, p. 5; Qviström, 2015; Staricco and Vitale Brovarone, 2018; Thomas et al., 2018). From the present study it is clear that TOD thinking has influenced municipal and regional planning. However, what it might mean to sparser settlements that 'urban' values are desirable is rarely reflected on. Usually, municipal actors state that built-up density needs to be adjusted to local prerequisites, but densification as such is not questioned. Hence, standard solutions based on TOD-influenced thinking can be criticised as supporting an urban bias in planning (Kauppila, 2011; Rönnblom, 2014; Bergman and Dyrssen, 2016). This is clearly linked to scales, since a local understanding is needed to adapt TOD ideas to the prerequisites of settlements in sparsely settled areas.

### 7.1.2 Transport planning and land-use planning

The study makes it clear that settlements with a train station constitute places situated between regional infrastructure and transport planning, on one hand, and municipalities interested in developing their towns in connection with railways through land-use planning, on the other. As both infrastructure planning and land-use planning are needed in the planning of station communities, both types of planning at the two levels need to be integrated (Curtis and James, 2004). This was reflected on by the participating actors, who noted the lack of both regional agreements and a regional comprehensive plan, as integrating land-use and transportation planning in settlements is not a straightforward process. This, combined with a municipal monopoly on land-use planning, makes it difficult to find incentives for cooperation.

### 7.1.3 Railway stations as nodes and places

There are different understandings of settlements with train stations depending on what scale or administrative level is in focus. Regional actors primarily see them as nodes in a larger network and thus seem to focus on the node properties of the station communities. Municipal and local actors, on the other hand, see station communities as places of work and living, focusing on the place properties of the railway stations and on how they are integrated in the surrounding area. This becomes interesting, as actors may have different understandings of the TOD concept since it can imply both a place with certain characteristics as well as node properties within a larger network (Bertolini, 1996; Bertolini and Spit, 1998). It is therefore germane to be clear as to how a given development is inspired by TOD thinking and how the development is being advanced. As argued in Paper I, an alternative to place-based TOD is needed as smaller settlements often lack several essential TOD characteristics. However, it is important to have a clear regional message as to what settlements with train stations can expect, and municipalities need to communicate what local prerequisites for TOD are in place. The importance of regional planning for TOD was also mentioned by Starrico and Vitale Brovarone (2018), who implied that regional planning steers local decision-making to support objectives set at a higher level.

### 7.2 Future research

Drawing on this *kappa* and the two appended papers, it is clear that more research is needed into station communities in sparse settlement structures as well as into planning issues relevant to multiple scales and actors. In this study, three settlements in a region have been examined. It would be beneficial to study several other settlements with a train station in the same region, as many settlements are linked by the regional rail network. Additional studies could also be made of the regional perspective, as the regional structure is under revision.

# References

Amcoff, J. (2009) Rapid regional enlargement in Sweden: a phenomenon missing an explanation, *Geografiska Annaler: Series B, Human Geography*, 91:3, 275-287

Andersson, F., Ek, R., and Molina, I. (2007). Regional enlargement and rural multi-level governance in Sweden. In Copus, A.K. (ed.): Continuity or Transformation? Perspectives on Rural Development in the Nordic Countries. Report 2007:4, Nordregio, Stockholm, pp. 111-122.

Aronsson, P. (1999). Perspektiv på stationssamhällen i nordisk forskning. In P. Aronsson & L. Johansson (Eds.), Stationssamhällen : nordiska perspektiv på landsbygdens modernisering (pp. 13-66). Malmö: Malmö : Frank Stenvalls Förlag.

Aronsson, P., & Johansson, L. (1999). Stationssamhällen : nordiska perspektiv på landsbygdens modernisering (P. Aronsson & L. Johansson Eds.). Malmö: Malmö : Frank Stenvalls Förlag.

Bergman, B., & Dyrssen, C. (2016). The Urbanised Rural. Paper presented at the Beyond ism: The Landscape of Landscape Urbanism, Alnarp.

Bertolini, L. (1996). Nodes and places: complexities of railway station redevelopment. *European Planning Studies*, *4*(3), 331-345.

Bertolini, L. (1999). Spatial development patterns and public transport: the application of an analytical model in the Netherlands. *Planning Practice and Research*, *14*(2), 199-210.

Bertolini, L., Curtis, C. & Renne, J.R (2009). Chapter 1: Introduction. In Curtis, C., Renne, J.R & Bertolini, L. (ed.) *Transit Oriented Development: Making it Happen.* Ashgate, London, p. 3-12

Bertolini, L. and Spit, T. (1998). *Cities on rails: The redevelopment of railway station areas*. London, New York: E&FN Spon.

Boverket. (2012). Vision för Sverige 2025. Karlskrona: Boverket

Boverket. (2019a). About Boverket. Retrieved 2020-03-05, from https://www.boverket.se/en/start/about/about-boverket/

Brenner, N. (2013). Theses on urbanization. Public culture, 25(1 (69)), 85-114. DOI: https://doi.org/10.1215/08992363-1890477

Calthorpe, P. (1993). The next American metropolis : Ecology, communities, and the American dream. New York: Princeton Architectural Press.

Cervero, R. (2004). Transit-oriented development in the United States: Experiences, challenges, and prospects (Vol. 102). Transportation Research Board.

Cervero, R., & Sullivan, C. (2011). Green TODs: marrying transit-oriented development and green urbanism. International Journal of Sustainable Development & World Ecology, 18(3), 210-218. doi:10.1080/13504509.2011.570801

Curtis, C., & James, B. (2004). An institutional model for land use and transport integration. Urban Policy and Research, 22(3), 277-297. doi:10.1080/0811114042000269308

Dahlstrand, A., Forsemalm, J., & Palmås, K. (2013). Det urbana stationssamhället. Forsknings- Och Praktiköversikt.

Delegationen för hållbara städer (2012). Femton hinder för hållbar stadsutveckling (SOU M 2011:01/2012/66). Stockholm: Delegationen förhållbara städer.

Dowling, R. (2005). Power, Subjectivity, and Ethics in Qualitative Research. Qualitative Research Methods in Human Geography. In. Hay. Oxford University Press: 19-29.

Dunn, K. (2005). Interviewing. Qualitative Research Methods in Human Geography. In. Hay. Oxford University Press: 79-105.

El-Geneidy, A.M., M. Grimsrud, R. Wasfi, P. Tétreault and J. Surprenant-Legault. (2014). New evidence on walking distances to transit stops: identifying redundancies and gaps using variable service areas. *Transportation* 41.1, 193–210.

Elwood, S. A. and D. G. Martin (2000). 'Placing' Interviews: Location and Scales of Power in Qualitative Research. The Professional Geographer 52(4): 649-657.

Energimyndigheten. (n.d). Projektinformation. Retrieved 2018-05-29, from http://www.energimyndigheten.se/forskning-och-innovation/projektdatabas/sokresultat/?projectid=24532

Gottfridsson, H. O. (2007). Färdmedelsvalets komplexa förutsättningar: En studie av arbetspendling i småbarnshushåll med Kils municipality som exempel. In.

Grundel, I. (2014). Jakten på den attraktiva regionen: En studie om samtida regionaliseringsprocesser. Karlstads universitet,

Hartoft-Nielsen, P. (2002). Stationsnærhedspolitikken i hovedstadsområdet:-baggrund og effekter. Skov & Landskab, Københavns Universitet.

Herrljunga municipality. (2017a). *Historia*. Retrieved 2019-05-21, from http://www.herrljunga.se/municipality-och-politik/municipalityinformation/historia.html

Herrljunga municipality. (2017b). Översiktsplan för Herrljunga municipality.

Hrelja, R., Olsson, L., Pettersson, F., & Rye, T. (2020). Transit Oriented Development (TOD): A Literature Review. (K2 RESEARCH, 2020:2). Retrieved from K2: https://www.k2centrum.se/transit-oriented-development-tod-literature-review

IPBES. (2019). Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. https://doi.org/10.5281/zenodo.3831673

Kauppila, P. (2011) 'Cores and peripheries in a northern periphery: a case study in Finland ', Fennia, vol. 189, no. 1, pp. 20-31.

Kearns, R. A. (2005). Placing Observation in the Research Toolkit. In. Hay. Oxford University Press: 313-333.

Larsson, A., Elldér, E., & Vilhelmson, B. (2015). Geografisk tillgänglighet; Definitioner, operationalisering och praktik. In: University of Gothenburg.

Leemans, A. & Ivkovic, M. (2013). *Low Carbon stations for Low carbon cities. Quick-scan desk research on trends, challenges and opportunities in adapting urban interchanges for low carbon future.* Yellow design Foundation, Bryssel. Mistra Urban Futures.

Longhurst, R. (2003). Semi-structured interviews and focus groups. In N. Clifford, M. Cope, T. Gillespie & S. French (Eds.) *Key methods in geography*, third edition, (p. 143-156). Los Angeles: Sage

Lundström, M. J., Engström, C-J. and Ranhagen, U. (2016). Energismart samhällsplanering. Stockholm: Föreningen för samhällsplanering.

Länsstyrelsen i Skåne Län, Skånetrafiken, Trafikverket, Region Skåne. (2010). Stationsnära läge. Länsstyrelsen i Skåne län, Malmö.

Meijers, E., Hoekstra, J., Leijten, M., Louw, E., & Spaans, M. (2012). Connecting the periphery: Distributive effects of new infrastructure. *Journal of Transport Geography*, *22*, 187-198.

Mistra Urban Futures. (n.d.). Samskapande Samhällsplanering. Retrieved 2018-05-29, from https://www.mistraurbanfutures.org/sv/samskapande-samhallsplanering-samsam

Munkedal municipality. (2017). Framtidsplan ÖP18 Munkedal – del 1 Strategier och förslag. Samrådshandling.

Munkedal municipality. (2018). *Lediga tomter i Dingle*. Retrieved 2019-05-21, from https://www.munkedal.se/bygga-bo-och-miljo/bostader-och-offentliga-lokaler/lediga-fastigheter-och-tomter/dingle

Qviström, M. (2015). Putting accessibility in place: A relational reading of accessibility in policies for transit-oriented development. Geoforum, 58, 166-173.

Qviström, M., Luka, N. & De Block, G. (2019). Beyond Circular Thinking: Geographies of Transit-Oriented Development. *International Journal of Urban and Regional Research*, 43(4), 786-793.

Ranhagen, U. & Gustafsson, A. (2020) Det urbana stationssamhället - vägen mot ett resurssnålt resande. Mistra Urban Futures Report 2020:3

Renne, J. (2009). From transit-adjacent to transit-oriented development. Local Environment, 14(1), 1-15.

Renne, J. L., Curtis, C., & Bertolini, L. (2009). Transit Oriented Development: Making It Happen [Elektronisk resurs]: Ashgate Publishing Group.

Rönnblom, M. (2014). Ett urbant tolkningsföreträde? En studie av hur landsbygd skapas i nationell policy. Umeå: Jordbruksverket.

Sandow, E., & Westin, K. (2007). Regionförstoring i glesa områden : kollektivtrafikens möjligheter och betydelse. Umeå: Umeå : Transportforskningsenheten, Umeå universitet.

SCB (2019a). Befolkningstäthet (Invånare per kvadratkilometer efter region och år). Retrieved 2020-02-13 from https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__BE__BE0101__BE0101C/BefArealTathetKon/table/tableViewLayout1/

SCB (2019b). Befolkningstäthet (Invånare per kvadratkilometer efter municipality och år). Retrieved 2020-02-13 from http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__BE__BE0101__BE0101C/BefArealTathetKon/table/tableViewLayout1/

SCB. (2019c). Tätorter 2015; befolkning 2010–2018, landareal, andel som överlappas av fritidshusområden. www.scb.se/MI0810. Publicerad 2019-03-28

Schylberg, K. (2008). Planindikatorer för effektiv markanvändning i stationsnära områden (Doctoral dissertation, Luleå tekniska universitet).

Selnes, T. (2016). *Stationers roll för mindre orter och dess omland* (Working Papers in Human Geography, 2016:1). Göteborgs universitet. http://hdl.handle.net/2077/42089

SIKA (2007): Samverkan kring regionförstoring [Co-operation for regional enlargement]. SIKA Rapport 2007:1, Statens institut för municipalityikationsanalys, Östersund.

Sims R., R. Schaeffer, F. Creutzig, X. Cruz-Núñez, M. D'Agosto, D. Dimitriu, M.J. Figueroa Meza, L. Fulton, S. Kobayashi, O. Lah, A. McKinnon, P. Newman, M. Ouyang, J.J. Schauer, D. Sperling, and G. Tiwari. (2014). Transport. I Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (red.). *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

SKR. (2019). Kollektivtrafik, persontransporter. Retrieved 2020-06-16, from https://skr.se/samhallsplaneringinfrastruktur/trafikinfrastruktur/kollektivtrafikpersontransporter.295.html

Slätmo, E. (2015). *Stationers roll för utveckling av mindre orter och dess omland - Kunskapssammanställning och forskningsbehov* (Working Papers in Human Geography, 2015/3). Göteborgs universitet. http://hdl.handle.net/2077/38473

Soja, E. W. (2011). Beyond postmetropolis. *Urban geography*, *32*(4), 451-469. DOI: 10.2747/0272-3638.32.4.451

Staricco, L. & Vitale Brovarone, E. (2018). Promoting TOD through regional planning. A comparative analysis of two European approaches. *Journal of Transport Geography, 66*, 45-52.VGR. (2011). DOI: 10.1016/j.jtrangeo.2017.11.011

Stenbacka, S. (2001). Landsbygdsboende i inflyttarnas perspektiv : intention och handling i lokalsamhället. Diss. Uppsala : Univ., 2001, Uppsala.

Stojanovski, T. & Kottenhoff, K. (2013). Bus Rapid Transit (BRT) och Transit-Oriented Development (TOD) - Stadsutveckling för effektiv kollektivtrafik: Erfarenheter från Sverige och andra länder - Vilka krav ställer BRT på bebyggelsen? - Hur kan svenska städer anpassas för BRT?

Stratford, E. & Bradshaw, M. (2005). Qualitative Research Design and Rigour. In. Hay. Oxford University Press: 117-129

Thomas, R., Pojani, D., Lenferink, S., Bertolini, L., Stead, D. & Van Der Krabben, E. (2018). Is transit-oriented development (TOD) an internationally transferable policy concept? Regional Studies, 52(9), 1201-1213. doi:10.1080/00343404.2018.1428740

Trivector. (2014). När tåget kom tillbaka - Effekter av återinvigning av järnvägsstationen i Floby (2014:07). Retrieved from Lund:

UN-Habitat. (2020). World Cities Report 2020. The Value of Sustainable Urbanization. ISBN 978-92-1-132872-1

UN-Habitat. (2021). Annual report 2020.

Valentine, G. (2005) Tell me about...: using interviews as a research methodology. Methods in Human Geography: A guide for students doing a research project. R. Flowerdew and D. Martin, Prentice Hall: 110-126.

VGR. (2013a). Målbild Tåg 2035 – utveckling av tågtrafiken i Västra Götaland. Retrieved 2020-07-03, from https://www.vgregion.se/malbildtag

VGR. (2013b). Västra Götaland 2020. Strategi för tillväxt och utveckling i Västra Götaland 2014-2020 (RUP). Vänersborg: Västra Götalandsregionen

VGR. (2016). Regionalt trafikförsörjningsprogram Västra Götaland. Programperiod 2017-2020 med långsiktig utblick till 2035. Vänersborg: Västra Götalandsregionen

VGR. (2017). Västtågsutredningen huvudrapport - en komplettering av Målbild Tåg 2035 med nya stationer. Retrieved 2020-07-03, from https://www.vgregion.se/malbildtag

VGR. (2018). Regional plan för transportinfrastrukturen i Västra Götaland 2018-2029.

VGR. (2019a). Public Transport. Retrieved 2020-03-05, from https://www.vgregion.se/en/public-transport/s

VGR. (2019b). Regionstyrelsen. Retrieved 2019-05-24, from https://www.vgregion.se/politik/politisk-organisation/rs/

VGR. (n.d.). Region Västra Götaland. Retrieved 2020-03-05, from https://www.vgregion.se/en/

Vänersborg municipality. (n.d.). Om Vänersborg. Retrieved 2019-05-24, from http://www.vanersborg.se/municipality--politik/press--och-informationsmaterial/informationsmaterial/om-vanersborg.html

# Appendix A: Interview guide, local level

Questions posed to municipal planners, officials, and politicians.

## Introductory questions

Please tell me about yourself – your background, education, and role:

1. What role do you have in the municipality?

2. What issues do you work on?

3. Where do you live?

## The meaning of the town and its role as a place

4. How would you describe Dingle/Öxnered/Ljung-Annelund?

5. Is there anything else that characterises Dingle/Öxnered/Ljung-Annelund?

6. What type of town or community is Dingle/Öxnered/Ljung-Annelund?

7. What is the role of Dingle/Öxnered/Ljung-Annelund in the municipality of Munkedal/Vänersborg/Herrljunga?

8. What *functions* are found in Dingle/Öxnered/Ljung-Annelund (e.g., services, transportation possibilities, job openings, municipal services, and leisure activities)?

9. What *values* are there in Dingle/Öxnered/Ljung-Annelund (e.g., nature, views, and fellowship)?

## The meaning of the town and its role as a node

10. What does it mean for Dingle/Öxnered/Ljung-Annelund that there is a train station in the town?

11. What is the meaning of the Bohusbanan/Älvsborgsbanan–Viskadalsbanan railway for Dingle/Öxnered/Ljung-Annelund?

12. What is the role of the Bohusbanan/Älvsborgsbanan–Viskadalsbanan railway in the municipality of Munkedal/Vänersborg/Herrljunga?

13. What is the relationship between Dingle/Öxnered/Ljung-Annelund and Munkedal/Vänersborg/Herrljunga?

14. Does Dingle/Öxnered/Ljung-Annelund have a stronger connection to another town or city than to Munkedal/Vänersborg/Herrljunga?

15. What is the role of Dingle/Öxnered/Ljung-Annelund in the region?

16. What is the role of Munkedal/Vänersborg/Herrljunga Municipality in the region?

17. What functions that are important to the inhabitants' everyday life (i.e., work and leisure activities) are not found in Dingle/Öxnered/Ljung-Annelund but are found elsewhere?

    a. What are these places?

