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Sustainable mobility transitions in suburbia – exploring (dis)connections between transport planning and daily mobility

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ABSTRACT

The development of low-carbon cities calls for a restructuring of their suburban hinterlands, and regional land-use and transport planning has become an instrument to achieve this. However, this restructuring has several social implications and is lived by people, who are expected to develop more sustainable practices. There are disconnections between planning practices and people's everyday practices, of which the literature has provided little to explore and solve. This paper deals with this by studying how regional low-carbon transport strategies are implemented, translated, and lived in a suburban context, and discusses how disconnections between scales of mobility transitions might be bridged.

Introduction

Suburbanization has been considered a significant challenge for sustainable urban development. The condition of suburbia itself has been viewed as problematic, mainly because of the accompanying car dependency and the low-density city expansion, coined urban sprawl, which has weakened the conditions for sustainable mobility. The critical discourse against suburbs and the suburban condition was first developed in the U.S, where the implications of automobility and sprawl were felt first (Mumford 1961). Later this evolved into a generalized critique of the modernist urban landscape and its largely car-based suburban hinterland, as well as the deterioration and disinvestment in many city centres, especially in the U.S. In the last decades, an increasingly dominant urban sustainability discourse has fuelled the critique of suburban landscapes and ways of life. This critique resulted in an urban centrist approach, focusing on densification and revalorization of the city core. Suburbia was overlooked or viewed as something that had to be dealt with through functionalistic approaches and not something that could be a place in itself (Gans 1967). However, it is increasingly acknowledged that the anatomy of urban sprawl and suburbanites' lifestyles cannot be altered by simply creating attractive and liveable city centres (Keil 2018; Phelps, Wood, and Valler 2010). And after a period of decline in regional planning and modernist ideals in urban and infrastructure planning, associated with the emergence of a neoliberal and market-oriented planning regime (Graham and Marvin 2001; Hall 2014), regional policies and planning have again become preferred policy instruments to deal with

urban-regional challenges (Keil et al. 2017; Brenner 2004). The critique of urbanization through urban sprawl, and the need for climate change mitigation and decarbonization, has also contributed to this revitalization in many city regions. This 'new' urban and regional planning is arguably related to a rescaling of regional policies (Brenner 2004), or a shift towards governance regimes described as post-suburban because of its introduction of urban elements and planning (Phelps and Wood 2011; Phelps, Wood, and Valler 2010). The term post-suburbanism captures the material and functional changes of suburbia, which often involves a shift from mono-functional suburbs to a diversity of suburbs and multi-functional suburban centres. It is increasingly acknowledged that the current sustainability and decarbonisation strategies cannot be conducted solely based on the stereotypical conception of the low-density suburban tract consisting of detached single-family homes, but must be diversified to encompass the variety of suburban contexts, and the specific challenges of suburban mini-cities, with an increasing array of urban-like functions (Keil 2018). The change of focus is also evident in current low-carbon oriented spatial planning, aiming to develop polycentric city regions, with a deconcentrated centralization of functions and activities.

Infrastructures have a decisive role in these transformations, not merely as infrastructures *in* suburbs, but also as the infrastructures *of* suburbs determined by suburban institutions, communities and governance, and infrastructures *for* suburbs conditioning the functional integration of polycentric urban regions (Addie 2019). Moreover, a large share of the urban population lives in suburban and exurban areas, and creating the sustainable city region depends on the transformations of spaces, infrastructures, practices and cultures in suburbia itself (Røe 2014). In sustainable transport research, there has been a focus on inner-city cases, and there are currently few studies exploring the implementation of sustainable transport plans and low-carbon interventions and transitions in suburban locations (Keil 2018). Moreover, regional and polycentric land-use planning is part of a larger planning discourse and practice, criticized for its focus on functional spaces, material objects and physical infrastructures. This is especially true for transport planning, which has been dominated by technocratic approaches and the use of aggregated data on travel behaviour (Røe 2000). Within such strategies, individual travel behaviour is more or less expected to be structured by the built environment and infrastructure (Schwanen, Banister, and Anable 2011), and low-carbon strategies based on such planning models often fall short of addressing the deep societal, cultural and systemic changes required (Sheller 2018). The lack of success in transforming peoples' everyday mobilities towards sustainable practices reveals the need for knowledge about how policies, plans and implemented outcomes are interpreted by planners and practiced by people within the frame of their everyday life. This paper addresses these knowledge needs by studying how regional low-carbon land use and transport strategies are implemented, translated, and lived in a suburban context. In this paper, we argue that since the outcomes of land-use and transport planning are lived and practised by people, they thus have a key role in sustainable transitions. The disconnections between planning, on the one hand, and people's everyday lives and grounded social practices, on the other, is a reoccurring theme in the literature. Explanations of failed connections focus on the planners' top-down approach, their instrumental methodology, and their lack of knowledge about people's lives, or as Sandercock (2003, 2–3) puts it, the local knowledges written into stones and memories

of communities. Graham and Healey (1999) argue that places and urban spaces are often presented as objective and idealized representations, based on specific disciplinary methods and discourses, without being informed by people's everyday lives affected by plans.

Based on an empirical study of both the planned transitions and peoples' lived experiences in and around regional towns in the Greater Oslo region, this paper identifies possible (dis)connections between transport planning and daily mobility practices in suburbia, which might hamper sustainable mobility transitions in a suburban context. We suggest how and via which modes of planning practices these disconnections might be bridged, and argue that research on these disconnections, as well as others, should inform policies and plans to achieve a sustainable transition of suburbs. This is even more the case if this transition is to be socially just, with respect to procedures of involvement, the recognition of a variety of groups and interests, and the distribution of public goods, accessibility to everyday functions, and living conditions (Pereira, Schwanen, and Banister 2017; Sheller 2018).

To address these objectives, our paper draws on debates in critical planning theory focusing on developments in planning practices and relating it to knowledge regimes and scalar narratives, and on the growing mobilities literature. We argue that this study complements existing research on low-carbon transitions by offering insights into the lived dimensions of sustainable transitions of suburbia, in relation to, and in contrast with, the planned developments. Furthermore, our suggestions for responses to bridge the gap between transport planning and daily mobility practices may be of relevance for planners and policy-makers seeking to plan for sustainable transitions focusing on the suburban hinterlands of cities.

Empirically, the paper investigates the regional land-use and transport plan for the Greater Oslo Region (City of Oslo and Akershus City Council 2015). This plan aims to transform the suburban and peri-urban landscape, its built environment, and its transport infrastructures to achieve a decarbonisation of the mobility system. The regional plan intends to develop a polycentric regional structure that further develops the established compact city policy in designated centres. Our paper examines the knowledge and logics informing the plan, how the plan is interpreted and implemented by local planners in three designated suburban centres, and how people's mobility practices and perceptions align with or contradict this plan and the planner's conceptualizations.

The following section presents the theoretical framework, which has informed the empirical analysis. Then the case sites and methods are presented, before we present the analysis of identified (dis)connections between planning strategies, municipal planning practices and peoples' daily mobility practices. The paper ends with a concluding discussion, which includes a set of suggested responses to bridge the identified disconnections.

Planning for low-carbon mobility

Policy and planning strategies are in general based on specific types of knowledges and knowledge regimes (Davoudi 2006). The emergence of a new (or re-making of an old) form of regional planning is fuelled by the development of generic and decontextualized planning models and schemes (McCann and Ward 2010). The dominant low-carbon planning models predominantly aim at making polycentric urban regions strengthening

the connections between the city and its hinterland by enhancing public transport systems, developing transit-oriented nodes, implementing new smart and flexible mobility systems, and densifying suburban centres. According to Davoudi (2003), as polycentricism has become an ideal and hegemonic spatial planning strategy to increase economic competitiveness, it has changed from being an analytical and descriptive tool to becoming a normative agenda. Arguably, the normative agenda of polycentricity has also been strengthened and legitimized by being conceptualized as the dominant strategy for decarbonizing city regions (Schmitt 2013). Moreover, this agenda is advocated for by a range of different actors, like private real estate developers and their consultancies, who in the current urban planning regime, in the Oslo region, produce detailed plans for urban development and therefore are crucial for the implementation (Røe 2014). However, polycentric planning may create intraregional competition, as development opportunities across the metropolitan region are increasingly unequal, and it is argued that the new regional governance is characterized by intense social struggles over territorial, cultural and political space (Keil et al. 2017). This is because it reorganizes regional spaces and hierarchies in ways that may reproduce inequalities of access and connectivity, disconnecting this 'new regionalism' from the everyday needs and politics of place-making. The restructuring of urban regions may also contribute to social exclusion by creating highly accessible spaces for a demographically, socially and economically limited category of people (Farrington and Farrington 2005; Pereira, Schwanen, and Banister 2017).

