Compact Urbanism in Small, Remote Settlements:

Decoupling Urban Theory from Scale

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Abstract

The compact city has become one of the staple concepts in 21st-century urban theory and policy, as it aims for a more sustainable future, considering contemporary global environmental and climate crises as well as rapid global urbanization. Meanwhile, urbanization is not only increasing its impact on the world but also resulting in an increasingly heterogenous global settlement pattern of urban spaces, including the mobility of theoretical and policy tools across this landscape of settlements. Nevertheless, like many urban theories and policies, the compact city is primarily discussed, practiced, and researched in cities that surpass scalar thresholds that some hold as required to be deemed urban and worthy of consideration, thus not capturing the full variety of settlements worldwide but, instead, a progressively smaller fraction of them. As a result, most smaller settlements – regardless of their recognition as a city or not – are less equipped to engage with compact city theories and policies. Bias towards large-scale settlements risks that smaller settlements will be overlooked entirely when it comes to compact transformations, or that smaller settlements will fail in attempts to do so because of a lack of understanding of small-scale settlements and how compact qualities uniquely interact with such scalar contexts.

Therefore, this thesis reframes the compact city as a theory of compact urbanism, applicable in settlements of any scale, and builds a theoretical and policy platform for compact urbanism in small, remote settlements, which represent a scalar context that is furthest from those that dominate the urban field. This is done using qualitative and comparative analyses of data collected from walking interviews with laypeople in four remote settlements, each with under 10,000 inhabitants, in Northern Norway and the Scottish Highlands and Islands. The findings demonstrate how the scale of small, remote settlements uniquely influence many aspects of compact urbanism, framed through the characteristics of density, mixed land use, and non-car dependency, and how these qualities should be accounted for in compact transformations in small, remote settlements. Ultimately, this thesis makes a case for why scale needs to be decoupled from urban theory altogether in favor of an urban theory, including but not limited to compact urbanism, that recognizes the complexity of scale in the study of the material and social dimensions of global settlements.

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Sentimentality is not my strong suit, and I have rolled my eyes at numerous acknowledgements pages over the years. But now having produced a text of my own that would not have been possible without the contributions of others, I get it. Binding this document without proper recognition of those people would be simply wrong.

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1 Introduction

Imagine being stranded with 2,000 fellow passengers on a deserted island after your cruise ship sinks. You are tasked with building a new settlement. Is urban theory relevant to you? Could it inform how or where this new settlement is built or the means of mobility and daily life that result; are these not the same phenomena that urban theory seeks to understand? Sarah Pink (2009) would certainly say 'yes' as she questions the assertion by Ash Amin and Nigel Thrift (2002) that "the town, the village, [and] the countryside" cannot be anything more than urban "to a limited degree" (p. 452). On the other hand, others may counter that a population so small and remote could not be urban, as urban places are cities with millions of people and connected to other such cities. However, if you are going to find theoretical or empirical inspiration and starting points to adapt from, where would that come from? The first thoughts that come to mind may seem too far from the realities of your small and remote island community; does this settlement really have much to learn from the large and most central spaces and ideas that come to mind when thinking about 'the urban'?

Attention on the urban has been rapidly increasing in recent decades, as urbanization is fundamental to the "locus of problem and solution" (Breheny, 1992a, p. 241) to climate change and global environmental crises. One frequently cited solution is the compact city, in which intensifying development within limited footprints is argued to lead to lower mobility-related greenhouse gas emissions and countryside preservation (Breheny, 1997). However, as Pink (2009) describes, there is often a mismatch between the wider set of spaces in which urban phenomena and processes are found with the narrow set of spaces where they are researched and understood. The compact city is an example of this lack of congruence – it is in the name itself – as it has been informed by and applied to contexts that are nearly exclusively over minimum scalar thresholds. Everything below such thresholds is cast aside. For example, in a global assessment of compact city policies, the OECD (2012) defines urban areas as those with more than 50,000 inhabitants, yet their assessment of global compact city policies is limited to 73 metropolitan areas, each with more than 1.5 million inhabitants. Meanwhile, theories like planetary urbanization (Brenner and Schmid, 2014; Merrifield, 2013) portray urbanization as extending worldwide, across all human settlements, independent of their scale. In the case of the compact city, mobility-related emissions and land consumption through sprawl are not limited to the uppermost population centers but, instead, are found at all scales. The desired results and environmental benefits from compaction are achievable regardless of scale.

1.1 Thesis Overview

This thesis recasts the compact city as compact urbanism, in which the same theory is not limited to settlements above any scalar threshold – decoupling urban theory and scale. It relocates the concept to settlements that are both small and remote, as this context is the furthest from presumed scales of the urban as depicted by Pink (2009). Thus, the aim of this thesis is to prevent failure at compact urban transformations for small-scale settlements that arise due to poor understanding of small-scale settlements or lack of consideration of urban theories in small-scale settlements because of their size. Using grounded theory methods and abductive reasoning, a theory of compact urbanism for small, remote settlements is constructed based on data from walking interviews with laypeople in four such settlements (see Figure 1.1.1), each with less than 10,000 inhabitants and located in the remote regions of Northern Norway and the Scottish Highlands and Islands.

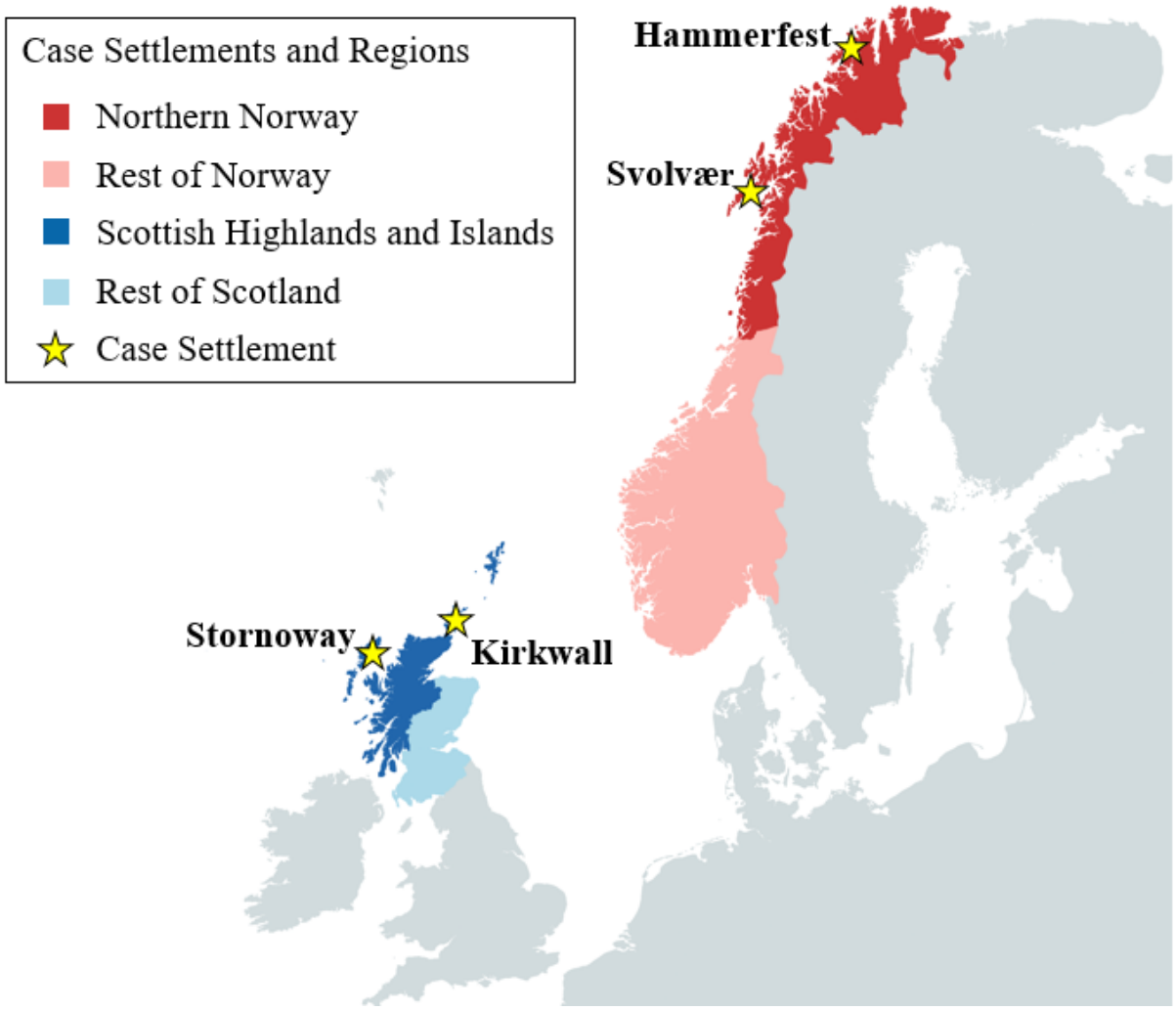

Figure 1.1.1: Case Settlements and Regions Map

This aim is achieved by addressing a series of five research questions ("RQ") shown in Table 1.1.1. The first three questions pertain to the specific set of challenges and opportunities that are found in small, remote settlements that are likely to influence compact urbanism. The last two questions sequentially build on earlier findings to create a set of theoretical and empirical recommendations for navigating those challenges and opportunities to successfully implement the compact city theory in small, remote settlements. Success, therefore, is characterized by reduced mobility-related emissions and reduced amounts of peripheral land consumption. Thus, this thesis is not an attempt to prove the normative value of compact settlements, but to identify the ways in which compact urbanism – and urban theory holistically – can be better attained through an improved understanding of smaller-scale urban environments.

RQ1	What local lay perspectives challenge opportunities for compact urbanism in small, remote settlements?
RQ2	How is compact urbanism perceived by laypeople of small, remote settlements?
RQ3	What are the differences between various small, remote settlements that affect understanding and furthering of compact urbanism?
RQ4	How can urban theory be adapted to expand opportunities for compact urbanism in small, remote settlements?
RQ5	What empirical priorities and changes would expand opportunities for small and compact urbanism in small, remote settlements?

Table 1.1.1: Research Questions

Chapter 2 builds the theoretical framework for this thesis from three bodies of literature: (1) scale in urban theory, (2) compact urban theory, and (3) knowledge and policy mobilities. Next, Chapter 3 reviews the research design and the methodologies used. Emphasis is given to the case settlement selection process as well as the means of data collection and analysis, particularly the walking interviews completed during fieldwork that provided the data used in the analysis. Chapter 4 provides an overview of the history and development of the four case settlements. Chapters 5 through 9 comprise the analysis, with each chapter corresponding to RQ 1 through 5, respectively. While chapters 5 and 6 identify qualities that were found across

all the case settlements, chapter 7 used variation-finding techniques of comparison to see how differences between small, remote settlements are reflected in perspectives relevant to compact urbanism. Then, the findings already presented are used to inform the series of theoretical and empirical recommendations in chapters 8 and 9. Finally, chapter 10 concludes with a discussion of the keys to compact urbanism in small, remote settlements, implications for urban theory holistically in other, 'new' scales, and suggestions for further research. By the end of this thesis, readers will hopefully be a little more amenable to Pink's (2009) suggestion that places often referred to as a town, village, or countryside can be urban as well, and also compact.

2 Theoretical Framework

Three theoretical bodies are relevant for research on compact urbanism in small, remote settlements. The first body surrounds the notion of scale in urban theory and the coupled relationship between scale and urban theory, as small, remote settlements are often excluded from urban theory based on scale. Second is compact urbanism. Although typically conceived under the term 'compact city,' here the concept is examined independent of a predefined and limited context or spatial unit, such as the city, or scalar threshold. The final body is knowledge and policy mobilities. Understanding the nature of how concepts and policies travel enables a more critical analysis of the ways in which they are formed and applied in new contexts, as small, remote settlements are an emerging context for researching compact urban theory.

First, the role of scale in urban theory is reviewed. This includes a history of recent debates and developments on notions of scale in urban theory, followed by highlights of prevailing concepts and methods that hinder incorporating evolutions on scalar thinking, and a selection of contemporary literature in urban geography that recasts scale to include new contexts such as small, remote settlements. Second, the compact urban theory literature is summarized, including its historic relevance and emergence in recent decades, debates about its normative value, and the multitude of ways it is defined and measured. At the end of this section, the definition for compact urban theory used in this thesis is established. Third, a summary of knowledge and policy mobilities literature is provided, focusing on the recent shift from transfer to mobility as well as key dualisms in this field. Finally, a summarizing theoretical framework is outlined that relates the three theoretical bodies to one another and this thesis.

2.1 Urban Theory and the Notion of Scale

Scale is a fundamental concept in urban theory. Louis Wirth (1938) famously characterized the city as a settlement of a large, dense, and heterogenous population. The city, therefore, was limited to large-scale settlements, when understood as a measure of size. By the 1990s, scale was commonly used as a means of structuration to vertically organize settlements into hierarchies (Jessop et al., 2008), limiting cities to scales of a high level. Large-scale exclusivity, defined by size or level, remains commonplace in much of contemporary urban thought.

This section outlines conceptual developments on scale since the 1970s that challenge the connection between urban theory and exclusively large-size or high-level spaces. First,

these key theoretical perspectives are presented. Second, practices and discourses that fixate early notions of scale are reviewed. Last, select theories that challenge earlier thinking about scale are highlighted. Such a framework becomes useful for considering the ways in which urban theories may be relevant to new scalar contexts, such as small, remote settlements.

Theorizing Scale: Debates on Scale in Urban Theory

Scale, and more specifically urban scale, began to receive greater theoretical attention as a direct result of the radical turn in human geographical thought, characterized by Marxist geography and political economy approaches in the 1970s. Manuel Castells (1977) stated that there are two dimensions to urban spatiality under capitalism. The first is the scalar dimension, concerning the material setting, spatial units, and territorial scope of social processes. The second is the functional dimension, concerning the social content and role of social processes. Whereas Wirth, for example, defined urbanism solely in terms of population characteristics and emphasized the importance of material size, Castells' functional dimension of urban spatiality added great theoretical scope to urban theory by emphasizing the multiplicity of social contexts that could be found within a single material setting. Delineating these two dimensions helped set forth a new framework for understanding and critiquing conceptions of scale.

Castells initially utilized these dimensions for arguing the specificity of social processes in cities and at the urban scale, but he was notably critiqued by Peter Saunders (1981), who claimed many of the social processes that characterize capitalist production are not unique to cities. Implicit in this debate is that they both recognize the prevailing notions of scale in which social processes occur (Brenner, 2000). Therefore, spaces, whether discussing the city, region, state, or other scales, are territories where social processes occur, and the size of a given space does not portray life within it. This also implies that social processes are not limited to any single scale but instead can be found across many scales. Therefore, either the definition of the urban scale needed to be adapted, or the processes that take place within the urban scale needed to be recast as spanning other scales.

The latter option, in which social processes are multiscalar, was recognized by a few other Marxist theorists. Particularly, Henri Lefebvre (1978) stated that capitalist production consisted of contradictory processes of integration and fragmentation of superimposed social processes and spaces. In other words, social processes transcend any individual scale. However, between the late 1970s and late 1980s most theoretical developments instead focused on

expanding the reach of the urban scale, such as those of Neil Smith and David Harvey. Smith (1982) described the urban scale as spreading across the unequal geographical developments found in capitalism. Meanwhile, Harvey (1989b) also acknowledged spatial differentiation, but he claimed these were the result of successive forms and evolutions in capitalist urbanization over time. Whereas Lefebvre downplays the significance and singularity of the concept of urban due to the range of settings in which social processes take place, Smith and Harvey widen the concept of urban to encapsulate increasing diversity in the material outcomes of urbanization and social processes.

Whereas the presence of social processes across different settings became accepted by the late 1980s, theoretical developments in the 1990s revealed that social processes were connected between different settings, particularly due to globalization and urbanization occurring across different levels in the scalar hierarchy. Many identified connections and movement across the local and global scales, under numerous terms such as the 'local-global nexus' (Peck and Tickell, 1994) and 'glocalization' (Swyngedouw, 1997). These terms imply that social processes in the age of globalization are rearticulated across numerous places, in increasingly interconnected global networks that span across multiple scales ranging from the global and local extremes of the scalar hierarchy (Brenner, 2009).

By 2000, Sallie Marston argued that focus on capitalist production in the literature on scale lacked sufficient emphasis on the social realm. Instead of the production of scale, Marston described scale as socially constructed, using examples of different socio-spatial phenomena, to illustrate how human agents, power relations, and social phenomena outside of the relations of capital and labor influence scale making and understanding (Marston, 2000). She critiques both vertical scalar hierarchies as well as horizontal measures of scale as scope or size for creating inaccurate and unnecessary separation between spaces. Instead, she proposes a flat ontology without scale at all (Marston et al., 2005). Her argument was critiqued by many, like Andrew Jonas (2006), who highlighted that scale has nevertheless proven a valuable concept in areas such as metropolitan and regional policy or organization of power.

Overall, late 20th-century turns in human geographical thought saw a new explicit focus and transformation on the understanding of scale. Three theoretical developments stand out as particularly relevant. First, scale, understood as size, cannot portray urban spatial structures without additional consideration given to function. Second, scale, understood as level, is ever changing and must adapt to changes over space and time. Third, scale is socially constructed

and, therefore, best understood relationally. In other words, conceptions of scale do not capture the multiplicity of forces and arrangements that influence spatial phenomena that scale attempts to organize. Understanding scale in this manner is key to shifting understanding of urbanism away from its original conceptions as of a large size or high level.

Scale as Deeply Entrenched: Institutionalized and Increasing Inaccuracies

However, such a shift has not occurred on a macro level. The urban world remains primarily focused on cities as the exclusive unit for analyzing urban spatiality and processes, and the city frequently remains defined by population size or, to a lesser extent, hierarchical level. The result is the proliferation of narrow, size- and hierarchy-based understandings of scale that are increasingly inaccurate for depicting the nature of scale and capturing the nature of the phenomena to which scale is applied. The deeply entrenched notions of scale are depicted in the discourses on methodological cityism, United Nations (UN) demography, and the urban-rural dichotomy.

In a scathing critique of urban political ecology and urban studies in general, Hillary Angelo and David Wachsmuth (2014) coined the term methodological cityism, to refer to "an analytical privileging, isolation, and perhaps naturalization of the city in studies of urban processes where the non-city may also be significant" (p. 20). Whereas urban processes are the subject matter of concern within urban studies and urban phenomena are not confined to city borders or the city scale, the traditional bounded city unit is still used as the analytical lens for studying urban processes (Connolly, 2018). Methodological cityism is built on a large body of literature, particularly from urban political ecology, in which theorists including Henri Lefebvre, Roger Keil, and Erik Swyngedouw all pose a similar question: "which is it: urbanization or the city" (Angelo and Wachsmuth, 2014, p. 20)? They advocate for the former, the drawing of boundaries to cities is not equivalent to the limits of urbanization or significance.

Focus on the city, not urbanization, as well as scalar understanding exclusively as size and level is strongly apparent in the demographic methodology utilized by the UN. Since 1952, the UN *World Urbanization Prospects* has designated areas as either urban or rural by population of the local settlement – the exact spatial unit has changed over the history of this report. In other words, a hierarchy is formed, and urban status is based solely on population size. The report includes methodological disclaimers, such as the arbitrariness of the line between urban and rural. This is evident in the wide variations used in the population classes;

the smallest class was 200 people or less in 1952 but fewer than 500,000 in 2001. Reports since 1960 have stated that it is not practicable to establish uniform definitions of urban and rural populations for international use due to methodological differences between nations. The 2000 report further determined that other metrics such as population density, built-up area, administrative area, agglomeration, and city are also inadvisable to use on an international scale due to variations across nations. It even concluded that the distinction between urban and rural was not significant due to worldwide changes found across all scales (Champion, 2004).

Nevertheless, *World Urbanization Prospects* is one of the primary justifications for focus on cities in a new 'urban age,' since global population surpassed the 50% threshold for being urban, according to the 2008 report (Brenner and Schmid, 2015), as well as for perpetuating the urban-rural dichotomy, in which settlements can only be categorized as exclusively urban or rural. As early as 1918, the terms rural and urban were critiqued for being vague and contradictory (Dymitrow and Brauer, 2018) and similar criticisms increased following the commencement of *World Urbanization Prospects*. Sociologist Richard Dewey (1960) concluded that both urbanism and ruralism lacked agreement and usefulness. He further critiqued Wirth as not writing about urbanism as a way of life as he claimed but instead describing one example, out of many, of urban life.

Tony Champion and Graeme Hugo (2004) outline three critical issues to the urban and rural dualistic categorization. First, as acknowledged in *World Urbanization Prospects*, the distinction between urban and rural is becoming increasing blurred and subjective. If such a two-tiered scalar hierarchy or categorization is used, there is no clear and universally accepted delineation between urban and rural. Second, using a unidimensional classification of settlements has become increasingly questionable. Population size, the most common dimension used, does not capture the complex nature of settlements, which have physical and material aspects as well as social and immaterial aspects. Third, given increasing heterogeneity in settlement patterns accelerated by urbanization, new settlement forms are emerging that do not fit into traditional notions of the urban and rural. Therefore, the dichotomy is increasingly unable to accurately describe settlement patterns and sociospatiality.

The troublesome nature of the urban-rural dichotomy is seen in contemporary urban and rural ideal types. On the urban side, the global city ideal (for more on global cities, see Sassen, 1991) is growing in its prevalence and influence on contemporary urbanization processes, though it is also critiqued for its narrow focus across few cities, resulting in many cities falling

‘off the map’ and remaining undertheorized and misunderstood (Robinson, 2002). Global city aspirations for many of these cities have been argued to result in destruction and harm, since they need alternative trajectories (Bell and Jayne, 2006). On the rural side, small-town discourses, particularly in post-industrial nations, portray these areas and rural settlements as solely characterized by economic depression and demographic decline (Steinführer et al., 2016; Wirth et al., 2016). However, as with urban settlements, settlements on the rural side of the spectrum are heterogeneous and often share characteristics with urban settlements (Dymitrov and Stenseke, 2016). Neither urban nor rural ideal types effectively grasp this heterogeneity, and they fail to understand those that do not cleanly fit into either ideal. Exclusively scale-based ideals focus on only the largest and highest or the smallest and lowest in urban and rural theory, respectively.

The proliferation of methodological cityism, the UN’s demographic methodology, and the urban-rural dichotomy show the ways in which scale is commonly understood, operationalized, and entrenched in disproven ways. Scale continues to be treated as a foundational aspect of urban theory and a defining characteristic of what is urban. But the way scale is understood only partially captures urban phenomena at best. Whether that is administrative status as a city, having a population over a minimum threshold, or being of a global nature, none of these comprehensively represents urban physical spatiality or urban social processes. While each of these has a unique way of treating scale, they all share an exclusive focus on large settlements. The administrative designation of city is nearly always associated with the largest population centers, the UN does not differentiate between urban agglomerations with a population less than 300,000 people, and the global city ideal is arguably only achieved by metropolitan areas with a population of several million. Altogether, having a scale of a large size or a top-most hierarchical placement remains fixed as necessary for and delimiting the extent of urban theory. Remaining settlements are largely excluded, absent from theory and policy, and assumed to lack relevance or significance.

A Selection of Postmodern Urban Theories: Crossing Scalar Divides

There are some contemporary theories in urban geography that treat scale in a more relational and dialectic manner that does not limit urban theory exclusively to settlements that are of a large size or high hierarchical level. One of the most notable examples is the notion of planetary urbanization, associated with Andy Merrifield, Neil Brenner, and Christian Schmid, which argues that the effects of urbanization are so widespread that urbanization has reached all spaces

on the planet (Brenner and Schmid, 2014; Merrifield, 2013). Therefore, even spaces that lie well beyond the traditional city cores or suburban peripheries have become integral parts of the urban fabric. The urban no longer has an 'outside' or 'non-urban' or 'rural' spatial category to be contrasted against. Further, urbanization has created new urban scales, blurring and rearticulating urban territories, disintegrating the hinterlands, and bringing an end to true wilderness (Brenner and Schmid, 2014). Brenner and Schmid draw directly on Lefebvre's ([1970] 2003) description of how urbanization results in both agglomeration and fragmentation processes that create a new and extended urban spatiality and scale that spans the entire planet.

Planetary urbanization is highly debated, with critiques including that it is based on a western-centric concept of the urban (Oswin, 2016), creates a singular grand narrative of the urban (Derickson, 2015), and undervalues the forces of agglomeration and nodality in urban-economic geography (Storper and Scott, 2016). However, there are many strengths to planetary urbanization that have been "widely agreed-upon" (Wilson and Jones, 2018, p. 1576), including the importance of the notion of the urban rather than city as seen in methodological cityism, embracing urbanization as a liminal process that constantly alters places and boundaries, and the urbanization as variegated and center-less. Therefore, a landscape limited to a notion of the city and fixed visions of centrality and urban nodes is insufficient for understanding urbanization and urban reality. To illustrate this, Schmid (2014) uses the possibility of highly 'urban' small cities to illustrate that "new urban situations are possible in a wide variety of places" (p. 67).

Another theoretical body comes out of critiques of the global city discourse. Jennifer Robinson has highlighted the resulting underrepresentation of the cities that 'fall off the map' (Robinson, 2002), 'ordinary cities' (Robinson, 2006), and the Global South (Robinson, 2011; Roy, 2009), which are excluded in the global city framework. She promotes a shift from world, or global, cities to a world of cities (Robinson 2005) in which urban theory explores the full variegation of urbanism found in the world instead of attempting to prove few epochal urban archetypes. Robinson has mostly been met with acclaim (Peck, 2015; Roy, 2011; Sheppard et al., 2013), but some believe that so much weight on local particularity could reduce each individual city to a special case that cannot be compared or characterized by wider definitions (Scott and Storper, 2014; Peck, 2015). Although not explicitly motivated by or limited to scale, Robinson's thinking on the shortcomings of urban theory can be used to capture the entrenched scalar limitations in urban theory. Where Robinson is motivated by a limited view of

developmental contexts that exclude the Global South, the same thinking is applied by David Bell and Mark Jayne (2009) to demonstrate how 'small' scalar contexts are excluded from urban theory.

While these examples do not produce a theory or output to conceptualize urban spaces of other scales, an example of how it can be operationalized can be seen in a recent interest in topological thinking and intensive heterogeneity. Originating in geometry, topology is the study of qualitative characteristics that space maintains when subjected to distortion and transformation. When applied to geographical thought, Anna Secor (2013) argues it opens up – and has in historical thinking, even if not explicitly under the name of topology – the separation of the subject from its lived space, such as the city. Thus, a concept or theory is not solely tied to the topographical or territorial space and scale where it is located. Instead, spatial phenomena have both territorial and relational aspects, or topographical and topological aspects (Paasi, 2011). Colin McFarlane (2016) relates topological thinking to urban density, in which the key is the empirical shift away from equating densities with only the physical spaces where density is most often found. Instead, density also includes the relations and processes in which it is materialized and contested, such as urban policy or personal perceptions, which are not fixed to specific spaces. However, despite having no "necessary pre-given geography" (p. 631), McFarlane claims density – and many urban phenomena – is understood within a narrow range of territories and scales that closest align to the historical spaces it is physically found. Topological thinking and the tension between the territorial and relational aspects of spatial phenomena is further discussed in the review of urban policy mobilities (see Section 2.3).

Urban Theory at a New Scale: Small, Remote Settlements

Both planetary urbanization and topological thinking demonstrate ways in which the urban theory can extend across all scales. Though not explicitly stated, such a landscape includes small, remote settlements, the scalar context of interest in this thesis. First, given the greater theoretical understanding of scale, small and remote are used here in a relational and dialectic manner. As such, there is no fixed, uniform, or pre-given measurable definition of what is small or remote; no metric such as a population maximum or distance between settlements is used to classify small, remote settlements. Instead, small and remote are understood as the product of the local material and social conditions, and they are defined merely as conceptual opposites to large and global, the prevailing conditions associated with entrenched notions of urban scale as seen in methodological cityism and global cities discourse, for example. Second, small, remote

settlements are of interest because they are the least like the prevailing understanding of urban as settlements of a scale that are large in size and of a high hierarchical level. If urban theory is to embrace recent scalar thinking, then there are many new types of settlements for urban theory to be considered in, but small, remote settlements represent the settlement type that is most different than those that have been deemed urban in modern history. If urban theory can be set and reevaluated in small, remote settlements, then a precedent could be set for doing so in any type of settlement that was previously excluded from urban theory.

This thesis does not claim to be the first to relate urban theory with small, and to a lesser extent, remote settlements – there are many examples, even if they are a small minority (Bell and Jayne, 2006, 2009; Steinführer et al., 2016). Nevertheless, 'sizism' is still rampant in urban theory, and the amount of research in scales of a small size or lower level remains limited in both breadth and depth. As seen in David Bell and Mark Jayne's (2009) call for a small cities research agenda, there are many challenges to bringing urban theory to new scales, such as small, remote settlements. Particularly, the nature of these new scales must be examined as independent phenomena with their own geography, specificity, and plurality, as opposed to being examined solely with reference to prior understood scales. So, while topology originates as a concept that focuses on the similarities found across different spaces, the unique, self-standing qualities found in small, remote settlements must be just as important to the similarities between them and traditional urban spaces.

Understanding the recent theoretical developments on scale enable such a research agenda and the goals set out from Jennifer Robinson, to Neil Brenner, and to David Bell and Mark Jayne. First, scale is complex. Scale is not just about size or level, but it is also relational and dialectical, involving 'both/and' thinking instead of 'one (n)or the other' (Jones et al., 2017). Scale is not fixed nor pre-given but is constantly changing over space and time because of the complexities of both material and social phenomena across all levels, from the local to the global. Second, entrenched thinking on scale is limited. Size and level alone are insufficient to portray sociospatiality, especially given contemporary material and social processes that are creating an urban landscape that is variegated, multidimensional, and interconnected all at the same time. Although characteristics like population size may have historically been used to define the city and the urban, it is an increasingly inadequate way of defining urban territory and settlements. When these aspects of scale are operationalized, the result is opportunity and need for urban theory that spans all scales and all contexts, even small, remote settlements that

are the antithesis of traditional notions of scale and urban. In this thesis the theory of the compact city, or compact urbanism, will be explored in small, remote settlements.