## The 'station community': both a place and a node

18. Is Dingle/Öxnered/Ljung-Annelund regarded as a 'station community'?

a.  If yes, what does it mean for the town and the municipality?

b.  If no, why not?

19. How do planners see 'station communities'?

20. How is the station area used?

c.  What is the size of the station area (m in diameter)?

d.  What is the size of the station's catchment area?

21. How is the accessibility of the region perceived as well as the access to the 'station community'?

22. What modes of transportation are efficient and/or attractive in the town?

23. Are existing plans/perspectives for 'station communities' at other levels (i.e., state and region) widely known?

24. What would support/favour Dingle/Öxnered/Ljung-Annelund as a 'station community'?

## Energy efficiency

25. How is energy efficiency thought about when it comes to municipal planning? Is it thought of at a strategic planning level? (I am not asking about changing light bulbs and building materials.)

26. What can be done to make Dingle/Öxnered/Ljung-Annelund more energy efficient and sustainable based on the prerequisites there?

27. What problems are there today and what problems are most important to solve regarding energy efficiency and sustainability?

28. What potential is found in Dingle/Öxnered/Ljung-Annelund that is important to seize regarding energy efficiency and sustainability?

29. What are travel patterns like in Dingle/Öxnered/Ljung-Annelund?

a.  Work related?

b.  Related to leisure activities?

## The future

30. Are there any plans for the future development of Dingle/Öxnered/Ljung-Annelund?

a.  What are they? (sustainable development/energy efficiency)

31. How is Dingle/Öxnered/Ljung-Annelund developing relative to Munkedal/Vänersborg/Herrljunga?

32. What functions does one want to make the most of in the planning of Dingle/Öxnered/Ljung-Annelund?

33. What values does one want to make the most of in the planning of Dingle/Öxnered/Ljung-Annelund?

34. What functions/values or qualities are there in the town today that are necessary in order for the town to stay alive, that is, for people to want to and be able to live there?

35. Is there anything that can facilitate the sustainable development of 'station communities'?

36. Is there anything that obstructs sustainable development of 'station communities'?

37. What is the municipality's focus in the development of Dingle/Öxnered/Ljung-Annelund?

38. What will happen to Dingle/Öxnered/Ljung-Annelund in the future?

# Appendix B: Interview guide, regional level

Questions posed to regional actors.

## Introductory questions

Please tell me about yourself – your background, education, and role:

1. What role do you have?

2. What issues do you work on?

## The meaning of the towns and their role as places

3. How would you describe Dingle, Öxnered, and Ljung-Annelund?

4. Is there anything else that characterises Dingle, Öxnered, and Ljung-Annelund?

5. What types of towns or communities are Dingle, Öxnered, and Ljung-Annelund?

6. What are the roles of Dingle, Öxnered, and Ljung-Annelund in the municipalities of Munkedal, Vänersborg, and Herrljunga respectively?

7. What *functions* are found in Dingle, Öxnered, and Ljung-Annelund (e.g., services, means of transportation, job openings, municipal services, and leisure activities)?

8. What *values* are found in Dingle, Öxnered, and Ljung-Annelund (e.g., nature, views, and fellowship)?

## The meaning of the towns and their roles as nodes

9. What does it mean for Dingle, Öxnered, and Ljung-Annelund that there is a train station in the town?

10. What is the meaning of the Bohusbanan/Älvsborgsbanan–Viskadalsbanan rail lines for Dingle, Öxnered, and Ljung-Annelund?

11. What is the role of the Bohusbanan/Älvsborgsbanan–Viskadalsbanan rail lines in the region?
    - What is the role of the railway in general in the region?

12. How do you perceive the Bohusbanan/Älvsborgsbanan–Viskadalsbanan rail lines with their station locations: what similarities and differences do you see?

    a. What makes the differences?

13. What is the relationship between Dingle and Munkedal, Öxnered and Vänersborg, and Ljung-Annelund and Herrljunga?

14. Do the municipalities of Munkedal, Vänersborg, and Herrljunga have a stronger connection to another part of the region than to Gothenburg?
    - What functional regions are the towns of Dingle, Öxnered, and Ljung-Annelund part of?

15. What are the roles of Dingle, Öxnered, and Ljung-Annelund in the region?

16. What are the roles of Munkedal, Vänersborg and Herrljunga municipalities in the region?

17. What functions that are important to the inhabitants' everyday life (i.e., work and leisure activities) are not found in Dingle, Öxnered, and Ljung-Annelund but are found elsewhere?

    a. What are these places and functions?

## The 'station community': both place and node

18. Are Dingle, Öxnered, and Ljung-Annelund regarded as 'station communities'?

    a. If yes, what does this mean at the regional level?

    b. If yes, what does this mean for the town and the municipality?

    c. If no, why not?

19. How do you see 'station communities'?

20. Are you familiar with the concept of transit-oriented development (TOD)?

    - If yes, do you use the concept?

    - How?

21. How do you see travelling to and from the towns of Dingle, Öxnered, and Ljung-Annelund?

22. What modes of transportation are efficient and/or attractive in smaller towns with a train station?

23. Is there any connection between the strategies and documents developed at the regional level and the municipal comprehensive plans?

    - If yes, what is that connection/are the connections?

24. What would support/favour Dingle, Öxnered, and Ljung-Annelund as 'station communities'?

25. What would disfavour Dingle, Öxnered, and Ljung-Annelund as 'station communities'?

26. What is needed for the municipalities of Munkedal, Vänersborg, and Herrljunga to develop?

27. What is development?

28. How do you think about the towns being different?

    a. Is there anything in these differences that matters for where to go by bus or train?

29. How do the individual station communities interact along the respective rail lines?

    a. How do they interact with other small station communities along the lines? (Do the settlements have complementary functions, for example?)

    b. Would development of the towns in any particular way strengthen the rail routes overall (i.e., by increasing the range of different things such as housing, workplaces, and destinations so that the routes become more relevant from a transportation point of view)?

## Energy efficiency

30. How is energy efficiency thought about when it comes to planning at the regional level? Is it thought about in any structural way? Do you have any particular thoughts about energy efficiency and smaller towns with a train station?

31. What can be done in order to make Dingle, Öxnered, and Ljung-Annelund more energy efficient and sustainable based on the prerequisites there?

32. What is the interaction like between the municipal, sub-regional, and regional planning levels regarding energy-efficient and sustainable development?

33. What potential is found in Dingle, Öxnered, and Ljung-Annelund that is important to seize regarding energy efficiency and sustainability?

## The future

34. Are there any strategies or initiatives at the regional level in Västra Götaland that will influence or play a role in Öxnered, Dingle, and Ljung-Annelund (i.e., have an impact on local development)?

35. Are there any plans at the regional level that will affect development in Dingle, Öxnered, and Ljung-Annelund?

    a. If yes, what are they like?

36. What functions/values or qualities are there in the smaller towns (i.e., station communities) today that are necessary for the sustainable development of the towns/region?

37. Is there anything that can facilitate the sustainable development of 'station communities'?

38. Is there anything that can obstruct the sustainable development of 'station communities'?

39. What do you think will happen to these towns in the future?

40. What planning ideal do you see at a regional level?

41. Is planning/theory (which one?) adapted to differences between towns?

    a. How?

42. Do you have anything to add?

# Appendix C: Paper I – Is transit-oriented development an applicable strategy in sparse settlement structures? The case of western Sweden

# Is transit-oriented development an applicable strategy in sparse settlement structures? The case of western Sweden

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# Abstract

This paper reports on a study of the extent to which TOD ideas are applicable to conditions in sparse settlement structures. While TOD theory focuses on large cities and densely populated areas, it tends to be applied also in less populated areas. 'Station communities', are of great interest in Sweden given the opportunities they apparently offer to combine economic growth through regional enlargement with decreased climate impact. This idea is in many ways inspired by the transit-oriented development (TOD) theory, and applied in The Västra Götaland region, aiming for regional development and increased public transportation use. The study has examined how the context, structure, and municipal planning of small towns with train stations in Sweden relate to TOD through a multiple-case study and semi-structured interviews.

The results indicate that train stations, together with planning approaches inspired by TOD theory, are regarded as important in municipal planning when identifying future developments, although the prerequisites for TOD are absent and the demand for new housing and businesses is weak. One conclusion is that when advocating development of access to public transport outside urban areas, additional strategies are needed since current TOD theory does not work in the context of sparse settlement structures.

# Introduction

The phenomenon of regional enlargement results in more and longer-distance commuting due to enlarged labour market areas. Transit-oriented development (TOD) is commonly considered a planning strategy that facilitates sustainable transitions (Calthorpe, 1993; Cervero & Sullivan, 2011). TOD thinking generally applies to a specific type of built-up area with urban qualities (Stojanovski & Kottenhoff, 2013, pp. 9–13). Nevertheless, the TOD concept has also come to be used in areas with less urban characteristics (Qviström, 2015), even though the TOD literature concentrates on urban contexts and urban features are embedded in the TOD concept. TOD planning at the regional level and its interactions with the local level in areas with sparse settlement structures are less explored (Staricco & Vitale Brovarone, 2018). Using the TOD strategy to achieve sustainable *regional* enlargement is problematic as TOD is intended for large cities and densely populated areas, which are not the only contexts where TOD implementation is attempted. In Sweden, one answer to regional enlargement has been 'station communities', i.e., places with access to public transportation, preferably trains, where it is possible to live, work, and access services, yet retain access to larger cities (Boverket, 2012, p. 84). Emphasizing the development of station communities is seen as a means of successfully achieving sustainable regional enlargement, including economic growth.

This paper aims to elucidate the extent to which TOD ideas are applicable to conditions in sparse settlement structures, by examining how the context, structure, and municipal planning of small towns with train stations relate to TOD. The cases were selected from Västra Götaland, Sweden, a region with significant variation in population density. In the following sections, the theoretical basis of TOD is presented, after which Västra Götaland region is described. The research methods are then presented, followed by the results of the three case studies. In the final section, the findings are discussed and then conclusions are drawn.

## Development, transportation, and regional enlargement

Integrating transportation and land use development at railway stations is high on the agenda in many areas (Renne et al., 2009, pp. 3–4). In Sweden, the term 'station community' has been used when discussing TOD in several projects, mainly to refer to development around public transport that facilitates sustainable transitions, but sometimes also to refer to a specific type of built-up area with urban qualities. In this section, TOD is first introduced and related to a place perspective, including how the approach has been discussed and criticized; then, a brief description of TOD as a planning strategy follows.

## TOD

In American and European contexts, a TOD is commonly described as dense and mixed-use development with relatively high density; it is pedestrian and bicycle friendly and situated near transport nodes or facilities (Cervero et al., 2004; Renne et al., 2009; Cervero & Sullivan, 2011; Qviström, 2015; Staricco & Vitale Brovarone, 2018; Thomas et al., 2018). TOD planning strategies are usually based on the idea that social and economic benefits will accrue from TOD implementation (Thomas et al., 2018) and that TOD can be used as a strategy to achieve sustainable regional enlargement. Common goals when planning for TOD are to increase public transportation ridership, economic development, and job growth as well as to attain social goals such as enhanced quality of life and a wider choice of housing for consumers (Cervero et al., 2004, p. 9-10).

While TOD and the goals of TOD planning strategies are often defined similarly by different actors, there is no universally accepted definition of TOD, because what is considered dense, pedestrian friendly, and transit supportive varies between places (Cervero et al., 2004, p. 5). Renne (2009) suggested that TOD implementation does not always result in the planned-for density, mixed use, and pedestrian friendliness. Such 'failure' has been termed transit-adjacent development (TAD) (Cervero et al., 2004; Renne, 2009; Kamruzzaman et al., 2014). Renne (2009) defined a TAD as an area within

a 10-minute walk of a station but that, although physically near transit, lacks functional connectivity to transit since it is not as pedestrian friendly, dense, or mixed use as is stipulated for a TOD. Renne (2009) also stated that most station areas fall on a spectrum ranging from TAD to TOD. The problems with TADs are that their car usage is generally higher than that of TODs and their share of transit commuting is below that of TODs and hybrid TOD/TADs.

Thomas et al. (2018) questioned whether TOD theory and practice are transferable at all. They concluded that the exact model that works in one context is unlikely to work in another, and that local planners and experts must develop their own context-specific solutions (Thomas et al., 2018). Likewise, Qviström (2015) reasoned that the regional strategy for the Scania region in Sweden has been squeezed into an urbanization model that does not fit many of its towns. Thomas et al. (2018) agreed that TOD must be specifically tailored to particular urban forms, political and planning contexts, and cultural preferences for implementation to succeed.

In sum, previous research points to a need for the local modification of TOD implementation, though how this can be done is unclear. This paper addresses this matter by examining how the conditions for TOD (i.e., density, mixed use, pedestrian and bicycle friendliness, and proximity to transport nodes or transit facilities) are met in small towns with train stations located in sparse settlement structures, and how TOD is aligned with municipal planning in small towns.

## The region of Västra Götaland, Sweden

The Västra Götaland region (Figure 1), home to Sweden's second largest city (Gothenburg, with almost 580,000 inhabitants), covers 23,800 km$^2$ (Västra Götalands län, n.d.). With a population of 1,725,881 (SCB, 2020), the population density varies significantly within the region, with the highest density found in areas around Gothenburg (i.e., almost 1300 inhabitants km$^{-2}$) and the lowest in the northern part of the region (i.e., 7 inhabitants km$^{-2}$; Figure 2).

While Swedish municipalities are responsible for land-use planning, transport planning is done at the national and regional levels. Region Västra Götaland (VGR) is the regional authority in the Västra Götaland region responsible for public transport. VGR stresses the importance of transportation and reduced travel time for regional development incorporating both regional enlargement and densification, and it intends to triple train travel in the region between 2006 and 2035 (VGR, 2013, p. 6). One strategy for achieving regional enlargement in which the region's inhabitants have the opportunity to use the region's aggregate offering of services and functions has been to foster 'station communities'. The idea is that



Figure 1. Map of the Västra Götaland region in Sweden. Source: Lantmäteriet (2018).

when more housing and functions are concentrated at nodes on transportation routes, the prerequisites for attractive and competitive public transportation improve (VGR, 2016, p. 2). There is rail-associated infrastructure throughout the region, with several railway stations along the lines (Figure 3). Most of the railway stations were established more than 70 years ago and are found in the municipalities' administrative centres as well as in smaller towns with 5000 or fewer inhabitants.

*Figure 2. The population density in the Västra Götaland region, Sweden. Sources: Lantmäteriet (2018); SCB (2019a).*
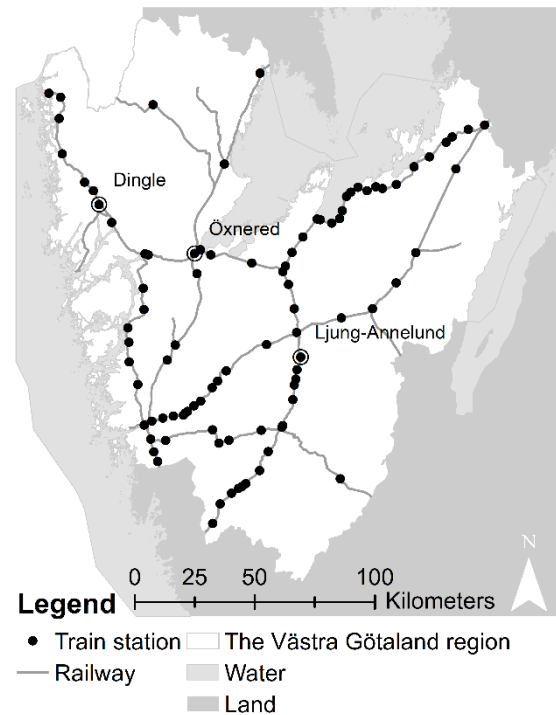


*Figure 3. The railway infrastructure in the Västra Götaland region. Sources: Trafikverket (2017); Lantmäteriet (2018).*

# Methods

## Case selection

To explore how the conditions for TOD (i.e., density, mixed use, pedestrian and bicycle friendliness, and proximity to transportation nodes or transit facilities) are met in small towns with train stations in sparse settlement structures and how TOD is aligned with municipal planning in small towns, a multiple-case study research design and qualitative research methods were chosen. The study was conducted in the Västra Götaland region in Sweden, examining three 'station communities', i.e., Dingle in Munkedal municipality, Öxnered in Vänersborg municipality, and Ljung-Annelund in Herrljunga municipality (Figure 4), each with a train station.

The populations and population densities of the studied municipalities and their administrative centres are presented in Table 1. The settlements were chosen based on the following criteria: i) have a train station; ii) not in the Gothenburg labour market area; iii) under 5000 inhabitants; and iv) not a municipal administrative centre. The last criterion was set to foster discussion of municipal



*Figure 4. The studied small towns with train stations, shown in their respective municipalities with the administrative centres marked.*

43

and sub-municipal contexts. The varied situations of the cases allow for a rich and dynamic understanding of municipal development in settlements with a train station.

Table 1.

| Municipality | Population in 2018 | Population density per sq. km in 2018 | Population of municipal administrative centre | Population of case settlement |
|---|---|---|---|---|
| Vänersborg | 39,400 | 61 | 24,000 | 400 |
| Munkedal | 10,500 | 17 | 4000 | 900 |
| Herrljunga | 9,500 | 19 | 4000 | 1200 |

Source: SCB (2019a, 2019b).

## Research approach

In each case, three one- to two-hour interviews were conducted with four or five officials and planners and with two politicians in spring 2018 (Table 2). The officials and planners were interviewed in groups; the politicians, one each from the leading and opposition parties, were interviewed individually. All interviews took place in municipal offices, except one that was conducted by phone.

Table 2.

| Interview | No. of informants | Municipality | Title(s)/role(s) |
|---|---|---|---|
| A | 5 | Herrljunga | Municipal planners and officials<br>- municipal architect<br>- public transport coordinator<br>- street and land issue secretaries<br>- head of technical management<br>- comprehensive planning seccretary |
| B | 1 | Herrljunga | Politician: Political opposition |
| C | 1 | Herrljunga | Politician: Ruling party |
| D | 5 | Munkedal | Municipal planners and officials<br>- public transport secretary<br>- street and land issue secretary<br>- planning manager<br>- business development secretary<br>- cultural and leisure manager |
| E | 1 | Munkedal | Politician: Political opposition |
| F | 1 | Munkedal | Politician: Ruling party |
| G | 4 | Vänersborg | Municipal planners and officials<br>- strategic planning secretary<br>- planning and building permit secretary<br>- street manager<br>- town architect |
| H | 1 | Vänersborg | Politician: Ruling party |
| I | 1 | Vänersborg | Politician: Political opposition |

The interviews were structured according to the following themes:

- the importance of the settlement and its role as a place
- the settlement's role as a node
- 'station community' as both place and node
- future plans for and development of the settlement

The full questionnaire is presented in the Appendix. The themes were developed and formulated so that it would be possible to see whether and how TOD as a concept and strategy was used in the cases.