Regional and polycentric land-use planning are part of a larger planning discourse and practice, criticized for its focus on functional spaces, material objects and physical infrastructures. Individuals' transport behaviour is within such strategies, more or less expected to be structured and determined by the built environment and infrastructure. Arguably, accessibility to sustainable travel modes such as public transport, cycling and walking is within this perspective reduced to a question of physical distance, for example between home and a transit stop. Nevertheless, this instrumental and static approach to accessibility have been nuanced in literature and research emphasising how different travel environments can exclude certain groups because of fear of assault or crimes, how transit can be inaccessible for parents with a pram, or how disabilities might make different travel options inaccessible for some and thus affect one's motility (Adey, 2017) Moreover, the linear relationship between density and sustainable travel practices, have been questioned in recent contributions (Elldèr, Haugen, and Vilhelmson, 2020). Accessibility is also a question of affordability, and of spatiotemporal constraints and one's opportunity to affect these (Kwan 2013). For example, public transit is only accessible at certain times and is fixed in terms of destination. Accordingly, it does not necessarily cater for one's mobility needs, and people can to a varying degree influence where they need to be at certain times due to aspects such as working hours. Furthermore, not being able to access transport for different reasons can lead to social exclusion as one might not be able to participate in activities or access services, functions, and goods at different locations (Hine 2003).

A focus on land-use and the instrumental logics of physical distance (i.e. spatial or architectural determinism) may contradict the agency to challenge, transgress and develop strategies to cope with and modify the built environment (Lefebvre 1991). Moreover, travel in such approaches is generally conceptualised as a cost, or a calculable

demand derived from the utility people gain by participating in activities at various locations, based on the assumption that people make rational decisions to maximize utility. Consequently, other dimensions that structure mobility practices are neglected. A communicative planning process that takes into account the diversity of practices, experiences and positions within a local planning context (i.e. Healey 2002), is a response to the critique of architectural determinism, but have itself been criticized for not taking into consideration the hidden social structures and power relations that influence place-making and urban development (Allmendinger and Haughton 2010). This calls for local planning and place making that are informed by knowledge of the power-geometry of place (Massey, 1994).

Regional transport planning can be criticized for not accounting enough for local contexts or the scale of everyday life. Nevertheless, regional transformations and decarbonisation of transport is planned, implemented and lived at different scales. Gonzales' (2006) concept of scalar narratives illustrates this: 'stories about changes in the spatial patterns and socio-political processes that are uttered by actors or groups embedded in specific historic and political contexts which reduce the universe of political choices' (839). Gonzáles uses the concept to identify how different political and private actors frame scalar narratives in urban development projects. In this article we argue for an approach that also recognizes the scalar narratives of daily life and households, as this can contribute to a better understanding of the social implications of low-carbon planning and contribute to the opening up of the lived in-between spaces and temporalities of mobility that often are not considered in top-down planning strategies. Such accounts can be used to imagine, act and live new sustainable and just mobility systems (Katz 1996, 2017). Furthermore, by employing this theoretical concept, we may identify contesting or diverging scalar narratives of suburban mobility transitions.

Lived mobility transitions

In our ambition to focus on the people affected by regional transport and land-use plans, and move beyond the focus on urban environment as the key structuring factor of mobility practices, this paper also draws on ideas and conceptualizations of transport developed in mobilities research. Mobilities literature have contributed to developing an alternative conceptualisation of transport, where movement is understood as something more than the instrumental and spatial movement from A to B, as movement is differentiated, experienced, and filled with meaning (Hannam, Sheller, and Urry 2006; Jensen 2013; Cresswell 2010).

This conceptualisation of mobility offers an alternative to the technocratic conceptualisation of transport in planning often based on an assumption that humans are acting on cost-effective rationales (Røe 2000), and gives the leverage to explore how and why people move and consider the material and discursive elements of movement. Furthermore, while mobility practices can be understood on their own terms, it is crucial to understand how they are entangled with other daily practices. The practice of cycling can be an end in itself, for example, for exercise purposes. However, cycling can also be entangled with other practices and be a means to other ends, such as getting to work or running errands. Accordingly, to understand the role of mobility in social life,

it is necessary to investigate the spatiotemporal entanglement of these practices (Kwan 2013), in combination with other rationales and dimensions such as emotions, sociability, and culture. Mobility practices are also coordinated and negotiated with others (Jensen, Sheller, and Wind 2014), including different spheres and social groups such as households, friends, workplace, and activities.

Daily mobility practices are embedded in mobility systems, which are socio-technical systems that can enable and hinder movement (Urry 2007; Watson 2012; Dennis and Urry 2009), as in the system envisioned and conceptualized in regional land-use and transport plans. There are different approaches to systemic changes and socio-technical transitions, but there is a tendency of an excessive focus on technology and reliance on technological fixes (Banister 2011; Schwanen 2015). Moreover, the dominant approaches to socio-technical change, such as the multi-level perspective (MLP) (Geels 2011) and strategic niche management (SNM) (Hoogma 2002), are critiqued for downplaying power, ideology, and justice in favour of technologically determined innovations (Nikolaeva et al. 2019). Therefore, there is a need for a systemic approach to mobility transitions that accounts for the coevolving of technological innovations, politics, physical infrastructures, norms, cultures, and practices. A systemic understanding of mobility can help illuminate some of the barriers and systemic locks-ins in the prevailing mobility system that can hinder change and successful low-carbon transitions (Dennis and Urry 2009).

Case sites

The re-emergence of urban and regional planning and the shift towards a polycentric model for land-use and transport planning accompanying the compact city approach is evident in the Greater Oslo region as in other European urban regions. The Greater Oslo region benefits from national, regional, and local policies supportive of climate mitigation strategies. Norway has formulated a national zero-growth objective that dictates that all passenger transport growth in urban regions (including urban, suburban, and exurban areas) is to be absorbed by mass transit, cycling, and walking (St. meld.nr.33 2016-2017). The Greater Oslo Region, which is the most populated city region in Norway, has devised a regional land-use and transport plan (City of Oslo and Akershus City Council 2015) to align with these goals. In the Norwegian planning system, such a plan functions as a guideline for legally binding municipal master plans and development plans. Although the regional plan is not legally binding, it can be used as a basis for objections from county authorities towards municipal planning. Municipal planners are expected to look to this plan for guidance in the making of local plans or in negotiation with private developers and builders, who produce the majority of local development plans in Norway (Aarsæther et al. 2018).