2.2 Compact Urban Theory

Unlike small or remote, compact is an unsurprising word to associate with urban theory in the 21st century. Over the past 30 years, 'the compact city' has become a commonplace theory and order of discourse in urban studies, planning, and sustainable development. While it lacks a singular accepted definition, compact cities are cities of short distances that concern the relationship between urban form and sustainable development by advocating for urban development to occur within less space (Jenks et al., 1996). Although this conceptualization does prescribe an urban context, the primary phenomenon in question is the built environment and the extent to which it is compact or not, where sprawl is the opposite of compact. But as Colin McFarlane (2016) would say, there is no pre-given geography or predisposition to compact, as development can be compact or sprawling no matter the context, whether urban or rural. Yet, implied through the popularized term of the compact city, research and understanding about compact built form primarily focus on city contexts. Therefore, to reflect the possibility for compact form to be found in any context or scale, the terms such as compact urban theory and compact urbanism will be used in lieu of the compact city.

This section continues with a review of how compact urban theory initially formed and rose to prominence, the ensuing debates and contested aspects of compact urban theory, and a review of ways in which compact urban theory is defined and measured. It concludes with the definition and framework of compact urbanism that is utilized in this thesis.

Compact Emergence and Historical Inspirations

George Dantzig and Thomas Saaty (1973) developed one of the first normative models of a compact built form. They outlined a model city that could accommodate between 250,000 and 2 million residents within a circular footprint between approximately 2.7 and 5.4 kilometers in diameter. Key aspects of the model included high horizontal and vertical density, mixed land use, decreased car dependence, self-sufficiency, integration of green spaces, public transit, and a clear boundary between the city and surrounding areas. Dantzig and Saaty based the plan on the principles of space and time, maximizing efficiency of both dimensions while also striving to maximize overall quality of life.

But it was not until the late 1980s that the explicit, theoretical construct of compact urbanism became prominent in urban theory. In the preceding decades, particularly in developed societies in North America, urban areas were characterized by decay, a growing mindset that there was no hope for cities, and the expansion of the suburban landscape as enabled by the automobile (Dieleman and Wegener, 2004; Filion, 2015). But in 1987, the UN World Commission on Environment and Development, known as the Brundtland Commission, introduced the concept of sustainable development on the global stage, which initiated a shift in thinking about urban areas and interest in compact urban theory (Sherlock, 1996). The discourse on sustainable development highlighted the city as the location of both the problem and solution to the global environmental crises (Breheny, 1992a), as a growing share of development and resource use occurred in urban areas due to accelerating urbanization. Voices critiquing the prevailing 20th-century ways of urban development, particularly in North America and Western Europe where sprawling development was most prominent, received greater attention. Thoughts on the city began to shift from abandonment strategies to strategies of reevaluation and improvement, including compact urbanism.

By 1990, The Commission of the European Communities *Green Paper on the Urban Environment* called for re-centering urban life from disconnected peripheral areas to central cores due to benefits for the environment and social quality of life (1990). While the benefits to quality of life were more contentious, the environmental benefits were supported by many (Newman and Kenworthy, 1989; Elkin et al., 1991; McLaren, 1992) and formed the basis of compact urban theory. The theory states that compact built form is environmentally sustainable because it creates shorter travel distances that result in lower greenhouse gas emissions from mobility and it consumes less land and preserve the countryside (Breheny, 1997).

Although compact urban theory became prominent within the last 30 years, it is both inspired by and seen in historical urban form and theory. It is often associated with historical forms that are seldom developed in the present, such as the "intense medieval city, whose limits are clearly visible, and where the hubbub of daily activity is confined within the city's walls" (Thomas and Cousins, 1996b, p. 54). This comparison has been viewed positively by many urban theorists. Max Weber stated that medieval Italian hill towns were the exemplar of urbanity for their compact nature, Lewis Mumford praised compact medieval settlements for their regard for community over dominance in his 1961 historical account of the city, and Murray Bookchin also praised this urban form as admirable for its spontaneous design and

human scale in a 1974 critique of New York City (Yanarella and Levine, 1992). Walter Christaller (1966 [1933]) not only praised the compactness of medieval cities, but also argued that compactness and centrality are beautiful and recommended tools for creating order and organization. Sprawl, as the antithesis to compact, had also been critiqued by many before the Brundtland Commission, having portrayed suburbs based on numerous fallacies such as damaging commuting patterns (Berger, 1961) and suburban development needing to be compact to not dilute the landscape (Richards, 1946).

Aptly described by Michael Breheny (1996), compact urbanism fundamentally engages with the historically familiar debate between centrism, which favors high-density settlements, and decentrism, which favors spreading development out horizontally. Urban theory has consistently engaged with this debate throughout the 20th century, spanning decentrists such as Lewis Mumford and Frank Lloyd Wright to centrists such as Le Corbusier and Jane Jacobs. One key topic throughout this debate, whether discussing Howard's garden city model or Jacobs' calls for urban diversity, is the distribution and organization of built and natural forms. As advocated by urban centrists and early compact models, compact urban theory promotes high density, mixed and intensified land use, urban containment or growth within existing boundaries, as well as provision of public transit, pedestrian, and cycling infrastructure (Blowers, 1993; Elkin et al., 1991; Newman and Kenworthy, 1989).

Compact Debates

Due to the quick nature in which compact urban theory emerged after the Brundtland Commission, the following years were characterized by both promotion and precaution towards compact development; the precautionary principle was cited often in regard to compact urban theory (Breheny, 1992a; Wilson, 1996). Many cited a lack of empirical evidence to substantiate the theoretical benefits it claimed (Welbank, 1996; Neuman, 2005). While the quantity and nature of critiques of compact urban theory have shifted over the past few decades, compact remains highly contentious. This section reviews three different dimensions of compact urban theory debates: environment and sustainability, quality of life, and feasibility and acceptability.

The original two environmental justifications for compact urbanism have been subject to extensive research in recent decades. The first, the association between compact form and lower mobility-related greenhouse gas emissions, has been empirically seen in a variety of contexts. Shorter distances and closer proximity reduce emissions by resulting in shorter

distances traveled as well as a modal shift from high-emitting transit modes such as the car to low-emitting modes such as public transit, cycling, and walking (Hillman, 1996). For example, a study spanning 10 large cities across four continents found a direct correlation between private passenger transport energy per person, urban density, and emissions per capita (Newman, 2006). Another study spanning 50 small and medium sized cities in Japan revealed significant correlation between compactness metrics and residential and passenger transport carbon dioxide emissions (Makida et al., 2012).

However, decreases in mobility-related greenhouse gas emissions and land consumption has been critiqued as an insufficient indicator of sustainability and poor justification for compact urbanism. Critics highlight that transportation only accounts for a portion of greenhouse gas emissions (Neuman, 2005) and that mobility needs are increasing and unable to be met according to compact ideals as a result of urbanization and economic development (Holden and Norland, 2005). Nevertheless, the connection has been widely promoted and embraced in literature as seen in reviews of several dozen studies in the United Kingdom (Anderson et al., 1996) and the Nordic region (Næss, 2012).

The second justification, that compact form preserves the countryside, has been argued to minimize land consumption and resource use (Breheny et al., 1996), while also maintaining natural landscapes that act as land sinks and capture emitted greenhouse gases (Yeh and Huang, 2012). In urban literature, the countryside is primarily cited for its role as a recreational green space and desirability for residents (Hofstad, 2012; Næss and Jenson, 2004) – lack of green space is associated with urban ills such as crowding and pollution. Though not limited to or centered on the countryside, green space preservation in the face of urban compaction and densification is highly debated, with consensus that green space preservation is a normative goal but differing positions on the strategies and feasibility of preserving green space in compact environments (Haaland and van den Bosch, 2015; Jim, 2004; Lin et al., 2015).

Some of the forms of green spaces, other than the countryside, that are the subject of green space preservation efforts include greenbelts, greenways, green fingers and wedges, urban parks and parklets, gardens, and other forms of urban greening (Burton, 2000; Jabareen, 2006; Tappert et al., 2018; Walmsley, 1995). In most of these cases, the focus remains on the role of green space that is located within the compact core or center as opposed to the periphery where the countryside is found. However, there are two exceptions: greenbelts, or large undeveloped areas surrounding a developed area; and green fingers or wedges, or continuous

green connections between the center and peripheral countryside where larger green spaces are located. Green connections between the core and periphery, as seen in contexts across Europe and China (Fan et al., 2017; Jim and Chen, 2003; Žlender and Thompson, 2017), highlight the value of the countryside and peripheral green spaces in compact environments.

While the decades following the Brundtland Commission produced extensive empirical evidence that illustrated the environmental benefits of compact form over sprawling form, the jump from environmentally advantageous to sustainable remained contested and became more complex over the same period. A full review of conceptions of sustainability is beyond the scope of this framework, but the shift is generally characterized by the growing role of social systems in the global environmental crisis and climate change (Antonio and Clark, 2015; Lövbrand et al., 2015; Pelling et al., 2011). So, while Brundtland conceptualized sustainable development based on resource use, and climate change research was initially driven by the physical effects of greenhouse gas emissions and land use changes (Rosa and Dietz, 2012) – the same two bases for the original environmental justification for compact urbanism – sustainability is increasingly considered to span well beyond these physical domains and into the social realm. Similarly, instead of debating whether compact urban theory is sustainable solely within its physical aspects of emission levels and land consumption, it is often evaluated for its social sustainability.

Many social aspects of compact urbanism that are critiqued fall under the Commission of European Communities' portrayal of quality of life, or the wide-ranging aspects that affect the quality of everyday life. In the case of compact urban theory, quality of life has been argued as both a justification for and argument against compact form. While the Commission of European Communities claimed compact ideals improve urban quality of life, this was challenged by others such as Michael Neuman (2005), who claimed compact ideals are inversely related to most measures of quality of life and that, therefore, despite its sustainable value, there is a compact 'paradox' and 'fallacy,' and Michael Breheny (1992b), who described compact ideals as contradictory with quality of life, particularly in suburban and peripheral areas.

Quality of life claims both for and against compact urbanism are seemingly endless. Summarized in Table 2.2.1, some of the most frequent and significant aspects of compact ideals argued to have a positive and negative impact on quality of life span economic, social, health, and equity-related domains. Economically, some argue that compact built environments are

advantageous for both development actors as well as residents and users of compact developments. The financial cost and necessary resources for physical infrastructure such as roads, energy grids, water, and sewage decrease with shorter distances, and high densities create economies of scale and efficiency (Lehmann, 2016). Many have argued that consumers have less mobility-related expenses if living without owning a car (Crookston et al., 1996; Nijkamp and Reinstra, 1996). On the other hand, some claim compact environments are economically disadvantageous due to the investments needed in public transit systems (Dieleman and Wegener, 2004; Gordon and Richardson, 1997). Also, due to association between high densities with high land rents and gentrification, some claim that compact urbanism results in affordable housing shortages and financial strain on residents (Burton, 2000).

	Supporting Arguments	Opposing Arguments
Economic	Infrastructure less costly due to shorter distances	Requires too much, high cost transport infrastructure
	Car-free lifestyles more affordable than car-dependent lifestyles	Density creates high land rents and affordable housing shortage
Social	Better access to facilities and green space due to density	Lack of facilities and green space due to land scarcity
	"Eyes on the street" surveillance and greater community identity	Increased conflict and crime due to closer proximity between people
Health	Less pollution and noise due to lower car use per person	Concentration of pollution, noise, and waste in smaller area
	Physical health benefits from increased walking and cycling	Negative health effects from cramming and lack of space
Equity	More equitable access for all associated with public transit	Equity impacts weak and not worth investment/change required
	Less segregation and improved housing conditions	Compact not preferred by all; shift would require losses for many

Table 2.2.1: Compact Urbanism and Quality of Life

Socially, compact built form is argued to increase accessibility to different facilities and services as well as green spaces, both central and peripheral, because of concentrated development and short distances (Næss and Jensen, 2004; Williams, Burton, and Jenks, 1996). Meanwhile, critics cite that compact built form lacks adequate facilities and green space due to land scarcity and lack of privacy (Burton, 2000; Knight, 1996). Compact supporters argue that the social environment of compact, dense areas is safer, friendlier, and has a greater community identity due to higher interaction and proximity between different households (Hofstad, 2012; Williams et al., 1996). This is derived from Jane Jacobs' (1961) concept of 'eyes on the street,'

in which high-density and mixed-use environments create a vibrant social environment of self-policing, activity, and collective regard. However, others claim the opposite effect results from proximity of people in high-density environments, such as increased conflict and crime (Zhang, 2015). The empirical evidence supporting this claim is mixed, with higher aggregate crime rates in high-density cities, but uncertainty over the relationship on a smaller, micro-location level, such as individual blocks and intersections (Burton, 2000).

Public health arguments are among the most central to the quality of life debate. Where some argue that externalities such as pollution and noise from traffic decrease due to the modal shift and shorter distances in compact environments (Breheny, 1992a), others claim that even if the nominal amount of pollution and noise is less, these externalities become more concentrated and have worse effects for locals (Ní Riain et al., 1996; Troy, 1996). Compact built form, on one hand, is associated with positive physical health effects due to increased walking and cycling levels as well as lower sedentary lifestyles (Barton, 2009; Frank et al., 2005; Hillman, 1996) as well as modest mental health benefits (Burton, 2000). On the other hand, some have claimed the association between built density with physical health is false (Næss, 2014), and that compact environments have negative effects on mental health and well-being due to lack of access to natural environments and green space (Barton, 2009).

Questions about equity are less defined and partially span into other domains. Elizabeth Burton (2000) found compact forms generally improved facility access, public transit usage, and social segregation in a study of 25 British cities, though other aspects of social equity, such as housing affordability and crime, were negatively associated with compact forms. While the same positive relationships were found in a study of perceptions and compact policies in Singapore (Mortezaei, 2012), Gordon and Richardson (1997) concluded that the equity case for compact urbanism is weak. They stated that the required energy and resources to transform existing decentralized settlements imply equity issues, as many do not prefer compact environments and would suffer losses because of compact transformations.

Instead of a definitive relationship between compact urbanism and quality of life, an alternative story emerges. First, quality of life is not solely determined by compact or sprawling form but also other characteristics; even if there is a correlation, compact built form on its own is insufficient to ensure the outcomes promoted by compact urban theory. Second, quality of life in all settlements, compact or not, is of great fundamental importance to and a function of the material, built environment as well as the social community. Like notions of sustainability,

both dimensions must be considered. Last and most significantly, quality of life assessment is highly subjective. Just as some centrists and compact advocates argue based on certain outcomes, decentrists and compact skeptics are opposed because of those same outcomes. In other words, even when both sides agree objectively about the nature of compact urbanism, their subjective or normative assessment is different. Where there is agreement that life in urban areas should be attractive for all, what is attractive to some is not attractive to others (Crookston et al., 1996). This subjectivity must play a role in improving understanding and implementation of compact urbanism, especially because of the variation that already exists between different settlements.

Recognizing the subjectivity embedded in debates about compact urban theory, many have quarreled over the question of whether compact is simply desirable and feasible. Michael Breheny (1997) outlined three types of tests for the compaction case: the veracity test, or if compaction delivers the benefits it claims; the feasibility test, or if compaction is possible to implement; and the acceptability test, or if compaction and its impacts are desirable to affected communities. He claims research on compact urbanism, while adequately addressing the veracity test, often neglects the feasibility and acceptability tests. On feasibility, he highlights economic concerns for construction costs and market incompatibility, technical concerns surrounding designing and constructing compact environments, and the lack of political will and governmental support to push compaction projects forward. Further, he highlights that compaction may not be acceptable for many – if not most – because of residential preferences and satisfaction rates, lack of desire by residents to change their lives for the supposed benefits of compaction, and beliefs by some that it is immoral to force lifestyles on people through means of intervention that would be necessary to achieve compaction.

Many others have also questioned the desirability and feasibility or creating compact environments on a wider scale. A common theme that runs through these critiques regards creating the material and social change that would be required to alter the trajectory of the existing decentralized and sprawling nature of many existing settlements. Peter Gordon and Harry Richardson (1997) assessed 11 different aspects of compact urbanism versus maintaining decentralism and suburbanization. Notable desirability concerns in compact environments were raised about high-density living, lack of mobility provision and access without owning a car, green open space scarcity, and unattractiveness of transit use for groups living in decentralized settlements. Identified feasibility concerns included high financial and resource costs of public

transit systems as well as greater levels of technological improvement in addressing the issues associated with sprawling environments than with compact environments.

However, within these debates, a few themes emerge that vary across different scales and contexts. Many rural protectionists support urban containment and intensification in pre-developed areas to reduce pressures on the countryside (Newman, 2006; Williams et al., 1996). Additionally, smaller settlements in sparsely populated regions often benefit from the hinterland effect, creating a higher concentration of services due to the lack of alternative central places in the greater region (Fertner et al., 2015). Since concerns about crowding and cramming often arise when residential preferences favor low-density and sprawling form, some have proposed compromise. For instance, instead of apartments, rowhouses could be a more pragmatic yet still more sustainable housing option in peripheral and rural environments (Hall, 1999). Louise Thomas and Will Cousins (1996a) recommend 'decentralized concentrations' of development as the most favorable and environmentally sustainable development pattern that also better aligns with popular opinion, economic demand and forces, and political will found in peripheral and rural areas. Such areas often view compact urbanism undesirably due to concerns such as crowding and lack of green space, but paradoxically, it aims to preserve green space, sustain natural environments, and maximize access to the countryside, which are valued in these contexts (Fulford, 1996; Næss and Jensen, 2004).

Altogether, compact urbanism remains an eminent theory and strategy, but it also remains contested, albeit in a slightly different way than when it first arose to prominence. First, the underlying environmental advantages of compact urban form are generally agreed upon. However, whether compact urban form is a sustainable urban form is less universally accepted; many argue urban compaction is key to transforming urban areas from the source of the sustainability crisis to the site of the solution, while others claim compact urbanism results in various externalities that cause social, political, economic, and ecological problems for sustainability. Second, the effects and externalities of compact urbanism remain another area of contestation, particularly regarding their impact on quality of life. Where many argue that compact urbanism results in general increases in quality of life, others claim quality of life is minimally or negatively related to compact urban form. This leads to the final area of debate – is compact urbanism even desirable or feasible? Even if compact urbanism is sustainable and improves quality of life, many doubt the possibility of compact transformations.

Defining Compact: Characteristics, Metrics, and Scale

Evidently, there is no universally accepted definition of what is compact or of how compact urbanism is manifested. Gordon and Richardson (1997) outlined three different uses of the term compact, each with a different meaning: the macro approach, promoting high densities in cities and metropolitan regions; the micro approach, promoting high densities at the neighborhood or community level; and the spatial structure approach, promoting a centralized settlement pattern across multiple cities and metropolitan regions in which development is oriented toward the various central cities. To define compact, Burton (2002) described three main characteristics of compact urban places: high-density built form and population, mixed land use, and ongoing intensification of development and population. In Neuman's (2005) critique of compact urbanism, he developed a more comprehensive definition based on 14 characteristics that should guide further research on compact urbanism:

> "1. high residential and employment densities; 2. mixture of land uses; 3. fine grain of land uses (proximity of varied uses and small relative size of land parcels); 4. strong social and economic interaction; 5. contiguous development (some parcels or structures may be vacant or abandoned or include surface parking); 6. contained urban development with clearly demarcated limits; 7. urban infrastructure, especially sewerage and water mains; 8. multi-modal transport; 9. high degree of accessibility: local/regional; 10. high degree of street connectivity (internal/external), including sidewalks and bicycle lanes; 11. high degree of impervious surface coverage; 12. low open-space ratio; 13. unitary or closely coordinated control of planning of land development; 14. sufficient government fiscal capacity to finance urban facilities and infrastructure" (p. 14).

Dempsey and Jenks (2010) summarized compact form as high density, mixed use, efficient for transport, and socially and economically diverse. To Per Hofstad (2012), the compact ideal involves the link between a dense and mixed-use built form with social, environmental, and economic sustainability dimensions. In a comparative assessment of compact policies found worldwide, the OECD (2012) concluded there are three key characteristics to compact urban places. The first component was dense and proximate development patterns, involving intensively utilized urban lands, close or contiguous agglomerations, a distinct border between the compact core and surrounding hinterlands, as well as securing public lands to maintain livability in the core. The second component involved linking urban areas through effective land use as well as development of transit systems that accommodate resulting mobility patterns and needs. The last component was accessibility of local services and jobs, achieved through

mixed land uses that are accessible by foot, bike, or public transport. Although there are many commonalities across these definitions, there are even more differences.

Similarly, there is lack of agreement on how to measure compactness. Burton (2002) identified over 40 different metrics for measuring urban compactness, related to density, land use mix, and intensification. Burton highlights the possibility for measuring both static urban compactness at any given point in time, as seen in density and land use metrics, as well as active processes and changes in urban compaction, as seen in intensification metrics. Other measurement methods focus on quantifying and placing settlements on the spectrum between compact and sprawl. A study of urban sprawl in 13 large urban areas across the United States identified eight different metrics, each with its own unit of analysis and operationalization: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses, and proximity (Galster et al., 2001). Yu-Hsin Tsai (2005) proposed measurement of four dimensions: population size, population density, degree of equal distribution, and degree of clustering. Another method of measurement proposed focusing on four components: development density, land use mix, activity centering, and street connectivity (Hamidi et al., 2015).

Altogether, three different aspects emerge that must be defined and framed in research on compact urbanism and compact urban theory: the key characteristics of compact urban form, the method of measuring and evaluating the degree to which urban form is compact; and the scale in which urban compactness and compaction processes are considered. Based on the findings of this review of compact urban theory, these three aspects are clarified below, forming the conclusion of this review as well as framing the way in which compact is utilized in this thesis. The resulting framework is shown in Table 2.2.2.

Key Characteristics	*Density* : high and/or increasing intensity of material and social activities
	Mixed Land Use : horizontal and vertical proximity of different facilities and services
	Non-Car Dependence : mobility needs met via public transit, walking, and cycling
Metrics	No specific measurements specified. Focus on research paticipants own evaluations.
Scale / Spatial Unit of Analysis	*Settlement* : small and remote community inclusive of a central core, surrounding subordinate areas, and peripheral hinterlands

Table 2.2.2: Compact Urbanism Definition in this Thesis

In this thesis, compact urban theory is characterized by density, mixed land use, and non-car dependence. More specifically, density is defined as a measure of activity intensity (Tsai, 2005), including physical or material activities such as built space and land use as well as social activities such as residential population and employment. Mixed land use is defined as a varied supply of different types of facilities and services within close horizontal and vertical proximity (Burton, 2002). Last, non-car dependence is defined as the ability to meet mobility needs through means other than automobile use, such as public transit, walking, and cycling, which is achieved through changes in built form as well as changes in transit provision (Thomas and Cousins, 1996b). The theory holistically and its components are used as both static descriptors and ongoing processes. These terms are not assumed to be normative but are utilized to objectively and consistently characterize compact urban theory.

Compact urban theory is deemed successful when it achieves its environmental aims: preserving the countryside and reducing mobility-related emissions. However, due to the abductive research strategy and use of grounded theory in this thesis (see Section 3.1), no predefined method of measurement or evaluation of compactness is prescribed. Instead, this thesis focuses on the ways in which informants understand and evaluate compact urban form.

Last, the scale or spatial unit of consideration for this is the settlement, inclusive of a center and primary core area, any smaller or surrounding areas, and peripheral hinterlands. Prior attempts to downscale the metropolitan area or city region include nanopolitan (Eathington, 2014) and micropolitan areas (Vias, 2012). However, these terms are defined by their administrative boundaries or population. Instead, a settlement is understood as a single, contiguous, developed and populated area that extends as far as locals self-identify instead of what particular metrics might determine. Altogether, compact urban theory in this thesis refers to urban form characterized by density, mixed land uses, and non-car dependence in a settlement.

2.3 Knowledge and Policy Mobilities

With an appreciation for recent geographical conceptualizations of scale and the explosive use of compact urban theory in recent decades, it is apparent that research about compact urbanism in small, remote settlements is not limited to just the geographies and spaces of small, remote settlements. The emergence of compact urban theory and its use worldwide, combined with

entrenched conceptualizations of scale that assumes urbanization occurs only within the uppermost scales, imply that compact urban theory in small, remote settlements is likely to have origins, inspirations, and other relations with spaces outside of their own boundaries. As such, the movement of theoretical understanding and implementable strategies, or knowledge mobility and policy mobility respectively, are a valuable lens through which to examine compact urbanism in small, remote settlements.

The larger literature of the two, policy mobility, involves interdisciplinary critical policy studies that "explore the processes, practices, and resources brought together to construct, mobilize, and territorialize policy knowledge" (Baker and Temenos, 2015, p. 825). But as Jane M. Jacobs (2012) describes, policy mobility is only one element of the push toward a relational urban geography, in which urban phenomena are not only conceived "beyond the city-as-territory" (p. 412) due to flows and relational networks between cities, and the concept of "the city as we know it" (p. 413) is reconsidered as the city itself is becoming so variegated, ambiguous, and difficult to define. Thus, a relational urban geography questions not only the relations among various units in the urban network, but also the nature of the individual units themselves included in urban networks. This second element invokes greater questions about knowledge mobility, which expands beyond politics and policy. Less associated with urban geography and more associated with innovation and science and technology studies, knowledge mobility concerns the spatial dimensions and movements of ideas and institutions, theories and practices, as well as principles and performances (Livingstone, 2003). The following brief account of the shift from transfer to mobility depicts the dynamics involved in knowledge and policy mobilities and the key dualisms they involve.

The Shift: From Transfer to Mobility

The connective tissue and movement of ideas and policies are not particularly new ideas. Bruno Latour (1987) described science and ideas as constantly circulating, dependent on social and human relations, instead of remaining fixed in place. David Harvey (1989a) observed that growing interurban competition led to frequent reuse of policies. Similar observations were made a decade later about the 'ubiquity' of urban policy (Hubbard and Hall, 1998). Interest in mobilities has been described as drawing on three existing literatures (Temenos and McCann, 2013): policy transfer, from political science, focusing on the actors and institutions that shape policy processes; the mobilities approach, from sociology, demonstrating the wide-reaching

spaces and roles that influence knowledge circulation; and geographical conceptualizations of scale (ss Section 2.1), highlighting the interscalar conditioning and re-scaling of policy.

Recent attention and thinking have led to an evolution in understanding about the ways in which knowledge and policies are mobile (Peck, 2011). Initially, the focus was on transfer and diffusion, in which policies were understood as being replicated between different jurisdictions. Mostly discussed within political science, consideration was limited to the political actors and institutions as well a singular spatial scale, most often the national scale, as seen by Dolowitz and Marsh (2000). Policy transfer and 'fast policy' became associated with neoliberalism, entrepreneurialism, and growing interurban competition, involving rapid circulation and reproduction of political imperatives (Baker and Temenos, 2015). However, policy transfer was critiqued for too much focus on descriptions of transfer agents and a lack of analysis of process and practice, near-exclusive focus within the national scale of policy, and the 'implicit literalism' in which policy is portrayed as a fully-formed entity that is pulled 'off-the-shelf' and replicated in identical form (McCann, 2011; Peck and Theodore, 2001).

Instead, growing social-constructivist theory and approaches, as seen in sociology on mobility and geography on scale, transformed the discourse on transfer and diffusion of tailor-made policies to one of mobility and mutation of policy and policy knowledge. Individual places, instead, were understood as produced in and through cross-territorial and cross-scale relationships that involve flows of people, capital, and ideas (McCann, 2011). Different places, including different sites at different scales, therefore, are relational nodes that are tied to other distant places (Massey, 2005), and the policy and ideas found in these places are not territorially bounded (Amin et al., 2003).

A Straddling Act: Key Dualisms

However, the integration of social-constructivist approaches has highlighted several dualisms that the study of knowledge and policy mobility must consider. Though it is easy to reduce these tensions to simplistic dualisms as both demonstrated and critiqued by many (McCann, 2011; McCann and Ward, 2014), research must 'walk the line' and give appropriate weight to either end, as described by Jamie Peck and Adam Tickell (2002). The foremost dualism is between fixity and mobility, highlighting that knowledge and ideas are both territorial and relational, simultaneously fixed or embedded in place and in motion, both locally particular and global, both topographical and topological (Baker and Temenos, 2015; Cochrane and Ward,

2012; McCann, 2011; Robinson, 2015). The addition of the latter side of this dualism highlights the challenge of exploring the ways in which both knowledge and policy networks reach out, stretch to, and connect between different places. This is a particularly difficult challenge given the various means of connectivity and mobility, both real and virtual as well as intended and unintended, that are found today while simultaneously recognizing the uneven, different, and variegated nature of spaces and places worldwide.

Second, Jennifer Robinson (2015) portrays how policy circulations are multidirectional, in which individual policies can push outwards and influence other places afar but also that individual places can pull inwards policies from other places afar – the same can be said about knowledge circulations. While mobility studies often originate in policy and follow the means and relations in which that policy becomes local in a new context, Robinson highlights that places are another needed point of origination, as policies are also 'made up' locally, drawing on viewing other places. Governance, as well as understanding, has become increasingly shaped by multi-dimensional and multi-directional forms of interscalar and interlocal mobilities (Peck and Theodore, 2010).

Last, where knowledge and policy transfer is primarily focused on 'successful' initiatives and policies, the shift towards mobility acknowledges the presence and need for research about failures as well. Temenos and McCann (2013) depict the frequent and viral nature in which policies and ideas are discussed as a series of 'best practices' or 'lessons learned,' as well as the instinctive and unconscious familiarity of these types of success stories. However, such examples of successful mobile policies and ideas are differentiated through fixed, territorial, local, embedded, and topographical context. As such, mobilizing policies or ideas that are successful in one place does not guarantee success in another place – there is no uniform best practice or wisdom (Cochrane and Ward, 2012); neither success or failure is absolute (McCann and Ward, 2014). As seen in the increasing amount of literature on urban policy failures (Brenner et al., 2010; Stein et al., 2017; Storper, 2016; Ward, 2018), the risk and frequency of failure due to policy and knowledge mobility is growing exponentially.

2.4 Summary: The Theoretical Framework

The nature of what is urban and the places where urban is found are changing, challenging the deeply entrenched ways in which scale has been conceptualized in urban theory. Whereas the

urban has been historically and exclusively coupled with the city and places that are large in size or of a high hierarchical level, the processes and phenomena involved in urbanization are increasingly understood as planetary, relational, and, therefore, span all scales – including the smallest size and lowest level scales. In the present age of growing interurban competition, entrepreneurialism, and neoliberalism, knowledge and policy mobilities are playing a growing role in the way in which urbanism and space more generally is constructed. As one of the most prominent discourses in urban studies, planning, development, and sustainability, compact urban theory is an ideal field to examine and problematize the ways that understanding and implementation of urban theory are, or are not, spreading to these 'new' small and low scales. Further, as the settlement type furthest from the large- and high-scale urban and compact ideal types, small, remote settlements are an ideal context to place such research.