Municipal planning documents were also examined, specifically, comprehensive plans and available detailed plans for the smaller 'station communities'. All interviews were partially transcribed, and the transcriptions together with municipal planning documents were organized, studied, and analysed in NVivo by qualitatively coding the data. Categories and themes were developed from the collected empirical material, though the intention was not to compare the cases but to provide a thicker description and understanding of the local contexts and any associated variation.

When analysing the data, it was considered whether and, if so, to what extent the cases relate to the following TOD characteristics:

- density
- mixed use
- pedestrian and bicycle friendliness
- near transport nodes or transit facilities

# Results

In this section, the results for the three cases are presented in terms of: the situations in the municipalities and in the settlements with train stations; the municipal views of the settlements as concerns planning and development; and the role of infrastructure and transportation in the development of these settlements. The results are presented case by case to give a better contextual understanding for each settlement.

## Ljung-Annelund in Herrljunga municipality

### Setting of the settlement and its municipality

Ljung-Annelund is oblong in form with Ljung in the west and Annelund in the east; between them is a recreation area and a sports field (Figure 5). The town is characterized by single-family and terraced housing. Ljung is the older part of Ljung-Annelund, and the establishment of the train station in 1863 and courthouse in 1776 (Järnvägsmuseet, 2020; Turistrådet Västsverige, n.d.) accounted for its development. Annelund developed much later in connection with the establishment of an industry (Herrljunga municipality, 2017a).

Ljung-Annelund is the second largest town in Herrljunga municipality in terms of population and services. Over half of the municipality's population lives in the town of Herrljunga, the municipality's administrative centre, and in Ljung-Annelund (Figure 5) (Herrljunga municipality, 2017a; SCB, 2019b); the remainder lives in smaller towns or in the countryside with few or no services (Herrljunga municipality, 2017a). The largest economic sectors in Ljung-Annelund are industry, with one large and two smaller factories, and farming (Herrljunga municipality, 2017a; interviews A and B). Ljung-Annelund provides various services: grocery stores, a petrol station, a preschool, a school for children aged 6–12 years, elderly care, a fire station, leisure services, a restaurant, and a café. For other services and functions, the inhabitants of Ljung-Annelund must go to other centres, such as the town of Herrljunga or a larger town or city in another municipality. Overall, a strong local spirit supports this part of the municipality, and active associations run several functions in the town, such as sports activities and a big yearly market (interview A; Mörlanda Marknad, n.d.). Employment is found in local industries, and the area's natural values of peace and quiet and cultural/historical values are prized and are the main reasons for people moving there.
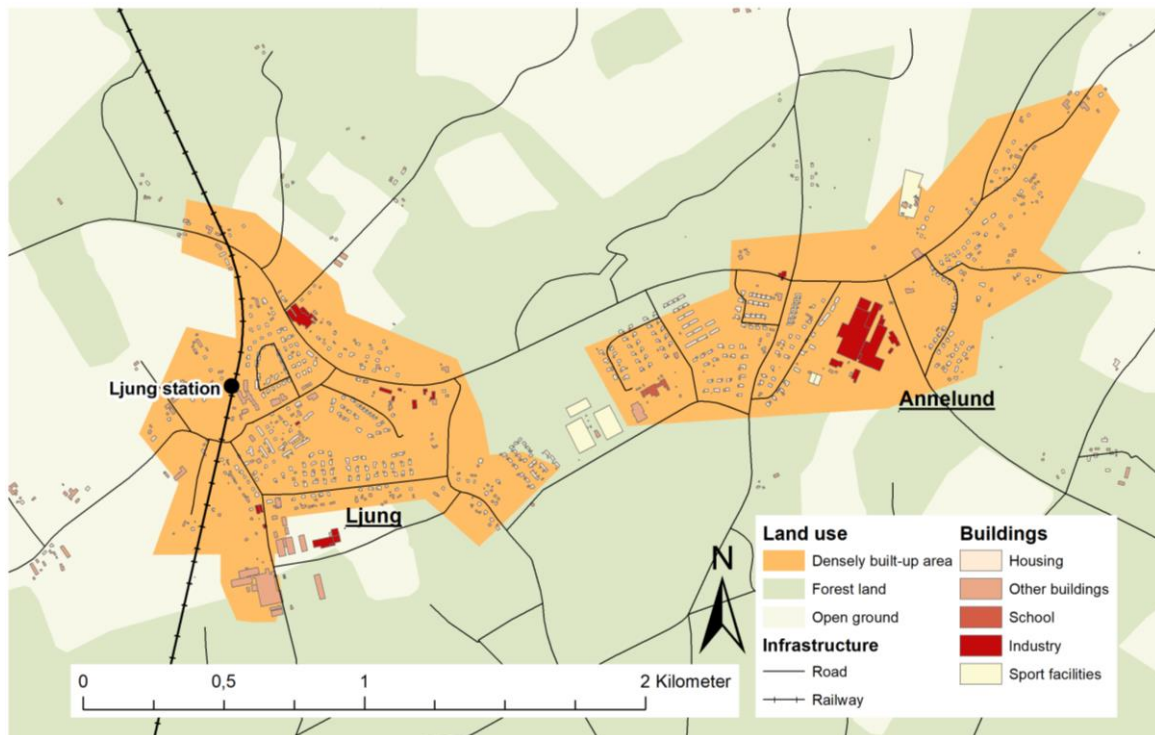
*Figure 5. Map of Ljung-Annelund showing the town's oblong structure with the recreation area and sports field between the two more densely built-up areas, which include one larger and two smaller industries and a school.*
*Source: Lantmäteriet (2018).*

### Transportation

Herrljunga is located centrally in Västra Götaland region, which, according to municipal planners, is regarded as boosting its development potential. However, Herrljunga municipality lies in the outskirts of the association of local authorities (i.e., the administrative division in which strategic discussions of infrastructure investments are held) of which it is part. Herrljunga municipality is thus simultaneously in the outskirts and in the centre. Its centrality in the region is reinforced by the junction of two railway lines in the town of Herrljunga, one national line between Gothenburg and Stockholm and one regional line running north–south. Hence it is a local and regional railway junction, and the municipality describes it as a strategic location from a regional perspective (Herrljunga municipality, 2017a; interview A).

Ljung-Annelund is an inter-municipal transportation node, having a railway station on the regional north–south line (see Figure 6). Public transport in Ljung-Annelund consists mostly of trains. Buses stop in various parts of the town, but run infrequently. It is also possible to take the bus from Annelund to the train station in Ljung, but the modes of transportation do not always interconnect. During evening and night hours, cars are needed for longer trips since the train does not operate late. Car dependence is high in Ljung-Annelund (interviews A, B, and C). Maintenance of the regional railway has been neglected, meaning that trains run relatively slowly. The frequency of service is considered more important than the travel time in Ljung-Annelund, whose 'inhabitants are not as fussy as in larger cities', as one official put it (interview A). Functioning public transport is understood as important, as it means that young people without a driving license can stay in the town (interviews A and C), and it is seen as crucial for retaining inhabitants, who are the basis for public transport. These factors lead to prerequisites for planning public transportation and development around public transport nodes that differ from those in cities.
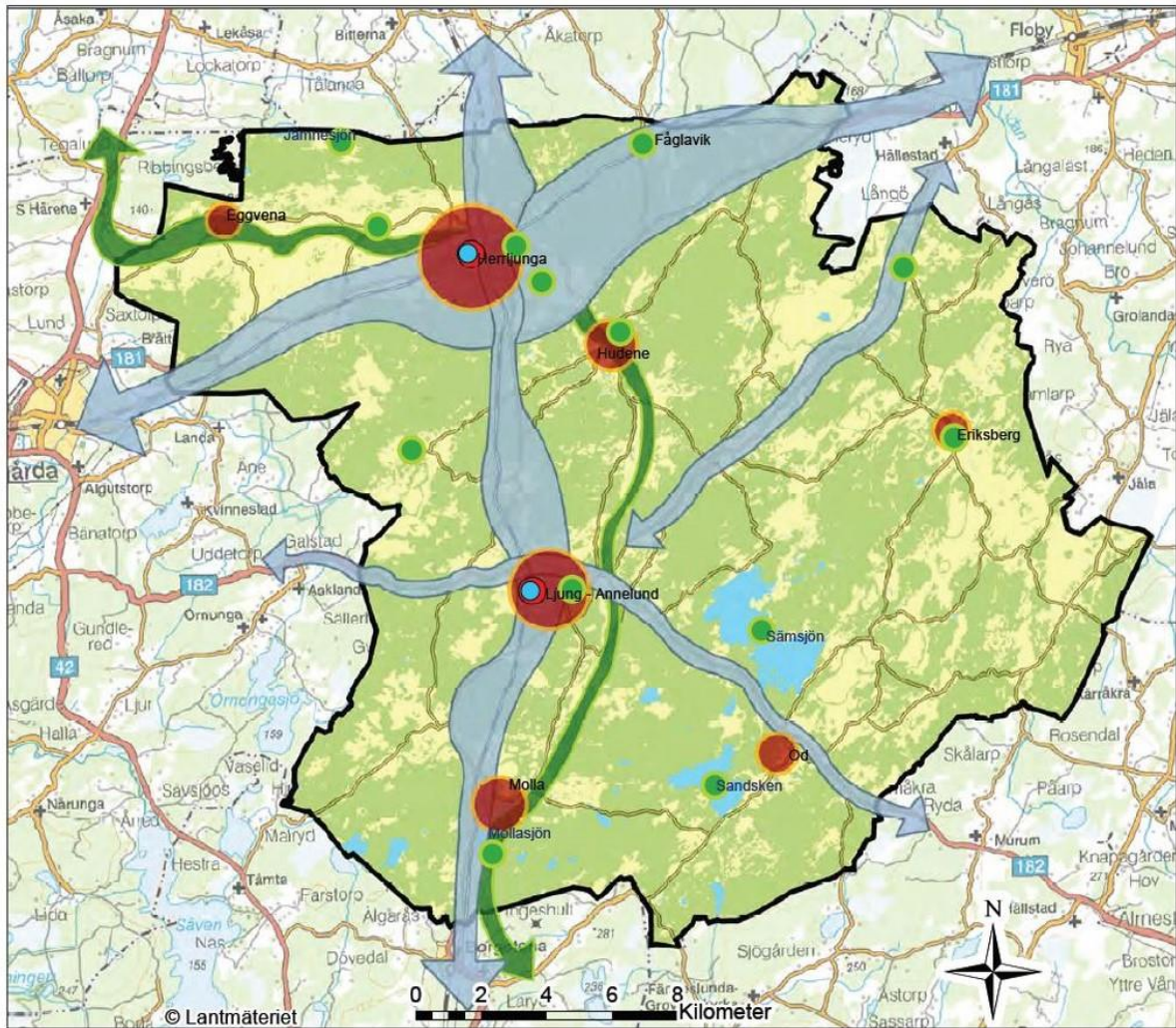
## Development strategy

- 🔵 Node, Transports and technical supply
- 🔴 Core, Built environment
- 🟢 Value-core, Nature and recreation
- 🟥 Development areas, Built environment
- ⬜ Transport connection
- 🟩 Green connection

*Figure 6. Herrljunga's development strategy. Source: Herrljunga municipality (2017a p. 13).*

## Planning

The municipal plan is to develop Ljung-Annelund by adding 100 housing units by 2035 (Herrljunga municipality, 2017a, p. 21). This is a somewhat optimistic goal, since the population of Ljung-Annelund decreased by about 2 % from 2010 to 2018 (SCB, 2019b). According to the municipal planning documents, the railway is among the most important prerequisites for the municipality's long-term development, and a sustainable lifestyle could be promoted by effectively using the municipality's good location with the railway station in Herrljunga (Herrljunga municipality, 2017a). The idea of a 'station community' is presented as a model, highlighting the ambition that it should be convenient and safe to travel on foot or by bike in all towns in the municipality (Herrljunga municipality, 2017a).

The town of Herrljunga is a top priority for municipal development and is expected to grow more and faster than Ljung-Annelund (interview A). The municipality's long-term traffic strategy calls for infrastructure for sustainable travel to be developed locally and regionally, and the recommendation is

to strengthen both towns' functions as travel centres (Herrljunga municipality, 2017a, p. 17). The towns' railway stations are clearly important for municipal planning, and the comprehensive plan states:

> Herrljunga and Ljung-Annelund will be developed as 'station communities' with dense and mixed cores. The starting point for the planning is that residential buildings that are added in the towns should preferably lie within walking and biking distance of the stations. (Herrljunga municipality, 2017a, p. 21)

While both Herrljunga and Ljung-Annelund are called 'station communities' in the comprehensive plan, municipal planners, officials, and politicians doubted that a TOD-like 'station community' could be realized in Ljung-Annelund. Rather, the planners identified the town of Herrljunga as the most important 'station community' in Herrljunga municipality, where they found TOD characteristics more applicable. The two towns' cores consist mainly of the central area of the town of Herrljunga around its station and the central area around the train station in Ljung-Annelund (see the dark, solid circle in Figure 7).
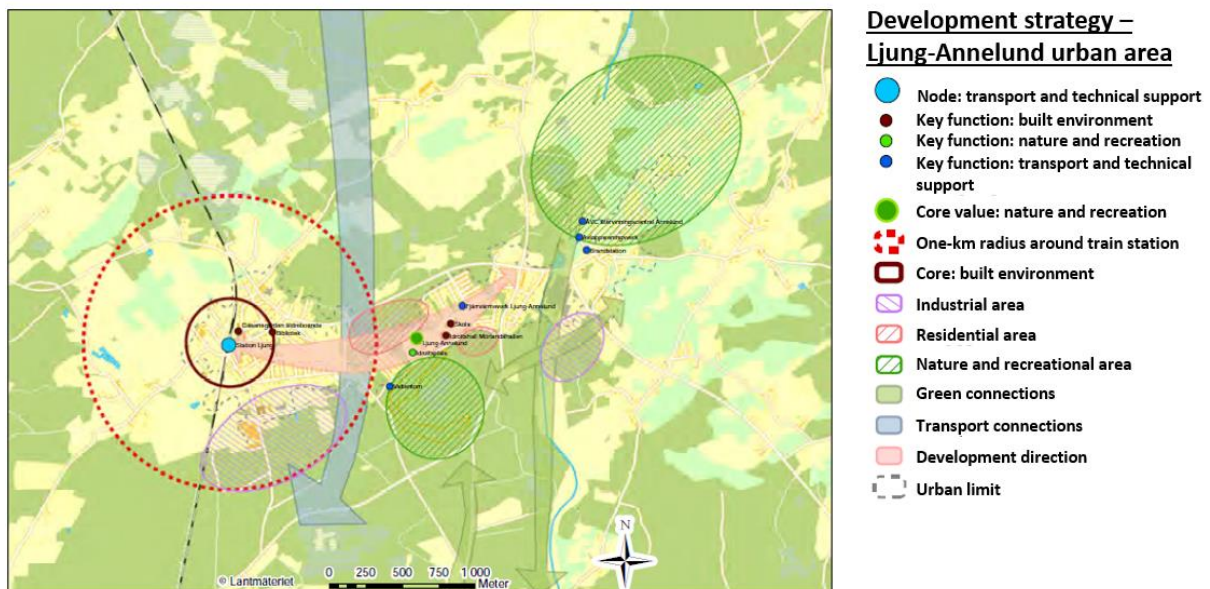


*Figure 7. Ljung-Annelund in the municipal comprehensive plan, with circles around the town centre and train station. Note the 1-km-radius area around the train station (dotted circle). Source: Herrljunga municipality (2017a, p. 71).*

An important starting point for planning in Herrljunga is its proximity to the station and to services in the town core. In Ljung-Annelund, the station is an important starting point, but it is also considered important that the two towns should grow together (interview A). Complementary new development and densification on land within the small town have been prioritized, especially in areas that can tie the two parts of the town together, in the outskirts, and in connection with the station area west of the railway. Ljung-Annelund's natural qualities are to be preserved, and the development should be aligned with the priorities of the small town. In the future, it might be possible to build some taller buildings of two, three, or maybe four storeys (interview C).

A difficulty in developing Ljung-Annelund is the low demand for new housing (interview A). Another difficulty is that even though the cost of building a new house is the same in a small town as in a larger city, banks do not approve the same-sized loans in smaller towns such as Ljung-Annelund (interview B). The planners and officials say that the issue of demand is challenging to address, since demand is difficult to influence and modify (interview A).

## Dingle in Munkedal municipality

### Setting of the settlement and its municipality

Dingle is a fairly young settlement, built and developed around a junction between the road and the railway when the station opened in 1903 (Karlsson, 2008, February 26). The town is described as a community surrounded by farmland and forests, and also as a town with committed inhabitants and entrepreneurship (interviews D, E, and F). Dingle has been characterized by agricultural industries, though several newly established space-demanding and transport-dependent businesses have put a new mark on the town and its surroundings (Munkedal municipality, 2017). Central Dingle lies at the southern end of a valley extending northwards, with buildings climbing a hillside to the east and industrial development on the plain to the south-west. Many of the buildings in central Dingle were developed in connection with the station, but the significance of the station, situated on the eastern hillside, has decreased. Kunskapens hus (*Eng.* The Knowledge House) is a centre that offers various adult education and training programmes. This new facility is on the former site of a school of land management and agriculture, which once was the most notable feature of Dingle in its regional context. European route E6 formerly went through Dingle, but has been relocated west of the town (Munkedal municipality, 2017).