The plan for the Greater Oslo Region was initiated by a parliamentary resolution in 2008 and strengthens the already established compact city policy, but focuses on the suburban spaces and prescribes a decentralized concentration of workplaces, commercial activities, services, and high-density housing around existing public transport nodes (see Figure 1). The plan seeks to create a system of multifunctional regional towns served and interconnected by a rail system with high frequencies and connected to local public transport systems. It thus confines with the ideas of transit-oriented development
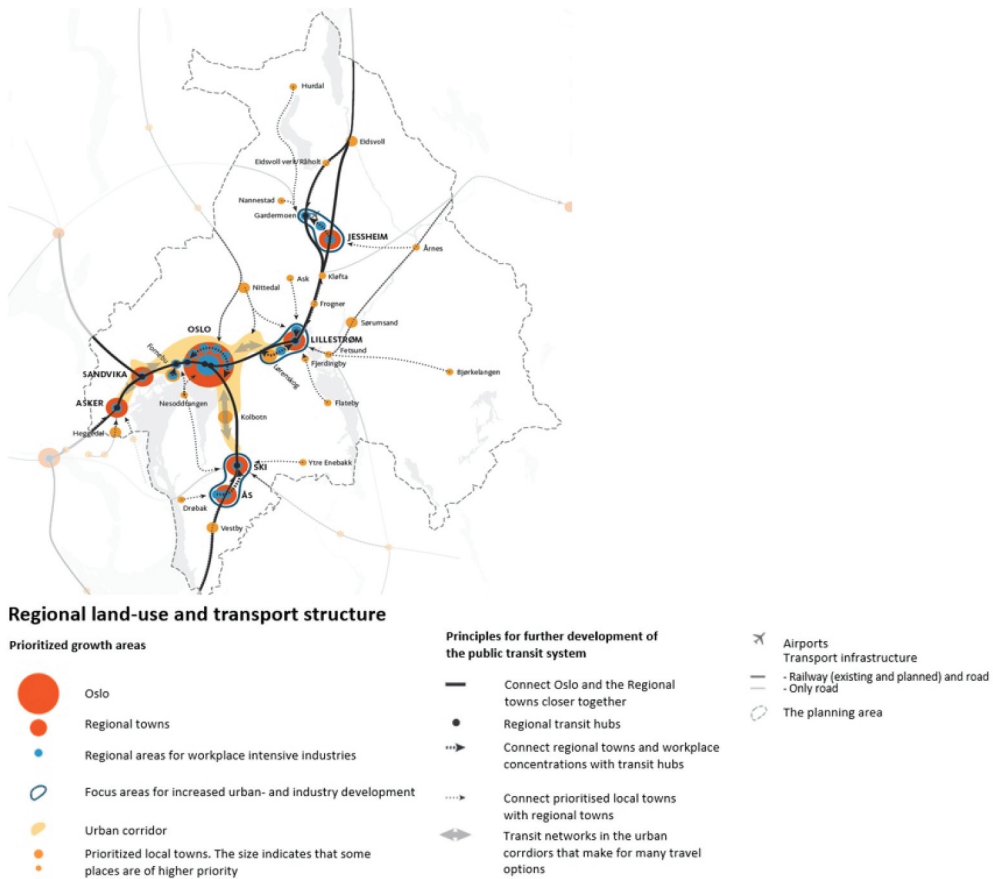
Figure 1. Map from the regional land –use and transport plan for the Greater Oslo Region (City of Oslo and Akershus City Council 2015, 7).

(TOD) (Renne, Bertolini, and Curtis 2009) and the compact city concept in tandem with polycentric models for regional development. According to Bergsli and Harvold (2018), the main arguments for polycentric urban and regional development in Greater Oslo is the perceived economic and political strength and strategic role of city-regions in the global economy, and as a means of countering urban sprawl, and because it may increase the efficiency of service delivery (especially public transport). The Regional plan identifies five regional towns that are designated growth areas and thus benefit from public and private investments.

We have chosen three suburban centres (regional towns) for our study; Ski, Lillestrøm, and Sandvika. These towns are administrative centres and nodal points in their respective municipalities and are located in the regions' transit corridors. We have collected data in the three towns to explore (dis)connections between planning and practices in sustainable mobility transitions. The regional towns are here described to provide a contextual understanding of the plans and practices.

Ski is located at the Greater Oslo Region's southern edge and has a population of about 20,000 people The town is well served by shops and services, including a large

shopping mall, which has a dominating location in the city centre. Except for a few apartment buildings in the centre, detached-, semi-detached- and row houses dominate the area. The town is mainly surrounded by agricultural land. Industry, logistic facilities, and a few knowledge institutions are located about 2 km outside the town centre. A major train hub is located in the town centre, and the suburban train ride to Oslo takes about twenty-five minutes, but the travel time will be reduced to eleven minutes in 2022 when a new double-tracked railway line is ready.

Lillestrøm is located at the northern edge of the region, and the town (including Kjeller) has a population of about 18,500 people. The town is a major public transport hub, located halfway between Oslo centre and Oslo Airport. It has a bus station and railway station for suburban, regional and long-distance train connections, and the airport express. A four-lane highway passes through the municipality. The train to Oslo central station takes ten minutes, making Lillestrøm an exceptionally well-connected suburb for travelling to Oslo's metropolitan centre. The recent development of Lillestrøm can be characterized as a shift from a dormitory suburban town to a regional town, reflecting the ongoing housing densification, including high-rise apartment blocks and the increased number of cafés, shops, and services. Lillestrøm has a more urban character compared to Ski and Sandvika

Sandvika is located in the western part of Oslo's suburban hinterland, and is the smallest of the three regional towns studied with respect to urban built-up area and population. However, it is the administrative centre of Bærum municipality, which is one of the most populous and affluent municipalities in Norway. Sandvika has a population of about 6 200 people, depending on where boundaries between the town and the surrounding suburban tracts are drawn. It has a less distinct urban character reflecting its location in a large suburban municipality, with a polycentric pattern of smaller centres. The town is located close to the Oslo fiord with a recently renovated and attractive waterfront. The train station is located in the town centre with frequent trains to Oslo taking about fifteen minutes. The Airport Express train stops in Sandvika, which also is a hub for the many buses catering the surrounding suburbs. The town is marked by two major highways, which represent physical barriers, and hampers access to the sea and further urban development. One of Norway's largest shopping malls are located in Sandvika, connected to the highway network and the public transport system, draining the old centre for commercial activities, shops, cafés, restaurants, and city life.

Research design and methods

Case studies are well suited to produce in-depth context-dependent knowledge (Flyvbjerg 2006), and to explore the multiplex relationship between planning and everyday practices. We have chosen to analyse the implementation of transport and land-use plan for the Greater Oslo Region, focusing on the three mentioned case sites. The study presented in this paper is based on a document analysis of the regional land-use and transport plan for the Greater Oslo Region, ten interviews with municipal planners and practitioners leading the work of interpreting and implementing the plan's strategies in the three designated suburban centres, and seventeen interviews with households who recently had moved to or close to the transforming suburban centres.

Research based on qualitative and in-depth methods are suitable to explore complex and multi-layered processes within a specific place-based context (Yin 2014), and therefore for our study of the relations between different scales of planning and daily mobility practices. Combining document analysis with qualitative interviews is beneficial to study the interdependencies between structure and agency developed through planning and daily mobility practices.

The regional land-use and transport plan aims at guiding local planning by identifying overall strategies to reach the agreed-upon goal of reducing emissions from transport. Subsequently, the planning document may have transformative capacities as its guiding principles may change planning practices, the built environment and daily mobility practices (Asdal 2015). However, these strategies might be resisted, contested and reworked. Accordingly, this document is of importance when exploring (dis)connections between transport planning and daily mobility. For this paper, we decided it was necessary to conduct a systematic and theory informed document analysis. Our theoretical starting point was that policy and planning strategies are based on specific types of knowledges and discourses (Davoudi 2006), which are of importance for the actual implementation of plans. We read the plans carefully and identified its main strategies. Drawing on theories of different planning traditions and concepts, we formulated four themes that represent the different logics informing the plan's concrete strategies.

We have also conducted ten interviews with planning professionals working in the suburban centres, using semi-structured interview guides with open-ended questions. The questions revolved around topics such as low-carbon regional and suburban planning, the regional land-use and transport plan, and challenges and opportunities for using it as a tool for developing local low-carbon strategies and plans.

In addition, we interviewed seventeen households that had recently moved to one of the transitioning suburban centres, based on the selection criteria that it was under a year since they had moved in. Selecting participants that have recently moved to a transitioning suburban centre is advantageous because they are in the process of changing and establishing new daily routines and mobility practices. We have, in other words, examined the rationales and considerations of people that because of their choice to live in a newly transformed city-like place, could be expected to adapt and reconfigure their practices in line with the logics of the regional plan.

A diversity of households and age groups participated in the study, including nuclear families, single-parent families, couples with or without children, and single-person households. In some cases, only one person from the household participated in the interview, while other times, the entire household participated. Informants might feel empowered when they get to determine the site, and it is important that the location is a place where the informant feels comfortable to speak freely (Elwood & Martin 2004)). Therefore, we let the participants chose the time and location for the interviews, which were conducted in the participants home, workplaces or cafeés. The interviews lasted from 30 minutes to several hours.