Given this historic and prevailing coupling of scale and urban theory, there are two imminent risks to the process by which compact urban theory is mobilized in small, remote settlements. First, there is a risk that understanding and implementation of compact urbanism will be informed solely by contexts found in large size and high-level scales. A lack of appreciation for other scalar contexts would result in failed knowledge and policy mobility and compact transformations when attempted in other scales. Second, there is a risk that those interested in compact transformations will overlook many scales, including but not limited to small, remote settlements, limiting the potential and ability to achieve compact transformations.

This thesis addresses these risks, which are just a few among many that are facing urban geography, as seen in the notions of planetary urbanization, topological thinking, and calls for a more open and comparative urban gesture. In this case, it examines the nature of knowledge and policy mobility surrounding compact urban theory in small, remote settlements to improve the success rate of compact transformations beyond contexts that are deemed to meet the minimum scale required of the urban, which is otherwise missing from urban research. Second, this thesis also aims to demonstrate methods and inspire further research, understanding, and methods to bring urban theory generally to all scales and contexts that have historically been excluded. Instead of compact urban theory in small, remote settlements, the phenomenon and context could be gentrification and resource towns. The value of this thesis is not limited to compact urban theory or small, remote settlements but to all urban geography, to demonstrate ways that knowledge and policy can be reevaluated where previously assumed irrelevant.

3 Methods

This chapter details the research design and methodology utilized in this thesis. This includes descriptions of the selected methods, the reasoning behind why the selected methods are better than the alternatives, and the considerations taken to overcome any weaknesses or challenges to the selected methods. Altogether, especially given the use of qualitative interpretation throughout the research process, rigor and trustworthiness (Stratford and Bradshaw, 2016) as well as creativity and cognizance (Bailey et al., 1999) are present in the methodology.

First, the decision to use abductive reasoning, grounded theory, and qualitative methods is described in Section 3.1, and comparative methods in Section 3.2. Next, the case selection process is explained in Section 3.3. Sections 3.4 and 3.5 describe the data collection and data analysis processes, respectively. Last, the considerations given to ensure the methodology was reliable, valid, and ethical are described in Section 3.6.

3.1 Abductive and Grounded Qualitative Research

The research methodology utilized abductive reasoning, grounded theory, and qualitative methods. The nature and justification of each of these research strategies is outlined below.

Abductive Reasoning

If compact knowledge and policy is to be found in small, remote settlements but has primarily been understood in the context of large and central cities, then incorporation of the territorial, place-embedded, and locally particular side of the scale described by Peck and Tickell (2002) must be given additional thought. As a research strategy that is focused on the understanding and social motives of social actors, abductive reasoning is an ideal way to increase knowledge about the ways in which compact urban theory must adapt to fit a new scalar context.

Abductive reasoning involves deriving concepts and theories from the way in which social actors construct their reality, give meaning to the world, and derive tacit, everyday knowledge. This is done through abstracting ways in which knowledge is produced, reproduced, and interpreted from the motives, actions, reasons, and language of social actors (Blaikie, 2007). By studying the actors involved in the phenomena of interest and who have an insider perspective, the familiar, underlying, and often taken-for-granted aspects of reality are revealed (Mullins, 2003). Abduction, therefore, involves the connection between everyday

meaning and scientific conceptualization (Danermark et al., 2002), or as described by Roy Bhaskar (1979), the movement from lay descriptions of social life to technical descriptions of that social life.

In this thesis, the social actors of focus are lay community members in the case settlements. The data collected from informants belonging to this group of actors, in the form of language and oral data, was abducted into scientific notions of how compact urban theory should be understood and implemented in small, remote settlements. Abducting concepts and theories in this method results in new understanding, based in a small, remote context, that decreases the risk of knowledge and policy failure when compact urban theory moves into small, remote contexts and scales.

Grounded Theory

While abductive reasoning is the logic type, grounded theory is the set of methodological principles that is used in this thesis. Grounded theory epitomizes abductive reasoning, as it is a methodology designed to develop theory directly from data, instead of testing fixed and closed hypothesis based on pre-existing theory (Charmaz, 2006). As originally conceived, it begins with cycles of data collection and analysis prior to a literature review, which examine the relevant theories that emerge from the preceding data collection and analysis.

There are many variations on ground theory regarding the extent to which theory is explored, or not, prior to data collection and analysis (Clarke, 2007). Striving to balance Peck and Tickell's (2002) scale of fixity and mobility, an appreciation for the existing theories of compact urbanism that are inspired by other places, scales, and contexts is necessary. Therefore, literature on compact urban theory was partially reviewed first, to assure enough familiarity with the varying aspects of compact urbanism were understood. Also, familiarity with each settlement was still required (methods of building local familiarity are discussed in Section 3.4) early in the data collection process.

The grounded theory methods of data collection, coding, memo writing, and theoretical sorting were all used in the data collection and analysis phases of this thesis (see Sections 3.4 and 3.5). However, another aspect of the research design of this thesis that is inspired from grounded theory was the research questions themselves. To ensure that the theoretical contributions of this thesis are grounded in data, rather than using data to confirm prior ideas and theories, the research questions were not formulated until after data collection was complete

and data analysis was partially complete (Charmaz, 2006). The specific research questions were formulated toward the end of the data analysis phase, based on what the data ultimately answered instead of what the data was initially designed to answer. In other words, prior reviewed literature was utilized to provoke a full and rich set of data that would inform the research; the specific ways in which this field would be informed was only revealed by the collected and analyzed data.

Grounded theory is not short of critiques. Beyond the debates amid those who practice grounded theory, it has been critiqued by those dismissive of the entire methodology for its lack of positivism as well as reliance on both informants and researchers who are likely biased (Clarke, 2007). But as seen in the following section, there are advantages to qualitative methods that explore fields that are heavily characterized by uncertainty and positionality. Those advantages are well suited for the aim of this thesis.

Qualitative Methods

Abductive reasoning and grounded theory are nearly exclusively associated with qualitative – and comparative – methods, as opposed to quantitative methods, as they provide a framework for scientific inquiry into abstract and 'creative' concepts. Qualitative methods involve in-depth exploration into relatively few cases in a holistic manner (Ragin and Amoroso, 2011), as seen in this thesis. As described in later sections, the research design utilizes qualitative methods, such as fieldwork, focus groups, and interviews; the comparative methods used are also a form of qualitative methodology (see Section 3.2). Given the spatial nature of urban form and the measurability of compact concepts, quantitative methods were considered for this research. However, the variables to be questioned would need to be predefined and the literature available to inform that process was primarily set in large-scale contexts. Thus, a quantitative research design would not identify the most significant variables that influence compact urban theory in small, remote settlements, but would explore variables that were predetermined and only possibly of significance. Since measurability would still be of value, a mixed-methods approach was considered, combining qualitative methods with quantitative surveying meant to evaluate the revealed variables of significance in the initial qualitative phase. This was determined to not be feasible due to limited time and financial resources.

Nevertheless, qualitative methods are greatly suited to meet the aim of this thesis. Of the seven goals of social research outlined by Charles Ragin and Lisa Amoroso (2011), two of

the goals that qualitative methods can fulfill are giving voice and advancing theory. First, giving voice involves sharing marginalized perspectives and elevating relevance or significance of overlooked areas. Since qualitative methods enable in-depth inquiry, they can be utilized to explore in-depth undervalued or poorly understood perspectives. In this thesis, the area is small-scale contexts, as exemplified by small, remote settlements, and the goal is to elevate their relevance and significance in urban theory that has historically overlooked this scale. Second, advancing theory can occur in numerous ways, such as reexamining familiar theories, examining commonalities across cases, and generally stimulating new theoretical thinking by examining under-researched sets of relations. In other words, creative and original qualitative research can provide new insight into old ideas. This corresponds to the aim of this thesis in which a pre-existing idea, compact urban theory, is improved upon, by examining the degree of commonality found across different, small-scale cases. Identifying commonalities across small, remote settlements is the purpose of research questions 1, 2, 4, and 5.

3.2 Comparative Research

By incorporating comparative methods into the research design, the patterns of difference and diversity were also examined. In addition to the commonality and shared characteristics among the cases revealed through qualitative methods, the diversity among them is explored. Research question 3 explicitly considers difference between the four case settlements and how these differences are reflected in the data as well as the potential for and limitations to generalizing findings to other small, remote settlements. Specifically, qualitative variation-finding techniques are used, which are described and demonstrated below to compliment the research design of this thesis.

Variation finding involves establishing "a principle of variation in the character or intensity of a phenomenon by examining systematic differences among instances" (Tilly, 1984, p. 82). As opposed to other forms of comparison – individualizing, encompassing, and universalizing – it seeks to understand patterns of multiplicity across all instances. Instead of controlling for difference, it involves thinking through the variation and repetition found across contexts. While too much variance between cases can be problematic, Jennifer Robinson (2016) argues that, for example, in most-similar design (Przeworski and Tenue, 1970) that involves a more manageable amount of variation between cases, variation inspires new and innovative theorization.

Challenges to variation-finding techniques include that parochial findings are often mistaken as universal, independent variables or sources of variation are difficult to isolate, and causation is often pluralistic and cannot be connected to singular or universal sources of variation (Pickvance, 1986; Robinson, 2011). However, these challenges are negated when findings are properly understood for their lightness and limits to generalizability. If the variegated nature of urbanization and urban spaces depicted in discourse about planetary urbanization and ordinary cities is taken seriously, then theoretical findings from comparative research cannot be believed as universal but as limited by its level of particularity. As such, comparative research methods, including variation-finding techniques, have been praised for their suitability to contribute not to a universal urban theory, but a provincial one. Helga Leitner and Eric Sheppard (2016) describe that due to the local particularity of urban contexts – this echoes the literature on knowledge and policy mobilities – comparison is useful for challenging monist and universalize wisdoms by examining how peripheral perspectives challenge theory and instead reveal provincial, variegated theory that better conceptualizes diverse urban spaces and processes. Robinson (2016) similar describes comparative research as ideal for making theory "light and revisable" (p. 190).

Ultimately, comparison through variation-finding techniques is ideal for the aim and research questions in this thesis. First, giving voice and advancing theory about peripheralized small, remote scalar contexts is a form of provincialization of urban theory that challenges universal, monist, and over-generalized accounts of urbanism that only depict a limited portion of urban scale. Second, the case selection process (see Section 3.3) results in a most-similar design that is suited for comparison through variation finding as described by Robinson (2016). Last, by including variation-finding techniques in the research design, the diversity among small, remote settlements is explored, which results in a provincialization of urban theory, as opposed to another instance of theory that under appreciates diversity and overgeneralizes or universalizes resulting theory about small, remote settlements.

3.3 Case Settlement Selection

Selecting cases, referred to as case settlements, suited for answering the research questions and fulfilling the research aim was critical to the research design. Four cases were selected consisting of two pairs of cases from two different countries. This case selection strategy provided plurality across few cases so that the dynamics of similarity could be studied while

maintaining enough depth of qualitative methods to build new frameworks (Ragin & Amoroso, 2011) of compact urbanism in small, remote settlements. Also, the case selection strategy enabled examination of the dynamics of difference through investigations of variations between the different cases (Pickvance, 1986) and to provincialize findings (Leitner and Sheppard, 2016).

Case settlements were selected to serve as building blocks, or representatives of a type (George and Bennett, 2005) – settlements that are small and remote. This does not imply that they typify empirical ideal types or the abstractions and ways that this settlement type is perceived (Bengtsson and Hertting, 2014), but that the cases have the key elements of small, remote settlements. The case settlement selection process is described below, including the reasoning for selecting the two national contexts and the four case settlements.

Norway and Scotland

Norway and Scotland emerged as the two subject countries for many reasons. First, they proved more feasible than alternatives. Due to the proximity to the host institution, the required fieldwork could occur within the available time and budget. Also, they are characterized by robust infrastructure systems that make most settlements relatively accessible. Second, the prevalence of the English language in both contexts was a key advantage. Although English was primarily informants' native language in Scotland and a second language in Norway, the effects of this are minimal. Only one potential informant in Norway declined participating due to limited English language abilities. Further, Norwegian informants were invited to supplement their responses with Norwegian language as needed – several did minimally – so that informant responses were fully developed and fully understood by the interviewer.

Also, Norway and Scotland provide relevant and important data for the research aims. Combining their policy framework with actual settlement patterns, there is extensive opportunity and relevance for research on compact urban theory in their small, remote settlements. Both nations promote compact urbanism on a macro-level as well as in their largest cities. In Norway, political discussions and policies surrounding both dimensions of the compact city have occurred for over 25 years; national planning goals and policy briefs have promoted densification within pre-developed areas since 1992 (Hanssen et al., 2015), while countryside preservation is both politically and culturally commonplace, as seen through *markagrenser*, a commonly used greenbelt policy in Norway (Beatley, 2012). In Scotland, the

National Planning Framework (2014) outlines many compact ideals such as town center development, low carbon emissions goals, public transit investment, and green space preservation. Further, the framework specifies and alters recommendations based on three hierarchical levels: cities, towns, and rural areas. Lastly, they are relevant contexts to compact urban theory because of their historical contributions to global emissions as highly developed nations characterized by wealth, heavy industry, and high consumption levels.

Additionally, the countries have a high proportion of their total population and land use in settlements with small populations. The relative extent of small settlements in Norway and Scotland – Scotland is represented within the larger state of the United Kingdom – is seen in Table 3.3.1, based on the UN *World Urbanization Prospects* (2018) statistics using the smallest settlement category of "Fewer than 300,000."

Total Population & Percentage Population, Fewer than 300,000 (thousands), 1970-2015										
Area	**1970**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**
Norway	3 233 *83.4%*	3 364 *83.9%*	3 443 *84.3%*	3 491 *84.0%*	3 563 *83.9%*	3 638 *83.3%*	3 726 *82.8%*	3 814 *82.3%*	3 988 *81.6%*	4 231 *81.4%*
United Kingdom	30 820 *55.4%*	32 204 *57.3%*	33 069 *58.8%*	33 416 *59.2%*	33 802 *59.1%*	34 199 *59.0%*	34 731 *58.9%*	34 748 *57.6%*	36 348 *57.4%*	36 575 *55.9%*
Northern Europe	34 349 *52.2%*	37 477 *55.0%*	39 758 *56.9%*	40 688 *57.4%*	41 428 *57.4%*	42 144 *57.4%*	42 845 *57.3%*	43 727 *56.7%*	45 953 *56.5%*	47 193 *55.6%*
Europe	492 510 *74.9%*	502 499 *74.2%*	506 764 *73.0%*	511 541 *72.2%*	514 721 *71.3%*	519 751 *71.4%*	516 148 *71.0%*	513 518 *70.3%*	513 191 *69.6%*	508 017 *68.6%*
More Developed Regions	673 850 *66.8%*	689 556 *65.7%*	699 087 *64.5%*	708 928 *63.5%*	711 936 *62.1%*	710 723 *60.7%*	707 836 *59.5%*	705 585 *58.3%*	704 939 *57.1%*	693 148 *55.3%*
High-Income Countries	536 698 *63.0%*	552 347 *61.9%*	564 544 *60.7%*	573 228 *59.4%*	573 792 *57.4%*	575 147 *55.5%*	579 692 *54.2%*	586 463 *53.0%*	595 891 *51.9%*	588 959 *49.9%*

Table 3.3.1: Small Settlement Population Figures (United Nations, 2018)

Lastly, these two contexts complement each other, as they belong to different larger regions, the Nordic region and the British Isles, respectively, each distinguished by a widely unique set of physical, historical, political, economic, social, cultural, and environmental characteristics. As such, Norway and Scotland feature a tapestry of both similarities and differences that create an ideal pairing for exploring diversity and provincialization.

The Four Settlements

Next, it was decided that the settlements would come from Northern Norway and the Highlands and Islands in Scotland – the boundaries of the Highlands and Islands used in this thesis are depicted in Figure 3.3.1, thought they are not universally agreed upon. These two regions are

farthest from their respective largest cities and populations centers that fall within prevailing concepts of scale and that are the typical settings for urban research. As of 2018, Northern Norway covers 34.9% of Norway's land area but is inhabited by only 9.2% of its population (Statistics Norway, 2018). In Scotland, the Highlands and Islands covers 54.9% of Scotland's land are but is only inhabited by 7.3% of the population (National Records of Scotland, 2018). Respectively, the largest population center in each region is relatively small: Tromsø with 65,602 people and Inverness with 63,780 inhabitants.

	Settlement	Sub-Region	Population (2017)
Northern Norway	Hammerfest	Finnmark	8,052
	Kirkenes	Finnmark	3,566
	Vadsø	Finnmark	5,064
	Brønnøysund	Nordland	6,043
	Leknes	Nordland	3,418
	Sandnessjøen	Nordland	6,043
	Sortland	Nordland	5,345
	Stokmarknes	Nordland	3,336
	Svolvær	Nordland	4,630
	Finnsnes	Troms	4,658
Highlands and Islands (Scotland)	Campbeltown	Argyll and Butte	4,643
	Oban	Argyll and Butte	8,507
	Portree	Highland	2,398
	Thurso	Highland	7,243
	Wick	Highland	6,746
	Kirkwall	Orkney Islands	8,649
	Lerwick	Shetland Islands	8,023
	Stornoway	Western Isles	7,950

Table 3.3.2: Potential Case Settlements (Statistics Norway, 2018; National Records of Scotland, 2018)

Then, three admission criteria were used to select specific case settlements. First, case settlements needed a population between 2,000 and 10,000 inhabitants to ensure that cases were small while still having sufficient size to find enough informants and materials for data collection. Second, case settlements had to be separate from other settlements of an equal or larger size to ensure that they were remote. This did not preclude settlements from having hinterlands and smaller communities in its peripheries, but instead that the settlement fits the single settlement region description and scale. Third, the two case settlements in each region could not be within the same county or sub-region to ensure that the local contexts varied.

The regional context of the remaining potential case settlements, shown in Table 3.3.2, were considered next. Some were rejected due to their proximity or connectivity to larger cities, such as Tromsø and Inverness, as well as those in Norway connected to Bodø and Trondheim by train. Remaining settlements were then evaluated in pairs in each country to meet the final admission criterion. Hammerfest in Finnmark and Svolvær in Nordland were selected in Norway as well as Kirkwall in Orkney and Stornoway in the Western Isles in Scotland. Figure 3.3.1 shows a map of the selected case settlements, which are described in Chapter 4.

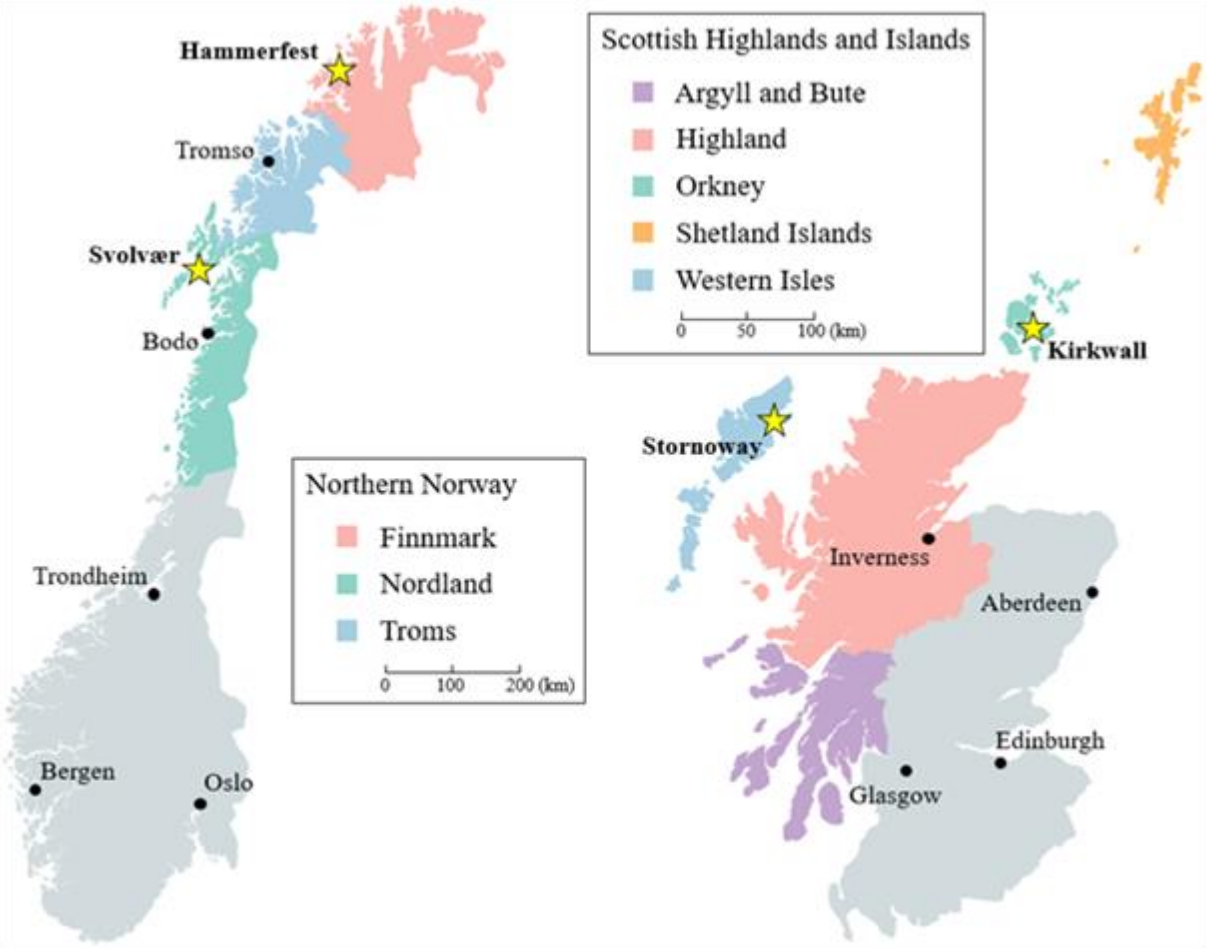

Figure 3.3.1: Norway and Scotland Map

3.4 Data Collection

The data used in the analysis phase was collected using walking interviews during a fieldwork period across the four case settlements. However, the data collection phase also includes focus group interviews during fieldwork as well as document collection and contact building prior to the start of fieldwork. Preceding the interviews, these other methods were utilized to position

the interviewer to elicit high-quality data, and as tools to constantly reflect on, redesign, and improve the remainder of the data collection phase.

Initially, the only certain aspect of the data collection strategy was that a fieldwork period in the case settlements was necessary. To 'ground' and 'emerge' theory from a small and remote perspective, collecting rich data would benefit from fieldwork methods in which the researcher, as an outsider, would meet informants inside their reality and day-to-day life to observe their context and understand their point of view (Hammersley and Atkinson, 2007). Although it was not expected that the fieldwork period would involve complete immersion, rid the researcher of any outsider influence, or convince informants that the researcher was an insider, fieldwork gave greater weight to insider or emic perspectives (Morris et al., 1999) from small, remote settlements.

However, the methods of collecting data in the field could vary significantly, each having different advantages and disadvantages. Instead of deciding which methods to use a priori, early steps were taken to gain inside perspectives that would result in the highest quality data set prior to beginning fieldwork. This section describes the data collection activities that occurred during both stages, pre-fieldwork and fieldwork.

The principles of reflexivity and flexibility were therefore critical throughout data collection. The use of reflexivity, or the process of constant scrutiny of the self as researcher and of the research process (England, 1994), transforms emerging data and evolving situations throughout data collection from passive steps leading towards subsequent phases into active inputs that are critically evaluated so that adjustments are made along the way that improve the remaining data collection methods. Closely tied to reflexivity, flexibility allows for such nimbleness and adjustments to be made, which creates opportunities for new or unforeseen data to emerge across interviews (Dunn, 2016).

Pre-Fieldwork: Initial Contact and Context Building

The pre-fieldwork phase, between identifying case settlements and the start of fieldwork, was approximately five months in duration, the goals of which was to build a greater understanding of the local contexts and solidify the fieldwork phase design. The first step taken was to find a local informant in each settlement. The local informants would, ideally, provide an inside perspective to build local understanding as well as inform the fieldwork design, assist in logistical preparations for the selected methods, and act as a local champion or spokesperson to

avoid drawbacks associated with being a complete outsider, such as lack of trust and willingness to participate or share (Dwyer and Buckle, 2009). With local recognition, familiarity, and expertise, the initially identified contacts were local government officials with relevant committee membership to planning and development. While one of the initial contacts offered to act as a local informant, some recommended others in their place – a planning body official in two cases and a publicly-employed researcher in another.

The foremost conversations with the various informants were utilized to confirm the suitability of each settlement as a case – all four were deemed feasible and suitable representations of small, remote settlements. Then, conversations shifted to solicit input to design the fieldwork period such as vacation periods, festivals, and political recesses that overlapped with fieldwork window, daily schedules and rhythms of political stakeholders and laypeople, as well as publicly available contact information through local business associations. This feedback led to the decision to use an initial exploratory interview with key stakeholders and one-on-one walking interviews with laypeople in each settlement.

Last, to build local context, the informants assisted in gathering various forms of documentation that were relevant to research on compact urban theory in the four settlements. These materials were supplemented by publicly available information and literature found independently. The documents gathered spanned policy documents across national, regional, and local scales; local and regional approved and in-process planning and strategy documents; historical records from local historical societies; local newspaper stories; as well as local tourism and place-based marketing materials. A list of the documents gathered and reviewed prior to fieldwork can be found in Appendix A.

More specifically, the collection and review of these documents built local context in numerous ways. First, the existing discourses – if any – related to compact urbanism in each settlement were identified. This primarily included national policy discourses surrounding compact ideals. While ‘compact’ was not a prominent word in any of the documentation, many related terms were commonly used. Second, documentation provided insight into local vernacular. This was helpful to adopt language and vocabulary that was understandable and familiar (Dunn, 2016; Goss and Leinbach, 1996) as an interviewer as well as to build acceptance by informants as an outsider (Hammersley and Atkinson, 2007; Kusenbach, 2003). Last, documentation pre-identified many subjective opinions, sensibilities, and controversies. While

the documentation was not assumed to be factual descriptions of local realities, it highlighted the ways that relevant knowledge and policy is framed and communicated (Asdal, 2015).

Altogether, the earlier feedback discussed helped to identify the data collection methods to use during fieldwork and logistics on how to implement them. Document collection and review helped prepare how to approach the selected methods, including topics and questions to discuss as well as preferred vocabular and vernacular.

Fieldwork: Exploratory Focus Groups and Walking Interviews

The resulting methods of data collection used during fieldwork included an exploratory focus group with local planning and development stakeholders in each settlement followed by loosely-structured walking interviews with lay members of each settlement. The fieldwork period was eight weeks in duration, with approximately two weeks spent in each of the four case settlements between 9 July 2018 and 1 September 2018. Fieldwork was conducted in Kirkwall, Stornoway, Hammerfest, and then Svolvær, sequentially.

The first method utilized in each settlement was a single focus group with local planning and development stakeholders, which was scheduled on the first full day in each settlement. While the data from these focus groups was not used in the analysis, the purpose of the focus group was to serve as an exploratory mechanism by being an immersive introduction into the settlement and to confirm understanding gained through the pre-fieldwork phase. Whereas later interviews focused on laypeople and typical community members, the focus groups sought to gather those with specialized interests and extensive knowledge.

Focus groups were advantageous as an exploratory and introductory method. By including several informants – each focus group had between four and six – a full body of data was quickly obtained that spanned many positionalities (Cameron, 2016). The plurality of a group discussion created a social setting involving group dynamics, reflexive dialogue between informants, opportunity for stakeholders to interact in unordinary ways, and a sense of empowerment by providing an audience of other stakeholders (Goss and Leinbach, 1996). Therefore, the focus group provided the opportunity to test understanding built through the reviewed documentation against many perspectives, identify the ‘top-down’ aspects of local planning and development discourse due to professional associations of the participants, as well as quickly gain insight into the diversity of opinion and potential areas of conflict that would be of interest in the following interviews.

In Kirkwall, some of the participants provided a tour of the area and the larger region of Orkney following the focus group as an additional exploratory mechanism. In the other three settlements, the remainder of the first day was used to do a self-guided tour of the area. The remainder of each two-week period was dedicated to interviews, which provided the data to be used in the analysis. Interviews were loosely-structured, following grounded theory methods (Charmaz, 2006). Although an initial interview guide was prepared as a starting point (see Appendix B), interviews were adapted substantially to the interviewee, the settlement, outcomes of the respective document collection and focus group, as well as ongoing learning and reflexivity over the course of fieldwork. This last element highlights potential inconsistencies between interviews, both between sequential interviews in a single settlement and between the different settlements. Consequently, subsequent analysis of the interview data included listening for differences that arose because of the interviewer. Some of the adaptations made in the field to the interview structure included removing questions about peripherality and historical or old age as well as removing attempts to distinguish between objective descriptions, personal preferences, and normative positions. These topics were perceived as ambiguous and were not effectively communicated by the interviewer.

Generally, the interview questions and content ensured that the key characteristics of compact urbanism (as defined in Section 3.2) were covered in all interviews so that each produced relevant and comparable data. After sharing a short history of their own lives and history in the settlement, informants were asked to describe their settlement, their opinions of it, as well as their daily mobility patterns, schedules, and activities in their settlement. They were asked to compare their settlement to others, to identify the shortcomings or problems they see as pertinent to their settlement, and to propose solutions to those problems or describe ideal visions for the future of their settlement. Throughout each of these exercises, follow-up questions were asked to encourage informants to elaborate on potential connections between their responses and compactness, compaction, smallness, remoteness, and the three key characteristics of compact urbanism. Generally, interviews were as flexible and loosely-structured as possible to allow informants to reveal their perspectives, understanding, and knowledge as recommended in grounded theory (Charmaz, 2006).

However, instead of routine, sedentary interviews that took place in single location, the interviews were conducted as walking interviews. As the fields of interest directly pertain to the local built environment and mobility patterns, walking interviews allowed informants to

directly react to the environment in question and be mobile during the interview, instead of speaking from memory. James Evans and Phil Jones (2011) demonstrate that mobile interviewing methods, such as walking interviews, yield particularly rich data when eliciting place-based data, such as in this thesis, as "they are prompted by meanings and connections to the surrounding environment and less likely to try and give the 'right' answer" (p. 849). Other advantages include the stimulation of the senses while walking (Adams and Guy, 2007), access to memories in locations along the walking route (Solnit, 2001), and intimacy with the landscape (Ingold and Lee, 2008). Finally, while the literature did not emphasize this beforehand, feedback from informants was consistently positive as they simply preferred going for a walk instead of sitting and enjoyed being physically active and outside.