The town of Munkedal is the municipality's administrative centre (Munkedal municipality, 2017). The most important issue regarding the development of the municipality's hinterland is population growth to provide a stronger basis for local services for both smaller towns and the administrative centre (Munkedal municipality, 2017). It is important for the municipality to keep the town of Munkedal as a service centre, since this is seen as a prerequisite for developing the municipality and countryside (Munkedal municipality, 2017, p. 28). Dingle provides services for its hinterland. These services include a grocery store, postal service, a preschool, a school for children aged 6–12 years, a home for the elderly, a petrol station, garages, and healthcare. There are other sources of employment, such as hairdressers, one large company and several smaller ones, and several restaurants (especially pizzerias); as well, there are leisure facilities, such as a library, sport facilities, and a youth recreation centre (interviews D, E and F; Munkedal municipality, 2018). For other services and functions, the inhabitants of Dingle must go to other nearby centres, such as Munkedal, or larger towns or cities in other municipalities.

### *Transportation*

Regional commuting is important for Munkedal municipality, as it means better opportunities to recruit qualified workers and access other labour markets (interviews D and F). There are good transportation connections through access to the motorway and railway, offering potential for trade, logistics, and tourism (Munkedal municipality, 2017; see Figure 8). The municipality is sparsely populated, however, and the main mode of transportation is the car (Munkedal municipality, 2017, p. 28; interviews D, E, and F), which is seen as faster and more convenient than other modes (interviews D, E, and F). Even though the railway gives the municipality access to larger cities, there are few departures from Dingle. Moreover, the railway's poor condition makes travel between Munkedal and Gothenburg 50 minutes slower by train than by car (interviews D and E).

### Planning

According to Munkedal municipality there is a need to develop rental housing in its towns, to allow inhabitants of all ages to stay in the municipality, as it is crucial for the municipality to stop its population decline (Munkedal municipality, 2017). Moreover, new housing development should be located mainly to facilitate coordination of the installation of utilities (i.e., water and sewage) and so that public transport can be developed and utilized. New housing should preferably be built near existing towns and cities, to constitute a natural supplement to existing buildings, but the municipality is also open for more single homes in the countryside (Munkedal municipality, 2017, p. 35). According to the comprehensive plan, housing development in Dingle should occur through

densification of the central areas and through new development eastwards, where there are good opportunities for attractive housing sites on a hillside (Munkedal municipality, 2017, p. 41).



## Living areas and commuting

The map is based on an analysis of public transport and includes zones of "commuting-friendliness". Areas shaded red mark the distance of 1 km from roads with local/regional bus transit. Areas within a 5 km radius from commuting nodes are also shaded in the same manner. Darker shading denotes better commuting possibilities.
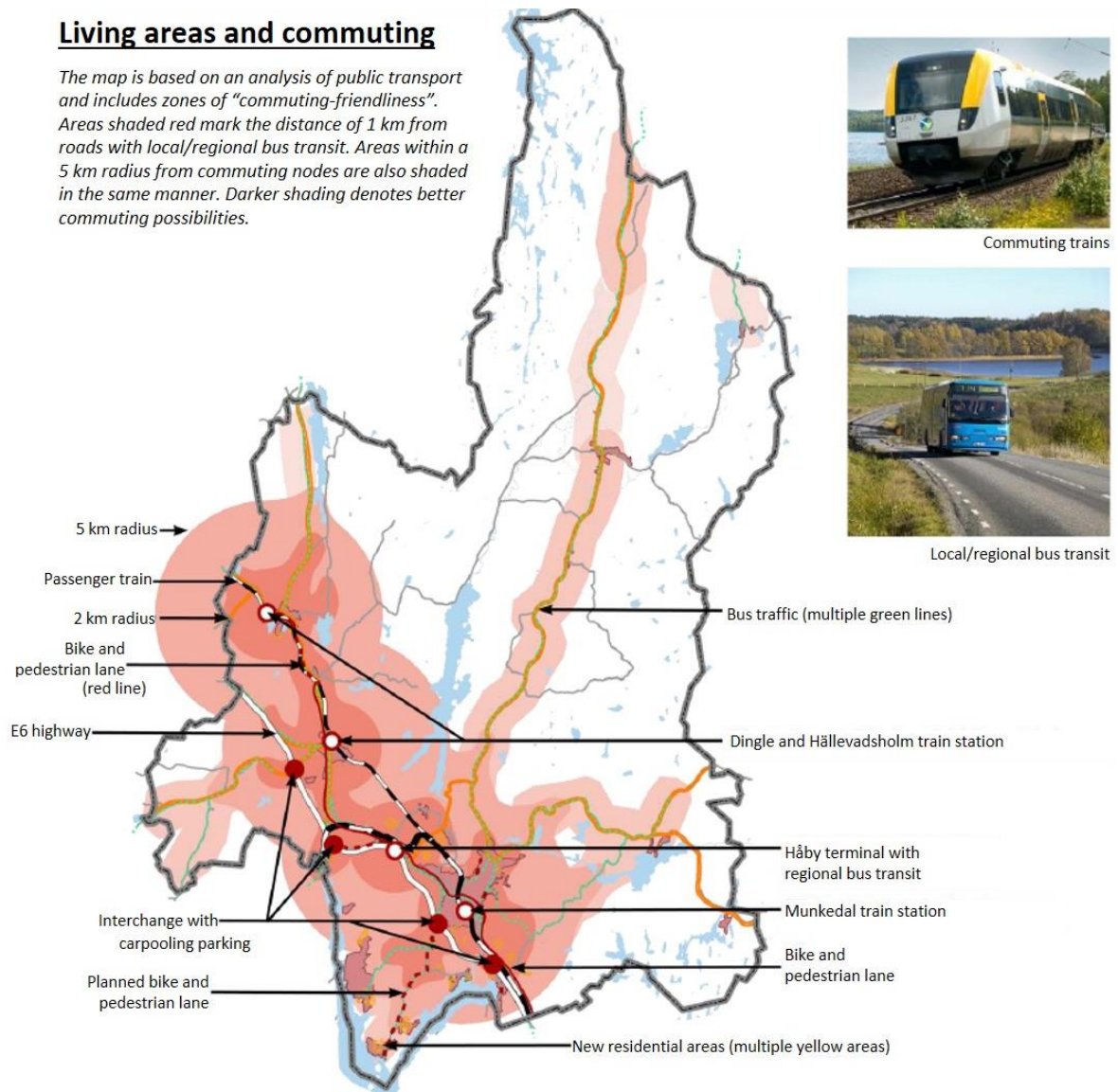
Commuting trains

Local/regional bus transit

5 km radius

Passenger train

2 km radius

Bike and pedestrian lane (red line)

E6 highway

Interchange with carpooling parking

Planned bike and pedestrian lane

Bus traffic (multiple green lines)

Dingle and Hällevadsholm train station

Håby terminal with regional bus transit

Munkedal train station

Bike and pedestrian lane

New residential areas (multiple yellow areas)

*Figure 8. Munkedal's strategy for housing and commuting. Source: Munkedal municipality (2017 p. 12).*

From a municipal planning perspective, the railway is important for Dingle even though the significance of the train station and railway has decreased. The Dingle station area can be said to lie on the 'wrong side' of most of the built-up area, and the accessibility of the station could be improved (interview D). The municipality prizes its location and natural values (i.e., open landscape, lakes, forests, and scenic topography) and the social values connected with associations that foster community engagement (interviews D, E, and F). There are several vacant housing lots in the town, indicating low housing demand, although there are plans to build a home for the elderly and the Kunskapens hus was recently completed (Munkedal municipality, 2017, 2018).

The comprehensive plan articulates a general strategy for the public transportation system, i.e., to decrease travel time within the municipality (Munkedal municipality, 2017, p. 20). Eventually it should be possible to develop fast commuting from Dingle and three other towns/settlements to the two larger municipal centres, Munkedal and Håby (Munkedal municipality, 2017, p. 20). A map (Figure 8) based on an analysis of public transportation presented in the comprehensive plan shows 'commuter-friendly' zones for public transportation, with darker colours indicating better assumed

commuting conditions (Munkedal municipality, 2017, p. 12). The timeframe considered in the commuting analysis is 10–15 minutes, representing about 1 km by foot, 2 km by bike, and 10 km by car (or a radius of 5 km) (Munkedal municipality, 2017, p. 12). There are some issues when it comes to the comparability of measures defining locations near commuter nodes and areas with conditions for commuting partially or entirely by public transport.

According to the municipality, commuting is seen from a regional rather than municipal perspective, and municipal public transportation is nearly nonexistent. The municipality also assumes that the main means of regional commuting is via a combination of car and other transportation modes from one of the nodes. When it comes to the railway, the focus is on the town of Munkedal, not on Dingle. Politicians and planners want to develop and improve the railway incrementally, starting in Munkedal before addressing Dingle, which is why the Dingle service remains poor (interviews D and F). In addition, there is a missing link between train and bus in Dingle, as they do not stop in the same place.

## Öxnered in Vänersborg municipality

### Setting of the settlement and its municipality

Öxnered differs from Ljung-Annelund and Dingle in that the village lies closer to the municipal administrative centre, to which it is possible to bike within 20 minutes. Öxnered is not considered a separate village in Vänersborg municipal planning; rather, Öxnered is treated as a district of the municipality's main city of Vänersborg (interviews G and H). Öxnered is at a junction where the north–south and east–west railways cross, and the establishment of the train station in 1878 (Sandberg, 2018) was the reason for the development of Öxnered. This settlement is today characterized by its train station, nearness to nature, and proximity to the main city of Vänersborg. Öxnered's buildings are mostly housing, mainly single-family housing, but with some duplexes and apartment buildings, and its daytime population is small (interviews G, H, and I; field study).

Vänersborg municipality is the largest municipality examined here, and its largest city is Vänersborg (SCB, 2019b; Vänersborg municipality, n.d.). About 10,000 of the municipality's inhabitants live in smaller towns or in the countryside. In Öxnered there is a preschool, a school for children aged 6–12 years, home services, some employment in the municipal sector, several small private companies, a small shop (no groceries), a pizzeria, a car repair shop, a carpentry workshop, craftsmen, entrepreneurs, and sheltered housing (interviews G, H, and I; field study). There is no longer a village centre in Öxnered with shops and services, though the old station building provides a link to the past, when the station was the centre of the community.

### *Transportation*

There are transportation routes in all directions to and from Öxnered, via roads and railways accessible by car, bus, or train. The train to Gothenburg is of considerable importance for Öxnered itself, as well as for Vänersborg municipality. In the regional context, Öxnered is a public transport node thanks to its train station, used either for commuting or changing trains. Moreover, people in adjacent municipalities find it convenient to drive to Öxnered to catch the train to Gothenburg, making Öxnered station important in the sub-regional context as well. Öxnered is connected to several labour market areas, so one can live there and still work in a variety of professions. However, not all these labour market areas are accessible by train, so the car is the foremost mode of travel, making for car dependency in Öxnered, as in the other two cases (interviews G and I).

### Planning

According to municipal planners and officials, the railway is necessary if Öxnered is to develop, but it is not required for Öxnered's existence (interview G). From a longer-term perspective, it is a municipal ambition to develop Öxnered into an important node in the Trestad area (i.e., Trollhättan, Uddevalla, and Vänersborg). One idea is that if a commuting system is set up in Trestad, Öxnered will become one of its important central transportation nodes (interview G). So far, Öxnered has been

more of a transportation node than a 'station community' (interviews G and H), yet there are more concrete plans for the Öxnered area than for the other settlements studied here. Öxnered's location near the city of Vänersborg should facilitate its development, as it offers commuting possibilities as well as proximity to lakes and the city (interviews G, H, and I; Vänersborg municipality, 2017b, p. 97).

The comprehensive plan of Vänersborg municipality articulates the development principle of 'developing existing and new "station communities"', and a map from the plan (Figure 9) shows such 'station communities', including Öxnered, as circles (Vänersborg municipality, 2017b, p. 97). In these areas, the plan recommends that land around existing train stations and tracks be reserved for the development of 'station communities' (Vänersborg municipality, 2017b). Accessibility by bike and public transportation is central to this plan. Land should be reserved for commuter parking lots and new urban cores, if they develop. Planning should allow for the construction of a great deal of housing within walking and cycling distance of the stations (Vänersborg municipality, 2017b, p. 70).
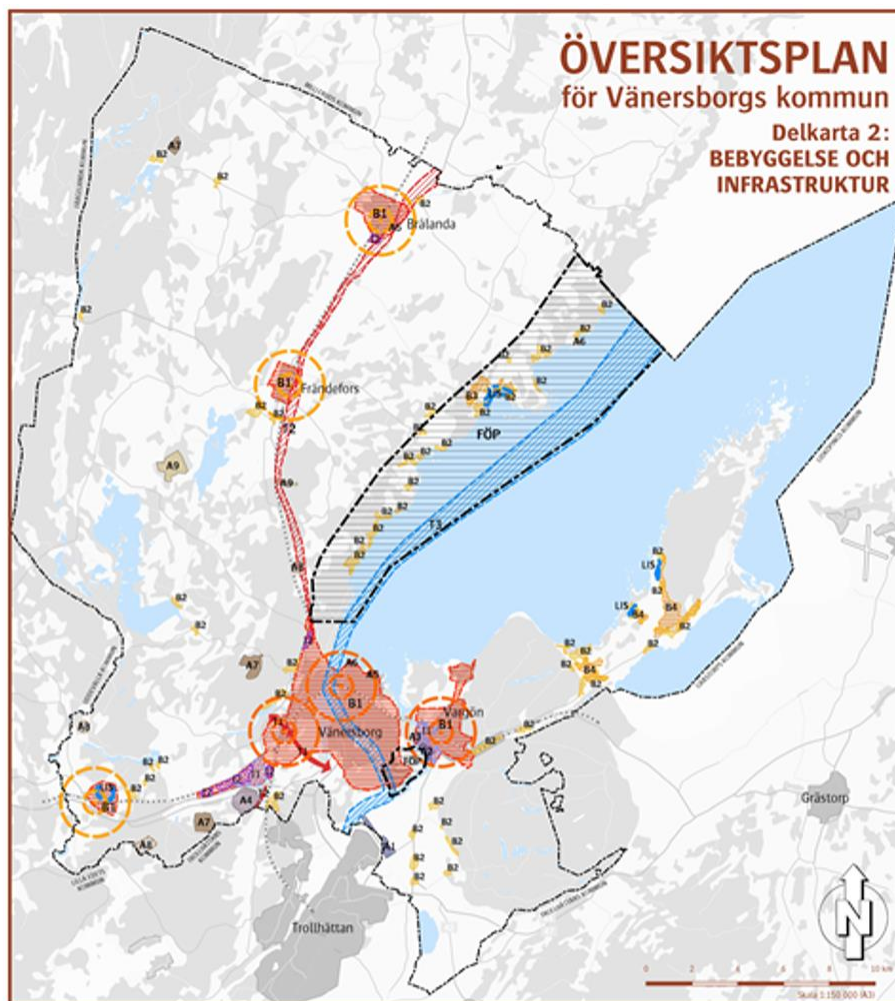


## Recommendations: Buildings and Infrastructure

**Station communities**

- Development of existing station community
- Development of future station community

**Land development**

- B1 — Area for urban development
- B2 — Coherent settlements outside urban areas
- B3/B4 — Possible land development in rural areas
- LIS — Rural development in lakeside location

*Figure 9. Map of existing and future 'station communities' in Vänersborg municipality. Source: Vänersborg municipality (2017b).*

A detailed development plan has been decided on (Vänersborg municipality, 2017a), which calls for building housing 'close to nature' on previously undeveloped land near Öxnered train station (Figure 11). Nevertheless, the zones or circles drawn in the comprehensive and detailed plans (Figures 10 and 11) are not seen in the final version of the plan for the new development of about 600 housing units in Öxnered, as the area is located north-east of the train station (Figure 11).
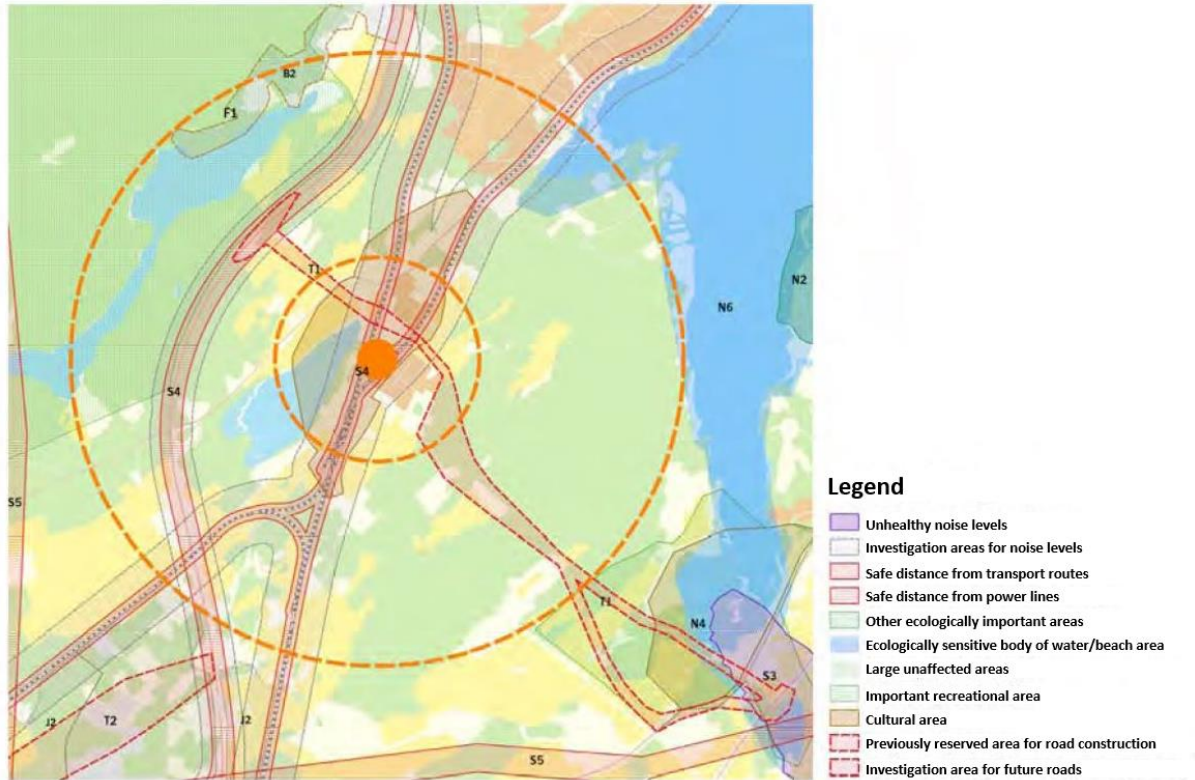


*Figure 10. Visualization of Öxnered and the principle of developing existing and new 'station communities'. Source: Vänersborg municipality (2012, p. 5).*
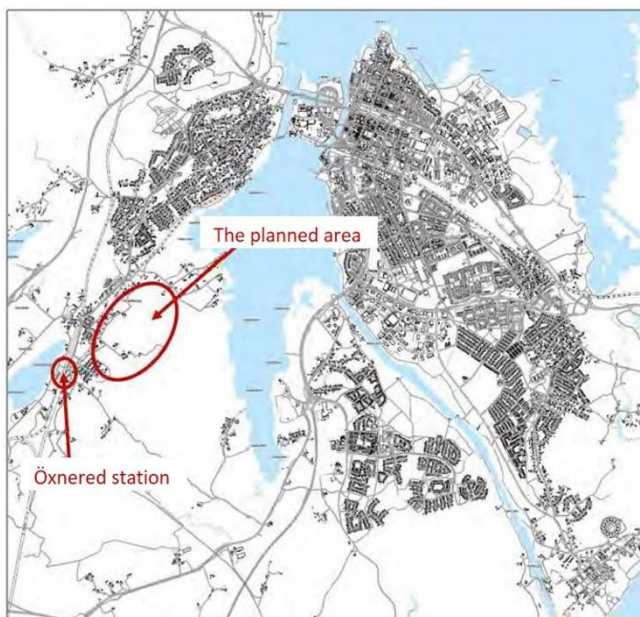


*Figure 11. Location of planned new housing, within one km of the train station. Source: Vänersborg municipality (2017a).*

Clearly, Öxnered is being actively planned as a locus for development in the municipality and is part of the development of the municipality's main city of Vänersborg. The future planning of Öxnered is therefore concentrating on new housing, expanded services including a small grocery store, and ongoing transportation improvement. The demand for new housing in the municipality is strong (Vänersborg municipality, 2017a, n.d.), but not all inhabitants of Öxnered favour densification, which the planners are trying to facilitate near the train station (interview G). However, it was noted that it is important to assess and maintain the attractiveness of Öxnered (interview G), which includes preserving its tranquillity, even though it is near the city of Vänersborg (interview G). Furthermore, parking garages for electric bicycles are being built in connection with the train station, and a new bridge will improve the link between Öxnered and central Vänersborg (interview G).