Prior to the interview, the participants filled in a qualitative travel diary consisting of both descriptive question about travel patterns and open-ended questions about mobility experiences. The travel diary provided a fuller picture of the households' everyday travel, and was used to formulate tailored questions for each interview. The interviews focused on the participants' motivations for moving, changes in mobility practices,

reflections on everyday coordination, and views on the development in the suburban centres including prospects and expectations. The interviews did not explicitly focus on the inhabitants' perceptions of the regional plan, but illuminated how mobility practices are negotiated and structured, which elicited reflections on the current and planned mobility system. Therefore, this knowledge is relevant to explore how inhabitants' daily mobility practices align with the planned transition and illuminate the possible (dis)connections between transport and land-use planning and daily mobility practices. Although the study is limited by the small sample size restricting the sociodemographic variation of households and the potential for generalizations, it provides a basis for a grounded exploration of disconnections between planning and daily mobility, which might be more comprehensively examined and compared in a broad survey of different households and in various local contexts.

Immediately after each interview, the interviewee wrote a summary, including descriptive information such as age and gender. These summaries also included reflections on the interview dynamics' and immediate analytical reflections of the content. We conducted a thematic analysis using the steps of Braun and Clarke (2006). Starting by reading and rereading the transcripts and writing down initial thoughts to get familiar with the data. Thereafter, we generated initial codes linking them to quotes and extracts of texts. Examples of an initial code were: 'working on the train commute'. Then we started to look for and sort the codes into themes and subthemes, before critically reviewing the themes in relation to the coded extracts, which led up to defined themes such as everyday coordination and mobility as a meaningful social practice. We also wrote down how the themes could be linked to theories and concepts throughout the analysis. The themes were then contrasted with the logics identified in the regional plan and from the different interviews.

Exploring (dis)connections between transport plans, planning practices and daily mobility

The regional land-use and transport plan is a guiding tool for the municipal planners in planning new development projects, and municipal master plans and local development plans risk formal objections from public agencies at a regional or national level if they do not adhere to the main principles of the regional plan. The local planners need to interpret and translate the regional plan to a local context to make the plan manageable and relevant. The planners also serve the ruling municipal politicians in their work to steer land-use and transport development in accordance with the regional plan. In the following sections, we explore disconnections between different scales of low-carbon mobility planning and peoples' everyday practices, including a discussion of the local planner's work on translating, conceptualizing, and implementing the strategies found in the regional plan contrasting this with peoples' lived experiences.

Decontextualized planning models

The need for climate change mitigation and decarbonisation of transport has led to the development of generic and dominant planning models such as transit-oriented development and compact city strategies. Such planning strategies are also the basis for the

regional transport and land-use plan for the Oslo Region, exemplifying the mobility of urban policies and ideas (McCann and Ward 2010; Urry 2007). The map presented in the planning document (Figure 1) is an idealized representation of the region and its transport network (Graham and Healey 1999), and represents a powerful scalar narrative (González 2006) framing the region as the starting point for sustainable spatial and infrastructure planning. It represents a bird's eye view of how the regional transport network is conceived (Lefebvre 1991), arguably representing a technocratic understanding of transport accounting space as absolute without the presence of humans.

The local planners expressed that the regional plan's main principles, that are envisioned in the map, to a large extent, overlaps with their perceptions, local planning strategies, as expressed in this quote: 'We have felt that the regional plan, in most areas, is in line with how we think about land-use development in our municipality' (Planner in Bærum). Experiencing this overlap and redetecting one's perceptions can also give a professional reassurance:

> 'I am happy when I recognize the arguments that are to be used in the regional plan. It is a small hook, and we have to adhere to that. In my view, it [the regional plan] is a good professional document we can relate to'
>
> (Planner in Bærum).

The regional plan is perceived by the local planner's as having a 'scalar authority' and can thus be used to substantiate their arguments and practices. Having the opportunity to back up arguments by referring to the principles of the regional plan, that has been developed through an inter-municipal collaboration and adopted by the municipal governments in the region, is expressed to be of particular importance if strategic plans are met with resistance from local politicians, landowners, or inhabitants. This illustrates the important role of formal planning in an increasingly complex field of actors associated with neoliberal and market-oriented planning regimes (Graham and Marvin 2001; Hall 2014).

The local planners also expressed that local place-making ambitions in some cases was contradictive to the decontextualized principles in the overall plan. Furthermore, the perceived authority and rigidity of the regional plan's principles created challenges and hindered implementation. This is evident in the following example when the municipal planners in Bærum wanted to include an affluent neighbourhood in a local densification plan. The planners explained that initial densification plans had been met with resistance and protest from the local community, inhabitants, and landowners. Subsequently, the politicians did not want to implement new development projects that were in accordance with the densification requirements in the regional plan. To avoid formal objections they decided to remove this neighbourhood from the plans. Accordingly, the rigidness and specificity of strategies in the regional plan, in the sense that new development projects need to follow the requirements to be sure to avoid formal objections, conflicted with local interests.

The planners expressed that another consequence of the regional plans generic principles was a municipal infrastructure deficit, as the provision of physical and social infrastructures did not expand as fast as the demand. One of the planners in Ski reflects on this in the following quote: 'Issues such as school capacity and the capacity of all municipal infrastructure for that matter, the overview of it is not good enough, so when

problems appear, one should have seen that long before and instead one needs to hurry'. We found that the planners expressed three main reasons for this deficit. Firstly, it was explained by the acceleration of urbanization processes combined with pressure exerted by regional authorities, politicians and private developers, potentially leading to instrumental place-making that does not focus on the local context. Secondly, it was explained by the local authorities' organizational structure characterized by 'silos', with sectoral departments having defined responsibilities and limited cross-departmental coordination. This lack of horizontal coordination is a well-known barrier for public sector policy capacity in general (Peters 2017) and for planning specifically (Lennon 2017). At last, it was explained by the ordering of phases in the development and planning processes, as expressed by one of the planners in Lillestrøm: 'While the principles for coordinated land-use and transport are discussed over the years, these dimensions that we talk about now [municipal infrastructures] are incomplete.' This quote indicates a need for regional transport planning to become more sensitive to local contexts and to include public and municipal infrastructure provision earlier in the planning process.

Inhabitants also reflected on the place-making processes in the regional towns and uttered concerns related to how density can negatively affect the urban environment and perceptions of a good city. One of the participants reflects upon the consequences of decarbonisation through compact city strategies and densification in the following quote:

> 'I have two main ideas that may not be compatible, which may be fighting a bit with each other. One is that I think it is important in relation to the climate challenges to concentrate buildings near transit hubs and follow up on the plan that has been decided on for the area. That is my first point of view, but the other that may be fighting a little with the first is that I think it gets too dense in some places, making it very dark and a bit gloomy between the houses. So, recently, yesterday actually, I went for one of my walks in the town, and up by the church, there are some new apartment blocks and benches and stuff like that, and so far, I have not seen a single person who has sat on those benches. So I'm thinking, yes, there are good intentions, but do people like it here?'
>
> (household 4).

The reflections in the quote exemplify how decontextualized and 'dehumanized' regional planning strategies can be experienced on the local and human scale, illuminating some of the potential scalar challenges of technocratic regional transport planning, setting the premises for local transformations without accounting much for the local contexts and needs of local inhabitants.

Land-Use and physical determinism

The regional plan presents a general principle of developing the regional cities from the inside and out (Figure 2). Entailing that transit hubs should be centrally located in the urban core of these regional towns, workplaces should be located a maximum of 600 metres from the transit hub (blue circle), and housing should be located maximum of 2000 metres from the transit hub (light yellow).
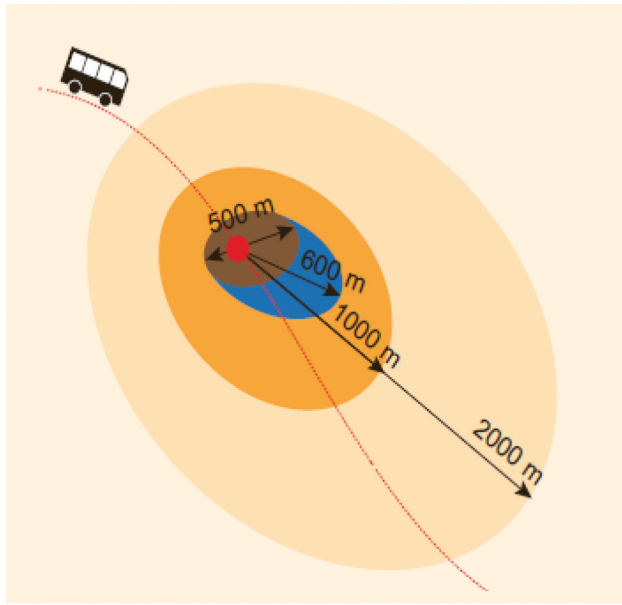
Figure 2. Illustration of distance strategy (City of Oslo and Akershus City Council 2015, 28).