On the other hand, there are disadvantages to walking interviews. One disadvantage is the constraints on the places, participants, and times when they can be conducted; not all locations are accessible on foot, physical constraints may prevent some potential informants from participating, and weather conditions can further limit opportunities. These risks proved surmountable as the settlements were walkable, sufficient time was allocated, and sedentary interviews were substituted when weather or physical capabilities required. Further, walking interviews can be challenging due to the technological limitations of recording devices (Evans and Jones, 2011), especially when outdoors in loud and weather-affected areas. To guarantee a high-quality recording, two individual recording devices and two lavalier microphones, each equipped with windscreens, were used – one for the interviewer and one for the interviewee. The two recordings were overlaid to create a single record of the conversation with high-quality recordings of both sides of the conversation. Unfortunately, the devices used did not have the capacity to geocode the data, leading to the final challenge, which was to connect the oral data collected with the locations they are shared. This was the only disadvantage that was not addressed in the interview process.

Walking interviews can vary based on whether the interviewer or interviewee is familiar with the area and who determines the route. The methodological choice was made that the interview route would be set by the interviewee – who was already familiar with the area – in a format that more closely resembles an ethnographic go-along (Kusenbach, 2003) but without doing other activities simultaneously – in a few cases, informants simultaneously walked their dogs. The interviewee-led approach further aligned with the research strategies and goals as the chosen route more closely resembles ordinary, everyday life and elicits an insider look into how

the resulting mobility patterns and local environments are experienced and understood (Evans and Jones, 2011). As such, interviews varied in time and length, ranging from approximately 30 minutes to 90 minutes. All interview routes were mapped, though the maps did not play a large role in the analysis because, as mentioned, the interview data was not geocoded. Appendix C shows the walking route maps.

Interviewees were selected using a combination of criterion, typical, and maximum variation sampling (Stratford and Bradshaw, 2016). The admission criteria for individual informants required that they were at least 18 years old and have lived or worked in the settlement for at least one year. The former criterion assured that participants were adults, with the ability to form opinions and avoiding any ethical considerations associated with youth. The latter criterion ensures relative familiarity with the settlement. Additionally, informants could not be directly involved in any municipal planning and development processes or decision making, as the actors of interest are laypeople and individuals who experience the results of planning and development without having privileged roles or power. The resulting sample within each settlement strove to maximize diversity to the extent it simultaneously captured typical cases. While the samples were not quantitatively tested against demographic profiles, informants who represented the varying subpopulations found in each settlement were pursued. To ensure a minimum level of diversity, no two informants could be directly related or live in the same household. Although there were a few instances where two informants worked for the same employer, this was avoided if alternative informants could participate.

Potential informants were identified primarily via the local business association, the websites of listed members, and municipal websites. Email invitations were sent to select, listed contacts – 219 invitations total – to inquire if they were suitable candidates and able to complete an interview. In vetting and confirming interviews with those who responded to the interview request, basic demographics were collected. Using this information, the sample that both maximized diversity while representing the settlement was selected. However, in all four settlements, this process did not return the minimum quantity of interviewees desired. Therefore, chain and opportunistic sampling methods (Stratford and Bradshaw, 2016) were used, through the networks of the initial contacts in each settlement and prior identified informants, to the minimum extent necessary.

This sampling methodology, however, does contain potential bias. Due to the original source of potential interviewees being those with individual contact information listed on a

business or organizational website, the resulting sample is likely to be weighted towards certain subpopulations, such as those who are older in age, have a higher level of education, are in leadership positions, and are in select professions. Therefore, when chain and opportunistic sampling methods were utilized, underrepresented groups such as students, tradesmen and laborers, and lower-level workers were sought out to minimize sample biases. Also, those who did respond to the interview request are likely to have stronger subjectivities either in favor of or against the interview topic.

In total, 32 informants completed a walking interview, eight in each settlement. Demographic information about the interview informants is shown in Appendix D. In general, men and women were equally represented while the age distribution was biased towards those over 40 years old. No industry or profession was overrepresented; however, most interviewees worked in the private sector. Informant residential locations were most commonly of immediate proximity to, though outside of, the central-most area. Half of the informants in Stornoway and one-quarter of the informants in Svolvær reside in outlying settlements that are not directly connected to the settlement central-most area, whereas no informants in either Kirkwall or Hammerfest reside in outlying settlements, which resembles local settlement patterns. Approximately two-thirds of informants lived in a single-family home, which is generally representative of the case settlements, but the representation of apartment dwellers is underrepresented, except for Hammerfest. Last, a relatively even split is found of informants born in the local municipality, greater region (county or council area), the rest of the country, and international locations; in all four settlements, roughly half of the participants were born in the municipality or region.

Interview participants are referred to as informants with codified designations. These codes are utilized in the analysis to assure anonymity and that no participant is identifiable. The codes are comprised of two letters and one number; the first letter is “N” for Norway or “S” for Scotland, the second letter is the first letter of the settlement, and the number is between 1 and 8 and is randomly allocated to differentiate the eight different participants in each settlement.

3.5 Data Analysis

The analytical process of moving from raw data to meaning and understanding was extensive. The interview data totaled 166,715 transcribed words, of which 113,682 were by informants,

spanning over 29 hours of recording. With so much data, the analysis required extensive choice making, interpretation, and subjectivity over the course of limiting the data into a story that is emergent from and grounded in the data. Therefore, reflexivity was critical again in this phase.

Analysis began with transcribing immediately after the first walking interview and continued through most of the writing process of this thesis, including a two-month period upon completion of fieldwork devoted exclusively to analysis. This overlap allowed for adjustment as themes of interest emerged (Clarke, 2007). The analysis was loosely framed, as opposed to using a specific frame such as discourse analysis, narrative analysis, or situational analysis, to enable all relevant themes and findings to emerge from the data. Qualitative analysis, especially when loosely framed, increases the burden on the researcher to be selective, which can involve intentional or unintentional ignorance of evidence (Ragin and Amoroso, 2011). However, this assured that limited awareness or preceding positionality did not structurally exclude potential areas of significance.

Described below in greater detail, the primary methods of data analysis used were transcribing, memo writing, and coding as well as theoretical sorting and comparison. These methods are grouped into two different types of activities that occur in data analysis: making data amenable to being analyzed and analytical development (Mason, 1994).

Transcribing, Memo Writing, and Coding

The three activities described below involved ways that collected data was transformed, reformatted, and reconfigured. The first step taken was transcribing each interview or creating a written record of the oral data. Each interview was transcribed within a few hours or days. Thus, transcribing served as a means increasing familiarity and understanding (Lofland et al., 2006) of the informants as social actors, the settlements as a spatial context, and the various phenomena discussed. Further, reflections during the transcription process were used to adjust the remaining interviews.

Second, memo writing techniques were used, involving logging ongoing reflections, thoughts, questions, and recommendations. Often used in grounded theory, memo writing prompted thinking and elevates the level of abstraction of ideas, especially early in the research process (Charmaz, 2006) by writing reflections (Saldaña, 2009). Such reflections were documented in bullet-list forms instead of formal prose. Like transcribing, this process began immediately following the earliest interviews, but continued into later stages of the data analysis

process, resulting in a record of the thinking and abstraction that informed subsequent analyses. These were useful as a transitory tool and record of initial reactions and interpretations of the meaning and significance of the data.

Third, coding was used to further become familiarized with the data and to organize the transcribed data using NVivo 12 software. Coding involves the heuristic process of categorizing and linking data to ideas by assigning relevant words and short phrases, or codes, to portions of data (Saldaña, 2009). Due to the abstract and wide-reaching nature of qualitative data, coding was somewhat exploratory and a cyclical process well-suited for this thesis. Charmaz (2006) describes two phases to coding: the initial phase of labelling and categorizing data and the selective phase of limiting, synthesizing, and organizing data. These correspond to the coding process conducted. The initial cycle, although informed by the preceding activities, did not infer much and primarily involved descriptive labels and categories. During the second cycle, new codes and categorization methods were devised to better account for deeper abstraction and underlying theoretical significance. These cycles correspond with Charmaz's first phase of coding. A third cycle of coding, corresponding with Charmaz's second phase, primarily focused on selecting the most significant data and the relations between codes and categories. With each round of coding, the familiarity, understanding, and ability to abstract from the data increased drastically. Upon conclusion, the data had been transformed into a format – a web of "theoretical insights and theoretical possibilities" (p. 71) – that was better suited for analysis. Appendix E shows the final codes and categories.

Theoretical Constructing and Comparison

The activities described in this section involve the process of analyzing the reformatted, coded data and developing findings. First, the coded data were used to develop emergent concepts through theoretical constructing, or the intertwined process of sorting, diagramming, and integrating coded data as a means of logically organizing the analysis and theoretical links (Charmaz, 2006). By using the categorization and frameworks from the earlier analytical activities, groups of data could be isolated and contemplated to reveal relationships within the data and, ultimately, develop new theories. This was when many limiting and interpreting decisions were made, and when critiques of qualitative methods and grounded theory – lack of positivism (Clarke, 2007) and inability to make theoretical inferences from qualitative data – were leveled. Therefore, many of the principles for qualitative research were used during this

stage, such as theoretical sensitivity, reflexive management, constant questioning, and thorough documentation (Bailey et al., 1999).

In addition to theoretical sorting, comparative methods were used. While comparison can already be considered a part of the theoretical construction process described above, further comparative gestures were taken. Particularly, variation-finding techniques were used (see Section 3.2) so that the significance of diversity and differences were revealed, as opposed to solely similarities and agreement. Further, comparative methods were used as a means of evaluating the generalizability and local specificity of analytical findings. Where many qualitative studies oversimplify and reduce findings to singular processes or phenomena (Clarke, 2007), comparison across the four case settlements and two national contexts created opportunity to test the extent and limits in which findings and theories were found. Altogether, an extensive and rigorous analytical process occurred in which the collected data was both reformatted and constructed into the presented findings.

3.6 Reliability, Validity, and Ethical Issues

The empirical adequacy of social science is dependent on producing reliable and valid data (Lofland et al., 2006). Reliability concerns the amount of randomness, or random error in qualitative research (Ragin and Amoroso, 2011), and the extent to which the same answer is yielded every time research procedures are carried out (Kirk and Miller, 1986); too much randomness and the data becomes unreliable. Validity concerns the appropriateness of data and that it measures what it is intended to measure (Ragin and Amoroso, 2011). In other words, valid data gives the correct answer to the question being asked (Kirk and Miller, 1986); validity is, therefore, a function of both research questions and data. The extent to which the research design and methodology used yield reliable and valid data and findings as well as any broader ethical issues is reviewed below.

Reliability

With any research that involves a small sample of informants and sources, reliability issues can arise. To diminish this risk and potential for randomness, the sampling methods used were rigorous (see Section 3.4). Further, though the sample was small, the amount of data produced was extensive, and the risk of insufficient reliability across 32 informants is drastically less than smaller sample sizes that are common in qualitative social science research. Also, the

interviewing questioning strategy used ensured greater reliability. Although the interviews were loosely structured, all three of the key characteristics described in the compact urbanism definition were discussed individually across all the interviews. Therefore, while open-ended questions such as 'what do you think about compact urbanism' yields more randomness, inquiring about individual characteristics and components of compact urbanism as well enabled a more systematic analysis and decreased the influence of randomness in the data.

However, the spatial element of the walking interviews did create some randomness. The walking routes varied in locations across different settlements and different informants in each settlement. As such, some interviews may have been affected by locational differences. For example, routes that involved more time spent in green and peripheral areas potentially inspired different perspectives than those routes that focused more on developed and central areas. But, the risk this poses to reliability was countered in two ways. First, by mapping the individual walking routes, the various routes could be weighed in the analysis, and the result is balanced between the different settlements; although the fabric of each settlement is very different, in all four settlement either one or two routes involved a large portion of time spent in green areas outside of the central core. Second, although some randomness was introduced, the walking interview format is believed to have had an even greater effect on creating a higher quality and quantity of data due to the many benefits of walking interviews (see Section 3.4).

Validity

Validity is highly satisfactory due to the use of abductive reasoning and grounded theory. Grounding research in the collected data and forming research questions directly from the emergent themes in the data, in theory, results in a proper pairing of questions and findings and eliminates the risk that the data collected cannot answer the research questions. However, questions of validity may arise due to the significant amount of limiting decisions and interpretation involved in this thesis (see Section 3.5).

Just as subjectivity from informants may result in randomness and reliability issues, the subjectivity used during analysis can result in validity issues, where the findings and conclusions drawn are inaccurate or a misinterpretation of the data. The assumed or aspirational position on researcher subjectivity is *not* that the researcher is purely objective. Instead, the innate positionality of the researcher is acknowledged and something to be accounted for (Charmaz, 2006). As an outsider coming from a context that is neither small nor remote, and as

an urban geographer, researcher perspectives were assumed as existing and, throughout the research process, these perspectives were considered for how they may impact choices about what is considered and how it is being considered.

Ethical Issues

The potential for ethical issues in research, however, spans beyond empirical reliability and validity. While this thesis abides by all institutional standards for research, which guaranteed confidentiality, informed consent, and secure data storage, this alone does not eliminate the risk of harm to research subjects – a copy of the request to participate and consent agreement is found in Appendix F. However, the interviewing methods used did take additional steps to assure that informants – the research subjects – were comfortable and unharmed. By conducting interviews in their settlement, meeting them at locations and times of their own convenience, and allowing informants to steer both the walking route and conversation when desired, an emic perspective was adopted, as the interview resembles informants' regular environment, making them feel more comfortable.

The other, and larger, ethical risk in this thesis is the influence of researcher positionality on data collection and analysis, due to prior engagement and interest in compact urbanism. However, the research questions and purpose of the research is not to prove or disprove the veracity of compact urban theory in small, remote settlements. Instead, the purpose is to explore the theory in this underrepresented context in urban research and understand the perspectives of those in that context. Rather than attempt to develop a normative position on the use of compact urbanism in small, remote settlements, questioning sought to understand the challenges and opportunities that may exist. This purpose was openly shared with each informant at the beginning of each interview. Therefore, positional transparency was established, informants could feel comfortable to openly share contrasting opinions, and all thoughts were welcomed.

During the analytical stage of the research, this positionality was further reflected upon to ensure that data integrity was maintained and interpretive and limiting decisions were not biased. However, commitment to objectively studying the range of challenges and opportunities, as opposed to normative positions about right and wrong, framed the analysis as to best understand the full spectrum of positions, as opposed to those conforming with a single perspective.

The discussion in this chapter on research design choices and methods of data collection and analysis demonstrates the rigor and reflexivity used in this thesis. With familiarity in the theoretical framework and research methodology, the next chapter provides greater familiarity with the selected case settlements prior to proceeding to the analysis.

4 Case Settlements

This chapter provides an overview of each of the case settlements. The description of each settlement covers (1) general history with key regional, economic, demographic, and cultural events or factors that have played a role in shaping the settlement, as well as (2) issues directly relevant to compact urbanism, particularly the physical development of the settlement. Additional pictures of each settlement can be found in Appendix G, with accompanying maps of the picture locations.

4.1 Kirkwall

Separated from mainland Scotland by the Pentland Firth, a strait that is only 10 kilometers wide at its narrowest point, the Orkney Islands have been occupied since the Neolithic period. However, the settlement that would become Kirkwall started to form in the 9th century, when Orkney was seized by Norway. The first Earl of Orkney was named in 872 AD (Hossack, 1900, pp. 1-5). Located on the isthmus between Kirkwall Bay to the north and Scapa Flow to the south in the center of mainland Orkney, Kirkwall was located advantageously as a center for trade, fishing, and agriculture.

The mercantile town of Kirkwall is depicted in the Orkneyinga Saga during the 11th century and under the rule of Earl Rognwald I in 1137. It was developed into a regional center, as signified by the start of construction on a new cathedral, the St. Magnus Cathedral, a short distance from the existing center, and St. Olaf's Church, along the harbor to the north. This new north-south axis, with the Peedie Sea to the west, became the new developmental axis of Kirkwall – the Peedie Sea was historically called the Peerie Sea as seen in Figure 4.1.1. The cathedral became a bishop's seat in the archdiocese. The Earl's and Bishop's Palaces were constructed adjacent to the cathedral in the 12th century, and Kirkwall Castle in the 14th century (Omand, 2003, pp. 175-182). The castle would be demolished, but the palace ruins are still accessible, and the cathedral remains in use today. Figure 4.1.1 overlays a map of Kirkwall in 1136, prior to the construction of the cathedral (solid lines), with Kirkwall in the late 19th-century (dotted lines).

Scotland annexed Orkney from Norway in 1468 (Mooney, 1948, pp. 202-204), and in 1486, Kirkwall was granted its charter as a royal burgh – and again in 1536 and 1661 (pp. 98-100). Royal burghs were later abolished, and today, Kirkwall is formally a city, though its

council uses both the terms city and royal burgh. At the time of the 1661 charter, Kirkwall was depicted as consisting of two parts, split by the cathedral: the church-owned old town to the north along the harbor and the earl-owned lands to the south (Hossack, 1900, p. 117).

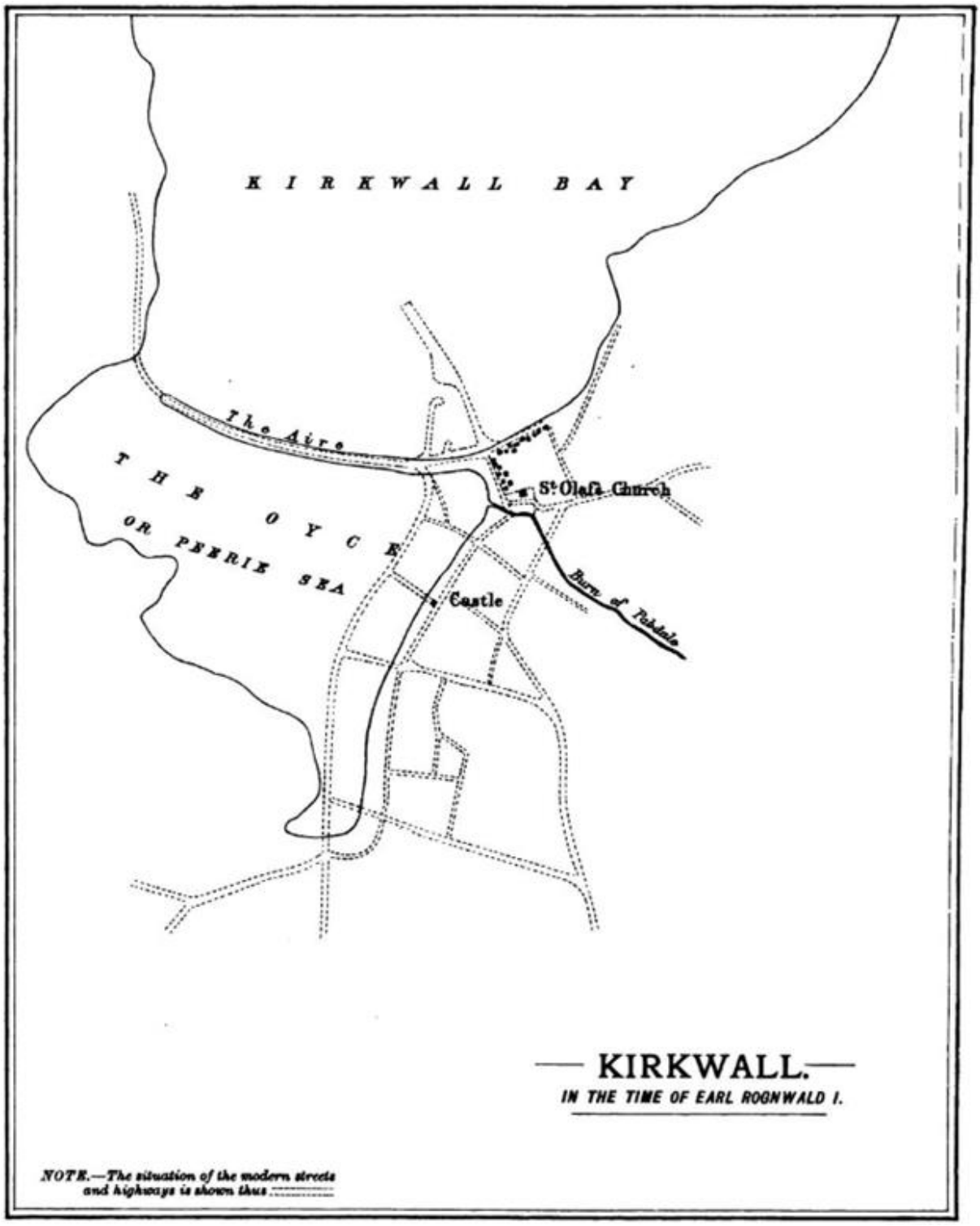

Figure 4.1.1: Kirkwall Map in 1136 and 1900[1] (Hossack, 1900, p. 5)

[1] *Dotted lines represent Kirkwall in 1136 and solid lines represent Kirkwall in 1900.*

Dating back as early as 1683 (Hossack, 1900, p. 372), the growth and development of Kirkwall has been directly linked to engineering interventions around the Peedie Sea. Most notable was reclaiming a strip of land around 1865 to create a continuous harbor front and enclosing the Peedie Sea (Omand, 2003, pp. 182-184) – The Aire in Figure 4.1.1. Ever since, the sea has been gradually infilled, allowing the center to expand westward as well as extending the harbor and road connections west along Kirkwall Bay.

In the 20th century, Kirkwall became the undeniable center of Orkney. Its population grew at a record-breaking pace – as did its footprint from new peripheral housing estates and industrial developments in Hatston – though largely from migration from the outer islands and smaller settlements in the region (Orkney Islands Council, 2017). The only other recognized settlement in Orkney is Stromness; the rest of Orkney is sparsely populated and rapidly centralizing around Kirkwall (Schei and Moberg, 2003, pp. 160-167). The 20th century was also characterized by local government reform, agricultural improvements, decline in fish stocks, naval activity in Scapa Flow during wartime, expanded ferry and air service, educational expansion, and the rise of new industries such as tourism and renewable energy (Omand, 2003). Today, Kirkwall is a prosperous community. Despite its long and varied history, one thing remains the same: its separation from the mainland. Although Orkney has become more interconnected in many ways, it still maintains a degree of independence and distinctiveness because of its separation from the mainland.

4.2 Stornoway

The Outer Hebrides, known as the Western Isles, is an island region northwest of mainland Scotland. The joined, northernmost isles of Lewis and Harris are the largest and most populated, and Stornoway lies on the eastern coast of Lewis. The Western Isles were settled during the Neolithic Era and by Norwegians several thousand years later. However, the early history of the Western Isles began with Irish missionaries who settled the islands in the 6th century. The Vikings reached the region a few hundred years later, placing it under Norwegian control until it was ceded to Scotland in 1266 (Thompson, 1988, pp. 22-36).

Since then, clans, or land-owning families, characterize regional history and settlement development. Stornoway was selected as the location for Lews Castle by the Nicolson clan in the 1300s due to the natural protective barriers along the harbor. By 1607, Stornoway had grown

slightly, been seized by several other clans who destroyed Lews Castle, seen a wave of in-migrating Dutch fisherman, and was granted status as a burgh. Stornoway had become the largest settlement in Western Isles, though it remained modest in size well into the 19th century.

Figure 4.2.1: *Stornoway Plan, 1821 (Wood, 1821)*

At that point, three industries dominated the entire region: crofting, fishing, and Harris Tweed. A croft is a family-held plot of land, often with the family's residence, normally located just outside of a village or settlement. Due to economic, labor, and agricultural challenges on the islands, crofting is mostly a subsistence lifestyle that, though practiced today, has decreased. The fishing industry, however, led to growth and affluence within Stornoway, as the harbor became a base for fishermen from all over Europe by the early 1900s. Though fishing was the most important industry to the growth of Stornoway, technological innovation, international competition, and declining fish stocks have marginalized local fishing enterprise in the last 50 years. Harris Tweed, or the weaving of local woolen cloth, has been a staple of Lewis and Harris for several centuries, however, it is mostly a seasonal, part-time activity that locals have pursued in addition to other forms of activity (Thompson, 1988).

Figure 4.2.2: Stornoway Plan, 1919 (Simpson, 1919)

Figures 4.2.1 and 4.2.2 show plans for Stornoway in 1821 and 1919, respectively. The 1919 plan represented a development push in Stornoway, as Lewis had been purchased by a British industrialist, Lord Leverhulme, the year before. Just five years later, he decided to move onwards, but wanted to gift the land back to the people. He offered crofters the ability to buy their land, and the local government was gifted the lands of the entire parish, including Lews Castle (Thompson, 1988, pp. 106-107). Nevertheless, Stornoway's industry has steadily declined, and its population fallen and aged since then, despite centralization of regional industry around the settlement (National Records of Scotland, 2018).

The resulting structure and later unification of the islands under a single council – Comhairle nan Eilean Siar, or Western Islands Council – in 1975 resulted in a cultural divide. Stornoway was English speaking, with higher educational attainment and connections to the mainland, compared to the surrounding crofting lands and villages on the rest of the islands that were Gælic-speaking communities. Further modernization and centralization – many have migrated from more remote villages to the villages immediately surrounding Stornoway – has increased interactivity within Stornoway and removed that divide, largely by declining Gælic language use (Thompson, 1988, pp. 140-158). Presently, Stornoway and the rest of the islands are still facing depopulation and aging; however, new industries and interest have arrived in the Western Isles such as fish farming, wind energy, and tourism.

4.3 Hammerfest

The first written record of Hammerfest comes from 1593, as a tiny fishing village with less than 20 people. Evidence of human life in Hammerfest goes further back to the native Sami people and prehistoric settlers of the Stone Age. By 1621, it served as a trading port, had a church, and was established as a place for court hearings and tax collection. Despite its location near the northernmost tip of Norway in the northernmost region of Finnmark, compared to other regional fishing villages, Hammerfest was climatically advantageous due to shelter from the elements from the island of Sørøya off its coast. Over the following 150 years, Hammerfest remained the smallest of the seven recognized trading districts in Finnmark until the settlement invested in its harbor facilities so that it could host multiple ships year-round, whether explorers and fishermen from the south or tradesmen from Russia. Thus, Hammerfest became the port of choice for visiting ships, and in 1789, Hammerfest received town status (Hansen, 1989, pp. 7-12).

In 1809, much of Hammerfest was destroyed in the Napoleonic Wars – this was the first of many destructions of Hammerfest, including multiple city fires, storms, and World War II. But the lure of the Arctic ensured that the town was rebuilt, and Arctic hunting joined fishing and exploration as reasons to travel north to Hammerfest. Between 1815 and 1920, Hammerfest grew from 63 to 3,338 inhabitants, functioning not only as a port for visitors but an important local and regional seat for public services following the introduction of local government in 1837. Though Hammerfest eventually lost its status as the regional capital of Finnmark to Vadsø, many entities had already established themselves in Hammerfest. Trade, retailing, and urbanization were accelerating in Hammerfest, more so and earlier than other ports in Finnmark (Hansen, 1989, pp. 13-25). Further harbor enhancements, new industries such as fish oil production, and technological developments all contributed to growth. A map of Hammerfest in 1915 is shown in Figure 4.3.1.

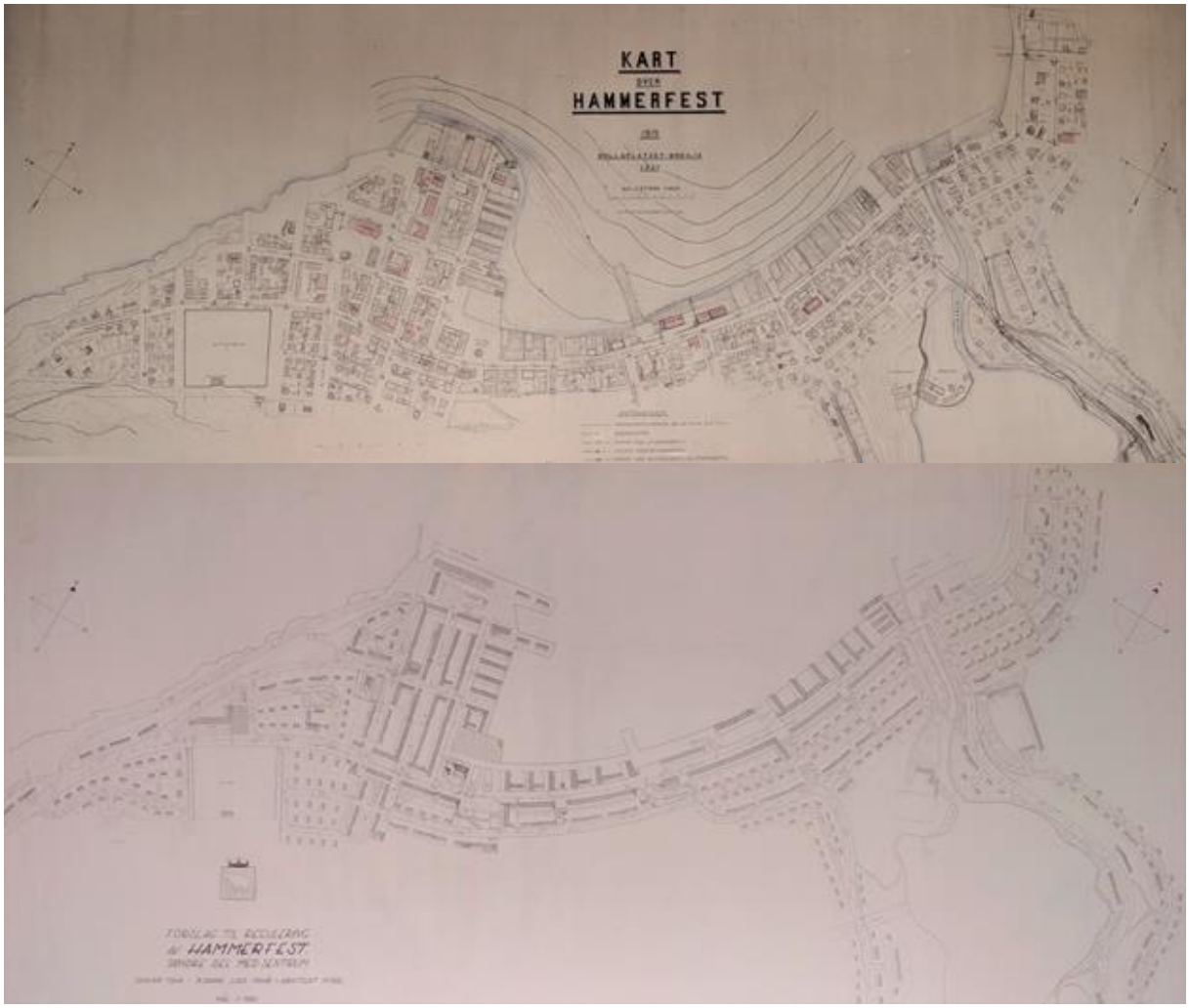

Figure 4.3.1: Hammerfest Map 1915 and Plan 1946 (Museum of Reconstruction in Hammerfest, 2018)

Hammerfest's future was altered drastically following World War II, the most impactful of all the catastrophes it has faced. In 1940, Germany occupied Norway and seized control over Finnmark. When they left, following the Soviet invasion from the east in 1944, they practiced a scorched-earth policy, burning everything behind them, including Hammerfest. Needing to reconstruct all northern settlements, the Norwegian state planned to consolidate settlements in Finnmark to a few ports, however, the residents of Finnmark protested and reconstruction ultimately resembled the prior settlement patterns (Hansen, 1999, p. 348). Figure 4.3.1 shows the 1946 reconstruction plan for Hammerfest and how the plan resembled the pre-existing settlement – though the architectural character was distinctively new. Key to rebuilding was restoring local economic production. This was most notably achieved through the fish processing plants constructed on the central waterfront. In 1952, the plant was purchased by the private company Findus, which would eventually hire over 1,000 people in Hammerfest, contributing to its growth to over 6,000 people in 1960, well above pre-war levels (Hansen, 1989, pp. 46-47), and growing the Fuglenes and Baksalen areas along Hammerfest's edges.