# Discussion

## The settlements in relation to TOD

Dingle, Öxnered, and Ljung-Annelund are considered important as they provide services for their surrounding areas, but they lack the prerequisites for TOD as a specific type of built-up area in terms of high density and mixed use (e.g., Cervero et al., 2004; Renne et al., 2009; Cervero & Sullivan, 2011). Instead, this study has identified seven partly overlapping characteristics and features of these communities that are inconsistent with TOD:

1) Low population density, low-rise buildings, with train stations not centrally located
2) Low demand for (new) housing
3) High car dependency
4) Poor condition of railway
5) Resistance of inhabitants and local authorities to higher housing density
6) Small daytime population
7) Importance of preserving natural values

All three settlements are stated to be of low population density with low-rise buildings, and the train stations are not centrally located. Low demand for (new) housing is a critical issue. The demand is weak in Ljung-Annelund and Dingle, while it is stronger in Öxnered, where trains departing for Gothenburg every 45 minutes make the town attractive for developers. The results indicate high car dependency, since the car is the most important mode of transportation in all three cases.
Longer travel times by train than by car and/or infrequent train departures are issues in Ljung-Annelund and Dingle. The poor condition of the railway tracks means that the trips take longer, and the infrequent train departures, especially from Dingle, are a hindrance when choosing travel mode, especially since Dingle has easy access to the motorway. This is not seen as an issue in Öxnered, which is near the municipal administrative centre and where the railway service frequency is high. Inhabitants and local authorities are resistant to higher housing density, most obviously in Öxnered, where inhabitants have protested densification around the train station. In the other two cases, the planners claim that development must be adapted to the prerequisites of the settlements.

The daytime populations are small, and the lack of services and functions in the three settlements means that these settlements cannot be classified as mixed use. As for Öxnered, there are also few workplaces, and the dominance of housing strengthens the incoherence of implementing TOD given the prerequisite of mixed use. Since the settlements are small there are no difficulties moving around by foot or bike; however, the benefits of density and a variety of services and functions around the train stations are absent. In all cases, the importance of preserving natural values is mentioned and given a greater emphasis than in places where TOD is commonly implemented (interviews A, B, C, D, E, F, and G).

## Municipal planning of settlements in relation to TOD

Despite the settlements' lack of TOD characteristics, the planners in each municipality marked TOD-inspired development zones in their comprehensive plans in areas near train stations. The maps show that areas near train stations are a priority in municipal development. The zones around the train stations in Ljung-Annelund and Öxnered have the train station in the centre, although existing built-up areas display a different structure, and the zones in Munkedal are instead based on distance and time. A problem with these zones is that they do not correspond either to the actual distances from the station that people experience, or to the actual time it would take to go to or from the train station. In several municipal documents, maps show the typical 'station community' pattern with the train station in the centre. If using a 1-km-radius circle, which is the case for the studied settlements, one should consider that this does not take account of road locations or sizes. Aside from the fact that it matters how the zones are defined, the main problem in these cases is lack of reflection on what the zones currently mean and what they will imply later in the planning process. In the case of Öxnered, new housing is positioned close to natural sites and water – understood as equally important factors when locating new development in Öxnered – instead of near the train station. Looking at Ljung-Annelund, it is clear that existing built-up areas are located east of the station, while this was not considered when circles were drawn with the station in the centre in municipal planning documents. Although densification is spoken of in all cases, this diverges from TOD theory. It is especially clear that densification means more housing, but not necessarily higher buildings or more offices, services, or functions, making mixed-use development seem a remote possibility. As TOD implementation must be specific to particular urban forms, planning contexts, and cultural preferences (Thomas et al., 2018), the case characteristics identified here must be considered before trying to implement a strategy – TOD – developed in a quite different context. This leads to the question of whether TOD can be implemented in these cases.

## Interface: Local planning in the regional context

As argued in the introduction, common goals of TOD are to increase public transportation ridership, economic development, and job growth as well as to pursue social goals such as enhanced quality of life and a wider choice of housing for consumers (Cervero et al., 2004, p. 9-10). These goals are similar to those set for the Västra Götaland region. If a theory, such as TOD, inspires regional strategies and the associated municipal planning strategies, such as 'station communities' in this case, it is important to note when it does or does not work in all localities.

The results indicate that TOD has influenced municipal plans and strategies in relation to settlements with train stations as well as on a larger municipal scale, which supports the conclusions of Qviström (2015). Although TOD theory inspired the studied municipal plans (intentionally or unintentionally), the municipalities are aware that these ideas must be adapted to local conditions; other than that, however, the findings reveal a scarcity of reflection on the extent to which TOD ideas have influenced the plans and on the possible implications of this. Dingle and Ljung-Annelund are secondary to their municipalities' administrative centres. In Munkedal municipality, the focus is on the municipal administrative centre because it is at risk of losing its services and functions. Keeping the town of Munkedal as the municipality's service centre is important to the municipality, so Dingle is secondary. Herrljunga municipality focuses on its administrative centre because of its role as a railway junction, while Ljung-Annelund is merely a node on a smaller railway line. Öxnered has a clearer role in the regional context, compared with that of Dingle or Ljung-Annelund, thanks to its role as a railway junction. Öxnered offers a wider range of train services and the train to Gothenburg takes just 45 minutes, so one can live in Öxnered and work in the region's largest city. Additionally, Öxnered is seen as part of the city of Vänersborg, the municipality's administrative centre, so development in Öxnered is also understood as development of the municipality's main city.

If TOD as referring to a specific type of built-up area with urban qualities is inapplicable in the studied cases, should TOD theory really guide their development? TOD theory was not developed for

sparsely populated areas or for sparse settlement structures. Although TOD is seen as inapplicable in these cases, this does not mean that these communities lack development potential in their regions. Rather, these cases exemplify places where municipalities would like to see development, but are stymied in various ways. If TOD were made the goal in these cases, failure to realize it could be seen as the 'failure of TOD', as the outcomes would probably instead resemble small-scale forms of TAD. At the regional level, it is important to understand that if TOD is used as a regional development strategy for developing 'station communities' to facilitate sustainable transitions, this will have implications for the development of settlements with train stations lacking TOD characteristics, as the cases show. Moreover, the failed development of settlements with train stations will in turn affect regional development as a whole, as it will not lead to the intended social and economic benefits as outlined by Thomas et al. (2018).

## Alternative concepts for sparse settlement structures

As noted, it is important to distinguish between a 'station community' and a town with a train station. A 'station community' is not necessarily a form of TOD, but the concept echoes the meaning of TOD or evokes TOD-like characteristics and implications. As the TOD literature states (Cervero et al., 2004; Qviström, 2015; Staricco & Vitale Brovarone, 2018; Thomas et al., 2018), a public transportation station is only part of what constitutes TOD, while smaller settlements, like the three studied here, lack dense, mixed-use, or pedestrian-friendly settlement structures. Recalling the ideas of Qviström (2015), the intentional or unintentional incorporation of ideas related to TOD means that municipalities having small towns with train stations seem to be aiming at TOD-like development, although its prerequisites are lacking. Urban values, as described in the TOD literature, are an established idea seen as the ultimate result of TOD. I argue that this should be problematized: not the idea or theory of TOD per se, but the uncritical implementation of TOD in plans for settlements with train stations but lacking the prerequisites for TOD. In line with Thomas et al. (2018), who stated that local planners and experts must develop their own context-specific solutions, the lack of reflection on what would be likely and/or suitable for settlements with train stations in the context of sparse settlement structures should be addressed. Additionally, how the case settlements could be developed if not in terms of TOD merits discussion. One idea would be to explore whether a form of TAD or something on the TOD–TAD spectrum (Renne, 2009) might be a better fit in these locations. Since TOD is inapplicable throughout the studied region, it would be interesting to consider whether TOD, TAD, or a completely new development concept is needed for smaller towns with train stations in sparse settlement structures.

If neither TOD nor the 'station community' concept is applicable in the studied cases, what should guide their planning? A shared regional and municipal planning strategy might articulate a version of TOD tailored to the context of small towns within sparse settlement structures. Another alternative is to regard TAD as a possibility in its own right and not as 'failed' or weak TOD. TAD is physically near transit but lacks functional connectivity to transit because it is not as pedestrian friendly or dense with mixed uses as is TOD. The criticism of higher car usage in TAD than in TOD also recalls the situation of the cases. However, I argue that these cases should not be seen as possible failures of or weak realizations of TOD. Rather, new concepts are needed that take into account the local prerequisites when TOD at a regional level is intended in order to foster sustainable transitions, while TOD as referring to a certain built-up area is inapplicable at the local scale. If TOD as a strategy and TOD as referring to a certain built-up area could be distinguished more clearly, it could advance the development of sparsely populated regions such as smaller towns and villages with train stations unsuited for densification, while the train stations are seen as offering potential for local and municipal development and sustainable transitions.

## Conclusions

This paper has analysed the extent to which TOD ideas relate to conditions in sparse settlement structures. The results indicate that the studied cases are not aligned with TOD characteristics as they are neither dense nor mixed use, hence not as pedestrian or bicycle friendly, nor as near transport nodes or transit facilities as TOD requires. Instead, seven characteristics and features inconsistent with TOD were detected. Yet, one conclusion is that TOD influenced municipal planning work in these cases, whether intentionally or unintentionally, though it should not be seen as the only approach or planning strategy for small towns with train stations. Another conclusion is that not every town with a train station can be called a 'station community', especially not if this implies TOD as referring to a certain built-up area. Given local development prerequisites, critical questioning is needed regarding the type of development to be planned for in the specific contexts of settlements with train stations. Densification and other urban values seem to be mainstream in planning, but the purpose of a train station can differ between a small town in a sparse settlement structure and a TOD in a metropolitan area. I therefore advocate further studies of how regional planning could support the sustainable development of smaller settlements with train stations. A more nuanced definition of the TOD concept is needed in which TOD as a regional strategy and TOD as referring to a certain built-up area are differentiated, and not always necessarily connected. Additionally, a new concept is needed for the development of small towns and villages with train stations that suits their prerequisites, and that does not advocate densification and urban qualities as goals in themselves. The idea is to provide public transportation and services while also providing a variety of living options at the regional level. Striving for sustainable regional enlargement through regional planning should be better harmonized with local prerequisites, as regional decisions affect local plans.

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## Declaration of interest statement

There are no relevant financial or non-financial competing interests to report.

## Data availability statement

Due to the nature of this research, participants of this study did not agree for their data to be shared publicly, so supporting data is not available.

## References

Boverket. (2012). Vision för Sverige 2025. Karlskrona: Boverket

Calthorpe, P. (1993). The next American metropolis: Ecology, community, and the American dream. Princeton architectural press.

Cervero, R., Murphy, S., Ferrell, C., Goguts, N., Yu-Hsin, T., Arrington, G., Boroski, J., Smith-Heimer, J., Golem, R., Peninger, P., Nakajima, E., Chui, R., Dunphy, R., Myrres, M., McKay, S., & Witenstein, N. (2004) Transit-Oriented Development in the United States: Experiences, Challenges and Prospects—TCRP Report 102 (Washington, DC: Transportation Research Board).

Cervero, R., & Sullivan, C. (2011). Green TODs: marrying transit-oriented development and green urbanism. International Journal of Sustainable Development & World Ecology, 18(3), 210-218. doi:10.1080/13504509.2011.570801

Herrljunga municipality. (2017b). *Historia*. Retrieved 2019-05-21, from http://www.herrljunga.se/municipality-och-politik/municipalityinformation/historia.htmlHerrljunga municipality. (2017a). Översiktsplan för Herrljunga municipality.

Järnvägsmuseet. (2020). *Vy vid Ljung. Station från 1863*. Identifier: JvmKDAD00046. Retrieved 2020-04-06, from https://digitaltmuseum.se/021018162820/vy-vid-ljung-station-fran-1863-trastationshus-i-tva-vaningar-1924-nytt

Kamruzzaman, M., Wood, L., Hine, J., Currie, G., Giles-Corti, B., & Turrell, G. (2014). Patterns of social capital associated with transit oriented development. Journal of Transport Geography, 35(C), 144-155.

Karlsson, S. (2008, February 26). Dingle station blir inte byggnadsminnesförklarat. *BOHUSLÄNINGEN*. Retrieved from https://archive.is/20120525144139/http://212.3.11.251/artikel_pm_standard.php?id=360747&avdelning_1=101&avdelning_2=105&avdelning_3=0

Munkedal municipality. (2017). Framtidsplan ÖP18 Munkedal – del 1 Strategier och förslag. Samrådshandling.

Munkedal municipality. (2018). *Lediga tomter i Dingle*. Retrieved 2019-05-21, from https://www.munkedal.se/bygga-bo-och-miljo/bostader-och-offentliga-lokaler/lediga-fastigheter-och-tomter/dingle

Mörlanda Marknad. (n.d.). *Mörlanda marknad genom tiderna*. Retrieved 2020-06-01, from https://morlandamarknad.com/historik/

Qviström, M. (2015). Putting accessibility in place: A relational reading of accessibility in policies for transit-oriented development. Geoforum, 58, 166-173.

Renne, J. (2009). From transit-adjacent to transit-oriented development. Local Environment, 14(1), 1-15.

Renne, J. L., Curtis, C., & Bertolini, L. (2009). Transit Oriented Development: Making It Happen [Elektronisk resurs]: Ashgate Publishing Group.

Sandberg, Ola. (2018). Öxnereds Stationshus.

SCB (2019a). Befolkningstäthet (Invånare per kvadratkilometer efter municipality och år). Retrieved 2020-02-13 from http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__BE__BE0101__BE0101C/BefArealTathetKon/table/tableViewLayout1/

SCB. (2019b). Tätorter 2015; befolkning 2010–2018, landareal, andel som överlappas av fritidshusområden. www.scb.se/MI0810. Publicerad 2019-03-28

SCB. (2020). Folkmängd i riket, län och municipalityer 31 december 2019 och befolkningsförändringar 1 oktober–31 december 2019. Totalt. Retrieved 2020-04-02 from https://www.scb.se/hitta-statistik/statistik-efter-amne/befolkning/befolkningens-sammansattning/befolkningsstatistik/pong/tabell-och-diagram/kvartals--och-halvarsstatistik--municipality-lan-och-riket/kvartal-4-2019/

Staricco, L. & Vitale Brovarone, E. (2018). Promoting TOD through regional planning. A comparative analysis of two European approaches. *Journal of Transport Geography, 66*, 45-52.VGR. (2011). DOI: 10.1016/j.jtrangeo.2017.11.011

Stojanovski, T. & Kottenhoff, K. (2013). Bus Rapid Transit (BRT) och Transit-Oriented Development (TOD) - Stadsutveckling för effektiv kollektivtrafik: Erfarenheter från Sverige och andra länder - Vilka krav ställer BRT på bebyggelsen? - Hur kan svenska städer anpassas för BRT?

Turistrådet Västsverige. (n.d.) Gäsene Tingshus Ljung, Herrljunga. Retrieved 2020-04-06, from https://www.vastsverige.com/herrljunga/produkter/gasene-tingshus/

Thomas, R., Pojani, D., Lenferink, S., Bertolini, L., Stead, D. & Van Der Krabben, E. (2018). Is transit-oriented development (TOD) an internationally transferable policy concept? Regional Studies, 52(9), 1201-1213. doi:10.1080/00343404.2018.1428740

Trafikverket (2017). Sverige järnvägsnät.

VGR. (2013). Målbild Tåg 2035 – utveckling av tågtrafiken i Västra Götaland.

VGR. (2016). Regionalt trafikförsörjningsprogram Västra Götaland. Programperiod 2017-2020 med långsiktig utblick till 2035. Vänersborg: Västra Götalandsregionen

Vänersborg municipality. (2017a). Detaljplan för Skaven och del av Öxnered Vänersborgs municipality Miljö- och byggnadsförvaltningen. Revised in March 2019.

Vänersborg municipality. (2017b). Översiktsplan 2017.

Vänersborg municipality. (2012). PROGRAM för Detaljplaner för Skaven och delar av Öxnered Vänersborg municipality. Revised in July 2016.