It is assumed that compact city design, reduced distances to amenities and public transport provision will make it more attractive for people to choose public transport and active modes such as biking and walking. These strategies on how to decarbonize transport may be characterized as technocratic or expert-based and resembles environmental and architectural determinism (Richards 2012), as it is emphasized how urban form and design will change and shape how people travel. Furthermore, this disconnection may also arise because of the tendency of social engineering in physical planning. Such as in the ambitions to create close knit communities through physical neighbourhood design, although research shows that planning at best can organise for people to meet (Talén 1999) and that the formation of social capital is dependent on social and cultural processes (Lupi and Musterd 2006).

We find that the planner's conceptions and professional convictions adhere to the regional plans' instrumental logic, to a large degree, as exemplified in the following quotes from local transport planners in two different municipalities:

> "We are building for a totally different modal split than today's split, and we need to assume it will happen, and we have to assume that if the streets get crowded, more people will choose to travel by public transport, walk, or bike when it's centrally located"
>
> (Planner in Lillestrøm).

> The dimensioning of roads and streets, and how they are designed and hinder parking, to narrow down the cross-sections, to make high speed and through traffic more challenging, to create short cuts for pedestrians and cyclists, to do it easier to choose this naturally, the other travel modes [than the car]
>
> (Planner in Bærum).

However, the planners also voiced that the principles in the regional plan sometimes were too fixed, and one of the planners requested a more pragmatic approach to densification combined with road pricing schemes to decarbonise mobility:

> What we struggle with is how to practice the principle of developing from the inside and out. The county governor wants us to understand it literally and build meter by meter. The pragmatists, on the other hand, would say we need to plan so the city can grow a little here and there but still reasonably planned. I'm probably over on the pragmatic side, as I don't think it's that big of a deal to lift the regulations in someprojects as long as one combines it with road pricing
>
> (Planner in Lillestrøm).

This exemplifies how knowledge regimes in planning can be diversified, dynamic, and contested, also from within the discipline.

The rail connections from the suburban towns to Oslo are swift (taking between 10 and 20 minutes), and a couple in their 50s expressed how living close to transit was an important criterion when relocation to one of the suburban centres:

"Eventually, the criteria [for the new residential location] became that we should live centrally, which means close to the train or subway, so it is fast to get to work. And within walking distance to other facilities, such as restaurants and shops, those kinds of things. We have the grocery store right outside here. Therefore it is very seldom we drive the car when we buy food» (Household 5).

This quote also indicates that distances between functions and amenities in the regional centres were important when relocating, and another participant expressed that short distances made it easy to walk or bike for local activities:

> 'It is very nice to bike, yeah, to get to here [the shopping mall], or to the library, or to the gym. All those little things are absolutely perfect to cycle to, it almost goes faster than driving, because you have to find parking if you are driving. It might be a good thing, but parking costs'
>
> (Household 9).

Accordingly, the findings indicate that living close to transit hubs and a variety of urban functions may promote transit, walking, and cycling. On the other hand, people also have the agency to challenge, transgress and develop strategies to cope with and modify the built environment (Lefebvre 1991). We have identified a range of mobile narratives that reveal a complexity of daily considerations that is not always accounted for in the regional plan or by the local planners, such as the considerations this mother of two expresses in the following quote:

> 'My husband usually accompanies him [the son] to school and then he takes the bus from the school to the train station (…) But my husband has had a slight tendency therecent weeks, had a tendency to drive the car. If he [son] is very grumpy, if the oldestkid is very grumpy or something, or if my husband is in a hurry or something, then it happens that he drives to the school and drives and parks at the train station'
>   [the school is located ca. 200 m from their home]
>
> (Household 7).

This exemplifies the variety of social contexts and processes affecting mode choice, and the complexity of negotiating everyday mobility (Jensen, Sheller, and Wind 2014).

Moreover, it reveals that such mundane knowledges and the scalar narratives from daily life are not informing the current planning regime to a large degree.

Cost-Effective humans

The regional plan frames travel behaviour as largely structured by rational efficiency, where travel is conceptualized as a cost based on the assumption that people make rational decisions to minimize travel time. This utilitarian logic assumes an ideal type of human, the rational 'economic man', simultaneously as it seeks to influence the mobility of a great variety of people who are guided by a range of rationalities (Røe 2000). Furthermore, it conceptualizes transport as an instrumental movement from A to B, and thus overlooks how movement can also be meaningful and embodied social practices (Cresswell 2010; Jensen 2009).

We find that this instrumental understanding is the underlying principle in the local planners' conceptualization of transport and mobility behaviour. The planners did not refer directly to the concept of humans being cost-effective. However, when discussing how to plan for a sustainable modal shift, they focused on planning for an efficient and accessible (by distance) transport system. They did not focus on how other dimensions of mobility, such as preferences, emotions, attachment etc., could affect the inhabitants' mode choice. Nevertheless, one of the planners voiced 'a more pragmatic approach to mobility transitions:

> "When it comes to the inhabitants, I believe that we have to focus on action-oriented strategies, such as: 'in this city, all kids shall bike or walk to school'. Shaping neighborhoods and ownership to becoming a more or less car-free city"
>
> (Planner in Lillestrøm)

This quote illustrates a perception of transport that includes a perception of mobility as meaningful and as representation (Cresswell 2010).

Furthermore, we find examples of participants rationalising their actions following this logic seeking to minimize costs and maximize utility, a finding especially evident for commuting practices. As expressed by this mother of two:

> We both work in Oslo and have to commute there every day. We started to look for a place to live here about one and a half year before we bought, actually. What we did was to start at the train station and drew a circle around it. Not very far, because it is the most important thing in our life, to get back and forth from the train in an efficient way
>
> (Household 17).

This example is in accordance with research that has found that rational efficacy is structuring the commuting practices for many (Lunke and Ferarnley 2019), and applying a buffer area from transit to the residential location as a criterion in the relocation decision is arguably based on the same rational logic as evident in the regional plan. The quote also indicates that easing the coordination of activities is a priority in a hectic and hyper-mobile life with complex spatiotemporal rhythms and constraints. Furthermore, experiences while commuting is also essential, as expressed in the two following quotes:

> I work a lot on the train, to and from work. I would not be able to do that if I drove, do the work that I usually do on the train. With a car I would not be able to take advantage of the time. It's very nice, sit down and have a coffee. It's part of my morning routine. Drink coffee, read emails and get updated on what meets me at workwhen I get to the office
>
> (Household 1).

> When it comes to commuting, the most important thing for me is not to stand in a queue avoiding getting angry on my way to work. And that I can use the train time in an efficient way, I can work on the train. And it's good that it's more environmentally friendly than the car, but I have to say environment is not my first priority
>
> (Household 7).

These quotes illustrate how time spent travelling is not dead time but active time (Hannam, Sheller, and Urry 2006) and thus a meaningful social practice. Facilitating good experience on the train can therefore be an essential tool to make trains more attractive. Emotional aspects can also be important for mode choice, as expressed by one of the study participants:

> 'I just love to drive. I think it is fun!'
>
> (Household 6).

> Another informant expresses how driving can be a valued break:
> It's like, sometimes, I just like to drive, listen to radio, to music or an audio book. It is a time-off without kids. Something, I feel that one emphasises and needs this timewhen one become parents
>
> (Household 11).

These quotes illustrate how driving is often associated with narratives of freedom (Freudendal-Pedersen 2009), and how some have strong emotional attachments to cars and driving (Sheller 2004). The emotional and embodied knowledges, which also may be of importance in the formation of people's mobility practices, seems to be overlooked and are to our knowledge not informing the planning practices. This exemplifies the insufficient inclusion of scalar narratives of daily mobility in planning practices.