But growth was short-lived. The factories were dependent on year-round trawling of fish, which depleted fish stocks. Modernization further decreased the labor needs of the factories, and Findus eventually relocated to a new, smaller facility outside the town center. Combined with rising out-migration to the south, mainly by those looking for higher education and new employment opportunities, the last few decades of the 20th century were characterized by economic and demographic decline across all of Finnmark (Hansen, 1999). But unlike its regional peers, Hammerfest entered into a new era of interest and development due to the discovery of oil and gas reserves in the Barents Sea. In 2002, "Melkøya," or 'the milk island,' the culminating point of a liquified natural gas pipeline, opened just off Hammerfest's waterfront. In 2016, offshore oil drilling began, with many of the associated industry and jobs based in the town. Hammerfest has since 2002 become a 'rags to riches' story, in which net out-migration has turned into net in-migration. The town has seen a rise in educational attainment and high-paying and skill-based jobs, and there has been extensive investment in facilities and infrastructure such as the waterfront promenade and all the new facilities abutting it (Loe and Kelman, 2016), as well as local schools, hospitals, and road infrastructure. However, all of this has occurred while carbon emissions from the new fossil fuel activities have exponentially increased in Hammerfest.

4.4 Svolvær

Svolvær is located in Vågan municipality, a portion of the Lofoten Islands that juts outward toward the Atlantic Ocean from mainland Norway in the Nordland county of Northern Norway. While remains from the Iron Age have been found in Lofoten, the present-day settlements of the region date back to the 11th century, when fishing expanded from a form of subsistence to a form of trade with southern Norway and mainland Europe. By the early 1300s, the settlement that would become Svolvær was one of the largest trading ports in Northern Norway. But in the late 1300s, development in Vågan slowed drastically due to restrictions placed on trade between the north and south (Alsvik, 1963, pp. 21-24).

In the following centuries, Svolvær remained a tiny settlement of primarily fishermen, farmers, and laborers. But shortly after the adoption of the Norwegian constitution in 1814, increased fishing and trading was allowed in Lofoten, and Svolvær started to grow in population as well as in economic and cultural importance (Alsvik, 1963, pp. 49-51). Besides serving as a trading port for fish, Svolvær – and Lofoten more generally – was romanticized as a uniquely Norwegian place during the Norwegian national building period in the late 1800s. The small fishing settlement, nestled between the mountains and sea, was immortalized by painters such as Svolvær native Gunnar Berg (Røde, 1996, pp. 57-58).

Between 1860 and 1920, Svolvær grew from a population of less than 200 to over 2,400 (Alsvik, 1963, p. 343). Figures 4.4.1 and 4.4.2 show maps of Svolvær in 1889 and 1939. Key to its growth was its harbor. While Vågan also includes the coastal settlements of Kabelvåg and Henningsvær, Svolvær had a larger and deeper harbor that was better suited to accommodate more frequent and larger boats. In 1893, the newly created coastal shipping company Hurtigruta chose Svolvær, instead of Kabelvåg or Henningsvær, as a port of call, which connected Svolvær to a network of ports along the entire Norwegian coast, and by 1900, all newly established entities were locating themselves in Svolvær (Røde 1996, p. 56). Svolvær established its seaport in 1865, the central square and new shipping facilities opened in 1913 (Alsvik, 1963), and it received city status in 1918, cementing it as the municipal center of Vågan – this status was revoked and regranted as the municipal borders shifted in the following years (Karlsen, 2013).

Amid its growth, plans were drawn for Svolvær in 1901 and 1923, showing ambitions for great growth (Fauske, 2008). Though Svolvær continued to grow through the end of World War I, its population afterwards stabilized, so most of these plans were never realized. Svolvær

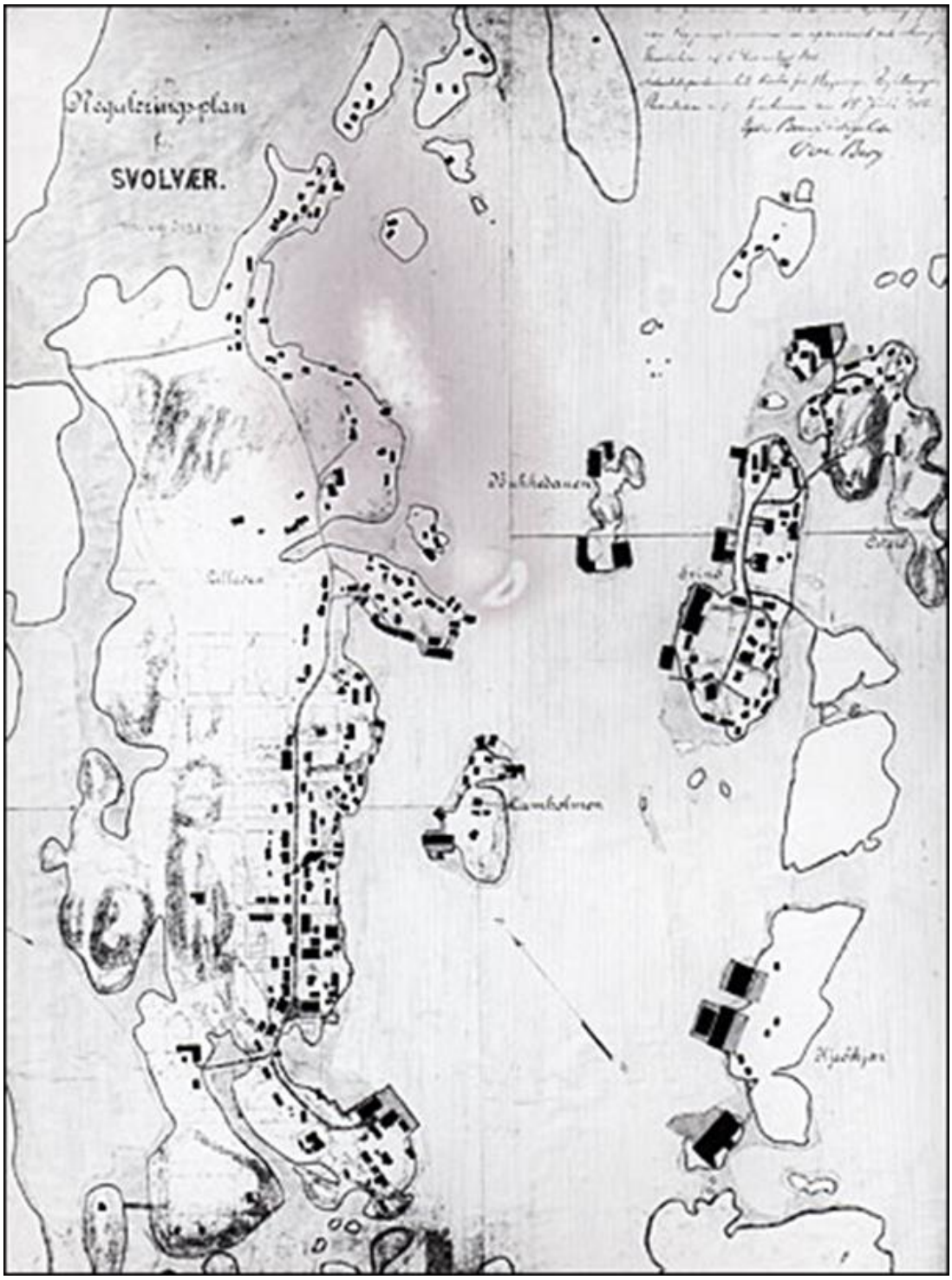

Figure 4.4.1: Svolvær, 1889 (Fauske, 2008)

was impacted by World War II to a lesser extent than the ports of Hammerfest and Narvik, which served as a railroad terminus. Its population was stable through the remainder of the 20th century (Karlsen, 2013). Though it faced increased competition and stressed fishing stocks, development was bolstered by the proliferation of personal car use, the development of the E10 that connected most of the island chain by road to the mainland in 1967, and the introduction

of flights to regional airports on the islands – boat remained the primary form of transportation throughout Lofoten until the 1960s (Røde, 1996, p. 14). Also, several areas of the sea adjacent to the islands around central Svolvær have been infilled to expand and connect the center. Altogether, sprawl around Svolvær has become enabled where topography allows.

Figure 4.4.2: Svolvær Map, 1939 (Vågan municipality, 2018)

However, Svolvær has begun to grow again in recent years. Following the demolition of former factories and houses along Svolvær harbor in 2002, the waterfront and central areas

have seen rapid development. While Svolvær still has less than 5,000 inhabitants and Vågan municipality less than 10,000 (Statistics Norway, 2018), recent development in Svolvær has included several waterfront apartment and retail facilities, as well as a combined culture house and 10-story hotel. Altogether, new residential areas – as the landscape allows – are continuing to be developed along the periphery of Svolvær as well as in Kabelvåg, while other development is highly concentrated in the core. With improvements in transportation and the geographic appeal of Lofoten, tourism is driving much of the recent growth.

Settlement[1]	Population 2000/2001[2]	Population 2017	Region	Population 2000/2001[2]	Population 2017
Kirkwall	6,028	6,093	Orkney	19,245	22,000
Stornoway	6,312	6,019	Western Isles	26,502	26,950
Hammerfest	6,654	8,052	Hammerfest Municipality	9,213	10,527
Svolvær	4,062	4,630	Vågan Municipality	9,229	9,444

1. Settlement boundary determined by 'Urban Settlement' in Norway and 'Intermediate Zone' in Scotland.
2. Population figures from 2000 in Norway and 2001 in Scotland.

Table 4.4.1: Case Settlement Population (Statistics Norway, 2018; National Records of Scotland, 2018)

Familiarity with the history of the four case settlements serves two purposes. First, understanding the local context is critical to the research methodology (see Section 3.1) and goal to give voice and increase understanding of the emic, inside perspectives of small, remote settlements. Second, these overviews further demonstrate the suitability of the case settlements as representatives of small-scale settlements, which offer a rich and complex space for research on compact urbanism, despite their size, population, or other scalar qualities. Recent population counts of each settlement and region are presented in Table 4.4.1. Now that the theoretical framework, methods, and case settlements have been reviewed, the analysis can proceed.

5 Understanding Small and Remote

> RQ1. What local lay perspectives challenge opportunities for compact urbanism in small, remote settlements?

Chapters 5 through 9 correspond to the five research questions sequentially and make up the analysis of this thesis, which is brought together and discussed holistically in Chapter 10. These chapters are strategically ordered, as the findings in the first three (5 through 7) directly inform those in the latter two (8 and 9).

This chapter answers RQ1, which involves understanding the nature of small, remote settlements and identifying those aspects that challenge compact urbanism. As seen in the knowledge and policy mobilities literature, space is constructed not only through mobilities, but also through its fixed characteristics (Peck and Tickell, 2002). Just as settlements of other scales have their own qualities that characterize their nature – independent of consideration of specific fields, such as compact urbanism – so do small, remote settlements. Although these perspectives do not inherently involve such concepts and fields, their presence can affect the landscape of opportunities and challenges to those concepts and fields.

This chapter outlines five key perspectives as well as the ways in which they challenge opportunities for compact urbanism in small, remote settlements. These perspectives are: (1) identity spans a wide area, (2) distance is perceived in time instead of length, (3) concern is for the ease of mobility that is required instead of the extent of mobility that is required, (4) many feel small, remote settlements are 'too small to matter,' and (5) the nature of living with available lands on the immediate periphery.

5.1 Identity Spans Wide Area

> "Even if you live in a city, your sphere is compact, your community sphere. You can't possibly have a sphere in the whole of London. Your sphere is just your neighborhood and your work…I suppose there are people [here] who have a sprawling sphere" (SK4).

The Perspective

Often when informants were asked a question about their settlement, their response named the larger region or concerned the larger region, beyond the boundaries of the settlement. In

Kirkwall it was Orkney; in Stornoway it was the Western Isles; in Hammerfest it was Finnmark; and in Svolvær it was Lofoten. Although not universal, a large portion of informants clearly associated their settlement with a wide-spanning area, or an area that spanned much wider than the continuously built-up and developed area of the settlement proper. Conversely, this can imply that the settlements were too small to develop a distinct, urban identity that is independent of its surroundings.

As informant SK4 outlined, many actors in small, remote settlements have daily routines or regular experiences that extend over large areas. Although the settlement itself may be designated as small in area or population, local identity spreads over a larger topographical area. Sprawl of facilities and services, economic activities like farming and fishing, road networks, and recreation in remote parts of nature all contribute to and create a highly interconnected fabric between the settlement core and its surrounding periphery. Also, lesser activity within the core settlement leaves space for actors to build their identity on a wider area, the result of which is that actors in central areas remain deeply invested in peripheral areas. For example, informant NH3 was hesitant to argue that density was an ideal characteristic for Hammerfest out of fear for insufficient regard and activity for the villages and communities in outer regions and islands.

The Challenge

This mismatch between material and social identities underlines the social construction of scale described by Sallie Marston (2000). Just as Marston argues for understanding of scale to include processes of social consumption and reproduction, these social practices also shape the framework through which small, remote settlements view compact urbanism. This framework poses a key challenge to compact urbanism, as compaction processes create inequalities between different sub-areas of a wider area, namely the core and periphery.

If compact urbanism aims to minimize land consumption through centrist development instead of horizontal spreading (Breheny, 1996), it is likely to result in uneven development across the larger area that actors' identities cover. As compact development occurs in the core and central areas, surrounding and peripheral areas will not see similar development and investment, and core-periphery conflicts may arise. Thus, instead of furthering compact transformations, informant SS6 argued it was better to sprawl than risk abandonment of peripheral areas.

5.2 Distance Perceived in Time, Not Length

> "If you ask me about distance, I will always answer in time. I always have conversations with people about how far it is to something, and I will say 45 minutes, and they said 'Yes, but how far?' and I say 'It doesn't matter. It's the time it takes you to get there'" (SS1).

The Perspective

Whenever making mobility decisions, the primary factor informants considered was the amount of time required to travel between the trip origin and destination. Whether considering short- or long-distance trips or frequent or infrequent trips, time was consistently a critical factor for mobility decisions in small, remote settlements, independent of residential location, transit options, or mobility preferences.

Even though mobility decisions were consistently influenced by time and duration, the decisions were not always uniform for similar trip types and duration – individual subjectivities partially explain mobility behavior (Crookston et al., 1996). For example, informant NS5 bicycled to work, less than 2 kilometers into the center, due to the additional time it takes to park and drive during rush hour; informant SK5 drove a similar distance on workday mornings because driving enabled quicker trips from the office to tertiary destinations afterwards, despite a preference for walking; and informant NH2 switched from commuting by car to busing and walking – the trip is exactly 17 minutes walking, though the informant was not sure the exact distance – after bus frequency was increased from every 30 minutes to every 15 minutes. Mobility decisions vary greatly, but they were consistently influenced by time.

The Challenge

Compact urbanism is often branded as a city of short distances (Jenks et al., 1996) and akin to the 10-minute-city where trips take less than 10 minutes (Haarstad and Oseland, 2017). While a commitment to centralized development, short distances, and provision of walking, cycling, and public transit infrastructure can create a sustainable mobility paradigm that is quick, there are competing methods for achieving quick travel times that do not align with compact ideals.

Small, remote settlements often have relatively low traffic levels, wide-reaching road networks, decentralized land use, and less robust infrastructure for walking, cycling, and public transit. However, quick travel times can be achieved through maintaining the status quo. Just

as a pedestrian can walk through the core of any of the case settlements in about 10 minutes, a car owner can drive from an outlying area to the center in the same amount of time, if not quicker. When considering travel times at a small scale, the temporal advantage of centrality is little to none, unlike in large metropolises. In fact, some informants expressed a preference for walking or cycling but still primarily traveled by car, since it was often quicker to drive a long distance than using other modes over shorter distances. Shorter distances alone are, therefore, unlikely to result in the desired mobility shift and reduced levels of mobility-related emissions desired by compact urbanism. If the car is just as quick as walking, cycling, and public transit – often the case at a small scale – it is likely to remain the regular mode of transportation.

5.3 Concern for Mobility Supply, Not Mobility Demand

> "I think there should be alternatives here that should be considered prior [to shorter distance]. Transport maybe and with moving people and the mobility of people" (NH6).

The Perspective

Independent of distances and travel times, mobility needs can be met in one of two ways: by increasing supply or by decreasing demand. A supply-based strategy focuses on creating a robust system of transportation infrastructure so that mobility needs, no matter the origin or destination, can be satisfied. A demand-based strategy focuses on reducing mobility needs in the first place, so that transportation infrastructure is less utilized and can meet mobility needs with less resources. Future imaginaries envisioned by actors in small, remote settlements were nearly all concerned with increasing mobility supply, instead of decreasing mobility demand.

Where mobility needs can be satiated by shorter distances and less frequent travel, informants consistently recommended that mobility options and capabilities be expanded instead. Similarly found by Petter Næss and Ole Jensen (2004), increasing amounts of physical mobility have become the norm and a part of everyday life in small, remote settlements. Further, they found that public transit does not play a large role in structuring daily life, even when it is available in such settlements. In some cases, "kids travel on planes before they travel on trains" (SK7) and small, remote settlements are "distant but not isolated" (NH2). Distances are overcome with ease and frequency due to extensive transportation infrastructure, further reinforcing high levels of mobility. For instance, the walking time between the central district of each case settlement to the local airport is less than 80 minutes, which is closer and more

accessible than airports in all the largest cities in Norway and Scotland. The result is a social desire to overcome mobility constraints, even at short distances - by increasing mobility supply, not curbing mobility demand. The goal becomes maintaining transportation provision to meet the needs of a sprawling settlement pattern - "In an ideal world we would have regular bus service going around the whole island and that would be easy for everybody" (SK7).

The Challenge

Even though compact ideals include investments in public transit, walking, and cycling infrastructures, a supply-centered mobility strategy creates two large challenges for compact urbanism in small, remote settlements. First, continued investment in wide-reaching mobility infrastructures further enables car use and dependency (Næss and Jensen, 2004). Supply-related mobility investment must be selective and reduce the supply of car-related infrastructures – driving lanes, parking spaces, etc. – to create the modal shift and lower emission levels.

The second challenge is that supply-focused strategies, regardless of material and technological investment, fall short of creating the social and behavioral outcomes supported by compact urban theory. Per social constructivist perspectives on scale (Marston, 2000), climate change (Antonio and Clark, 2015), and policy mobilities (McCann, 2011), the social, cultural, and behavioral realms are critical; this is true for compact urbanism as well. Physical changes in car-related infrastructures only partially address the goals of compact urbanism. The switch to electric vehicles, for example as mentioned by 14 informants, could reduce mobility-related emissions. But this alone would not reduce distances traveled or land consumption but likely increase them, as car-accommodating development patterns continued. Thus, the transformative potential of compact urbanism is greatly hindered when the focus is exclusively on mobility supply, with no consideration of mobility demand.

5.4 Feel 'Too Small to Matter'

"But this place is so small that you don't really notice [it]" (NH3).

The Perspective

Due to their small size, many informants believed that what occurred in their settlements was of nominal importance. They felt that they are separated from political decision making, unnoticed, and unable to "make much of a difference" (NH8). Similarly, since small, remote

settlements are of a low hierarchical level, informants believed that they are not responsible for injustices or the effective location for solving injustices, since there are larger- and higher-scale settlements elsewhere. For example, “problems of an environmental nature are larger-scale problems.… It has to be addressed on that level” (SS3). Global or wide-reaching imperatives of any kind, therefore, become less significant or worthy of action due to the perceived limitations of the scale of small, remote settlements.

Altogether, the perception is that they are too small to matter, whether considered as individual and isolated settlements, or comparatively to and collectively with other settlements that are of a larger and higher scale. Once scale becomes so small or so low, neither the current state of affairs or any future imaginaries can be envisioned in which growth or change, of any kind, is problematic. “That is more of an issue in bigger cities” (NH3). Small, remote settlements then enjoy a ‘free pass,’ as they feel so small that they are ‘below’ such problems.

The Challenge

This perspective is starkly challenging to compact urbanism in small, remote settlements, as seen in the indifference towards sprawl. “Nothing is far to get to” (SK3); “it doesn’t matter where you live, you still have easy access (NH1); “I don’t think [sprawl] will be a problem because the nature is close anyway, and you would really need a lot of houses” (NS5). Many perceive that the advantages associated with compact urbanism cannot be lost in small, remote settlements, because no matter how much growth or sprawl occurs, everyone will still be able to access everything quickly, and the distance between the center and the periphery will never be too large. Without these immediate threats to local actors, sprawl is not perceived as problematic, and compaction is not perceived as a worthwhile strategy or goal. The veracity test of compact urban theory (Breheny, 1997) becomes a moot point, as the believed benefits of compact urbanism are deemed to not add value for small, remote settlements.

Further, feeling small creates doubt about collective actions and systems, which function or achieve success only when many participate, because small, remote actors and settlements believe they are insignificant. One example of this is public transport provision. Even where informants acknowledged the acceptability of public transit, it was immediately dismissed as not feasible and therefore not worth pursuing due to the settlement’s small scale. In all four case settlements, several informants concluded that local bus services were unlikely, unable, or unworthy of expansion due to the limited use and economic challenges, which were

perceived as there were not enough actors within a manageable area to justify extensive collective, public transit systems. For instance, informant SS7 stated, “We do have bus services provided by the local authority at great expense, which are limited in what they offer, but I don’t see how the council could afford to provide better than what it is doing.”

5.5 Life with Available Land on the Periphery

> “It is so easy to just take something and do something with it rather than leaving it alone” (NS3).

The Perspective

Many informants acknowledged that undeveloped lands are near, accessible, and significant in structuring physical and social life in small, remote settlements. However, subjective opinions, importance, and relevance placed on peripheral lands varied. On one side, many informants either assumed, were indifferent, or supported change along the periphery where land is undeveloped. Due to land availability, small, remote settlements have “the opportunity to expand quite well; it becomes allowed” (SK8). As informant SS6 stated, “there is this idea that you just log, and you clear, and you develop whatever because it’s unlimited, and this beauty will always be around you, and you can’t use it up.” Having excessive amounts of undeveloped land close by contributes to this mentality, where land consumption is both inevitable and inconsequential, as there is no imaginable supply shortage of land.

On the other side, some informants across all four settlements advocated for maintenance of the existing periphery and minimizing changes on peripheral lands. The availability of land on the periphery, for some informants, did not translate into approval or a normative mandate to utilize those lands. Even if small, remote settlements “can extend into [available lands], there is not the desirability” (SS3). Yet most still conceded that development along the periphery is inevitable due to the perceived lack of available land within the core and central areas. Ultimately, “if you want to do something, you have to build up or into the periphery” (NS8). Few informants were willing to advocate for an alternative to building out.

The Challenge

While some larger and more central settlements have taken proactive steps to limit sprawl and peripheral development as seen through peripheral green spaces (Fan et al., 2017), they are

actively constrained by limited land availability in relative proximity to their central cores. However, independent of green space planning efforts – all four case settlements have some form of greenbelt and land use restrictions in place – near and accessible undeveloped lands are plentiful which serve a development option. Due to their size, small settlements have a short distance between the core and periphery and, due to their distance from other settlements, remote settlements are surrounded by undeveloped lands.

Without limitations in available land, compact urbanism requires active and restrictive steps to limit development to existing footprints, instead of within the accessible and available areas outside of them. “Inevitably, development is going to be on the periphery because that is where the space is” (SK5). Compact development “will not happen because [we] still have so much space around; it can be avoided easily” (NH1). Although some actors may already acknowledge that keeping activity within is preferable, those actors who prefer otherwise are not constrained by land supply in small, remote settlements. Therefore, both options presented by informant NS8 for future development are feasible – up and out – instead of only up, as found in larger- and higher-scale settlements, where the horizontal distance between core and periphery is already so large that it incentivizes development to go up instead of out.

6 Small and Remote Perceptions of Compact Urbanism

RQ2. How is compact urbanism perceived by laypeople of small, remote settlements?

Whereas RQ1 seeks to understand the nature of small, remote settlements, independent of knowledge and policy surrounding compact urbanism, RQ2 focuses in on the explicit perspectives of compact urbanism found in small, remote settlements. The analysis for this research question was framed by the three key characteristics of compact urbanism as defined in Section 2.2 – density, mixed land use, and non-car dependence – as well as Michael Breheny's (1997) three tests for compaction – veracity, desirability, and feasibility.

Five emergent themes are presented: (1) access is key to both the center and periphery, (2) urban and social vibrancy are positive in central areas, (3) living in compact environments works for some but not for families, (4) opinions of the built form and aesthetics of compact built environments, and (5) compact is only marginally important if the car remains the primary mode of transportation.

6.1 Access is Key to the Center, but Also to Nature

"I think it is okay that we are living compact. But the most important thing here is to have access to the nature" (NH1).

Access was the most frequently referenced aspect of compact urbanism by informants. Access to facilities, land uses, and transit modes were all viewed positively, but access to nature was valued the most. While compact urbanism elicits images of intensified central districts, actors in small, remote settlements were less concerned about access to the central areas within compact urban environments and more concerned with access to nature, green areas, and the peripheries. Compact urbanism, when considered this way, becomes dependent on bidirectional access between the core and periphery. It values not only the built environment but also the natural environment. It's a function of development and lack thereof.

In Kirkwall, SK4 described the appeal of taking a daily walk that involved the historic town center and outer farms; SK6 appreciated that the beach could be reached in only five minutes after leaving the office in the core. In Stornoway, SS2 valued the ability to quickly find quiet that is seldom enjoyed in larger cities; SS8 reminisced about being able to play in nature despite growing up on a densely populated block. In Hammerfest, NH3 associated the local

quality of life with the ability to spontaneously hike in the mountains with a friend in the afternoon; NH4 enjoyed how the wilderness penetrates built-up areas. In Svolvær, NS2 found it vital to raise children where they can participate in outdoor activities in nature; NS3 felt views to surrounding mountains and seas was relieving when in the core.

Although many of these sentiments were shared without direct inference to compact urbanism and some were set in non-compact environments, they demonstrate the underlying value placed on access to natural and undeveloped areas in small, remote settlements. Also, some of these sentiments came from informants with negative opinions of compact urbanism and its characteristics. While some informants thought positively of compact built form because of resulting shorter distances, others thought negatively of it because distance between the center and periphery remained, which is farther than the distance between a non-central location and the periphery. However, informants of both perspectives similarly put great value on the access to nature.

The vital importance of natural, green, and undeveloped areas is not new, as seen in the varying forms of green areas (Burton, 2000; Jabareen, 2006; Tappert et al., 2018; Walmsley, 1995) and green connections between the core and periphery (Fan et al., 2017; Jim and Chen, 2003; Žlender and Ward Thompson, 2017) that have been analyzed and proposed in compact environments. Further, many of the common quality of life debates surrounding compact urbanism are connected to green space quantities, qualities, and allocations (see Table 2.1). But this subjectivity found in small, remote settlements conjures compact ideals that are not placed solely in the center, but also on the periphery; compact environments are assessed across the entire span from the center to the periphery.

6.2 Mixing (Some) Land Uses Positive (Only) in the Center

> "There are quite many conversations about, for example, that it is important that people come to the city center, it is important for the shops and it is important for the cultural life" (NH4)

Though many informants had not heard the terminology of 'mixed land use' before, the concept and its theorized effects were familiar and well understood. Locating different land uses within proximity of one another (Burton, 2002), particularly as a technique for creating an active and vibrant social environment (Hofstad, 2012; Jacobs, 1961; Williams et al., 1996), was supported

by many informants. But the perspectives shared on mixed land use imply limitations: only some land uses should be mixed, and mixing should be limited to the center.

Mixing retail, cultural facilities, offices, hotels and tourism services, and few residential land uses were viewed very positively by many informants. “It’s lovely and full of character. Everybody shares the same space” (SK4); “the center of town is quite appealing, but that is not where people stay; it’s got attractions and shop and bars and things – it’s a working town” (SK6); “Crossing the road to the shop or the pub, that’s what I like” (SS1); “the good thing is that you have the shopping center and restaurants just 100 meters away so you can go shopping, you can do your errands, and you can then meet up for a coffee or a lunch” (NS8). The appeal of mixing these land uses described was about convenience and access but also social activity and vibrancy. While there was hesitation to introduce some residential forms as well as industrial uses into mixed districts, these were not viewed as necessary to mixed-use districts.

This form of mixing was only supported, however, in central areas. First, mixing was perceived as incompatible with residential areas, particularly for families, that are outside the central core. Informant SK5 said “it wouldn’t work” due to conflict between the vehicular needs of shops, for example, and kids running around. Though some supported small corner shops as a potential use to mix into outlying residential areas, most feared the externalities of adding retail to non-central areas, especially larger grocery stores and shopping centers, since small, remote settlements do not have a large customer base and cannot economically support too many stores (for more on big retail in small settlements, see Salkin, 2005).

Informants in the Scottish settlements described the delicate balance needed for large stores to exist on the outskirts of the settlement without harming businesses and the social environment in the core. “We are fortunate that our high street is lively, and the three big stores are not big enough to smoke the smaller shops” (SK1); “You do have two small supermarkets right in the center of town and people can walk to do their shopping and that is better than most places” (SS6). In Hammerfest, steps were preemptively taken to prevent the creation of shopping centers outside the core, and informants attributed the vibrancy of the core partially to this: “It is good because you make the center active, [and] there are more people in the promenade area” (NH3); “It is important that people come to the city center, for the shops and for the cultural life” (NH4); NH5 and NH8 cited negative examples from other small, remote settlements in Norway as justification for preventing large shopping facilities from locating outside of the core. Perspectives in Svolvær were like those in Hammerfest; however, the

presence of a newly constructed shopping center adjacent to the central core was critiqued to varying degrees. Some appreciated the ability to do shopping indoors with nearby parking facilities; however, others directly associated the facility with retail vacancy and lower levels of pedestrian activity: “We will have a ghost town for some years” (NS3); “It’s a risk that everything is just going to be a bit dead” (NS5).