Vänersborg municipality. (n.d.). Om Vänersborg. Retrieved 2019-05-24, from http://www.vanersborg.se/municipality--politik/press--och-informationsmaterial/informationsmaterial/om-vanersborg.html

Västra Götalands län. (n.d.). In Nationalencyklopedin. Retrieved 2020-04-06, from https://www-ne-se.ezproxy.ub.gu.se/uppslagsverk/encyklopedi/l%C3%A5ng/v%C3%A4stra-g%C3%B6talands-l%C3%A4n

Interview A Herrljunga planners and officials

Interview B Herrljunga politician, Political opposition

Interview C Herrljunga politician, Ruling party

Interview D Munkedal planners and officials

Interview E Munkedal politician, Political opposition

Interview F Munkedal politician, Ruling party

Interview G Vänersborg planners and officials

Interview H Vänersborg politician, Ruling party

Interview I Vänersborg politician, Political opposition

# Appendix

## Interview guide
Questions posed to planners, officials, and politicians

### Introductory questions
Please tell me about yourself – your background, education, and role:

1. What role do you have in the municipality?

2. What issues do you work on?

3. Where do you live?

### The meaning of the town, and its role as a place

4. How would you describe Dingle/Öxnered/Ljung-Annelund?

5. Is there anything else that characterizes Dingle/Öxnered/Ljung-Annelund?

6. What type of town or community is Dingle/Öxnered/Ljung-Annelund?

7. What is the role of Dingle/Öxnered/Ljung-Annelund in the municipality of Munkedal/Vänersborg/Herrljunga?

8. What *functions* are found in Dingle/Öxnered/Ljung-Annelund (e.g., services, transportation possibilities, job openings, municipal services, and leisure activities)?

9. What *values* are there in Dingle/Öxnered/Ljung-Annelund (e.g., nature, views, and fellowship)?

### The meaning of the town and its role as a node

10. What does it mean for Dingle/Öxnered/Ljung-Annelund that there is a train station in the town?

11. What is the meaning of the Bohusbanan/Älvsborgsbanan-Viskadalsbanan railway for Dingle/Öxnered/Ljung-Annelund?

12. What is the role of the Bohusbanan/Älvsborgsbanan-Viskadalsbanan railway in the municipality of Munkedal/Vänersborg/Herrljunga?

13. What is the relationship between Dingle/Öxnered/Ljung-Annelund and Munkedal/Vänersborg/Herrljunga?

14. Does Dingle/Öxnered/Ljung-Annelund have a stronger connection to another town or city than to Munkedal/Vänersborg/Herrljunga?

15. What is the role of Dingle/Öxnered/Ljung-Annelund in the region?

16. What is the role of Munkedal/Vänersborg/Herrljunga municipality in the region?

17. What functions that are important to the inhabitants' everyday life (i.e., work and leisure activities) are not found in Dingle/Öxnered/Ljung-Annelund, but are found elsewhere?

    b. What are these places?

### The 'station community' – both a place and a node

18. Is Dingle/Öxnered/Ljung-Annelund regarded as a 'station community'?

    e. If yes, what does it mean for the town and the municipality?

f. If no, why not?

19. How do planners see 'station communities'?

20. How is the station area used?

    g. What is the size of the station area (m in diameter)?

    h. What is the size of the station's catchment area?

21. How is the accessibility of the region perceived as well as the access to the 'station community'?

22. What modes of transportation are efficient and/or attractive in the town?

23. Are existing plans for/perspectives on 'station communities' at other levels (i.e., state and region) widely known?

24. What would support/favour Dingle/Öxnered/Ljung-Annelund as a 'station community'?

## Energy efficiency

25. How is energy efficiency thought about when it comes to municipal planning? Is it thought of at a strategic planning level? (I am not asking about changing light bulbs and building materials.)

26. What can be done to make Dingle/Öxnered/Ljung-Annelund more energy efficient and sustainable based on the prerequisites there?

27. What problems are there today and what problems are most important to solve regarding energy efficiency and sustainability?

28. What potential found in Dingle/Öxnered/Ljung-Annelund is important to seize regarding energy efficiency and sustainability?

29. What are travel patterns like in Dingle/Öxnered/Ljung-Annelund?

    a. Work related?

    b. Related to leisure activities?

## The future

30. Are there any plans for the future development of Dingle/Öxnered/Ljung-Annelund?

    a. What are they? (e.g., sustainable development/energy efficiency)

31. How is Dingle/Öxnered/Ljung-Annelund developing relative to Munkedal/Vänersborg/Herrljunga?

32. What functions does one want to make the most of in the planning of Dingle/Öxnered/Ljung-Annelund?

33. What values does one want to make the most of in the planning of Dingle/Öxnered/Ljung-Annelund?

34. What functions/values or qualities are there in the town today that are necessary in order for the town to stay alive, that is, for people to want to and be able to live there?

35. Is there anything that can facilitate the sustainable development of 'station communities'?

36. Is there anything that obstructs the sustainable development of 'station communities'?

37. What is the municipality's focus in the development of Dingle/Öxnered/Ljung-Annelund?
38. What will happen to Dingle/Öxnered/Ljung-Annelund in the future?

Appendix D: Paper II – Planning perspectives on station communities in the regional context. A case study of small towns in the Västra Götaland region, Sweden

# Planning perspectives on station communities in the regional context

A case study of small towns in the Västra Götaland region, Sweden

Charlotta Capitao Patrao

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# Abstract

The concept of 'station communities' has been introduced to the planning discourse in Sweden in the last decade. Framed as a model for the development of sustainable public transport and land-use planning the station community concept has been invoked to support increased density and mixed land use around train stations, theoretically inspired by the transit-oriented development literature. As Swedish regions are interested in developing railway traffic and municipalities are interested in developing towns connected to public transport, especially railways, small towns with a train station have become a nexus for local, municipal, and regional interests.

This raises issues concerning how planning perspectives can find common ground and how institutional factors might be improved in order to support collaboration and better meet the contemporary challenges facing smaller towns. Hence, the aim of this paper is to examine the concept of station communities in a Swedish context of small towns and sparsely populated areas. The focus is on the process of practical implementation by planners and policy makers at different levels.

The results indicate that station communities are understood differently by actors at different levels, although station communities are regarded as valuable at both the regional and local levels. Collaboration between actors at different levels is seen as problematic in relation to development of station communities, as there are no clear regional priorities or agreements. In addition, there is a lack of trust between actors and small municipalities have difficulties voicing their issues and concerns. This has implications for the opportunities for regional actors and municipalities to work with train stations and connecting structures as a strategy for sustainable regional enlargement and regional development in sparsely populated areas.

## Introduction

The concept of 'station communities' has been introduced to the planning discourse in Sweden in the last decade. Framed as a model for development of sustainable public transport and land-use planning (Boverket, 2014), the station community concept has been invoked to support increased density and mixed land use around train stations, theoretically inspired by the literature on transit-oriented development (TOD) (Bertolini et al., 2009). This idea has been applied in Region Västra Götaland (VGR, i.e., the administration of the Västra Götaland region) as urban station communities (GR, 2008; Forsemalm et al., 2013). Combined with strategies to support sustainable regional commuting through expanded hinterlands, a common understanding among policy makers is that a prerequisite for attractive and competitive public transportation is to concentrate more housing and functions near railway nodes (VGR, 2016, p. 2).

Historically, one of the most influential national planning strategies has been to strive for larger regional commuting hinterlands, in what is termed 'regional enlargement' (Amcoff, 2009) in the Swedish planning context. As a result, we have seen increasing commuting flows over longer distances, predominantly by car. This less sustainable development has created a need for energy-efficient passenger transport. An often-cited strategy for integrating transportation and land-use planning at the regional and urban levels is TOD. It is based on the improvement of railway accessibility to increase public transport potential and subsequently create a sufficient base for the development of train stations and station areas (Bertolini et al., 2009). However, TOD principles are almost exclusively applied to urban and metropolitan contexts (Qviström, 2015). When, as in the case of VGR, these principles are also guiding planning and policymaking in geographical contexts characterised by low population densities and sparse settlement structures, there is little evidence of what the outcome will be. This work takes its point of departure in the application of station community strategies in small towns with train stations lacking the economic and population base present in urban areas.

Several potential pitfalls face smaller towns attempting to develop a station community strategy. One rather straightforward risk is lacking the scale needed to attract enough activities and travel to build a sustainable economic environment. However, in the new multi-level planning context facing Swedish regional and local authorities, small town station community projects are situated between regional infrastructure and transport planning, on one hand, and municipalities interested in developing their towns in connection with railways, on the other. Small towns with train stations have become a nexus for local, municipal, and regional interests. As such, they constitute an interesting context in which to study how different actors understand and use the station community idea and how this idea plays out in practice.

From a regional transportation-planning perspective, railway stations are often seen as *nodes* in larger networks. At the same time, they are also treated as *places* for work and living in local and municipal planning. This raises a set of issues concerning how planning perspectives can interact and how institutional factors might be improved in order to support collaboration and better address the contemporary challenges facing smaller towns.

This paper examines the concept of station communities in a Swedish context of small towns and sparsely populated areas. The focus is on the process of practical implementation by planners and policy makers at different levels. The following research questions will guide the study:

- How is the concept of the station community perceived by policy makers and planners at the regional and local levels?

- To what extent and how are actors at the regional and local levels collaborating regarding the development of station communities?
- What are perceived as the main potentials and problems encountered in collaboration between actors and organisational levels?

This research is expected to build our knowledge of the current debate on sustainable transport and land-use planning strategies by applying a non-urban viewpoint, specifically to the TOD framework.

In the following sections, the analytical framework is presented as well as the Swedish system for housing and transport planning, after which the methods and the case context are described. The results are then presented, followed by a discussion and concluding remarks.

# Previous research

## Rail transport, station community development, and TOD strategies

The Swedish National Board of Housing, Building and Planning refers to station communities in several documents and has produced a short video intended to promote the development of urban station communities where people can live while working in larger cities (Boverket, 2015). The document *Vision for Sweden 2025* is to be used as a basis for ideas when developing strategies for sustainable development at different levels, from national to local. Station communities are mentioned in relation to habitation and infrastructure, being viewed as a way of providing a variety of housing options with good connections to cities where workplaces exist (i.e., solving the regional housing issue) (Boverket, 2012, pp. 39–40). Regarding infrastructure, the Board states that good accessibility within and between cities and surrounding station communities is crucial for the development of cities and regions (Boverket, 2012, pp. 83–86).

All Swedish regions are responsible for establishing a regional development strategy, acting as an overall strategic development document, supporting planning processes for sustainable regional development (SFS 2017:583). The Swedish National Board of Housing, Building and Planning mentions that public transport is dependent on housing and that public transport planning must be linked to other local and regional development and planning processes. In particular, regional train traffic has been a strategic regional issue as it is often seen as the backbone of the development of the physical infrastructure needed for stable regional enlargement (Boverket, 2013).

## Integration of land-use and transport planning

The integration of transport and land-use development at railway stations is high on the agenda in many places (Renne et al., 2009, pp. 3–4). The common traits are the same in many contexts: concentrating urban development around stations to support transit use, and developing transit systems to connect existing and planned concentrations of development. This is important since a sustainable transport system also needs a sustainable built structure and transport infrastructure that can decrease both car use and energy use (Dahlstrand et al., 2013, p. 26). Traditionally, the land-use planning and transport planning functions have been separated, but there has been increasing interest in merging agencies to improve the integration between these two strands (Curtis and James, 2004). The separate planning of transport and land use tends to let actors maximise the achievement of their own objectives, instead of dealing with the compromises associated with effective integration (Curtis and James, 2004, p. 295).

Swedish studies have pointed out that a larger variety of public transport cannot develop a community on its own, but must be supported by land-use planning and transport planning that have complementary aims (Trivector, 2014, p. 23). Some have stressed that stations can be seen as both nodes and places (Slätmo, 2015, p. 23), and that this double meaning of stations must be

integrated more clearly into discussions of station communities in order to increase agreement among actors (Qviström, 2015; Selnes, 2016). The issue of agreement among actors brings us to the issue of multi-scalar complexity in planning that takes account of both infrastructure and land use.

## Multi-scalar complexity and governance

Several studies have examined multi-scalar complexity and infrastructure planning. Many have noted the increased complexity of institutional contexts connected to a more general tendency often described as 'the transition from government to governance', as the predominant command-and-control type of planning is replaced with different types of collective action (Romein et al., 2003).

As noted in other studies of governance processes for sustainable development, a key success factor is establishing and managing multi-level and multi-sector partnerships and networks (Polk, 2010). Visioning through a participatory process can be seen as filling a current gap in formal planning by establishing an alternative/complementary arena for learning and dialogue about long-term and holistic approaches to planning (Polk, 2010).

'The integration of regional public transport planning and local land-use planning has been identified as a key collaborative "hotspot"' (Pettersson and Hrelja, 2020, p. 1). The need for collaboration in this area often arises out of tensions between local-level priorities and control over land-use planning, and a more strategic regional approach to transport planning aiming to achieve urban and regional development patterns that support public transport use (Olesen, 2012; Hrelja, 2015; Pettersson and Frisk, 2016; Hrelja et al., 2017). Pettersson and Hrelja (2020) found that the literature often cites the need for dialogue and the importance of establishing trust, common objectives, and mutual understanding, using that as a basis for organisations co-acting. Yet they concluded that there are limits to what can be achieved by developing trust, mutual respect, etc. Rather, they described collaboration as a stepwise process starting with the conditions for co-action (i.e., cooperation, open dialogue, action orientation, and resources), before the values described in previous literature (i.e., dialogue to achieve mutual understanding, respect, trust, and engagement) matter. Then, shared objectives, joint problem definitions, and agreement on how to act regarding the subject of collaboration can emerge (Pettersson and Hrelja, 2020):

> Local city planning is supposed to define a detailed plan with precise contents of land use types, densities and facilities in areas surrounding stations, while regional planning should, instead, establish the overall spatial structure of TOD in terms of hierarchical distribution of transport nodes, links and activities. This coordinated perspective based on regional planning is supposed to have several potential benefits that might be lost if left only to local initiatives. (Staricco and Brovarone, 2018, p. 46)

## Method

The qualitative research was carried out as a case study of three small towns with train stations in the wider context of the Västra Götaland region, Sweden. Semi-structured interviews were conducted with municipal planners and politicians in spring 2018 and with regional officials in spring 2019 (for details, see Appendix 1). The interviews lasted between one and two hours and were recorded and transcribed. The municipal officials and planners were interviewed in groups of four or five. The politicians, one each from the leading and opposition parties, were interviewed individually. One interview with a politician was conducted by phone and the rest took place in the municipal halls. The VGR actors were interviewed in groups while the other regional actors were represented by single informants, interviewed individually. The interviews took place at the

informants' workplaces. Using different interview set-ups allowed multiple actors with different responsibilities in the large municipalities and VGR to interact during the interviews concerning the issue of small towns with train stations, providing more comprehensive answers. Politicians and the other regional actors were better suited for individual interviews.

The interview transcriptions together with the regional strategic documents and national documents about station communities were organised, studied, and analysed in NVivo by qualitatively coding the data. Categories and themes were developed from the collected empirical material, which were primarily sorted according to the interview themes described below. The themes were developed to enable an understanding of how the different actors perceived the station community concept and of what role towns with train stations have in local and regional planning and development. Additionally, the themes also covered the connections between the different administrative levels, the collaborations occurring, and what could be improved regarding the development of station communities.

The regional-level themes were as follows:

- the informants' perceptions of the cases (i.e., the three small towns with train stations)
- whether or not they viewed the towns as station communities
- how they thought about station communities as a concept
- the connections between regional and municipal planning strategies and documents
- what might happen to the three case towns and what could support or impede their development

The municipal-level themes were as follows:

- the importance of the town and its role as a place
- the town's role as a node
- the 'station community' as both place and node
- future plans for and development of the town

The complete questionnaires are presented in the appendices.

As the project of which this study is part had earlier focused on the three small towns with train stations, these were now used as regional examples of towns with train stations to spur informant discussion. It was thought that these towns would work well to facilitate discussion of how regional and municipal/local planning perspectives meet and interact.

# Case context: Governance and geography

## Actors in the transport and land-use planning system in Sweden

### National level

At the national level, the responsibility for physical planning regarding housing and infrastructure is divided mainly between two government authorities, the Swedish National Board of Housing, Building and Planning (Boverket), responsible for land use planning, and the Swedish Transport Administration (STA), responsible for transport/infrastructure planning.

### Regional level

At the regional level in Västra Götaland, there is a regional council (elected by the regional population) and a county administrative board (appointed by the national government)

(Regeringskansliet, 2015). The Swedish Transport Administration (STA) is also represented through a regional department that addresses planning, maintenance, and investments (interview C).

The county administrative board (CAB) of Västra Götaland must ensure that national targets are implemented in the county, while taking local conditions and circumstances into account. The CAB is required to apply a comprehensive perspective in its work, coordinating various societal interests and government authorities' efforts (Länsstyrelsen Västra Götaland, n.d.).

Region Västra Götaland (VGR) is the regional council in the region and its main task is to ensure that the population of Västra Götaland has access to medical care. Another important task is to run the public transport in the region (VGR, n.d., 2019a). The public transport committee is responsible for the overall strategic development of public transport, while Västtrafik is the company that plans and procures public transport in the region on behalf of VGR. VGR and the municipalities hold consultations in public transport councils. The goal for 2025 is that one third of the inhabitants' travels should be conducted by public transport versus 26 per cent in 2013 (VGR, 2013b). Fast travel by train is seen as a way of creating connections within the region. The region produces a number of strategic documents concerning long term planning goals. However, VGR currently lacks a comprehensive strategy for multi-level spatial planning (VGR, 2019b).

Regional actors (including the Swedish Transport Administration) are responsible for infrastructure and public transport; however, VGR does not have the mandate for regional physical planning through a regional 'comprehensive plan' as do the other two large city regions in Sweden (Boverket, 2019a). The relevant documents – i.e., the regional development plans and the regional growth programmes – should take account of the municipal comprehensive plans, and vice versa. Such a cooperative approach is thought likely to result in regional 'spatial planning' (Boverket, 2019a).