Idealized time-space nexus

Public transit is only accessible at certain times and is fixed in terms of destination and people have different spatiotemporal constraints and opportunity to affect these (Kwan 2013). The main transport network and routes are in the scope of overall transport plans, and the regional plan for Greater Oslo mainly focus on the main commuting routes, regional connections and connections between the regional towns and Oslo. One of the overall strategies in the plan is to reduce the distance between different functions as this is thought to make it less attractive to use the car for daily tasks and chores. We found that local planners also follow this logic to a large degree, and one of the planners expresses the importance of centrally located kindergartens: 'It is this walkable everyday life for parents of young children that we must achieve'. However, these strategies focus primarily on instrumental conceptualisations of movement and distance as the primary structuring factor, and do not consider the complex spatiotemporal rhythms and negotiations typical in people's hectic daily life.

While the commute from the suburban centres to Oslo along the transit corridors is deemed efficient, we found that the connections across the suburban landscape were perceived and experienced as more inadequate. Participants uttered a need for a car to get around in the areas surrounding the transit-burbs, as expressed by a participant who worked in a small neighbouring town without sufficient transit connections: 'I do not really have an opportunity to travel by public transport either. Everyone just have to drive. It's so far, the bus goes twice a day, I think' (Household 6). Furthermore, while the regional plan and local planners consider daily coordination and negotiations to a lesser degree, it is proven to be influential in structuring people's mobility practices (Jensen, Sheller, and Wind 2014). The spatiotemporal rhythms and entanglement of daily practices may lead to car dependency, also for people living at locations that, according to land-use oriented transport planning, are ideal for promoting active and public transport modes, as expressed by two parents in the following quotes:

> I actually have a perfect travel route for travelling by bus to work. Because the bus stops very close to here, and stops in front of my job, ten minutes by bus. It takes the same time as driving from home. But because I have to get in the car to drive to the kindergarten and drive to the school, it is very, very difficult for me to drive home and park the car, and then walk to the bus (...) So, it takes the same time to drive from home as to take the bus from home, and it is more relaxing to take the bus, and better from an environmental perspective. It feels, it does feel very unnecessary to drive when one can take the bus, at the same time I know that it won't work as it is right now, it will be too much stress
>
> (Household 9).

> «In the morning, I first drive my son to the kindergarten, then I drive my husband to the bus stop, and then I drive to work. It is a hassle, for my part, at least. Since I work as a teacher, I have to be at work before the kids come, and we start the day, and it is often stressful and I have to use the car"
>
> (Household 6).

These quotes exemplify the complexity of chained trips with several stops, which are typical in our daily lives, and demonstrates a trend in society; parenthood is becoming increasingly hypermobile (Murray 2008). Needing a car to chauffeur children was also expressed by grandparents:

> I use the car when I pick up my grandchild from school and when I travel to mycabin. There is a bus, but it's too long of a walk from the bus stop to my cabin. I'm very pro travelling by transit, but you end up using the car. And when you're at thecabin, you need a car to get to the store
>
> (Household 3).

> "Sometimes it is necessary with a car to get around. There is not always transit connections, so then you need a car. And you need it to transport goods, and if I am to pick up one of my grandchildren from school or activities
>
> (Household 12).

The need for having a car when having responsibility for children is a reoccurring structural story found in empirical studies (Freudendal-Pedersen 2009). These quotes also illustrate how having a car can be perceived as necessary to transport goods and for recreational activities, such as weekend trips to the cabin (a large share of Norwegians

own a cabin). These considerations and negotiations in households exemplify the range of rationales structuring daily mobility, and that idealized time-space nexus of the mobility system is not catering to all the different mobility needs of households. The examples of car-dependency in these transit-oriented suburban centres also illustrate the path-dependency of the automobility system and how it is intertwined with our modern society's social, spatial, economic, and political development, making it challenging to transform (Dennis and Urry 2009; Sheller 2018).

Nevertheless, there are examples of households finding alternatives to the prevailing suburban automobility system. A mother of two solved the daily coordination needs with a cargo e-bike, which is an e-bike with an open-air box for cargo in front, which she used for local trips and for chauffeuring children:

> I used the e-bike earlier today, when we were going to gymnastics. Or, I use it to football, or down to the town centre for the library. We live so close to the town centre that we can use it all the time, it is incredibly nice to put the kids easily into the cargo box. The oldest is too big to sit in a bike seat behind the bike, but she is too small to ride a bike herself, so it's very nice. And if they are bringing some friends home fromkindergarten or school it's just to put all of them in the box. Super-efficient!
>
> (Interview 17)

E-bikes are getting increasingly popular in many places globally, and studies have indicated that they can have great potential in suburban areas (Wikstrøm and Böcker 2020).

It seems that coordination of daily activities and their time-space constraints (Kwan 2013) are not accounted for either in the current suburban mobility system or the overall plans for decarbonizing this system. Disregarding these dimensions of travel can create disconnections between the planned mobility transition and daily mobility practices. Moreover, not emphasizing the complex time-space nexuses of daily life can exclude certain groups from the public transport system, such as those working shifts or those not working close to major transit hubs, reproducing or creating social inequalities in accessing essential functions and places.

Discussion and implications for planning

Drawing on critical planning theory and mobilities literature we have explored the main principles and types of knowledges informing regional and local planning in the Greater Oslo Region, and contrasting it with the lived mobile experiences of inhabitants. The study confirms existing research, finding that regional transport planning plays a crucial role in decarbonizing the mobility system (Bergsli and Harvold 2018; Schmitt 2013; Davoudi 2003). Nevertheless, we have explored four disconnections between different scales of low-carbon mobility planning and practices (Table 1), which might hamper a sustainable mobility transition:

We suggest that these findings illustrate dilemmas, discontinuities and disconnections that have several implications for planning. Plans for large urban regions, which by nature are spanning a diversity of local social and political-economic contexts, will necessarily have a generic approach compared to municipal master plans and local development plans (Keil et al. 2017), as evident in our study. We have identified that

Table 1. Disconnections between scales of low-carbon mobility transitions in suburbia.

	The regional plan	Local planners	Daily practices
Spatial planning	Decontextualised and generic planning models	Implementation challenges due to local contexts and place-making ambitions	Acceptance or resistance towards physical planning
Urban form	Physical determinism	Modified version of physical determinism	Agency to cope with and modify the built environment
Behaviour/ Practices	Idealized cost-effective humans	Underlying understanding of humans as cost-effective	Mobility as situated meaningful social practices
Spatiotemporal dimensions	Idealized time-space nexus	Emphasising an idealized time-space nexus	Everyday negotiations and coordination

the regional plan for the Greater Oslo Region is based on three decontextualized and generic principles; *physical determinism*, *idealized conceptualisation of humans as cost effective*, and an *idealized view on time-space nexus'*. Compared to the regional plan, the municipal planners naturally had a greater sensitivity to the local context they are working in and planning for and the local politicians adhering to their constituency. The planners expressed that they sometimes found it challenging to balance local place-making and the ambition of planning infrastructures of suburbs (as termed by Addie 2019), on one hand, with the requirement to implement the regional plan and their decontextualized principles of infrastructures for the suburbs, on the other hand. Planning could thus benefit from strengthening multi-scalar collaboration, make plans more sensitive to place-based knowledges (Graham and Healey 1999; Sandercock 2003), and subsequently promote place-based decarbonisation. Regional plans may avoid schematic decontextualized models for urban development by considering local diversities and include a broader range of relevant knowledges to deal with the complexity of local planning regimes and place making, which may be useful when confronted with the local political-economic and socio-cultural contexts.