Altogether, mixing land uses, as promoted in compact urban theory, is believed to be positive for many, though not all uses in the central core of small, remote settlements. However, as seen by the distaste for large-scale retailers, the justification for mixing land uses in this manner is both for economic and, even more so, social quality of life. Small, remote settlements can support only a limited market. When that market is satiated by few, large uses outside of the core, few economic opportunities remain in the core, and activity and social vibrancy gets dispersed instead of concentrated in central, mixed-use districts.

6.3 Compact Residence is for the Single and Elderly, Not Families

> NS2: “What they have done along the harbor where a lot of people are living, there are both old people and young people living there, and I think that is a very good thing.”
>
> Interviewer: “Do you think there are many families living there?”
>
> NS2: “No.”

While land uses such as retail were argued to be concentrated in centrally located, mixed-use districts, opinions were less enthusiastic about residential uses in these areas. Households with children, or families, were nearly exclusively resistant to residing in dense, mixed-use, and non-car dependent areas. Living in housing that is compatible with these environments, such as apartments and rowhouses, often involves various shared and co-located facilities and services. Such living parameters were viewed as incompatible with the needs of families. In small, remote settlements, residing in compact environments and compact housing was viewed as positive for young, single individuals and the elderly, but not for households with children.

Compact residential living is perceived to work for households without children – younger individuals, couples without children, the elderly, and those with children who have left their family home. The proximity found in compact environments is particularly beneficial to the elderly and those “facing a future that is less mobile” (SS3). While public health-related

impacts of compact living have been extensively debated (Barton, 2009; Frank et al., 2005; Hillman, 1996; Næss, 2014), the disproportionally positive effect for older residents, as described by informants, was a prominent perspective. One informant (NH6) explained that a centrally-located apartment was the only affordable option as a young, single, first-time home buyer compared with larger, more-expensive single-family homes. Although some have found negative correlations between compact form and housing affordability (Burton, 2000), this has been associated with urban refurbishment and gentrification, which plays a lesser role in settlements of a very small scale. But the economic advantages often argued for living without a car (Crookston et al., 1996; Nijkamp and Reinstra, 1996) were described by a few informants as well, most of whom were single and in their young adulthood. Residents in compact environments can benefit from "getting away from the maintenance of the house [and] snow" (NS4); "It is more and more easy to live in an apartment; you don't have to take so much care of the house and can travel more" (NH1).

On the other hand, compact residential living was perceived as a poor option for households with children for many different reasons. Although the specific reasons vary, most were justified because of the beliefs that compact residential lifestyles are incompatible, insufficient, and unsafe for children, and that they do not align with tradition, prior generations, and memories of past childhoods. Informants who expressed concern for families living in compact environments often focused on the potential for conflict between children and cars or car-related externalities that can be found in dense, mixed-use areas: families "want to have safer, calmer streets for the kids, and it feels healthier to get out" (NS1); "It could be quite dangerous with lots of children and potentially a lot of vehicles" (SK3); "You've got to be more careful with kids going out and about because there are a lot more cars" (SS4). Although compact urbanism strives to reduce car use and car dependency, present-day compact environments continue to see car use levels that are of concern. It should be acknowledged that some concerns do extend beyond car use alone, particularly lack of space, lack of privacy, and distance to green areas, as seen in social critiques of compact urbanism (Burton, 2000; Knight, 1996), but most were directly related to car use.

Second, compact environments often do not align with tradition, memory, and past generations' childhood experiences. Many informants wanted to recreate the conditions in which they were raised for their own children. For example, informant SS4 promoted that children should grow up on the periphery where the community is smaller and closer to nature,

like their own upbringing. Informant NH6 stated that "it's a tradition to have a [single-family] house as a family – you don't want an apartment because my parents [and] my grandparents lived in a house." This reasoning implies that whether or not compact environments create good or bad conditions for families with children, they are perceived, at least partially, based upon their similarities or differences from one's own childhood experience. However, single-family houses and cars are traditions that are (often) only a few generations old, particularly in Kirkwall and Stornoway (see Chapter 4).

These perspectives on residential preferences create a narrative that weaves in and out of compact residential living in small, remote settlements. It begins with an upbringing in a peripheral, residential environment, followed by a period in the compact core as a young adult, then a move away from the compact core once again to raise children, and ending as an empty-nester and senior citizen back in the core again (on residential life-cycle theory, see Pickvance, 1974). Informants in all four settlements described a similar cycle, though not necessarily to minimize mobility-related emissions or land consumption, but to address the needs of an aging population, reap the benefits of raising children, or create a functioning housing market in small, remote settlements.

6.4 Subtleties to Built Form and Aesthetics

> "I know that from some locals, they do not like the development, but there is always somebody who doesn't want the change, and you have to cope with those kinds of people in any society. But of course I understand it too, because when the development and the buildings are getting higher and higher, and the old structures are kind of disappearing or are now behind the new and higher buildings, then you have [bad] reactions" (NS1).

Built form and architectural, or aesthetic, design stirred mixed opinions. The compact characteristic of density specifically inspired largely negative feedback and associations with crowding. This subjectivity correlates with negative associations made between compact urbanism and quality of life, but more so, speaks to Breheny's (1997) three tests, demonstrating that high density makes compact urbanism undesirable in small, remote settlements. However, a few patterns that emerged from the data imply a more subtle and delicate relationship between built form and aesthetics with small, remote settlements. First, building height and intensity is

less controversial when it relates to surrounding development. Second, architectural contrast is aesthetically unfavorable.

The most frequently criticized aspect of built form was building height. “Anything over three stories, or two stories, would be excessive” (SS2); “Five or six floors is enough” (NS2). Stances on height were varied, but they change over time and are directly tied to prior experiences, as explained by informant SS4, “it seems dense, but that is your only experience at that point.” If small, remote settlements are one’s primary space of experience, and these spaces are characterized by low building heights, then it is unsurprising to see actors oppose tall buildings. However, as stated by informant SS4, this is not limited to building height, but also spans intensity and density more broadly, which are central to compact urbanism. Height, as an easily perceived and measurable metric that is often defined by the (visible) number of stories of a building, becomes the unit to represent opposition to intensity and density as a whole.

Beyond attempts to quantify the limits to density, those with negative opinions were often concerned with relationships to existing and surrounding development. In Svolvær, for example, informants (NS1, NS3, NS5) described a ‘wall effect’ from a series of new waterfront developments that are between 5 and 10 stories tall, located between the rest of the town and the adjacent sea. Beyond claims that they were simply too tall, critiques included that they created too much disparity with neighboring buildings, and that they disconnected the rest of the area from the water. Thus, underlying height, the cited issue, is the relationships of built form to surrounding areas.

Just as relationships to existing built form emerged as the primary concern for new built forms, the primary concern for new architecture and design aesthetics is the relationship to existing architecture and design aesthetics. Although aesthetics is highly subjective and varied greatly among informants, the most frequent concerns arose from contrasts with the historical aesthetic in the immediate surroundings. Key to new development, independent of its form, is making it agreeable and “gentle” (SK5) with existing aesthetics. Informant SS8 described that “if there is a regard for the aesthetic…you could have less of a conflict between [new] buildings and the actual environment and contrasts of the town.” The threat of undesirable contrast, however, varies within different areas of each settlement depending on the existing aesthetic and likelihood of new development. As the central core is often the area with the greatest historical character and where development actors are most interested in densification, the risk

of aesthetic contrast is high in the core. In the case settlements, this is exemplified by the reverence of the main or high street in Kirkwall or the fishing huts along the waterfront in Svolvær.

Altogether, sentiments towards physical traits of compact-friendly developments highlight that even if subjectivities are diverse, the frequent method of evaluation is agreement and compatibility with existing development. Although height is the most frequently used physical attribute to evaluate this, the physical agreeability of development is a function of both its form, including its size, shape, and height, as well as its aesthetics, including its architectural style, material, and façade choices. Even when informants did not explicitly differentiate between built form and aesthetics – many muddled the two and justified critiques for one with characteristics of the other – they were both sources of potential conflict when they contrasted too much with the familiar nature of existing development and surrounding areas.

6.5 Compact Prospects Limited in a Car-Dependent Paradigm

> "You have everything you need in a certain area or walking distance. Although oddly, I don't think people here walk that much. In Edinburgh I walked miles, but here your instant decision is to take a car…My son came back from Birmingham, and he said to me 'Why are we taking the car to go down to get a coffee?… We live where it's literally 5 minutes' walk from the town center.' And I thought 'I don't really know.' I think its habit.… You adopt a certain perspective where you are." (SK6).

Despite subjectivities about the desirability or feasibility of compact urbanism in small, remote settlements, the veracity of compaction, or the delivery of the claimed benefits (Breheny, 1997), were called into question by many informants. Informants did not doubt that trip distances were shorter and could reduce emissions due to compaction, nor did they doubt that less land would be consumed so that more countryside would be preserved. Instead, they doubted that actors in small, remote settlements would change their behaviors, actions, and habits if their settlement was more compact. Despite the theoretical potential for alternative mobility and land consumptions practices, informants either envisioned maintaining their current social practices and the status quo as long as the car remained a viable option, or they recognized that their mobility practices are unchanged where alternatives are possible, as the car remains an option.

There was no doubt by informants that car use is a fundamental norm in small, remote settlements: “They are in the habit of driving” (SK7); “people see [cars] now almost as a right” (SS8). Particularly for making trips outwards into the countryside and away from the developed core, there is no feasible alternative mode of transit, and many questioned the ability for any future scenario to be free of cars: “I see the disadvantage of living in the countryside because you probably take your car more often. But for a certain distance, I think it should be a right to drive the car” (NH7); “I need a car because I like to go all over the place. I need to go to the mountains, [and] I like to go all over the islands, that’s what I need a car for” (NS5). But many informants also described using their car even when it was not necessary and built form allowed for other modes of transit: “It’s so close from where I live, [but] I use the car short distances. Sometimes you need it and sometimes you don’t need it but still do it” (NS1); “I am the worst culprit for jumping in the car – you can walk, [but] I still jump in the car because it’s quicker” (SK1). This implies that a compact built form in itself may not change the car-dominant mobility paradigm as long as the car is an option.

The story above from informant SK6 exemplifies the reasoning behind this doubt – and it is a valid concern. Even when built form allows for ‘compact-friendly’ behavior, such as walking to the nearby coffee shop, actors do not choose the compact-friendly mode (in this case, walking) over the car. Informant SK6 described adapting one’s thinking and functioning to the local environment, but the physical environment is evidently not the only influencing factor, as the social norm and precedent behavior for mobility is chosen – driving to the local coffee shop – even though the physical environment enables an alternative for making the trip – walking is an option due to the short distance.

Prevailing social norms in small, remote settlements are to meet mobility demands by car and to meet development needs by consuming peripheral lands, which are still accessible by cars. Given the desire to and expectation that social norms would continue as usual even if the built form were compact, the veracity of compact urbanism in small, remote settlements was questioned by informants if the car remained a viable option. This was already visible where built form allowed viable alternatives to driving, particularly walking, due to short distances that can be found between trip origins and destinations in central areas.

7 Comparative Findings and Provincialization

RQ3. What are the differences between various small, remote settlements that affect understanding and furthering of compact urbanism?

Chapters 5 and 6 paint a story of small, remote settlements, using the selected case settlements as building blocks (George and Bennett, 2005). However, diversity and variation must be assumed within the array of small, remote settlements found worldwide; there are limits to generalizability. Therefore, this chapter and research question explore variation to bring attention to new and creative relationships, as well as to appropriately de-generalize findings into a light, revisable, and provincial theory (Robinson, 2016; Leitner and Sheppard, 2016) that acknowledges local specificity and global interconnectedness (Peck and Tickell, 2002).

Through variation-finding comparisons, the goal is not exhaustive comparative analysis, but to identify the key areas where plurality exists (Tilly, 1984; Pickvance, 1986). Three such areas of variation are explored: economic and demographic cycles, the degree of transformation posed by compact urbanism, and the nature of the peripheries in each case settlement.

7.1 Placement in Economic and Demographic Cycles

The economic and demographic situation of each settlement varies greatly. While economic decline and depopulation may unfairly dominate discourse about small and rural population centers (Steinführer et al., 2016; Wirth et al., 2016), the current direction of economic and demographic change in the case settlements, whether positive or negative, often correlated with different perspectives on compact urbanism. Economics and demographics are deeply woven into the relevant bodies of theory and policy, from centralizing forces of economic agglomeration (Scott and Storper, 2016) and associations between economic development with mobility levels (Holden and Noland, 2005) to the value given to population in scalar conceptions of urban or city status (see Section 2.1). As such, economic and demographic status should be expected to alter subjectivities on compact urbanism in small, remote settlements. This section provides a comparison of the economic and demographic position of the case settlements, followed by two resulting variations: selectivity in development and intra-local and intra-regional competition.

Figure 7.1.1 depicts theoretical cycles of economic and demographic change and roughly places the case settlements along the curve, based on the qualitative interpretation of each settlement as perceived by respective informants – economic and demographic growth strongly correlate and are presented as a single curve for simplicity. Small-town discourses, as portrayed, might assume that all the case settlements are doomed to economic and demographic peripheralization, but the case settlements are in four different positions, far from foreseeable decline. The drawn position is a function of recent, current, and expected positive or negative economic and demographic change.

Figure 7.1.1: Settlement Placement in Theoretical Economic and Demographic Cycles

Although showing signs of reversing direction, recent history in Stornoway has been strongly characterized by economic and demographic decline. Svolvær recently began to improve its economic and demographic position, and the positive motion has become quite rapid. Kirkwall has not recently seen a large shift in its trajectory and seems to be amid a period of general health and stability. Last, Hammerfest has recently seen a very strong period of growth that has recently slowed, though negative economic or demographic changes are not anticipated (see Chapter 4).

When considering these differences, additional meaning is interpreted from variations in the data. First, selectivity about the preferred types of built form, land use, and mobility paradigms were generally positively correlated to levels of economic and demographic growth. When several options were available, such as new developments or in-migrating families, informants were more likely to be critical and prefer alternatives. The highest levels of

selectivity were found in Hammerfest, where growth has been strongest. For instance, distaste for retail-related development outside the central core (see Section 6.2) was strongest there. On the other hand, when options were limited, many informants were accepting of development, even if less preferable, to ensure some activity still occurred. On sprawl in the villages surrounding Stornoway, one informant shared that "people are [still] staying on the island, so that is a good thing" (SS4). Like the challenge of wide-spanning identities (see Section 5.1), in spaces and times of decline, any form of development is accepted, even if it is not sustainable or socially preferable.

Second, perceived decline appeared to heighten intra-local and intra-regional competition as well as conflict between the center and the periphery, in which compaction processes in the center are perceived as threatening to the periphery (see Section 5.1). These effects can be seen by comparing the Scottish and Norwegian case settlements. In Scotland, although informants in both Kirkwall and Stornoway were sensitive to decline in outer villages in their respective regions, only in Stornoway was this argued as reason to prevent central investment – "you will hear people throughout the Outer Hebrides say that they have concerns about the level of investment that goes into Stornoway at the detriments to other areas" (SS7). In Norway, regional competition was particularly strong in earlier decades of decline, such as between Svolvær and other settlements in Lofoten – "if the government says we want to put a function in Lofoten, then [the settlements] quarrel so much that Lofoten will lose it and it will go somewhere else" (NS7).

Altogether, compaction processes face additional barriers in times and spaces of economic and demographic decline compared to those of stability or growth. Decline in small, remote settlements create social conditions that disfavor compact outcomes, as the incentive to hinder or critique development decreases, especially when it resembles prior (sprawling) development or concentrates development as opposed to dispersing it to non-central areas in decline. In small, remote settlements, this can significantly advance sprawl through few developments.

7.2 Degree of Material and Social Transformation Required

Just as potential changes or developments can have varying influences in different small, remote settlements, the starting position of each settlement, prior to when such sources of change arise,

is a source of variation. These starting points correlate to the topological and intensive heterogeneities that exist between different settlements (MacFarlane, 2016); an urban phenomenon or theory, such as compact urbanism, can be found or applied to diverse contexts. Throughout Chapters 5 and 6, concepts like tradition, memory, and precedent greatly impacted perceptions of compact form, such as recreating one's childhood home or maintaining prevailing travel behavior. These concepts highlight how actors often resist change and transformation to new material and social forms. Therefore, compact urbanism is greatly shaped by the magnitude of transformation that is required to shift from existing conditions toward those that are compact. Using the example of housing unit mix, this section highlights how differences in the existing material and social realities of the case settlements result in different perspectives, opportunities, and challenges for compact urban transformations.

Region	Detached, Single-Family House	Semi-Detached House, House with 2 Units	Row/ Terraced House, House with 3+ Units	Multi-Dwelling Building, Apartment/ Flat	Other and Unknown[1]
Orkney	59.8 %	22.1 %	11.1 %	6.9 %	0.1 %
Western Isles	63.5 %	15.1 %	9.6 %	5.1 %	6.7 %
Hammerfest Municipality	41.5 %	12.1 %	17.8 %	17.5 %	11.1 %
Vågan Municipality	67.0 %	6.1 %	6.9 %	13.2 %	6.8 %

1. Includes "Residence for Communities" in Norwegian regions.

Table 7.2.1: Housing Mix, 2017 (Statistics Norway, 2019; National Records of Scotland, 2019)

Table 7.2.1 shows the housing unit mix as of 2017 in the respective council area in Scotland or municipality in Norway of each case settlement – comparable statistics were not available at the settlement scale. Materially, Hammerfest has a much lower proportion of detached and single-family houses than the other three regions. Informants in Hammerfest, logically, formed their perspectives with high familiarity and reference to denser, multi-unit, and attached housing forms. These perspectives were not uniformly positive or negative as a result, but increased awareness of the potential of housing forms that are more compact. For example, informant NH1 described that it has become more "accepted" to reside in an apartment since many have been added in the prior decade. On the other hand, semi-detached and row houses were dismissed by several informants in Svolvær, where they are notably less common than the other settlements – "nobody thinks about row houses" (NS4). Experience

with compact forms, material changes – such as densification of housing form – are easier to visualize and consider.

Similarly, the social implications of a denser and more compact housing mix are better perceived, understood, and contemplated where precedents exist. Informant NH4 stated, "I could see there was this infrastructure [in Hammerfest] for what I knew from my former life in Copenhagen…people living tight together." They further described how proximity to other residents involves interacting with greater diversity or hearing neighboring households, like Jane Jacobs's (1961) portrayal of urban streets. However, another informant in Stornoway (SS1), who self-referenced Jacobs's theories, described that there are so few examples of "living above the shops, crossing the road to the shop or the pub.… They really don't have a big impact." The social activity and behaviors associated with a denser housing mix are more foreign where few residents live in such a manner.

This is not particularly novel; examples act as a learning tool. But if considered conversely, this is very useful. Since understanding is informed by precedent, understanding is built outward from the area or element that most closely resembles the desired outcome. For compact urbanism in small, remote settlements, compaction will most successfully occur when expanded upon pre-existing compact-friendly examples.

7.3 Availability of Peripheral Land

As seen in Section 6.1, compact urbanism is not just a matter of development, but also lack of development and creating proximity between natural and built environments, especially for small, remote settlements. Therefore, variations in the nature of the periphery are just as influential as the existing conditions found in the built core. The opportunities and challenges to compact urbanism are directly determined by the peripheral land market and the extent to which additional, developable, peripheral lands are a development option. In other words, the likelihood of a compact future is predisposed by the ease and ability for future development to occur in the periphery. As informant NS3 stated (see Section 5.5), "It is so easy to just take something and do something with it rather than leaving it alone." This section begins with an overview of the variations found in the peripheral lands of each case settlement. Following are two examples of corresponding differences in perspectives on compact urbanism: (1) opinions of sprawl and (2) consideration of alternative mobility behaviors.

While all the case settlements lie along coasts, this is insufficient to characterize their peripheries. Kirkwall has gentle, rolling, farmlands that extend to the east and west. Stornoway has similar open, vast lands on its non-sea facing sides, although the topography is steeper in the west. Hammerfest primarily lies in very narrow areas between its coast line and steep mountain sides going inland. Svolvær has very limited areas of accessible, proximate, and development-friendly lands, as it consists of several islands at the base of steep mountains. Figure 7.3.1 roughly highlights the abutting lands on each settlements' periphery that are undeveloped and physically developable – green space policies and designated green areas are not accounted for in this figure. Where Kirkwall has many possibilities to sprawl and developed peripheral lands, Stornoway has several but fewer possibilities, and Hammerfest and Svolvær have very few options without reclaiming land.

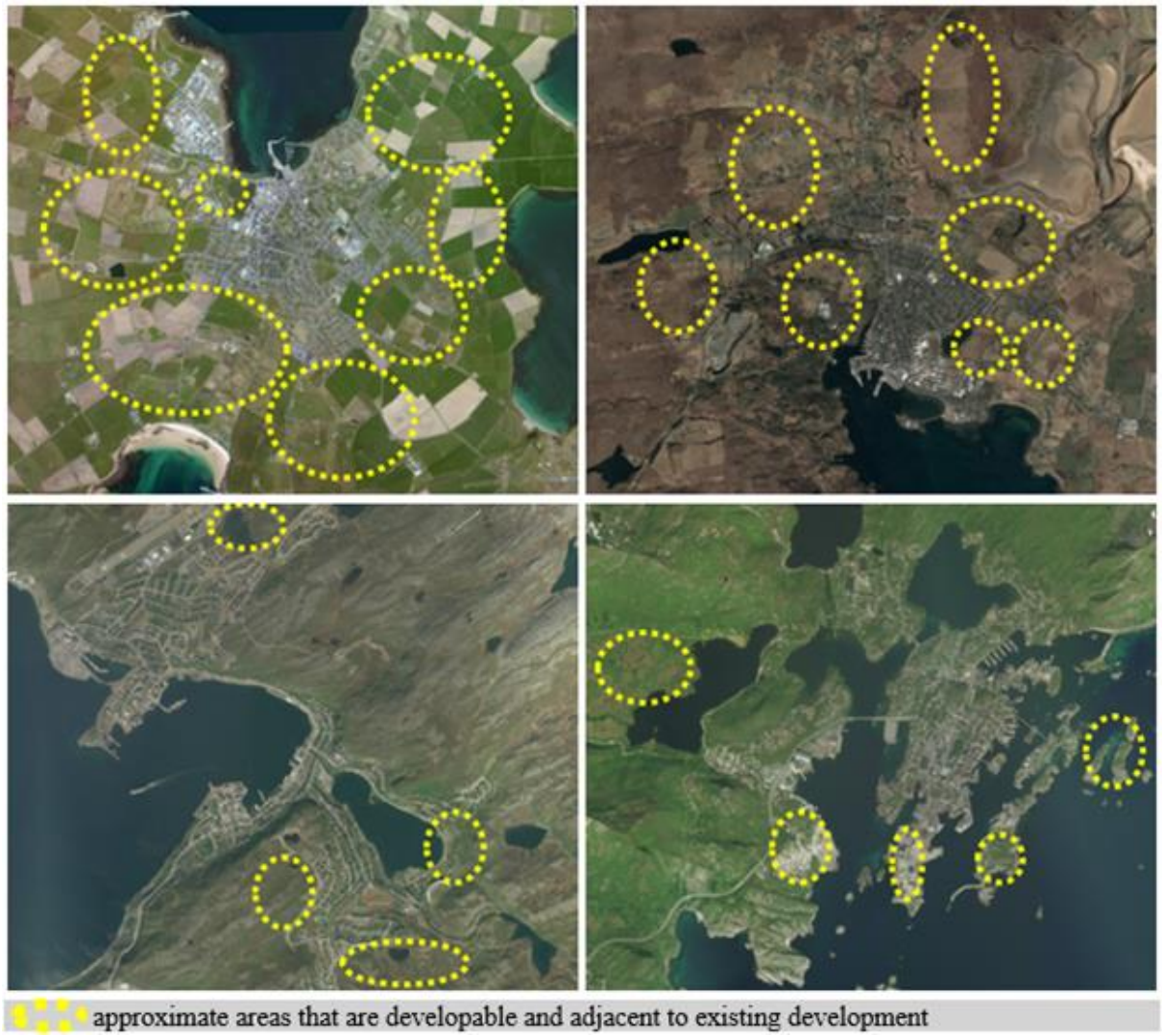

Figure 7.3.1: Availability of Peripheral Land

Just as Kirkwall has many more opportunities to sprawl, consuming additional lands was viewed with much more indifference or positivity than in other settlements. “As long as it is aesthetically pleasing” (SK5); there is no such point when “spreading too much” becomes negative (SK7); “we don’t need to build houses close together [because] Kirkwall is not a spatially strapped setting (SK1).” Although informants in all the case settlements expressed desire for qualities such as space, privacy, and quiet that are associated with sprawling development, endorsement of consuming additional peripheral lands was more common in Kirkwall. This implies that compact development only should arise out of necessity, not an inherent value or benefit of space efficiency when compared to sprawl and greater land consumption. Compact becomes unworthy of consideration or relevance, regardless of its positive or negative attributes, as availability of peripheral lands is not a perceived issue. Only when space efficiency is an absolute necessity from lack of peripheral lands does compact urbanism enter the mind.

A similar relationship is apparent between availability of peripheral lands with mobility behaviors. Informants in settlements with vaster, developable peripheries were less likely to consider alternatives to the car, as the imaginable areas of development, if developed, would make the car an even greater necessity – recall that distances were perceived in time (see Section 5.2), and that the default mindset was to meet increasing mobility needs instead of curbing mobility needs (see Section 5.3). “[People] may be travelling a 100-mile round trip. It would be very difficult to survive without cars here” (SS2). As in this example, the need for long distance mobility, particularly by the outermost residents, becomes justification for car use by all. If a sprawling future is possible, then walking, cycling, and public transit become less veracious, feasible, and desirable. This is logical, as mobility patterns are influenced by urban structures in small settlements too (Næss and Jensen, 2004). But rather than using built form and structure to decrease emissions related to mobility, the imaginaries of a sprawling built form and mobility paradigm create the opposite. Availability of peripheral lands is reason to commit to the car as the primary mode of transit.

Many arguments against compact urbanism fall under the ‘free-marketeers,’ per Michael Breheny (1996), who claim that interference in land markets will not optimize urban form. The views shared by informants in land-abundant settlements slightly augment this position. Instead of arguing the market knows best, they argue that market interference, in the form of planning and policy that limits sprawl, is unnecessary, as the free market could not

possibly consume the entire land market. Only when there is no more land does land use become an issue. This is particularly significant for small, remote settlements, as many, like Kirkwall or Stornoway, have a periphery that is abundant with land that could be consumed due to their remote locations. Also, feeling small (see Section 5.4) means that the imaginable amounts of growth or change are likely not large enough to create concern that peripheral lands will ever run out. Ultimately, sprawling development and mobility patterns are imaginable and therefore considered feasible. Compact alternatives are therefore unnecessary.

8 Theoretical Recommendations

> RQ4: How can urban theory be adapted to expand opportunities for compact urbanism in small, remote settlements?

The findings to the first three research questions in Chapters 5, 6, and 7, were reflected upon and utilized to answer the last two research questions addressed in Chapters 8 and 9. Hence, this chapter exhibits a turn from interpreting and understanding the collected data to creating actionable outcomes and potential uses for what has been induced from the data. The findings in this chapter address the shortcomings about knowledge, in which the pursuit of compact urbanism in small, remote settlements is theorized and understood. Thus, this chapter starts from a position that attention to the distribution of theory and its movement across different scalar contexts is necessary (Livingstone, 2003; Peck, 2011), as urban theory is biased to certain scales (see Section 2.1).

Five theoretical goals are outlined in this chapter, each argued to increase knowledge, understanding, and opportunity for compact urbanism in small, remote settlements. These are (1) expanding the scalar contexts included in urban discourse, (2) continuing to shift urban theory from a foundation on scale to one of function, (3) recognizing the differences between small and remote with insignificant and isolated, (4) detaching compaction from centralization, and (5) promoting the awaiting opportunities on the lower side of the scale.

8.1 Include Small-Scale Contexts in Urban Theory and Discourse

> "I suppose [Kirkwall] is urban, but it doesn't sit easy...I think more of urban being built-up, bigger buildings, blocks of flats, big factories, shops, things like that" (SK7).

The ways that informants described compact urbanism highlight that knowledge of what is compact, and more holistically urban, is inspired by other places. One informant (NS3) was concerned "we are going to become a small New York" and another (SK5) was worried about becoming "another Glasgow tenement." This is unsurprising, given the literature on knowledge mobility (see Section 2.3), but simultaneously concerning as the examples that are transferred to the local context come from widely different scalar contexts, and outcomes in those contexts provide the example and justification for evaluating the suitability of urban theories locally. Such thinking is more evident of fast transfers, off-the-shelf replication, and implicit literalism

(Baker and Temenos, 2015; McCann, 2012; Peck and Theodore, 2001) instead of mobility, which considers the territorial, fixed, and locally particular when pondering knowledge or policies from other contexts (Cochrane and Ward, 2012; McCann and Ward, 2014; Robinson, 2015). In the case of these two informants, settlements with over 8 million and 600,000 people are the basis for considering urban theory and policy in settlements of less than 10,000 people.

But who is to blame for this? Arguably, it is not laypeople who look for precedents elsewhere in considering urban theory locally, but those in policy and research who have failed to create and highlight precedents that more closely resemble small and remote scalar contexts, such as in the case settlements. This is the danger depicted by Angelo and Wachsmuth (2014) on methodological cityism, Champion and Hugo (2004) on demography, and Robinson (2002) and Bell and Jayne (2006) on global cities. Exclusive theorization on all things urban, including compact urban theory, in settlements of large size and high hierarchical level results in exclusion, lack of understanding, and mobility failures in other contexts.

Figure 8.1.1: Small- and Large-Scale Urban Contexts (Photos by author, 2018)

Therefore, more research and discourse are needed about urban theory in smaller-scale contexts. If theory and discourse expand into smaller-scale contexts, then small, remote settlements may find a more appropriate starting point for considering and adapting knowledge

and policy to fit their local context. Instead of incompatibility leading to transfer failures, potential and relevance at this scale becomes apparent, leading to successful mobilities and increased understanding. Shown in Figure 8.1.1, what is more likely to inform compact urban theory and policy that is desirable, feasible, and veracious for the case settlements: Oslo and Edinburgh or Kristiansand and Inverness? While compact urban theory draws images of the former for actors in the case settlements, its objective may also be achieved through density, land use, and mobility patterns found in the latter.