### Municipal level
The municipalities constitute the most local administrative level, so the municipal administrative level is expected to prioritise, negotiate, and plan local matters as well, including each separate station community in the municipality, in what is sometimes referred to as the municipal planning monopoly:

> […] traditional town and country planning is mainly a municipal responsibility. Each […] municipality is requested by law to have an up-dated comprehensive plan, which outlines the political vision of how the municipality should develop. The municipalities are also the public bodies entitled to develop and decide on legally binding detailed development plans. (Boverket, 2019a)

## Geographical context

### The Västra Götaland region
The Västra Götaland region (Figure 1) has Sweden's second largest city (Gothenburg) and an average population density of 72 people per square kilometre (SCB, 2019b). However, the population density differs significantly within the region, with the highest density found in the area around Gothenburg at almost 1300 inhabitants per square kilometre and the lowest in the northern part of the region at seven inhabitants per square kilometre (Figure 1). There is rail infrastructure throughout the Västra Götaland region with several railway stations along the lines (Figure 1), but this infrastructure becomes less dense the farther one goes from the Gothenburg area (VGR, 2011).

In the Västra Götaland region, the prerequisites for growth and sustainable development vary as the range of population density is large, including sparsely populated plains, coastal communities, small

towns, and cities. Population and economic activity is concentrated to the growing metropolitan region around Gothenburg where more than half of the region's residents live.
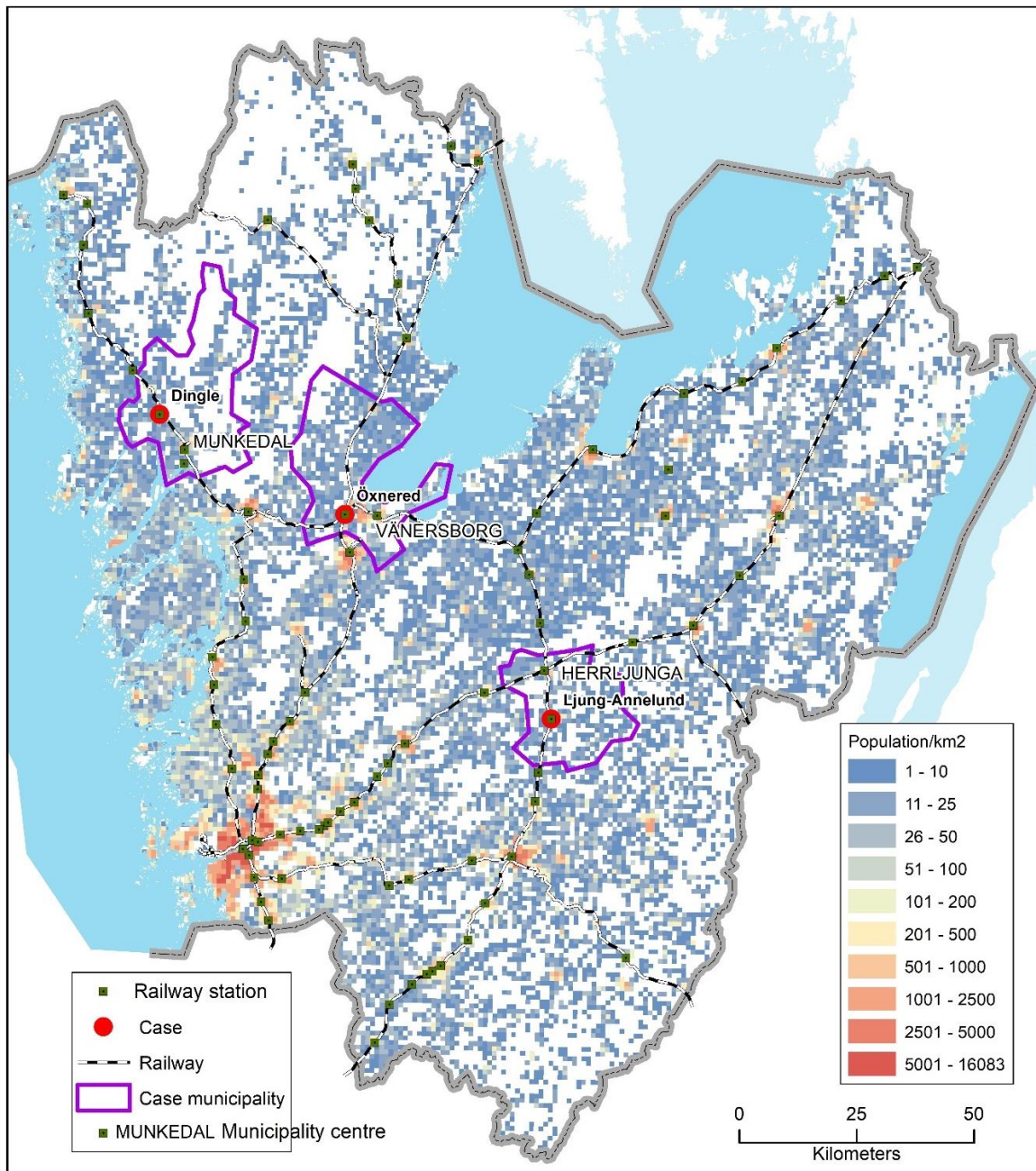


Figure 4. Map of the Västra Götaland region, Sweden, showing its railway infrastructure, population density, and the studied cases.

## Description of cases

**Ljung-Annelund**, with 1200 inhabitants, is situated in the municipality of Herrljunga. Ljung-Annelund is an inter-municipal transportation node, and the public transport in Ljung-Annelund mostly consists of trains and some buses. The town is characterised by single-family and terraced housing of one or two storeys. Ljung-Annelund is the second largest town in the municipality in terms of population and services, providing grocery stores, a petrol station, an elementary school (serving students aged 6–12 years), an elderly care home, a fire station, leisure services, a restaurant, and a café.

**Dingle** is a town with about 900 inhabitants (SCB, 2018) situated in the municipality of Munkedal. The town was built and developed at a junction between roads and the railway; however, there are few train departures from Dingle and the railway is in poor condition, resulting in low speed limits and longer travel times. Many of the buildings in central Dingle developed in connection with the railway station, whose significance has decreased since it was built. Today, Dingle is described as agricultural, being surrounded by farmland and forestry, but also as having committed inhabitants and entrepreneurship (interviews 4–6). Dingle offers services such as a grocery store with an ATM, postal service, a preschool, an elementary school (serving students aged 6–12 years), an elderly care home, service flats, a petrol station, garages, healthcare, and the Knowledge House (Swedish, Kunskapens hus), a centre offering a variety of adult education and training programmes.

**Öxnered** is situated in the municipality of Vänersborg and lies closer to the municipal administrative centre than do the other two towns. With a population of just 400, Öxnered is treated as a district of the main town of Vänersborg rather than as a separate town (interviews 7 and 8). There are transportation connections in all directions from Öxnered via roads and railways. Öxnered is situated at a junction of the north–south and east–west railway lines. The train to Gothenburg is of the greatest importance. In the regional context, Öxnered is a public transport node thanks to its train station. The small town is today characterised by its train station, nearness to nature, and its proximity to the main town of Vänersborg (Figure 1); its housing is mostly single-family houses, with some duplexes and apartment buildings (interviews 7–9; field study). Öxnered provides services such as a preschool, an elementary school (serving students aged 6–12 years), home care for the elderly, some employment in the municipal sector and small private companies, a small shop (no groceries), a pizzeria, a garage, a carpentry shop, several craftsmen and entrepreneurs, and sheltered housing (interviews 7–9; field study). While Öxnered is a potential commuter town, its daytime population is small.

## Results

First, the results will be presented regarding how the station community concept is understood by actors at the different planning levels. Interactions between actors within and between the levels are then presented, before the last section considers the potentials and problems encountered in collaboration between actors and levels in the Västra Götaland region.

### Understanding of the station community concept

### Regional level

The understanding of the station community concept varied among the interviewed regional actors. Some noted the lack of a clear definition (interviews A and B), although simultaneously claiming that these poorly defined station communities could benefit the development of the region. The concept was nevertheless useful, and places were described positively as station communities offering potential to be seized (interviews A and B). This view was likely linked to the history of the concept, as when railways were introduced, well-connected small towns grew up along the lines and were referred to as station communities (interview D). Informants from VGR (interview E) argued that the term 'station community' sounds good, and that a 'real' station community signals a certain level of service and a certain life:

> You have certain associations – there are both good [transportation] connections and a community, although [in reality] it is often quite dead around the station. Nevertheless, if it becomes a real station community, it would be good. (interview E)

The VGR informants connected the station community concept to planning fashion, and they implied that it was not easy to fully develop a station community:

> It is a little connected to fashion, now. […] Live there, work somewhere else. A place where there are many people twice a day. Maybe you can have a lot of services around the station, but it is a challenge to get them there. (interview E)

In regional physical planning and when mapping the structural geography, VGR puts considerable effort into infrastructure and public transport, striving to use and benefit from the existing infrastructure. Therefore, VGR works with the municipalities and recommends locating housing areas as close to transportation infrastructure as possible to avoid unnecessary travel (interview E). The informants stressed that the heterogeneous geography of the county is a challenge in this respect, and saw station communities as a way to support more efficient and sustainable long-term planning of the scattered settlement structure:

> We live scattered, but work concentrated, so we have a settlement structure that creates travel. There is a need to find smarter ways of transporting ourselves. And then we come back to the station communities, because trains are efficient in terms of surface [i.e., land use] and energy. (interview E)

However, other VGR informants emphasised the 'romantic' connotations of train stations as places with good connections, although it is known that even in well-functioning station communities people primarily travel by car (interview A).

In the urban station communities (Swedish, *urbana stationssamhällen*) project, VGR has striven to promote densification at different distances from stations (interview A). However, one informant shared her personal view:

> It is probably not applicable when we are dealing with these more rural station communities. There, perhaps, you have to relate to your station in a different way. (interview A)

Depending on the size of a settlement and construction demand, it can be unrealistic to think of development in terms of densification around the station. In such cases, a more transport-centred definition could be useful, like the one provided by the STA (interview C). In that sense, a station community would be a place where the population is connected to the station. It is a place where the station and community are built in parallel and develop together with the relevant functions that help people choose train travel. It should be natural to take the train and should not feel like a sacrifice (interview C).

## Municipal scale

All three studied municipalities focused in their comprehensive plans on towns with train stations. The comprehensive plans differed, but there was a common understanding of station communities as valuable for the municipality, including both the towns and surrounding areas (Capitao Patrao, 2021). A common strategy linked to station communities was densification near the stations and the facilitation of commuting to workplaces outside the municipality by public transport.

Herrljunga municipality contains an example of a historical station community, namely, the town of Herrljunga, where the railway has been one of the most important conditions for its long-term development. The municipality promotes a sustainable lifestyle based on its favourable location in relation to the railway infrastructure, and explicitly cites the concept of station community in its comprehensive plan. It should be convenient and safe to move around on foot or by bike in all towns and cities in the municipality (Herrljunga municipality, 2017). In its development strategy, Herrljunga

municipality makes use of cores, nodes, and development areas (see Figure 1) (Herrljunga municipality, 2017).

In its planning documents, Munkedal municipality also mentioned the railway as important to its development. However, it varies in importance in the municipality, with an emphasis on the main town of Munkedal where the train service is more frequent than elsewhere. Dingle is presented as one of four commuter nodes in the municipality, from which it takes 20–40 minutes to reach the larger city of Uddevalla (Munkedal municipality, 2017). From a municipal planning perspective, the railway is important for the specific case of Dingle, even though the significance of the train station and railway has decreased since their construction (interview 4).

Vänersborg municipality mentioned the principle of developing existing and new 'station communities', including Öxnered, in its comprehensive plan (Vänersborg municipality, 2017b, p. 97). In these areas, it is recommended that land around existing train stations and tracks be reserved for the development of 'station communities' (Vänersborg municipality, 2017b). Accessibility by bike and public transportation is central to the strategy. Land should also be reserved for commuter parking and new urban cores, if they develop. Planning should allow the construction of housing within walking and cycling distance of the station (Vänersborg municipality, 2017b, p. 70).

### Station communities or towns with a train station?

When the regional actors were asked specifically about the smaller towns Ljung-Annelund, Dingle, and Öxnered, it was difficult for them to answer without referring to the main town in each municipality (interviews A and B). Several informants (interview A) said that they rarely discussed individual municipalities, much less individual cities or towns. However, some informants (interview A and D) stated that the small towns were important since they permitted access to values such as culture, nature, and an alternative way of living, while allowing access to the values of the larger cities.

When trying to say whether or not the specific cases of Ljung-Annelund, Dingle, and Öxnered were station communities, it appeared that the regional actors did not think about the cases in the same way. Ljung-Annelund was viewed as a station community by most regional actors (interviews A, B, D, and E), while others said that Ljung was one, but not Ljung-Annelund considered as a single town (interview C). One important mentioned aspect was that the inhabitants might see things differently (interview A). Dingle was viewed as a station community by several actors (interviews A, D, and E), but not by others, since it is too far from a town centre (interview C), while still others were undecided (interview B). Most regional actors viewed Öxnered as a station community (interviews A–D), although the VGR informants claimed that it was not a station community due to its lack of service supply (interview E). One informant said, in contrast, that Öxnered was more of a station community than were the other two towns given its location directly at a rail junction (interview C).

### Interaction within and between levels

### The regional level

The planning of station communities involves a number of actors on the regional level. This was most evident when addressing the coordination and integration of transport and land-use planning in light of the traditionally strong municipal self-governance. In this section, we will consider roles and interactions on the regional level, with key actors being Region Västra Götaland (VGR), Västtrafik, the Västra Götaland County Administrative Board (CAB), and the Swedish Transport Administration (STA). For more details regarding these actors, see the previous section on case context.

One initial observation from the interviews is that the actors described existing collaboration in different ways. VGR, which allocates assignments and budget to Västtrafik, emphasised the close collaboration with Västtrafik (interview A). The Västtrafik informant noted that there were many actors and a lot of discussion in the collaboration forums, but that little was getting done (interview D). This is one example of how the collaboration structure was experienced as inefficient, perhaps leading to a lack of productive collaboration. Both being national authorities, the Västra Götaland CAB works closely with the STA. The STA claimed to collaborate with VGR, Västtrafik, and the regional business community to develop the regional railway infrastructure, so that it would match the policy targets developed by Västtrafik and VGR (interview C).

The most recent change to the governance and organisation of transport and land-use planning can be attributed to the regionalisation process that led to the establishment of VGR in 1999 and its new role as responsible for regional development at the expense of the CAB. This has resulted in a process whereby the previously straightforward municipal–national relationship has gradually become more multi-level and complex, as illustrated by the CAB informant:

> Now, 20 years later, one has forgotten who does what and what you can expect from one another.

and further:

> There are many actors, and cooperation is a nice but weird word. We put a lot of effort into talking to each other, but we do not put so much effort into understanding each other. All are focused on their own processes, and so are we. (interview B)

The main challenge for collaboration at the regional level is the regionalisation process, which, for 20 years, has resulted in more actors and difficulties in collaboration and coordination.

## Municipal–regional level

One key theme that runs through the interviews is the recognition that responsibility for regional and local planning is divided between several actors and levels. This makes it difficult to coordinate different aims and ambitions in time as well as to integrate actors at different levels. For small towns with a train station, this was very clear, since the planning and financing of regional train infrastructure is a national responsibility while land-use planning is carried out at the municipal level. From this larger perspective, the small towns face a major challenge just to be seen and heard in the national infrastructure policy conversation. This was described as a situation in which the small towns end up buried by a 'gigantic noise or buzz' (interview B).

The lack of balance between larger and smaller initiatives seems to have created a lack of trust between regional and local actors. In practice, small municipalities have to accept the top–down infrastructure projects and hope that some of their local concerns are heard through the 'buzz'. That is not easy, as infrastructure planning does not go directly from the national to municipal levels, but through the regional level. The region should also consider the needs and interests of small towns with train stations:

> I believe we have created too large a machine that makes us only able to handle big things. I understand why we have done this, but it makes it impossible to work today because there are so many [actors] who should carry things with them in this. (interview B)

One example of the complexity of this system is the role of the CAB, which, from a national perspective, is involved in a supporting capacity in the development of municipal comprehensive plans. However, if the municipality wants to develop a town into a station community, the CAB and the municipality are only allowed to handle land-use planning, as municipalities do not plan their towns from a train station/public transport perspective. This is the task of VGR/Västtrafik, for regional public transport, and of the Swedish Transport Administration, for national trains and infrastructure (interview B). If the CAB is to help a municipality advance with its plans, it needs to know that other actors also will also invest. This lack of coordination is a problem since the development processes are divided between several levels, hindering one actor from taking responsibility for the whole issue (interview B).

All informants at the regional level indicated that they actively work with the municipalities in the region. As stated in the Planning and Building Act, the duty of the CAB is to prepare a summary report accounting for state and trans-municipal interests that may have a bearing on municipal comprehensive plans (SFS 2020:76). The informants emphasised that regional policies are largely formulated as general long-term targets (Swedish, *målbilder*) and that municipalities have problems interpreting how these general targets should be implemented in local planning. This makes these targets difficult to relate to at the local level. The CAB informant expressed concern that their role is limited, and identified considerable potential for collaboration between regional and local actors. However, in the case of small towns with train stations, the potential to influence is restricted (interview B):

> Our [i.e., the CAB's] role is very small. Municipalities must take responsibility for their community planning. We cannot say no, [as] the municipalities are responsible for the outcome of their planning. Then we will give thousands of pieces of advice and sometimes it is not appreciated and sometimes it is. We can say no to a few things – among other things, coastal protection. We have an advisory role and review all social planning, but we have no muscle or mandate. (interview B)

From the perspective of the VGR Department of Regional Development, the informants stated that they were unsure of the order in which things are done regarding the connection between regional strategies and municipal comprehensive plans (interview E). Neither physical planning nor the involvement of municipalities were addressed in the production of the Regional development strategy (Swedish, Västra Götaland 2020) and the regional development strategy. Other documents and plans from the municipalities were included among the objectives, although physical planning was not explicitly mentioned. The informants saw the lack of integration as a result of the fact that comprehensive land-use planning is a municipal responsibility (interview E). The integration of public transport was seen as relatively more developed, since a specific regionally owned transport company (Västtrafik) is responsible for the coordination of public transport supply. VGR and Västtrafik have established working groups with the municipalities. In these groups, it is the municipalities' responsibility to present how local land-use planning should be coordinated with the regional transport plans:

> It is difficult to say what comes first in the process of working on the development of public transport, but we have tried to find a shared way of looking at how we will develop it. What is most important? What routes or stations are the most prioritised? After a while it becomes self-fulfilling, because if they [i.e., the municipalities] invest, then we need to invest more. The municipalities need to let us know how they intend to invest. Continuous dialogue is important so that you know what processes are ongoing and also

> because developing public transport is a joint process. Holding this dialogue
> with the municipalities is thought to have become easier and clearer because
> Västtrafik now looks at each municipality's plans. (interview E)

The respondents from the Regional Department of Public Transportation and Infrastructure maintained that the municipalities play an important role in producing the strategic documents. When documents on public transport are sent out for referral, the process is structured through the Associations of Local Authorities. The viewpoints are collated and summarised, including trade-offs, within each Association of Local Authorities before they reach VGR, which has a regional perspective and cannot consider individual municipalities' viewpoints (interviews A and E).