Both the regional plan and the local planners conceptualized transport as technical systems and traffic flows. The planners had a modified view on this, by considering local context and inhabitants to a larger degree. However, we found that their perception on transport to a lesser degree included understandings of mobility as meaningful, embodied, and affective social practices (Cresswell 2010; Jensen 2013; Freudendal-Pedersen 2009; Urry 2007), including various mobile subjects, needs and opportunities (Bonehill, von Benzon, and Shaw 2020; Røe 2000). The dominance of a functionalistic conceptualization of transport in planning might be explained by the planning professions' excessive focus on mobility systems as technical infrastructures, emphasizing one type of rationality and thus overlooking the diversity of mobile subjects and their rationales. Although mobility was partly instrumental for the participants that lived and travelled in these areas, they also reflected upon it as meaningful social practices in ways that the planners did not conceptualize to the same degree. Therefore, we argue for promoting a human-centred and mobilities-led perspective in transport planning. This entails moving beyond planning as a rationalistic and instrumental process as planning needs to be based on a variety of knowledges, including those centred around social and cultural aspects of daily life. Furthermore, if transport is conceptualized as socio-

technical systems instead of solely technical systems, and planning practices are informed by a mobilities-led perspective highlighting how movement is filled with meaning, increasing public participation in transport planning might be perceived more fruitful.

In our study we found that the regional plan was based on an idealized space-time nexus that does not recognize the spatiotemporal complexity of daily life and how mobility practices are entangled with other practices and activities. This idealized conceptualisation of how people travel in space and time was also evident in the perceptions of the planners as they mainly had an instrumental perception of movement. Despite the shift towards the ideal of the compact city in the re-designing, retrofitting and urban expansion of suburban centres, we found that the suburban geography sometimes makes it challenging to choose active modes of transport or transit options, thereby maintaining the perceived necessity to have a car. Recognising the spatio-temporal complexity of daily life might help accommodate for a more accessible low-carbon mobility system that can better challenge car-dependency as well as ensure a more socially just distribution of mobility.

Conclusions

The disconnections between the instrumentalist conceptualization of transport in planning and the lived and experienced mobilities might create challenges for participatory transport planning, and there is a need to reframe low-carbon transitions to a scalar narrative of daily mobility. Moreover, the explored disconnections between urban regional land-use plans and infrastructure systems on the one hand and peoples practices on the other, reflects the rigidity and inflexibility of the assemblage of materialities, relations, institutions, and people reproduced through urban-regional governance and planning practices. This paper contributes to existing literature on sustainable transport planning by exploring and discussing identified disconnections between regional planning and daily life in a suburban context. However, this is an explorative study limited by the small sample size and there is a need to make comprehensive assessments of disconnections in different local contexts. The paper also argues there is a need to develop new planning modes better informed by daily life and situated experiences, and disseminate these knowledges to the actors shaping decarbonisation policies and plans. Future studies could also benefit from including private developers' role when examining (dis)connections in low-carbon mobility planning.

The described disconnections, coming from our empirical study, are not merely knowledge gaps, that may be solved entirely through further training of planners and interdisciplinary collaboration. Dealing with these disconnections may also require that planning is organized in new ways, and that institutional changes are made, as planning today is marked by path dependencies hindering reform.

Furthermore, COVID-19 might also have long-lasting effects on suburban daily mobility. During parts of the COVID-19 pandemic, The Norwegian government recommended the public not to use public transport. Therefore, car use increased during this period, and the number of public transit users has still not increased to the same level as before the pandemic, but there is a growing trend (Ruter 2022). This

has led to reduced income for the public transport companies, which the companies have alerted might lead to reduced public transit services. Additionally, many people worked from home during the pandemic, and it has been suggested that this trend will continue, affecting the numbers of commuters on the roads. This might substantially affect suburban inhabitants, as they often have a longer commute, and home-office might be seen as a more considerable advantage. However, more research is needed to know the long-term effects of this and how it will change suburban mobility practice and the suburban mobility system in the future.

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References

Aarsæther, N., E. Falleth, T. Nyseth, and R. Kristiansen. 2018. *Plan og samfunn: system, praksis og teori*. Oslo: Cappelen Damm Akademis.

Addie, J. P. 2019. "In What Sense Suburban Infrastructure." In *Critical Perspectives on Suburban Infrastructures. Contemporary International Cases*, edited by P. Filion and N. M. Pulver, 45–66. Toronto: University of Toronto Press.

Adey, P. 2017. *Mobility*. London: Routledge

Allmendinger, P., and G. Haughton. 2010. "Spatial Planning, Devolution, and New Planning Spaces." *Environment and Planning Cancer Government & Policy* 28 (5): 803–818. doi:10.1068/c09163.

Asdal, K. 2015. "What is the Issue? The Transformative Capacity of Documents." *Distinktion* 16 (1): 74–90. doi:10.1080/1600910X.2015.1022194.

Adey,P. 2017. *Mobility*. London: Routledge

Banister, D. 2011. "Cities, Mobility and Climate Change." *Journal of Transport Geography* 19 (6): 1538–1546. doi:10.1016/j.jtrangeo.2011.03.009.

Bergsli, H., and K. A. Harvold. 2018. "Planning for Polycentricity. The Development of a Regional Plan for the Oslo Metropolitan Area." *Scandinavian journal of public administration* 22 (1): 99–117 .

Bonehill, J., N. von Benzon, and J. Shaw. 2020. "'The Shops Were Only Made for People Who Could Walk': Impairment, Barriers and Autonomy in the Mobility of Adults with Cerebral Palsy in Urban England." *Mobilities* 15 (3): 341–361. doi:10.1080/17450101.2020.1746057.

Braun, V., and V. Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77–101. doi:10.1191/1478088706qp063oa.

Brenner, N. 2004. *New State Spaces : Urban Governance and the Rescaling of Statehood.* New York: Oxford University Press.

City of Oslo and Akershus City Council. 2015. *Regional Plan for Areal Og Transport I Oslo Og Akershus.* Oslo: Councils of Oslo and Akershus.

Cresswell, T. 2010. "Towards a Politics of Mobility." *Environment and Planning Society & Space* 28 (1): 17–31. doi:10.1068/d11407.

Davoudi, S. 2003. "EUROPEAN BRIEFING: Polycentricity in European Spatial Planning: From an Analytical Tool to a Normative Agenda." *European Planning Studies* 11 (8): 979–999. doi:10.1080/0965431032000146169.

Davoudi, S. 2006. "Evidence-Based Planning: Rhetoric and Reality." *Disp* 42 (165): 14–24. doi:10.1080/02513625.2006.10556951.

Dennis, K., and J. Urry. 2009. *After the Car.* Cambridge: Polity Press.

Elldér, E., K. Haugen, and B. Vilhelmson. 2022. "When Local Access Matters: A Detailed Analysis of Place, Neighbourhood Amenities and Travel Choice." *Urban Studies* 59: 120–139. doi:10.1177/0042098020951001.

Elwood, S., and D. G. Martin. 2004. ""Placing" Interviews: Location and Scales of Power in Qualitative Research." *The Professional Geographer* 52 (4): 649–657. doi:10.1111/0033-0124.00253.

Farrington, J., and C. Farrington. 2005. "Rural Accessibility, Social Inclusion and Social Justice: Towards Conceptualisation." *Journal of Transport Geography* 13 (1): 1–12. doi:10.1016/j.jtrangeo.2004.10.002.

Flyvbjerg, B. 2006. "Five Misunderstandings About Case-Study Research." *Qualitative Inquiry* 12 (2): 219–245. doi:10.1177/1077800405284363.

Freudendal-Pedersen, M. 2009. Mobility in Daily Life : Between Freedom and unfreedom, Transport and Society. Farnham: Ashgate.

Gans, H. J. 1967. *The Levittowners : Ways of Life and Politics in a New Suburban Community.* London: Allen Lane The Penguin Press.

Geels, F. W. 2011. "The Multi-Level Perspective on Sustainability Transitions: Responses to Seven Criticisms." *Environmental Innovation and Societal Transitions* 1 (1): 24–40. doi:10.1016/j.eist.2011.02.002.

González, S. 2006. "Scalar Narratives in Bilbao: A Cultural Politics of Scales Approach to the Study of Urban Policy." *International Journal of Urban and Regional Research* 30 (4): 836–857. doi:10.1111/j.1468-2427.2006.00693.x.

Graham, S., and P. Healey. 1999. "Relational Concepts of Space and Place: Issues for Planning Theory and Practice." *European Planning Studies* 7 (5): 623–646. doi:10.1080/09654319908720542.