8.2 Shift from Foundation on Scale to Foundation on Function

> "I suppose when you think of a city, you are thinking of loads and loads of shops, cathedrals, and yes, we have cathedrals and shops, but on a smaller scale." (SK3)

Around half of the informants identified some degree of misalignment between scalar and functional categorization of their settlements. Stornoway was described as having the functions or "attributes of a city" (SS1) although it lacks the definition formally because it does not have a cathedral; Svolvær has city status though one informant stated "a city is at least the size of Tromsø…[though] Svolvær has the same functions as Tromsø" (NS1) while others said it lacks "functions such as higher education" (NS8). The relationship between scale and function in a settlement is evidently not simple or linear. However, the presence of urban and city-like functions in small, remote settlements that do not fit scalar definitions of the urban or city indicates that urban theory is better defined by its function rather than its scale.

Recall that the acknowledgement, role, and spatial distribution of urban scale and function has been central to the theories and concepts of scale over the last 50 years (see Section 2.1). Since Manuel Castells (1977) delineated between the scalar and functional dimensions of urban spatiality under capitalism, Saunders (1981) portrayed how urban social processes are present both inside and outside of cities, Neil Smith (1982) and David Harvey (1989b) described the ways in which the urban is differentiated over space and time respectively, Peck and Tickell (1994) and Swyngedouw (1997) identified connectivity between different scales, and Marston (2000) argued that scale was socially constructed as opposed to a fixed, material phenomenon. In the end, the functional dimension of settlements is not determined by its scale.

The functions that are of interest to urban theory are not limited to cities over a high size threshold or hierarchical level. Although what the set of urban functions consists of can be

debated, the components of compact urban theory demonstrate that even small, remote settlements are spaces with at least some urban functions. It only takes two components, social or material, to create questions about proximity, an urban land nexus, and mobility. When urban theory is built on foundations defined by scale, it captures only a portion of such settlements, as seen in methodological cityism, UN demographic methodology, and the urban-rural dichotomy (see Section 2.1). A shift in delimiting what is urban from its scalar dimension to its functional dimension would, instead, set the framework for all spaces with urban functions to be included, even small, remote settlements. When defined by the functional dimension, the nature of (planetary) urbanization in the 21st century nearly guarantees that the urban network extends into all settlements, even those that are small and remote.

8.3 Recognize Small and Remote ≠ Peripheral and Isolated

> "Somebody told me that somebody had just come back with their family from New Zealand, and I said that would be a great story. But then I realized that wasn't remotely strange here, and people are constantly going back and forth" (SS1).

After reading the interview transcripts, it is hard to argue against the claim that urbanization has become a planetary phenomenon (Brenner and Schmid, 2014), or that it at least spans beyond cities and to other settlement types. Despite the location of each of the case settlements on islands and coastlines on the northern edges of the European continent, despite the Euclidean distance that separates them from larger settlements, and despite their low population and size, the interconnectedness described by informants was copious and far from commonplace depictions of provincial or peripheral settlements (Steinführer et al., 2016; Wirth et al., 2016).

Seen in Section 5.3, the case settlements are well connected to and accessible from other larger and more interconnected settlements in the world. But while some informants claimed that their settlement was peripheral to larger or more central settlements on a national or international scale, many said otherwise, as their settlement is the center of their own lives, which is the antithesis of peripheral. On labels such as small, remote, and peripheral, one informant described:

> "I am not so sure about how helpful those kinds of phrases are, because it is actually quite accessible. When I speak to people that have never been here, from England, they say things like 'Do you have a supermarket?' and 'How do you get clothes?' and 'How many days does it take to travel back to the mainland?' – all total misconceptions" (SS5).

In this sense, peripheralization and designations like small and remote become negative signifiers, not because of any inherent accuracy, but because they are comparatively less than somewhere else. Small, remote settlements become associated with lacking everything, as they are comparatively less than in scale, independent of the connectivity that is present, because they are less connected than elsewhere. When believed to be peripheral and isolated, true or not, settlements are written off as outside of the urban realm, independent of the extent to which urban phenomena or processes – such as compact urbanism – are or could be present.

But as informant NH2 stated, "it is distant but not isolated – that's a big difference." A small, remote settlement can be isolated or connected at varying levels. In fact, the hinterland effect (Fertner et al., 2015) can disproportionately increase the nodality, or degree of convergence, on smaller settlements because of the distance from competing centers. For instance, eight informants were born in other countries and eight more had lived abroad before; all four settlements have airports served by international airlines, and they all had the same supermarkets as larger Norwegian and Scottish cities. If this is not enough for admittance into the urban network and the non-isolated world, what is still missing? The peripherality or isolation of a small, remote settlement is not the result of their comparative status as small or remote, but of their territorial and local particularities.

8.4 Detach Compaction and Centralization

> "Let's not build out and ruin that. I had the same conversation with a friend of mine about [sprawl] and all the small societies out here. In Akkarfjord, for example, to keep them going from an economic point of view is not responsible. And I think that is what we need, you can't centralize everything" (NH7).

Although questioning focused on compaction within each case settlement, informants often responded with concerns regarding a greater set of settlements in their wider regions and centralization. On this regional scale, centralization refers to intensification but achieves it by relocating uses from many settlements into a smaller set of settlements – intensification on this scale has been argued as less beneficial than intensification within an individual settlement (Næss, 2012). However, the line between these two concepts and scales of intensification is often blurry. A useful distinction comes from Owens and Rickaby (in Breheny, 1992a), in which compaction refers to decentralized concentration without centralization between

different settlements, while centralization involves intensification that concentrates entire regions of multiple settlements – the former is the basis for compact urbanism and the compact form described by Thomas and Cousins (1996a) in Section 2.2. This distinction is shown diagrammatically in Figure 8.4.1.

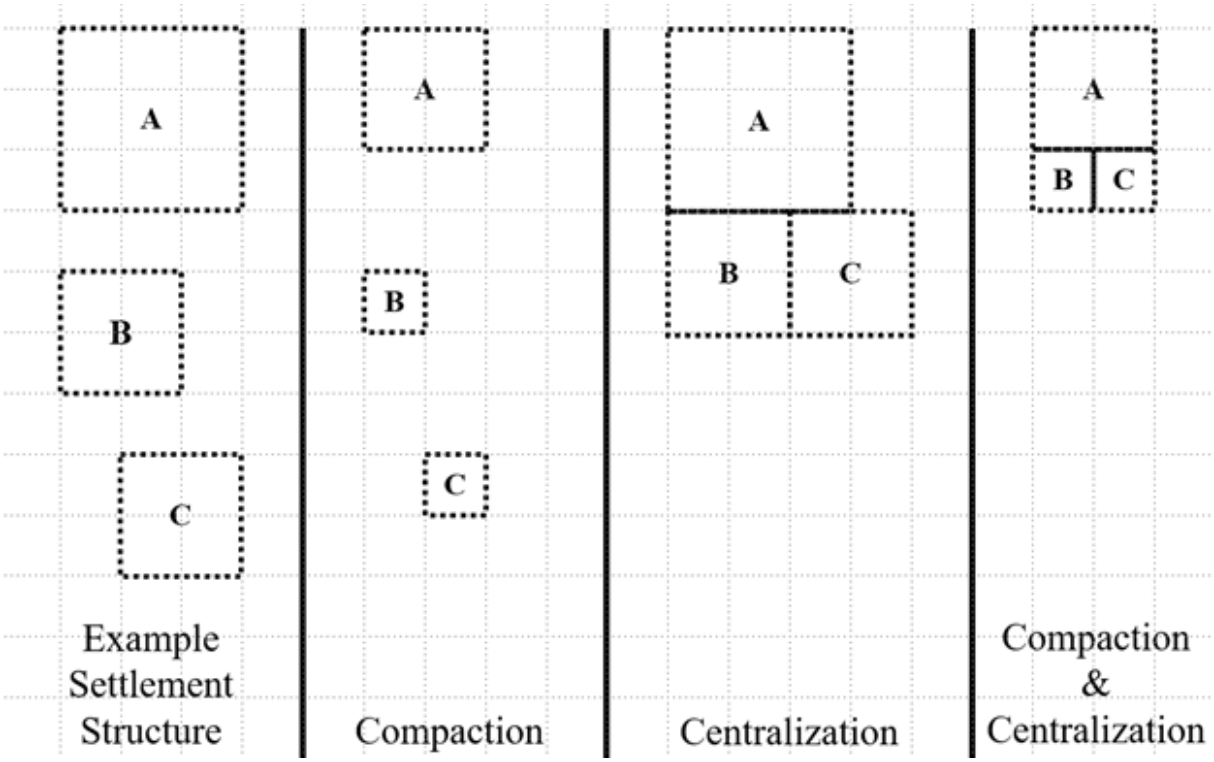

Figure 8.4.1: Compaction vs. Centralization

Many small, remote settlements, including all four case settlements, have a long and controversial history with centralization (see Chapter 4) that is deeply intertwined with small town and rural ideal types (Wirth et al., 2016). From economic and demographic consolidation around Stornoway (Thompson, 1988) to political and coordinated efforts to rebuild fewer settlements in Finnmark after World War II (Brox, 2006), regional centralization has cast an enduring shadow over small, remote settlements as a threat to survival. Centralization is detested in these regions because of "depopulation" (SK5); when "people chose to move [elsewhere]" (NH1), and "without incoming families, [the settlement] will die" (SS5).

Compaction within an individual settlement, on the other hand, does not directly threaten the accommodation of population. It does involve challenging existing ways of life and reconfiguration within a settlement, but neither increasing density, land use mix, nor transitions away from the car involve relocating people or functions into other settlements. Understandably, threats of centralization are very strong in the memory of small, remote

settlements. However, such concerns are often misplaced in compact urbanism debates when they concern a single settlement. Therefore, establishing conceptual clarity between compaction and centralization is key to compact urban theory in small, remote settlements. Though establishing such theoretical clarity will not – and should not – remove all concerns for compact urbanism in small, remote settlements, separating the extraneous concerns of centralization from compact debates will remove some of the superfluous noise and allow for more effective and true knowledge and policy mobility.

8.5 Promote Opportunity on the Lower Side of the Scale

> "It doesn't have to be a massive population for something to be vibrant, and you strive for that to be the case in whatever community you live in, whether it is a village of five or a town of ten thousand or a city of millions. But I think in some ways it's a lot harder when it's so large and so vast." (SS4).

The magnitude of opportunity for urban theory on the lower side of the scale needs to become known to all – not just actors in settlements on this side of the scale, but also all actors that have interests or stakes in urban theory and research, regardless of their own scalar context. The extent of opportunity is increasingly massive, as the urban becomes less attached to scale. As population and hierarchical thresholds lower, the scope of urban theory exponentially increases. Figure 8.5.1 charts the proportion of the populations in Norway and Scotland by settlement size. While Norway and Scotland were selected in part because of their high proportion of small settlements, they are not representative of global settlement patterns. Nevertheless, opening urban theory down the scale will create immense, additional opportunity worldwide. Conversely, if the threshold is high, opportunity is lost. The territory that remains in an irrelevant void in the global city hierarchy (Robinson, 2006) often includes Norway and Scotland entirely, without settlements characterized by millions of people; if defining the urban on the basis of population size per UN (2018) demographic methodology, over 80% of Norway and 70% of Scotland is singularly grouped into the lowest tier of settlements.

Not only does the lower side of the scale present many opportunities, but the potential value and impact of furthering urban knowledge and policy in lower-scale contexts is immense. Such successes could have equal, if not greater, benefits on the lower side of the scale. For instance, Table 8.5.1 shows the distribution of population and area of developed land in Norway

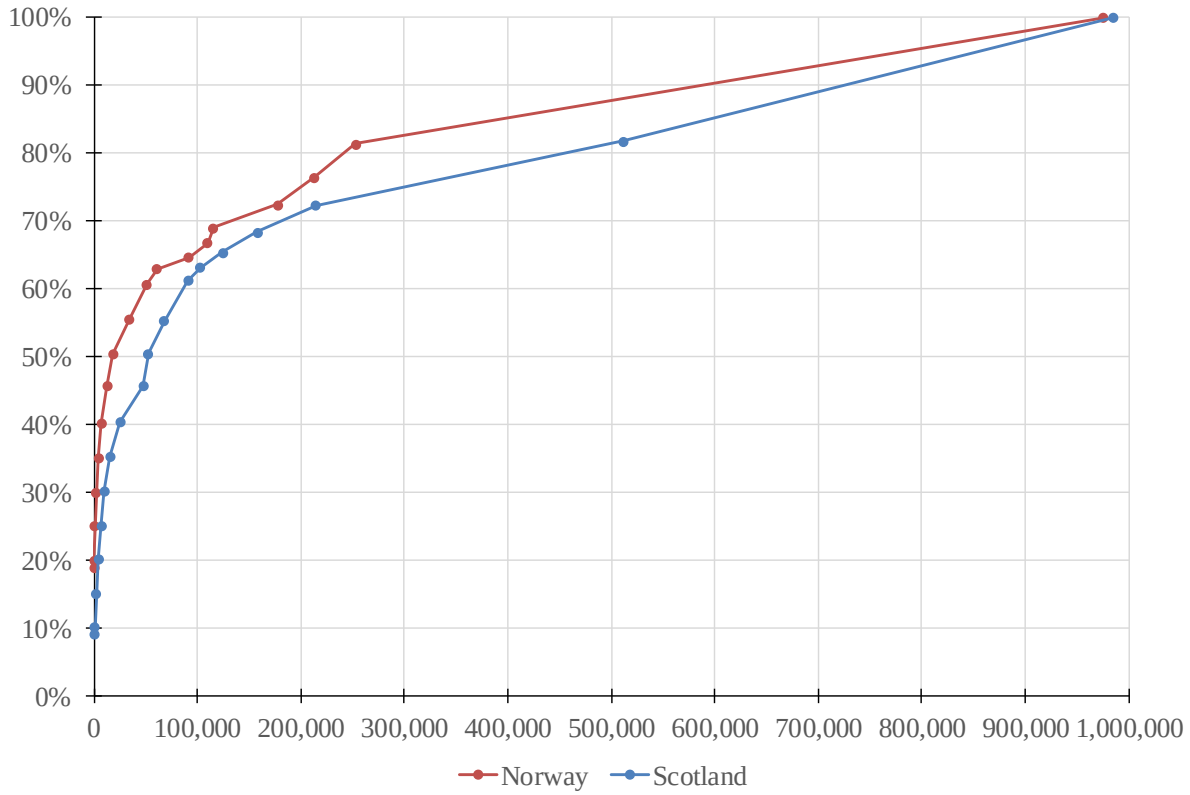

Figure 8.5.1: Aggregate Population Percentage by Settlement Size, 2016 (National Records of Scotland, 2018; Statistics Norway, 2018)

in 2018 as well as the resulting consumption per resident – the inverse of population density. If compact urbanism were to reduce the footprint of all settlements by 10%, then the reduction in land consumption would be greatest in the smallest settlements with less than 10,000 inhabitants – 62% greater than the largest settlements with over 100,000 residents, as 248% more land is consumed per inhabitant in the smallest settlements than by those in the largest settlements. Although individually smaller, the collective extent of the smallest settlements, in this example, is nearly 2.5 times greater than the largest settlements. Thus, advocates for compact urbanism will find greater value at smaller scales, where a larger amount of peripheral lands could be preserved.

Population Group	Total Population		Total Land Area (km²)		Land Consumption / Resident (m²/person)
200≤10,000	1,239,059	29 %	975.4	44 %	787.2
10,001≤25,000	611,436	14 %	331.3	15 %	541.9
25,001≤100,000	574,535	13 %	286.8	13 %	499.2
Greater than 100,000	1,891,980	44 %	601.6	27 %	318.0

Table 8.5.1: Norway by Population Group, 2018 (Statistics Norway, 2018)

9 Empirical Recommendations

> RQ5: What empirical priorities and changes would expand opportunities for small and compact urbanism in small, remote settlements?

The final research question and focus of this chapter concerns empirical recommendations and policy mobilities. Like Chapter 8, earlier findings are used to inform recommendations for the future. However, instead of concerning theory and understanding, these recommendations are actionable strategies and policies. These recommendations consider qualities specific to small, remote settlements and across all scales, as urban phenomena and policy are understood as both territorial and relational (Amin et al., 2003; Jacobs, 2012; Massey, 2005), fixed and mobile (Backer and Temenos, 2015; Cochrane and Ward, 2012; McCann, 2012; Peck ad Tickell, 2002), and pulled in and pushed out (Peck and Theodore, 2010; Robinson, 2015).

Five empirical means for advancing compact urbanism in small, remote settlements are presented in this chapter: (1) integrating nature throughout compact environments, (2) creating social and vibrant central districts, (3) pushing families towards more compact housing, (4) creating relationships and avoiding extensive contrast between new and old built environments, and (5) diminishing car use in the core in favor of walking and cycling.

9.1 Integrate Nature

> "It's the nature here. The Scandinavian cities, they have this element of nature in them, this meeting with wilderness. This is definitely not urban. It's wilderness" (NH4).

The value placed on nature and green space in small, remote settlements is paramount (see Section 6.1). But if compact urban environments are presumed or experienced as tremendously intensified without ample natural and green space, many actors are unlikely to desire or participate in compact environments due to concern for the lack of nature and that nature is too far away. A robust system of meeting points between the built and natural environments is needed. Two ways to integrate nature into built form are green connectors and greening of built-up areas.

Green space distribution is a familiar area of contention in compact urbanism debates, from doubts about enough green space in compact environments (Burton, 2000; Zhang, 2015) to differing green space types and related policies (Jabareen, 2006; Tappert et al., 2018;

Walmsley, 1995). But if direct contact, connections, and integration with natural elements are critical to encouraging actors in small, remote settlements to participate in compact environments, then green spaces that span across developed areas and have a longer perimeter that abuts developed areas should be considered. Therefore, green connectors, such as green fingers or green wedges (Jim and Chen, 2013; Walmsley, 1995), are recommended in small, remote settlements.

While greenbelt strategies, like *markagrenser*, may curb sprawl and create abundant peripheral green space, they insufficiently integrate nature into the built environment – without supplementary green spaces – in two ways. First, most actors in the compact core are separated from greenbelts. Except those along the very edge, everyone located inside the compact core must traverse a distance to meet greenbelts, and that distance becomes greater as one approaches the center. Second, the length of contact between the built and natural environments is less when green space is along the periphery, as only one side abuts the built environment, opposed to all sides if green space is located within the core. Further, when green spaces are elongated into a green connector that spans many districts from the center to the periphery, green space is more evenly distributed, and the average distance from green space decreases too. The distributive differences between greenbelt, central (internal) parks, and green connectors is depicted in Figure 9.1.1.

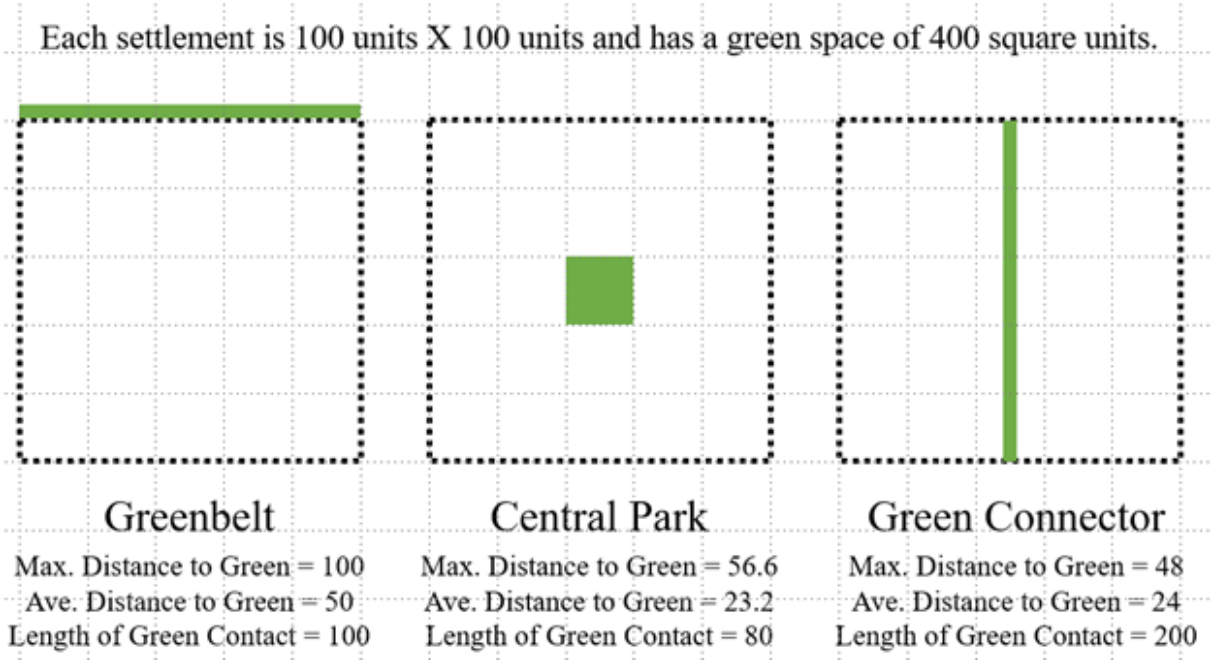

Figure 9.1.1: Green Space Typology Comparison

Another strategy to integrate nature into the built environment is greening of built-up areas. “You need the green and the trees” (SK5); “having some nature in between [buildings]” (NS3). Integrating nature involves not only designating exclusively green areas, but integrating natural elements into built form. Creating minimum standards or requirements for including green elements to built form, especially in public spaces where numerous actors experience a local environment, can create a drastically different experience. Timothy Beatley (2012) describes biophilic aspects of green structure planning, or the evolutionary and emotional connections between humans and other living organisms as found in nature, where one simultaneously experiences built form and nature. A walk on a tree-lined street or along a building façade that has extensive plantings and vegetation creates a different sensory experience than when natural elements are absent. The same is true of streets and public spaces that are highly trafficked and regularly influence day-to-day life that can incorporate varying levels of natural or green elements. Thus, greening built form can occur without changing density or land use, making it easier to implement and potentially advantageous.

Strategies of green space (re)distribution and greening are, of course, likely to meet challenges and obstacles. Changing land use, as required in forming green connectors, is no simple task, and even greening efforts, which can occur without changes to density and land use, can require great political and financial will. But if successfully navigated, these strategies are effective for integrating nature into compact built forms, which is critical for generating interest and use of compact urban environments in small, remote settlements.

9.2 Create a Social and Vibrant Center

> “If you start building in Prærien[2] and such, then it will slowly shut down the center. People, when it is Saturday, won’t go to the center but will go other places, and then the town dies.… This is important: that we have everything, in limited space; to have a living city center” (NH8).

Exemplified through retail preferences (see Section 6.2), social and vibrant mixed-use centers were acclaimed and desired by most informants. While some land uses, particularly residences for families with children, and non-central areas were not preferred to be social or vibrant, creating mixed-use centers with these qualities greatly aligns with compact urbanism. Mixed-

[2] Prærien is a recently developed neighborhood on the northern edge of the urban settlement of Hammerfest.

use centers can decrease trip distances and associated emissions, decrease the modal share of cars, and support densification instead of sprawl (Hillman, 1996; Newman, 2006). Further, they increase the likelihood of crossing paths with others and create an active, lively social environment (Hofstad, 2012; Jacobs, 1961; Williams et al., 1996). Therefore, meeting the desire for social and vibrant centers is a compatible way to further compact urbanism in small, remote settlements. Three methods of doing so include (1) enabling social interaction, (2) breaking development into smaller components, and (3) containing the mixed-use center to one continuous area.

The ability to socialize with others varies between public spaces, the high-traffic areas where people often come into contact. In Stornoway, informant SS8 described how "walkways are very important because it's very much a walk-and-talk culture.… It used to take an hour to get from one side to the other because people engage in conversation." But in Hammerfest, informant NH7 described wanting "to sit outside, drink coffee, read newspaper, interact with people, [but] you can hardly do that in Hammerfest" due to lacking weather protections and attractive seating areas, for example. Myriad factors make public spaces social and vibrant, such as seating, lighting and shading, views, waste management, and adjacent land uses. Also, local place particularities, such as climate and daylight or daily traffic flows, create different opportunities and challenges for activating public space in mixed-use districts. When considered together, there is no single, generalizable technique for creating active public spaces and pathways. However, making theses spaces active and desirable for social interaction makes compact-friendly, mixed-use centers more desirable for actors in small, remote settlements.

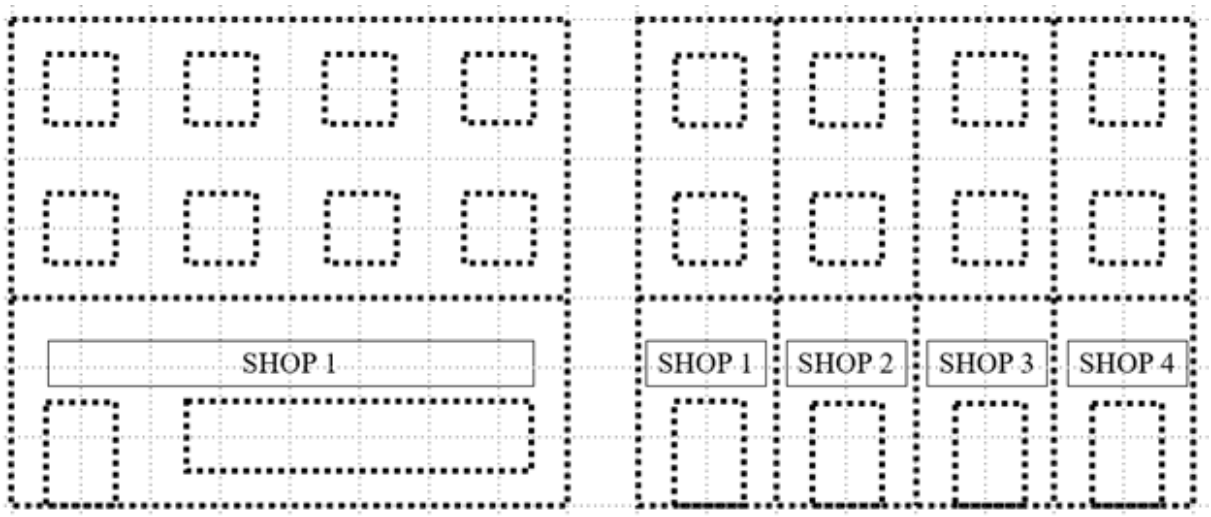

Figure 9.2.1: Equal Uses with One, Large-Scale or Several, Small-Scale Buildings

Also, mixed-used centers that break development into smaller components, as opposed to fewer large-scale developments, are better received and utilized by actors in small, remote settlements. For example, Figure 9.2.1 shows a hypothetical block with the same number of apartments over the same retail footprint that could be developed as a single building with a single retail tenant or across four buildings each with their own retail tenant. Even though the gross space is the same, breaking the development into smaller pieces minimizes contrasts (see Section 9.4) with small-scale surroundings. Further, a wider number of actors can participate – in this example, five retailers instead of one – which is both economically and socially preferable in small, remote settlements. Since small-scale markets can be satiated by a fewer, large-scale retailers, so many smaller retailers are preferred. This logic can be extended to apartment buildings, office facilities, and other uses that contribute to mixed-use centers. By creating a built environment that consists of many smaller components, mixed-use centers are more pluralistic, diverse, and active, as informants indicated they look for in lively centers – a "return to the smaller, more intimate variety" (SS8). While economies of scale and political gains may favor large-scale developments, social preference and subjectivity favor a wider array of small-scale developments.

Last, mixed-use districts must be contained to a single, contiguous area in small, remote settlements. Informant NS3 stated "I understand why it should be centered, and that is fine, but when you take the center and you expand it too much, then I don't like the idea of this big, big center." Thus, concentration and self-containment of the center is viewed as advantageous – many informants praised the center of their settlement for having "everything you need" (SK4, SK6, SS1, SS4, NH1, NH4) near – as well as more agreeable with small-scale contexts. The advantages of a mixed-use center are lost if it spreads out too much, is duplicated, and no longer is the central node. In small, remote settlements, a mixed-use center must be confined, through appropriate density and land use, so that a social and active core is created within the scope that can be supported due to its small-scale surroundings. If there are multiple, competing centers, or if the center is wide-reaching, it will not be social and vibrant as desired. "If a peripheral settlement is to function in a self-contained way in a high-mobility society, it must be located outside the catchment area of competing centers" (Næss, 2012). The same amount of built space in a mixed-use district can be unfavorably diluted either through disjointedness or spreading too thinly, leading to lower activity levels in any single location so that social vibrancy decreases, and the advantages of proximity are lost. These recommendations simultaneously accommodate intensification and small-scale compatibility to create a social and vibrant center.

9.3 Push Families Toward Compact Housing

> "The problem here is people are working in the town, supermarkets are in the town, everything is here in the center of town.… It would be very difficult to survive without cars here, unless there was [something] that actually forced people or encouraged people to actually live in Stornoway" (SS2).

The above quote depicts a significant challenge for compact urbanism in small, remote settlements: even when built form in the settlement core adheres to compact ideals, many people, particularly families (see Sections 6.2 and 6.3), still chose to reside elsewhere, consuming peripheral lands and creating emissions from traveling between the center and periphery (Hillman, 1996; Newman, 2006; Makida et al., 2012). With a large subgroup of the population remaining in low-density and peripheral housing, the veracity of compact urbanism is greatly restricted. Therefore, two strategies, in tandem, are needed to push families toward more compact forms of housing: (1) develop moderately dense housing and (2) restrict peripheral housing development.