The Swedish Transport Administration informant asked whether the Associations of Local Authorities might have too much power relative to the region. In comparison, in Region Skåne, public transport has been developed from the inside (i.e., Malmö) out, whereas a regional strategy has been lacking in Västra Götaland (interview C). Consensus on what and where to invest has not been reached in Västra Götaland:

> As the need for investment is high, then you want to give a little to everyone.
> That results in not reaching the goal, as there is never enough money, and one
> does not reach consensus on how to achieve some specific things. (interview C)

It is clear that the regional–local conversation in this case was also intertwined with the national level. During the interview with the Swedish Transport Administration informant, it was noticed that the region's strategy of increasing the train traffic in Ljung-Annelund to one train per hour (using national rail infrastructure) would not be enough to make the strategy attractive from a national perspective. Early in the planning process, there were attempts to reach consensus between the local, regional, and national levels (interview C). It was pointed out by the informants that reaching agreement entails communication and gathering at meetings to find out about everyone's plans. Additionally, the Swedish Transport Administration is more likely to hold discussions with a municipality that has specific plans and a certain level of compactness than with a municipality that has a general pattern of dispersed population where it is difficult to provide public transportation (interview C). The uncoordinated nature of this multi-level process is illustrated by the fact that the Swedish Transport Administration commonly interacts directly with municipal officials and municipal politicians (interview C).

When VGR responds to municipal comprehensive plans, they primarily act as a public transport authority. In their responses, they try to motivate municipalities to think of investments in existing corridors according to the current regional transport strategy (interview A). This illustrates that while the regional actors formulate strategic visions and strategies such as corridors and TOD, the actual opportunities to supply public transport infrastructure are dependent on how the municipalities plan their land use (interview A). Regarding the more detailed planning of public transport supply and demand, Västtrafik communicates with municipalities regarding their land-use planning (interview D):

> For a long time we have striven that VGR and Västtrafik should be able to
> participate in the early stages of comprehensive planning with the
> municipalities. At that stage we can discuss their plans and have an impact on
> them, even though the municipalities decide on the comprehensive plans.
> There is an interplay in which we are participating in the municipalities'
> processes and they in ours – it is about how we can put this puzzle together so
> that everyone can gain from it. (interview E)

The municipal comprehensive plans were discussed in most interviews (interview A, B, D, E). The CAB informant explained that the actors no longer meet through the comprehensive planning process. Nevertheless, there is a need to find out what issues can be agreed on by multiple actors to avoid always handling every question separately (interview B):

> We talk about different questions and all of us never sit in the same room together, or when we do, then we only talk about the one question. Even though different questions are related or touch on each other. (interview B)

From the regional perspective, it was stated that the process underlying the municipal comprehensive plans often went ahead without knowledge of how the regional planning of infrastructure works (interview B), possibly because this is done only every fourth year. The fragmentation of the process is illustrated by the following:

> It is a game because we have divided it so much, so you talk about different things. We [i.e., the CAB] are not involved in early infrastructure planning, and then it is difficult to be supportive when we do not have the practical experience. We are a regional actor that often talks directly with the municipalities. One can try to become good at having knowledge of the system, but it is difficult. Then the personnel change … it is quite personal knowledge, it is not that it is directly in-house. When it comes to our station communities, it becomes even more complicated, as it is not only the region that can go in and provide monetary support, but it should go all the way and reach the national level to make this investment. (interview B)

When VGR addressed the issue of smaller stations and their meaning to their surrounding areas, they concluded that, from the regional perspective, it was insufficient to focus only on the train station and its traffic. For the smaller stations to reach their full potential, everyone must work together to develop the collaboration. What the municipalities want in their comprehensive plans matters greatly. The region cannot be the only actor driving the process; rather, everyone needs to agree on a common goal. It is helpful to know about the comprehensive plans, but the municipalities have the planning monopoly. If the regional strategy supports the opening of a station, VGR tries to have a discussion with the municipality. However, to reach a long-term solution, they need to know that the municipality will invest as well (interview E).

## Collaboration between actors and levels: potentials and problems

As we have seen, several respondents at the regional level identified problems related to the lack of clear priorities and agreements. Regional actors believed it would be an advantage if Regional spatial planning in Västra Götaland had a more prominent and formal position. The argument was made that this would make things clearer for municipalities at the local level. This would support physical planning and facilitate agreement among multiple actors about concrete common goals. Although not regulated by law, it would still constitute a common line to follow (interviews A and B).

One informant saw a problem with the sub-regional division through the associations of local authorities:

> They do a fantastic job, but the responsibility should not lie there. As someone said, 'Why do we have a large region?' I wish that we could benefit from being a large region and that it was not a disadvantage, as I sometimes feel that it is now when we meet other County Administrative Boards that know what is going on, what the municipalities want and what this could imply. I feel a little sad that we are losing this level because things get so big all the time. (interview B)

The municipal actors, on the other hand, see difficulties regarding their dependency on other actors to invest in new housing and infrastructure. This was especially evident in our cases since the potential station community investments were to be made outside the main municipal centres. The smaller towns with train stations were rarely seen as the primary focus of municipal development. There is often low demand for new housing in these smaller towns, and without a clear regional plan and support, it is often more politically realistic to focus on the main urban centres.

This was highlighted by the CAB informant who questioned why there was no analysis of what it would mean for the region to, for example, develop Ljung-Annelund. Such an analysis would imply that it is not the municipality that should single-handedly drive train-station development in Ljung-Annelund, as it would be aligned with the development of the region instead (interview B).

The need for collaboration and integration is even more pronounced when the national level is involved. Towns with train stations are promoted as good by the national authorities, while the practical work and investment is supposed to be done at the local level. One example of how national aims are directly embraced by the municipal level is the case of Ljung-Annelund, where the municipality followed the model of station community development provided by the Swedish National Board of Housing, Building and Planning (interview 1). The VGR informants acknowledged the same model; however, they regarded station communities as a strategy initiated at higher levels, rather than from below. The lack of coordination is illustrated by the following remarks:

> At the local level, there are wishes and there is an enormous gap between the levels. (interview B)

> The Swedish National Board of Housing, Building and Planning made a cool movie about station communities, and it came mostly from the planning team and administratively, politically. Not so much from below. (interview E)

One impression of the Swedish Transport Administration informant is that VGR's regional strategies were not always accepted by the municipalities. In comparison with Stockholm and Region Skåne, the informant believed that VGR was behind in terms of infrastructure. This was because lack of internal cooperation led to problems presenting a coherent regional plan to the national level. Formulating such a plan is the role of the region, which needs municipal backing as well as a strategy (interview C). The informant thought that this concerns the fact that there are major shortcomings in infrastructure investment. Therefore, there is a need to prioritise correctly and he saw it as a problem that the region has not taken up the 'fight' about what is to be prioritised (interview C). Similarly, the CAB informant said that it was not lack of knowledge that was the problem; rather, it was about daring to prioritise, analyse, and decide:

> A role is missing, where the region could express what it wants to do with the smaller towns. This could create calm, as it would be a commitment. Then perhaps you could start to trust each other, because you would agree on something for the long term. Stockholm is seen as a role model where they work with practical regional spatial planning and not only with abstract targets as you do today in Västra Götaland Region. (interview B)

## Discussion

### Conceptual confusion and lack of integration

It is clear that the concept of *station communities* has different connotations in different planning contexts. Municipalities did see an opportunity for local development based on stations providing connections to the regional labour market. The regional actors, on the other hand, seem to have

been less inspired by the potential for bottom–up growth and development and instead put their effort into traditional infrastructure planning. Several informants mentioned the video from the Swedish National Board of Housing, Building and Planning that describes the concept of station communities. This obviously provided inspiration, but there seems to have been a lack of more concrete accompanying support for actually implementing the concept in practice. The results further indicate a lack of communication between actors at different levels and within the regional level due to lack of agreement as to where and how investments should be made in the regional railway infrastructure. When communication is lacking, it is difficult to understand the work of other actors (Pettersson and Hrelja, 2020) and therefore easy to criticise them.

Fuzzy or unclear concepts and policies are not new in planning. However, in combination with the more complex and demanding issue of a lack of spatial and administrative coordination, this lack of clarity created a situation in which local initiatives based on the idea of station communities were abandoned and not supported. One key reason identified here is the rigid division between local land-use planning at the station level by municipalities, and infrastructure and transport planning at the regional level by regional and national authorities. This is one example of an identified gap between administrative levels working on train stations in different ways. It is obvious that the municipalities have not adapted their plans to the regional strategies as they have a planning monopoly. This is similar to the problem stressed by Staricco and Brovarone (2018, p. 46), that potential benefits might be lost if TOD is left only to local initiatives. Consequently, several actors noted a need to identify, in an agreement, what investments should be prioritised regionally by concerned municipal and regional actors.

## The need for integration of regional transport and land-use planning

Given the experiences and suggestions of actors at different levels in the region, one might conclude that what is needed is regional planning at a much more comprehensive level. Integrating local land-use planning with regional transport and infrastructure planning seems to be difficult when there is only a regional vision and strategy, but no common goals or binding agreements for municipal and regional actors, which the informants see as problematic. The associations of local authorities are working on collaboration, but there are no binding agreements, and without regional physical planning in Västra Götaland Region, there is nothing to steer regional development and planning. This illustrates the need for collaboration between local and regional actors, as mentioned by Hrelja (2015), Hrelja et al. (2017), Olesen (2012), and Pettersson and Frisk (2016).

Based on the case of station communities one might discuss if a regional comprehensive plan is the most efficient way towards integrating the small towns in the regional planning process. Based on the interviews and on the study by Pettersson and Hrelja (2020), one possible strategy would be not to wait for an integrated regional plan, but to focus on prioritising where to invest in station communities. As many towns in the region have a train station, it is reasonable to think that not all of them can be developed as station communities in the future. However, the lack of trust and lack of incentives for collaboration are problematic. Drawing on Pettersson and Hrelja (2020), the relevant actors would first need to affirm the importance of cooperation and have an open dialogue before building trust and engagement and reaching agreement on how to act. This shows that work remains for the actors before they can enter agreements concerning the development of station communities in the region.

## The future of station communities as development engines trapped between administrative levels in the Swedish planning context

One obvious first question to pose here is whether the case of station communities is a one-off specific example or whether it actually reveals something more problematic in Swedish spatial planning. We would argue for the latter. The cases studied here are indeed context specific, but they share the same condition of being small towns putting their development hopes in new infrastructure investment. As such, it has become clear that the relatively immature and currently changing Swedish multi-scalar spatial planning system has its pitfalls.

The municipalities primarily take account of their own context and development. It is not compulsory for them to follow the regional vision and strategy, so they choose to do what seems best for them from their perspective. This is aligned with the findings of Curtis and James (2004) and Starrico and Vitale Brovarone (2018), who argued that actors tend to maximise the achievement of their own objectives, instead of dealing with the compromises associated with the effective integration of transport and land-use planning from a regional perspective.

The results indicate that the administrative system for planning is structured according to a sectoral model supporting parallel processes and makes it complicated for actors to meet between land-use and transport planning. The case of station communities highlights the lack of coordination and cooperation between different planning specialisations. And it is further complicated by the fact that actors are working in a changing multi-level organisational context.

## Conclusions

The conclusions from this paper are as follows:

- There are problems concerning the concept of station communities as it has different connotations for the interviewed actors.
- Regional planning at a more comprehensive level and shared incentives regarding station communities in the region are needed if a regional strategy for station communities that integrates transport and land-use planning is to work.
- The lack of communication and coordination between actors and levels is problematic since it results in a lack of trust.

More research is needed on the concept of station communities and the gap between administrative levels that work on train stations in different ways. The strategy of developing station communities would also benefit from research on what could improve cooperation and agreement among actors needed in the planning of stations and their surrounding areas.

## Acknowledgments

## References

Amcoff, J. (2009) Rapid regional enlargement in Sweden: a phenomenon missing an explanation, *Geografiska Annaler: Series B, Human Geography*, 91:3, 275-287

Bertolini, L., Curtis, C. & Renne, J.R (2009). Chapter 1: Introduction. In Curtis, C., Renne, J.R & Bertolini, L. (ed.) *Transit Oriented Development: Making it Happen.* Ashgate, London, p. 3-12

Boverket (2014) *Vision for Sweden 2025*. Karlskrona: National Board of Housing, Building and Planning. ISBN (PDF): 978-91-7563-135-6. Downloaded from: https://www.boverket.se/en/start/publications/publications/2014/vision-for-sweden-2025/

Boverket. (2015). Temafördjupning: Det urbana stationssamhället. Retrieved 2020-03-02, from https://www.boverket.se/sv/samhallsplanering/sa-planeras-sverige/sverige-2025/temafordjupning/

Boverket. (2019a). About Boverket. Retrieved 2020-03-05, from https://www.boverket.se/en/start/about/about-boverket/

Forsemalm, J., Hadasch, I. and Palmås, K. (2013) *Station Community Transitions – A Matter of Push or Pull?* Mistra Urban Futures Papers 2013:1. Dowloaded from: www.mistraurbanfutures.org

Länsstyrelsen Västra Götaland. (n.d.). Om Länsstyrelsen I Västra Götalands Län. Retrieved 2020-03-05, from https://www.lansstyrelsen.se/vastra-gotaland/om-oss/om-lansstyrelsen-i-vastra-gotalands-lan.html

Regeringskansliet. (2015). Arbetet på regional nivå. Retrieved 2020-03-05, from https://www.regeringen.se/sa-styrs-sverige/arbetet-pa-regional-niva/

SFS 2017:583. Förordning (2017:583) om regionalt tillväxtarbete. Stockholm: Näringsdepartementet RSL

SFS 2020:76. Lag om ändring i plan- och bygglagen (2010:900). Stockholm: Finansdepartementet.

Trafikverket, 2018 https://www.trafikverket.se/for-dig-i-branschen/Planera-och-utreda/Planerings--och-analysmetoder/Atgardsval/

VGR. (2011). Tillgänglighetsatlas över Västra Götaland.

VGR. (2013a). Målbild tåg 2035 – utveckling av tågtrafiken i Västra Götaland.

VGR. (2013b). Västra Götaland 2020 strategi för tillväxt och utveckling i Västra Götaland 2014-2020.

VGR. (n.d.). Region Västra Götaland. Retrieved 2020-03-05, from https://www.vgregion.se/en/

VGR. (2019a). Public Transport. Retrieved 2020-03-05, from https://www.vgregion.se/en/public-transport/s

VGR, 2019b). Regional fysisk planering. Retrieved 2020-03-06, from https://www.vgregion.se/regional-utveckling/verksamhetsomraden/regional-fysisk-planering/

ÖP Portalen Västra Götaland. (n.d.). Sammanfattande redogörelsen. Retrieved 2020-03-05, from http://extra.lansstyrelsen.se/op-portalen-vastra-gotaland/sv/sammanfattande-redogorelser/Sidor/default.aspx

Interview A Västra Götaland Region, Department of Public Transport and Infrastructure

Interview B County Administrative Board of Västra Götaland, Department of Samhällsbyggnad

Interview C The Swedish Transport Administration

Interview D Västtrafik

Interview E Västra Götaland Region, Department of Public Transport and Infrastructure Planning, and Department of Business and Industry

Interview 1 Herrljunga planners and officials

Interview 2 Herrljunga politician, Political opposition

Interview 3 Herrljunga politician, Ruling party

Interview 4 Munkedal planners and officials

Interview 5 Munkedal politician, Political opposition

Interview 6 Munkedal politician, Ruling party

Interview 7 Vänersborg planners and officials

Interview 8 Vänersborg politician, Ruling party

Interview 9 Vänersborg politician, Political opposition

## Appendix 1

Table *1*. List of interviews with regional informants.

| Interview | No. of informants | Organisation | Title(s)/role(s) |
|---|---|---|---|
| A | 2 | Västra Götaland Region, Department of Public Transport and Infrastructure | Regional developers focusing on railway traffic, societal development, and public transport |
| B | 1 | County Administrative Board of Västra Götaland, Department of Samhällsbyggnad | Regional growth, regional and national transport infrastructure |
| C | 1 | Swedish Transport Administration | Senior investigative leader |
| D | 1 | Västtrafik | Societal developer |
| E | 3 | Västra Götaland Region, Department of Public Transport and Infrastructure Planning, and Department of Business and Industry | Regional developers focusing on regional development and the regional service programme, business support and rural development, station communities |

Table 2. List of interviews with municipal informants.

| Interview | No. of informants | Municipality | Title(s)/role(s) |
|---|---|---|---|
| 1 | 5 | Herrljunga | Municipal planners and officials<br>- municipal architect<br>- public transport coordinator<br>- street and land issue secretaries<br>- head of technical management<br>- comprehensive planning secretary |
| 2 | 1 | Herrljunga | Politician: Largest political opposition party |
| 3 | 1 | Herrljunga | Politician: Ruling party |
| 4 | 5 | Munkedal | Municipal planners and officials:<br>- public transport secretary<br>- street and land issue secretary<br>- planning manager<br>- business development secretary<br>- cultural and leisure manager |
| 5 | 1 | Munkedal | Politician: Largest political opposition party |
| 6 | 1 | Munkedal | Politician: Ruling party |
| 7 | 4 | Vänersborg | Municipal planners and officials:<br>- strategic planning secretary<br>- planning and building permit secretary<br>- street manager<br>- town architect |
| 8 | 1 | Vänersborg | Politician: Ruling party |
| 9 | 1 | Vänersborg | Politician: Largest political opposition party |