Graham, S., and S. Marvin. 2001. *Splintering Urbanism : Networked Infrastructures, Technological Mobilities and the Urban Condition.* London: Routledge.

Hall, P. 2014. *Cities of Tomorrow: An Intellectual History of Urban Planning and Design Since 1880.* 4th ed. Oxford: Wiley Blackwell.

Hannam, K., M. Sheller, and J. Urry. 2006. "Editorial: Mobilities, Immobilities and Moorings." *Mobilities* 1 (1): 1–22. doi:10.1080/17450100500489189.

Healey, P. 2002. "On Creating the 'City' as a Collective Resource. Urban Studies 39.10, 1777–1792." *Urban Studies* 39 (10): 1777–1792. doi:10.1080/0042098022000002957.

Hine, J. 2003. Social exclusion and transport systems. *Transport policy* 10 (4): 263–263.

Hoogma, R. 2002. Experimenting for Sustainable Transport : The Approach of Strategic Niche management, Transport, Development and Sustainability. London: Spon Press.

Jensen, O. B. 2009. "Flows of Meaning, Cultures of Movements – Urban Mobility as Meaningful Everyday Life Practice." *Mobilities* 4 (1): 139–158. doi:10.1080/17450100802658002.

Jensen, O. B. 2013. Staging mobilities, International Library of Sociology. London: Routledge.

Jensen, O. B., M. Sheller, and S. Wind. 2014. "Together and Apart: Affective Ambiences and Negotiation in Families' Everyday Life and Mobility." *Mobilities* 10 (3): 363–382. doi:10.1080/17450101.2013.868158.

Katz, C. 1996. "Towards Minor Theory." *Environment and Planning Society & Space* 14: 487–499. doi:10.1068/d140487.

Katz, C. 2017. "Revisiting Minor Theory." *Environment and Planning Society & Space* 35 (4): 596–599. doi:10.1177/0263775817718012.

Keil, R. 2018. "After Suburbia: Research and Action in the Suburban Century." *Urban Geography* 41 (1): 1–20. doi:10.1080/02723638.2018.1548828.

Keil, R., P. Hamel, J.-A. Boudreau, and S. Kipfer. 2017. *Governing Cities Through Regions : Canadian and European Perspectives*. Waterloo, Ont: Wilfrid Laurier University Press.

Kwan, M.-P. 2013. "Beyond Space (As We Knew It): Toward Temporally Integrated Geographies of Segregation, Health, and Accessibility: Space–time Integration in Geography and Giscience." *Annals of the Association of American Geographers* 103 (5): 1078–1086. doi:10.1080/00045608.2013.792177.

Lefebvre, H. 1991. The Production of space, La Production de L'éspace. Oxford: Blackwell.

Lennon, M. 2017. "What is Planning?" *The Town Planning Review* 88 (2): 147–151. doi:10.3828/tpr.2017.11.

Lunke, B. E., and N. Ferarrley. 2019. *Generalisert Arbeidstid – Hvordan Oppleves Arbeidsreiser I Norske Byer?*. Oslo, Norway: Institute of Transport Economics. Accessed 10 March 2021.

Lupi, T., and S. Musterd. 2006. "The Suburban 'Community Question'." *Urban Studies* 43 (4): 801–817. doi:10.1080/00420980600597723.

Massey, D. 1994. *Space, Place and Gender*. Cambridge: Polity Press.

McCann, E., and K. Ward. 2010. "Relationality/territoriality: Toward a Conceptualization of Cities in the World." *Geoforum* 41 (2): 175–184. doi:10.1016/j.geoforum.2009.06.006.

Mumford, L. 1961. The City in History : Its Origins, Its Transformations, and Its prospects, A Harvest/hbj Book. San Diego: Harcourt Brace Jovanovich.

Murray, L. 2008. "Motherhood, Risk and Everyday Mobilities." In *Gendered Mobilities*, edited by T. P. Uteng and T. Cresswell, 47–59. Aldershot, England: Ashgate.

Nikolaeva, A., P. Adey, T. Cresswell, J. Yeonjae Lee, A. Nóvoa, and C. Temenos. 2019. "Commoning Mobility: Towards a New Politics of Mobility Transitions." *Transactions of the Institute of British Geographers* 44 (2): 346–360. doi:10.1111/tran.12287.

Pereira, R. H. M., T. Schwanen, and D. Banister. 2017. "Distributive Justice and Equity in Transportation." *Transport Reviews* 37 (2): 170–191. doi:10.1080/01441647.2016.1257660.

Peters, B. G. 2017. "Policy Capacity in Public Administration." *Policy & Society* 34 (3–4): 219–228. doi:10.1016/j.polsoc.2015.09.005.

Phelps, N. A., and A. M. Wood. 2011. "The New Post-Suburban Politics?" *Urban Studies (Edinburgh, Scotland)* 48 (12): 2591–2610. doi:10.1177/0042098011411944.

Phelps, N. A., A. M. Wood, and D. C. Valler. 2010. "A Postsuburban World? An Outline of a Research Agenda." *Environment & Planning A* 42 (2): 366–383. doi:10.1068/a427.

Renne, J. L., L. Bertolini, and C. Curtis. 2009. Transit Oriented Development : Making It happen, Transport and Mobility Series. Farnham: Ashgate.

Richards, S. 2012. *Architect knows best: environmental determinism in architecture culture from 1956 to the present*. Farnham: Ashgate.

Røe, P. G. 2000. "Qualitative Research on Intra-Urban Travel: An Alternative Approach." *Journal of Transport Geography* 8 (2): 99–106. doi:10.1016/S0966-6923(99)00039-3.

Røe, P. G. 2014. "Analysing Place and Place-making: Urbanization in Suburban Oslo." *International Journal of Urban and Regional Research* 38 (2): 498–515. doi:10.1111/1468-2427.12113.

Ruter. 2022. "Situasjonsrapport: Passasjertall." 29 (05). https://ruter.no/contentassets/d5dcd4f6f3f9496399fe48120037c78d/situasjonsrapport-uke-21.pdf.

Sandercock, L. 2003. *Cosmopolis II: Mongrel Cities of the 21st Century*. 2 ed. London: Continuum Press.

Schmitt, P. 2013. "Planning for Polycentricity in European Metropolitan Areas-Challenges, Expectations and Practices." *Planning, Practice & Research* 28 (4): 400–419. doi:10.1080/02697459.2013.780570.

Schwanen, T. 2015. "The Bumpy Road Toward Low-Energy Urban Mobility: Case Studies from Two UK Cities." *Sustainability* 7 (6): 7086–7111. doi:10.3390/su7067086.

Schwanen, T., D. Banister, and J. Anable. 2011. "Scientific Research About Climate Change Mitigation in Transport: A Critical Review." *Transportation Research Part A* 45: 993–1006.

Sheller, M. 2004. "Automotive Emotions: Feeling the Car." *Theory, Culture & Society* 21 (4–5): 221–242. doi:10.1177/0263276404046068.

Sheller, M. 2018. "Theorising Mobility Justice." *Tempo Social* 30 (2): 17–34. doi:10.11606/0103-2070.ts.2018.142763.

St.meld.nr.33. 2016-2017. *National Transport Plan 2018–2029: A Targeted and Historic Commitment to the Norwegian Transport Sector*. Oslo: Norwegian Ministry of Transport and Communications. Accessed 05 January 2021.

Talén, E. 1999. "Sense of Community and Neighbourhood Form: An Assessment of the Social Doctrine of New Urbanism." *Urban Studies (Edinburgh, Scotland)* 36 (8): 1361–1379. doi:10.1080/0042098993033.

Urry, J. 2007. *Mobilities*. Cambridge: Polity.

Watson, M. 2012. "How Theories of Practice Can Inform Transition to a Decarbonised Transport System." *Journal of Transport Geography* 24 (C): 488–496. doi:10.1016/j.jtrangeo.2012.04.002.

Wikstrøm, R. D., and L. Böcker. 2020. "Changing Suburban Daily Mobilities in Response to a Mobility Intervention: A Qualitative Investigation of an E-Bike Trial." *Sustainability* 12 (6). doi:10.3390/su12062413.

Yin, R. K. (2014). *Case Study Research Design and Methods* (5th ed.). Thousand Oaks, CA: Sage.