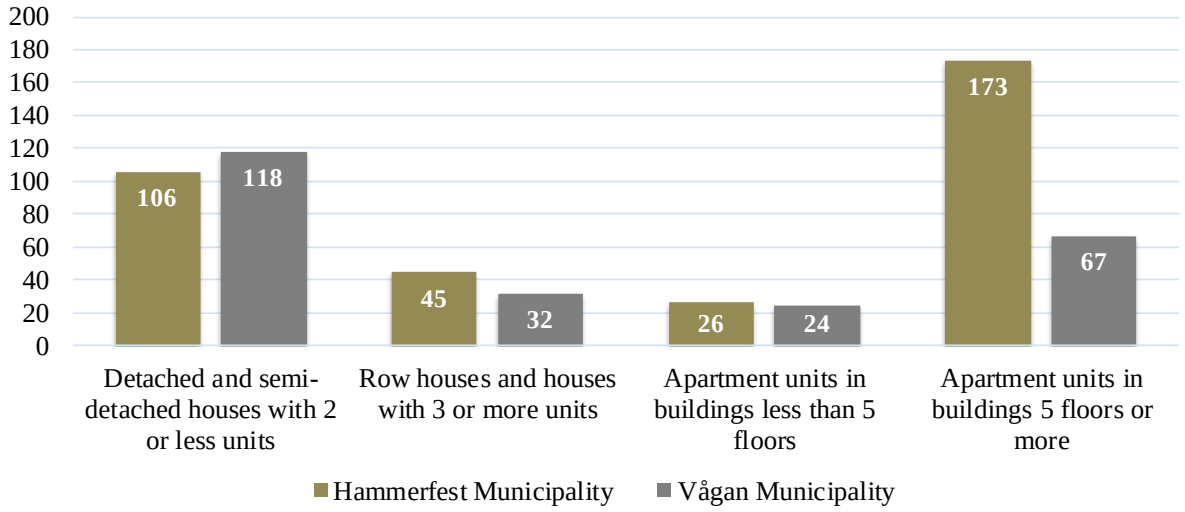

Figure 9.3.1: New Housing Units by Density, 2009-2018 (Statistics Norway, 2019)

Developing moderately dense housing sounds simple, but it is a significant change from the case settlements. In Orkney and Western Isles, between 2014 and 2017, only 13% and 0% of changes in the housing stock came from rowhouses, respectively (National Records of Scotland, 2019). Over the last 10 years in Norway, new housing development in the respective municipalities of Hammerfest and Svolvær was primarily high-density multi-family apartments and low-density houses as shown in Figure 9.3.1 (Statistics Norway, 2019). Moderately dense

housing forms, such as terraced or row homes, houses with three or more units, and smaller-sized apartment buildings are very few. The housing market is dominated by the most- and least-dense housing types.

Although residential preference, as exhibited in the data and in literature (Breheny, 1997; Hall, 1999), indicate families want to live outside of the center, Hall's compromise of rowhouses and low-rise apartment buildings – housing types of moderate density – can make settlements more compact with less conflict with residential preferences. But with few to no housing options of this type, families are left to choose primarily between the least compact-friendly and most compact-friendly housing options, almost always choosing the former – none of the informants shared examples of families who lived in recently developed high-density housing forms. However, some informants expressed a willingness or capability to live in such residences. "If the circumstances had been [different], then we could have been living [in the center] too" (NS2) and "maybe I could live in an apartment, but not having everyone looking in" (NS5). Many of the concerns shared by families about compact or dense housing forms (see Section 6.3) could be addressed or made less problematic in undersupplied housing forms.

But bringing families into more compact-friendly housing is not only a function of the density of housing, but also the location of housing. As described in Kirkwall, other than apartments for the young or the elderly "it's assumed that housing development will be on the outside of town" (SK6). Therefore, in addition to creating moderately dense residences that may better accommodate families, the opportunities for peripheral or sprawling housing development must be restricted, as small, remote settlements have great opportunities to sprawl into their peripheries (see Section 5.5). As a frequent land use and one that is viewed favorably when located on the periphery (see Section 6.2), successful compact development in small, remote settlements requires curbing the ability to develop new housing in the periphery. This varies between settlements due to differences in availability on the periphery (see Section 7.3), but restrictions are necessary where peripheral lands are available.

With development restrictions in undeveloped peripheries, the area of opportunity within proximity of the core for (moderately dense) housing development is limited to the relatively central areas of the settlement or those far away. Since a confined core can only accommodate a limited number of families in low-density housing and is prone to quality of life concerns of families such as privacy and safety (Burton, 2000; Knight, 1996), this must be supported by compromises in the housing supply and in residential preferences to

comprehensively restrict low-density and peripheral housing. Figure 9.3.2, showing land allocations in Kirkwall for future housing, demonstrates how some restrictions insufficiently push housing towards more compact forms. Despite establishing a development boundary, almost all housing allocations are in undeveloped areas along the periphery, just within the boundary. Further, these allocations are planned as low-density housing forms on the periphery that resembles neighboring single-family and semi-detached houses, each with multiple dedicated parking places. Altogether, no shift is likely to occur.

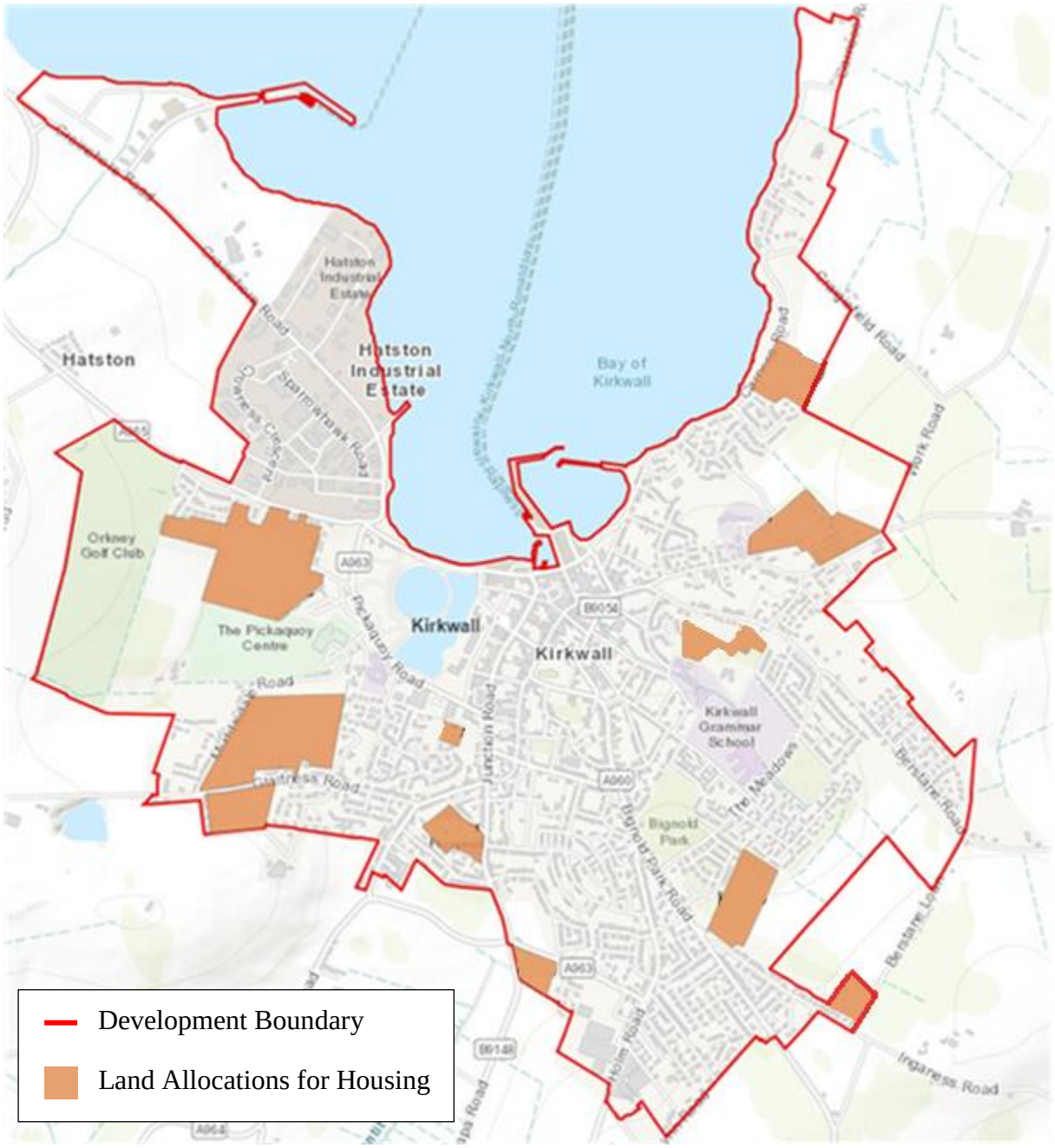

Figure 9.3.2: Kirkwall Housing Land Allocations (Orkney Islands Council, 2017)

Implementing these two elements of pushing families toward more compact-friendly housing will involve extensive challenges. To reach a compromise in which moderately dense housing is provided in moderately central areas, land acquisition, development economics, and housing affordability will be particularly large obstacles. Where moderately central areas are divided into small-size plots found in neighborhoods with single family homes, acquisition of several adjacent plots is needed to create the multiplicity of units and economies of scale required to have a project that is both moderately dense and financially feasible. Further, evident by recently developed housing, alternative housing forms are viewed as more desirable or are more profitable to the developers and actors that influence housing development decisions. If alternative forms of housing can be developed with greater ease and financial reward, the incentive to develop moderately dense housing in moderately central areas will be undermined. Last, housing prices have been positively correlated with density and mixed-use development (Burton, 2000) – this effect may vary in small-scale contexts – so mechanisms to improve housing affordability may be necessary.

9.4 Relate Built Form and Aesthetics Between New and Old

> "It is funny that they were allowed to build the tallest buildings in the front, because all things that are behind become class B" (NS1).

Since the built environment in small, remote settlements often is older and low in density, new developments that are different in character or greater in intensity – compatible or not with compact ideals – are viewed unfavorably. However, described in Section 6.4, these preferences are not necessarily because of an *a priori* distaste for compact urbanism, but often due to the relationship created, or lack thereof, between the new and the old. Therefore, creating mechanisms to limit contrast or establish relationships between new and old development is recommended.

Although many in small, remote settlements fear that compaction will result in poor relationships of built form and aesthetics between the new and the old, but historical inspirations and early praise of compact urban theory claim the opposite result. Compact form has been admired for its commitment to a human-friendly scale and aesthetic beauty, and the historical settlements that have been praised for their compact form were small and remote (Thomas and Cousins, 1996b; Yaranella and Levine, 1992). In other words, while compact urbanism conjures

images of incompatible built environments for small, remote settlements today, historical compact forms have been celebrated for their relationship to their surroundings when in small and remote settings.

Figure 9.4.1: Form, Compact Relationship Strategies

Three ways to create relationships and limit contrast between new and old built form are (1) repeating existing massing, (2) recreating historical massing, or (3) step-up approaches, depicted in Figure 9.4.1. Although less than the other approaches, compaction can still occur using existing massing of individual structures when several structures, each individually the same as older masses, are more tightly arranged. Thereby, density increases, less land is consumed, and opportunity for low-emitting modes of transit improves. For example, two-story row homes could replace two-story detached homes or, as shared by informant NS2, homes could occupy central, vacant lots or oversized yards with similar massing to their neighbors.

Returning to historical massing can (sometimes) create compact developments that maintain a connection to the local history and character. In some small, remote settlements,

where economic depression and demographic decline has occurred (Steinführer et al., 2016; Wirth et al., 2016), the present built form is less intense than prior historical forms. In such cases, recreating historical built form can simultaneously contribute to compaction and relate new development with historical character. For example, the historic Earl's Palace in Kirkwall – the ruins are operated as an attraction – reached four stories and has larger massing than the terraced homes that abut the property.

Last, instead of demonstrating equality to existing or historical built form, a relationship can be demonstrated in which new development is more intense, but still related to old development. This strategy is more contentious to skeptics of compact urbanism, but compromises on the extent of density and intensity increases while still creating a more compact form. A 'step-up' approach, in which new built form allows for a set increase in built height and massing throughout an area, creates possibility for large increases in density and intensity while maintaining a relationship to historic forms by only permitting the predetermined step amount in any single development. A step could be defined in various ways, such as the addition of a floor or a multiplier of neighboring facilities or street widths. Intensification of this type maintains a relationship to the preceding built form, as opposed to resulting in a few, highly intensified focal points that may not have a clear relationship to existing built form. The latter was a frequent objection in Svolvær, such as a 10-story hotel being surrounded by a mix of houses and low-rise buildings that are less than a third of the hotel's height.

Similar strategies can be used to create relationships and limit contrast between new and old aesthetics, shown in Figure 9.4.2. These include (1) incorporating or repeating existing characteristics, (2) recreating or restoring historic architecture, and (3) using green, natural elements. Unlike built form, which directly correlates to the veracity of compact urbanism, aesthetic qualities do not in themselves impact land use consumption or mobility-related emissions. Therefore, while varying aesthetics can be interchanged without effect to the veracity of compact urbanism, they should be given careful consideration for their impact to public opinion and the resulting successes or failures of compaction.

First, by incorporating or repeating the current architectural style found in a given area, the risk of too much contrast is removed by avoiding contrast completely. This requires tailoring aesthetic qualities to the hyper-local environment. As informant SS3 described in Stornoway, architectural styles vary between the center and the periphery and between different points in the middle. Therefore, aesthetic congruence involves considering the immediately adjacent and

surrounding context. Second, recreating historical aesthetics and architecture can increase familiarity with local character and identity. Historical aesthetics can be challenging – informant SS6 described higher costs and poorer building standards of historical housing styles as a reason many decide to construct new homes – but avoids contrast in character. Last, using green, natural, living architectural elements reduces aesthetic contrast and incompatibility. In addition to the desire for a more integrated nature (see Sections 6.1 and 9.1), such elements create aesthetic connectivity between green elements across different developments.

Examples from Svolvær:

1. Similar Aesthetic
   New development on Svolværtorget
2. Historic Preservation
   Redeveloped Anker Brygge
3. Greening & Natural Aesthetics
   Planting on the waterfront promenade

Figure 9.4.2: Aesthetics, Compact Relationship Strategies

Such strategies can ensure that new (compact) developments relate to the preexisting built environment to minimize opposition to compaction. This does not mean that contrast is always problematic, but that contrasting built form and aesthetics can be a hindrance to advancing compact developments in small, remote settlements. As seen in Hammerfest, where recent development has introduced contrasts from older form and aesthetics, some actors like new and contemporary changes; “I think the architecture we have here at the harbor, this [new] promenade, is really nice” (NH1). Others who may be opposed initially may develop positive

subjectivities over time due to their position within cycles of change (see Section 7.2); “I don’t think we understood what was happening until it was finished, but now we are very happy” (NH2). Nevertheless, limiting contrast and inequalities between the new and the old will increase the likelihood of success in compact urban development.

9.5 Diminish Car Use in the Center

> “When I was away at college and university in Inverness, Glasgow, Edinburgh, you were just heavily relying on bus services, you never had to wait that long for a bus. It was actually more of a hassle to drive than it was to bus. But coming back here, transport is very limited without a car” (SS2).

Many influences on mobility behaviors in small, remote settlements have been identified. Collective public transit systems are difficult; without enough scale, transit systems are economically difficult and socially foreign (see Section 5.4). Trips originating or ending outside of the core often lack an alternative to the car, as remote areas and long distances must be traveled to arrive at peripheral locations or other centers (see Section 5.3). The quickest mode is almost always preferred (see Section 5.2), and alternative modes lose out to the car when it is still viable (see Section 6.5). Considered together, the best opportunity to change the mobility paradigm and reduce mobility-related emissions in small, remote settlements is to ensure that trips in the core, where alternatives are feasible, are met through walking and cycling. Implied by informant SS2, the ease of alternatives must surpass the ease of the car. This is most feasible in the center, where distances are short, and alternatives do not require extensive infrastructure.

The first half of this equation is diminishing the ease of the car in central areas where alternative modes can meet mobility needs. In most settlements, the car currently enjoys many rights and privileges that make it considerably easier to use over alternative transit modes. With the car’s few limitations and individualistic nature, many perceive absolute freedom and rights for cars to be used however one wishes. “It’s the independence that people with a car can go when and wherever they want, instead of being dependent on something else” (NH7). Simultaneously, informants confirmed that many trips within the settlement core do not require a car, even if they do utilize it. “I suppose everyone in an urban environment like we have could walk a lot more, you know, saving petrol. I suppose you get used to it. I am as guilty as anybody” (SK2); “I feel guilty when I use the car short distances, but sometimes you need it,

and sometimes you don't need it but still use it" (NS1). Many informants said that they prefer or can walk or bicycle within the core. But in a paradigm of door-to-door parking options and car-dominated roads, even when informants described a normative opinion or objective ability to travel short distances through other means, the car remains the primary mode of transit.

Challenging this paradigm was not a popular opinion, though some desired such a shift. "The independent nature and the right to that freedom that car ownership can ensue … needs a lot of challenging, [and] unless somebody challenges it, we are screwed!" (SS8). The actual means of decreasing the ease of car use in the center can vary, and each case settlement has already taken small steps to do so. In Kirkwall, there is a seasonal park-and-ride system, "so people don't need to take their cars into town, and [it] decongests the town center of cars" (SK1). In Stornoway, two intersecting streets are designated as pedestrian only; one informant proposed that "you should just pedestrianize the whole town [center].… You still have other [car] routes along the back of town" (SS5). In Hammerfest, parking spaces have been taken off the main street and replaced with wider sidewalks. Svolvær introduced parking charges during the summer season in the center. These are only a few of the many ways that the privileges enjoyed by cars can be diminished in the central areas where alternatives are available – the access they have, where they are stored, the speed they travel, and the costs to use them.

Second, the ease of alternatives to car use must be increased to ensure they are a feasible alternative that meet mobility needs where cars are disincentivized. Given the smaller influence of public transit in small-scale settlements (Næss and Jensen, 2004), the most likely alternative modes are walking and cycling. Incentivizing walking and cycling can occur in a multitude of ways. Often, the measures taken to reduce car use simultaneously can achieve this, especially when combined with densification and mixed land use strategies that create shorter distances between potential trip origins and destinations (Hillman, 1996). For instance, all the examples in the case settlements make walking and biking easier by reducing car use. In the cases of pedestrianized streets in Stornoway and wider sidewalks in Hammerfest, new spaces and infrastructure for pedestrians was created too. Other walking and biking infrastructure, such as trails, either on the street grid or along other built or natural spaces, and bicycle lanes and parking facilities, can further increase the ease of these mobility options relative to cars.

In small, remote settlements, potential is high for frequent and short-distance trips within central areas to shift from cars toward walking and cycling – perhaps more so than in larger-scale contexts due to shorter distances. Many informants portrayed the car as

unnecessary to move about within the center, but to get out of the center. Yet informant SK3 stated, “Down where all the shops are it can be really busy, and there is normally a lot of traffic and stuff. And it’s on the outside of town you get your walkers and stuff.” This contradiction implies that behaviors are not a reflection of need. Seen optimistically, this implies that mobility needs are such that behavioral change is an option. Small measures, such as those described here, can shift the relative ease of walking and biking in the center to be greater than the car. Then, perhaps the needs that actors describe will resemble exhibited behavior.

Altogether, this analysis has set forth a new framework for small, remote settlements to improve knowledge and policy efforts regarding compact urbanism. As most knowledge and policy has been built on contexts that are larger and do not resemble small, remote settlements, this analysis of compact urbanism has taken a different path to explore a familiar concept. By beginning the analysis with broad questions about the unique characteristics of small, remote settlements, including perspectives that both directly and indirectly pertain to compact urban theory in Chapters 5 and 6, this thesis has laid a foundation for a small, remote version of compact urbanism. Further, the foundation is supported by an opening for provincialization and customization for local, territorial topographies, strengthened by the variation-finding techniques applied in Chapter 7 to identify pertinent aspects of heterogeneity among different small, remote settlements. This fitted foundation for small, remote settlements then allowed for building up theoretical knowledge building and empirical strategic policy actions in Chapters 8 and 9. Together, these set a solid structure atop the foundation that can combat the risks of failure for compact urban transformations in small, remote settlements. The structure addresses the three key characteristics of compact urbanism (density, mixed land use, and non-car dependence), the physical-material scalar and socio-cultural functional dimensions of the urban, environmental justifications and quality of life debates in compact urban theory, the territorial and the relational, as well as both risks of misunderstanding and overlooking the small in scale.

10 Conclusions

Let's go back to that deserted island from the introduction – 2,000 people suddenly inhabiting an island in the middle of the ocean who must decide how to structure themselves and their new settlement(s). Should compact urban theory be of interest to this island society? The answer is yes. There is nothing inherent about compact urban theory or small, remote settlements – such as this island – that necessitates that they are mutually exclusive. Any implied exclusivity using the words 'urban' or 'city' – as in the compact city – is unjustified. At its core, compact urbanism regards ways of structuring societies by means of proximity to improve quality of life, both for humans physically and socially, as well as for the natural environment. These concerns sound critical to the concerns that this island society faces. Neither its small size nor remote location implies that these concerns are absent from the society.

But beyond acknowledging the relevance of compact urban theory in this small, remote settlement, a second issue remains. What knowledge is available on compact urbanism in contexts like this island society? While much can be learned from examples of compact urbanism in cities like London, New York, and Shanghai, which are often associated with compact urbanism, the differences between these settlements and the island community are so great that the lessons learned from these cities are not likely to transfer well to the island. Instead of unidirectional transfers from elsewhere to the local, bidirectional and adaptive mobility is needed. Achieving such mobility successes requires bolstering understanding from the underrepresented and less-understood territories and contexts. In the case of compact urbanism, and all urban theory, historical conceptualizations and continuing application of the idea of scale have resulted in small-scale contexts being underappreciated.

Therefore, two steps are needed. First, a compact urban theory that is specifically adapted to small-scale contexts must be formed. Second, the wider field of urban theory must be rid of its large-scale assumptions. The ways in which this thesis rises to these two objectives are discussed below before concluding with recommendations on how to continue the process of addressing these needs.

10.1 Compact Urbanism in Small, Remote Settlements

Initial conceptions of the urban and compact may not conjure images of small, remote settlements. Nevertheless, the environmental goals and normative arguments for compact urban

theory are universally applicable to all settlements: reduce land consumption and mobility-related greenhouse gas emissions (Breheny, 1992a). Therefore, this thesis has begun the process of assembling an alternate version of compact urbanism that fits the context of small, remote settlements – as opposed to a version informed solely by larger-scale contexts – by considering the unique set of fixed and territorial qualities of spaces and scales that are small and remote. Particular attention has been given to desirability, as it is social behaviors, norms, systems, and dimensions that are increasingly seen as the barriers to any form of sustainable transformation (Antonio and Clark, 2015; Lövbrand et al., 2015; Pelling et al., 2011), such as compact transformations, as well as the limits to compact urban theory due to skepticism about the relationship between compact and quality of life (see Section 2.2). Though some overlap exists – to varying degrees or strategies – such as the desirability of a mixed-use center with a social, vibrant environment of cafes and public spaces or regard for green space integration, there are major divergences and issues with prevailing compact city ideals in small, remote settlements.

First, a theory of compact urbanism at this scale must be equally concerned with the periphery as the core, nature as the built environment, and absence of development as development. Mobility options – cars and roads – mean that the peripheral development is an alternative at small scales, where the travel time to an available plot of land is very low, unlike in large-scale metropolitan areas. Further, many often choose to reside in small-scale contexts due to the greater connectivity with nature found at this scale, so preferences are to be even closer to nature and to integrate nature further into built environments. Providing a network of green connectivity to as many as possible in the core is key to achieving small-scale preferences and countering the assumption that green is only found outside the core. Therefore, compact urbanism cannot be achieved solely through positive means of promoting density, mixed land use, and low-emitting means of mobility. Instead, strategies to maintain a near and undeveloped periphery must simultaneously take place so that the periphery remains near and undeveloped. Settlements without a nearby, undeveloped periphery cannot be considered compact. The advantages of compact urbanism are not achieved solely through developing the core to adhere to compact ideals, but also through preserving the periphery.

Second, since the effectiveness of compact urbanism corresponds to the proportion of the population that resides and participates in the compact environment as opposed to the periphery, compact urbanism in small, remote settlements must take steps to include the subgroup of the population that continues to exclude themselves from compact areas: families.

Key to creating successful and inclusive compact environments is arriving at compromises and limiting contrast instead of pushing for the most drastic compact transformations. Some of the most important compromises will involve residential standards, such as providing moderately central and moderately dense units, such as rowhouses, that neighbor the central core to create more compact yet feasible options for families. Further compromises around mobility must be reached as well, such as limiting the ease of access given to cars in the core where walking and bicycling are feasible alternatives, while continuing to utilize cars for outward, long-distance trips. In implementing such changes, contrasts between the new and the old must be managed so the differences are not so strong that it reduces participation, especially for projects that intensify the core as a means of compaction. Instead of focusing intensification into few areas that create stark differences between neighboring areas while also satiating the (small-scale) market, intensification should be spread out over a multiplicity of smaller steps that do not result in undesirable contrasts. Altogether, a small-scale compact urban theory should not automatically assume that the most intensified settlement, quantitatively, is best, but instead intensify with middle-ground aspirations in mind that achieve the goals of compact urbanism with greater qualitative consideration and higher participation.

Despite the current topological mismatch between compact urbanism and small, remote settlements, this thesis reveals several ways in which compact urbanism better aligns with small-scale contexts than larger ones. Compact urbanism often increases the vertical dimensions of a settlement, representing a push towards large scale, but it also decreases the horizontal dimensions of a settlement, representing a push towards small scale. But more so, the decrease in the horizontal dimension usually is far greater than the increase in verticality, especially when considering the value placed on travel times and connectivity to green areas, which are primarily influenced by horizontal distances. Also, compact development today may be biased towards large-scale contexts, but this has not always been the case historically. It is tempting to claim that compact is only for large-scale contexts, but compact urbanism is inspired by historical development patterns of small, remote settlements such as walled medieval settlements (Christaller, 1966 [1933]; Thomas and Cousins, 1996b) and Mediterranean hill towns (Yaranella and Levine, 1992). Now that the sprawling development and mobility patterns that arose in the 20th century have existed for a few generations, it is even more tempting to claim that tradition proves that compact and small scale are incompatible – informants frequently made this claim (see Section 6.3). However, there are many historical examples of urbanism, whether explicitly compact or not, that demonstrate that compact and

small scale should not be assumed as conflicting. Of course, historical models are not the ones worth consideration, but a small-scale and compact settlement is far from disqualified on the grounds of tradition. However, what is evident is that a version of compact urbanism can exist that relates to small, remote settlements. The findings presented here are evidence of that. This is proven if actors in small, remote settlements read this and conclude themselves that such a version of compact urbanism works better in their scalar context then the understanding they had before of compact urbanism, which was based on larger-scale contexts.

10.2 Decoupling Urban Theory from Scale

Just as we cannot concede small, remote settlements as spaces of irrelevance that are not worthy of compact urban thinking and expertise, we cannot concede any scalar context as entirely non-urban. After all, if small, remote settlements can be urban spaces that benefit from compact urbanism, then any urban theory could be applicable – if appropriately modified between different contexts – to any settlement on the planet. It is unacceptable that the extent of the urban not only excludes these spaces, but is arguably narrowing around the few (Robinson, 2002) largest cities in the world in the face of increasingly growing and heterogeneous settlement patterns (Brenner, 2009). The extent of the urban cannot be limited to contexts over a certain scalar minimum and exclude the rest solely because of their scale. The urban and (large or high) scale must be decoupled.

This thesis presents three lessons that, beyond their application to compact urbanism in small, remote settlements, justify the need for urban theory across all scales. First, it is not enough to simply repeat what worked before in other contexts. Successful knowledge and policy mobility require adaptation and adjustment to context (Amin et al., 2003; Baker and Temenos, 2015; Cochrane and Ward, 2012; McCann, 2011). Second, the new spaces of exploration must not be reduced to a single, ideal type, but must be evaluated for their inherent heterogeneity as well. Therefore, comparative analysis and provincialization of theory are useful methods for examining the dynamics of variation and generalization both across and within scales and contexts (Robinson, 2016; Leitner and Sheppard, 2016). Third, topology changes across space and time as phenomena are independent of their lived space (Secor, 2003). Today more than ever, with increasing knowledge and policy mobility flows, the spaces that are inhabited and associated with a given (urban) phenomenon are rarely locked in place. Knowledge and policy mobilities inherently imply that ideas and policies inhabit new spaces

and topologies change. Therefore, urban phenomena – regardless of individual definitions of the urban – cannot be assumed to occupy the same spaces indefinitely.

As clarified by Manuel Castells (1977), the urban consists of two dimensions: the scalar and the functional. And as debated since, these two dimensions do not always occupy the same spaces. Therefore, a better way to signify these two aspects of the urban is through a topological lens: the scalar as lived space and the functional as subject or phenomenon. When it comes to the urban, the associated scales may be the city or metropolitan area that is occupied by millions of residents, but the urban functions taking place within them – built form, land use, mobility – are functions that are also found elsewhere. The same dynamic has been expressed many times as a question of the city, representing scale and lived space, or urbanization, representing function and phenomena (Angelo and Wachsmuth, 2014). Those interested in urbanity must be prepared to respond to the question about which of these two urban dimensions is of interest.

Settlement Class		By Class		Aggregate	
		Population (thousands)	Percentage	Population (thousands)	Percentage
Urban	10 million or more	462 785	6.3%	462 785	6.3%
	5 to 10 million	310 165	4.2%	772 950	10.5%
	1 to 5 million	865 037	11.7%	1 637 987	22.2%
	500 000 to 1 million	382 400	5.2%	2 020 387	27.4%
	300 000 to 500 000	269 751	3.7%	2 290 138	31.0%
	Fewer than 300 000	1 691 360	22.9%	3 981 498	53.9%
Rural		3 401 511	46.1%	7 383 009	100.0%

Table 10.2.1: Global Population by Settlement Class, 2015 (United Nations, 2018)

In defense of those who are primarily concerned with scale and the city as the basis of urbanity, perhaps large size is a good justification for attention, as the spatial unit that is largest could be justified as the space of greatest magnitude or significance. However, even if an individual case may be argued as the greatest in magnitude or significance, the collective basket of cases of any spatial unit, size, or scale will depict a different story. Although these statistics should be viewed with a skeptical eye (see Section 2.1), the UN *World Urbanization Prospects* show that there are more people living in settlements with a population in the thousands than the millions, and that more people live in urban settlements fewer than 300,000 inhabitants than those with over 1 million (see Table 10.2.1). Even if urbanization continues to drive people

further up this hierarchy, is it expected that the lower levels will become so small that they are insignificant? Either way, what is it that makes being of the largest size and scale – individually or collectively – normatively superior? Even if individual scales may be relatively more or less in magnitude, those that are lesser in magnitude are still urban nonetheless.

Despite associations of such characteristics with large cities, informant SK6 used "cosmopolitan" to describe changes in Kirkwall, and informant SS5 discussed how some of the villages outside of Stornoway are denser than others. Even if cosmopolitanism or density are found in large-scale urban spaces, they can still be relatively present in urban spaces at other scales. Mistaking scale for topology or normative superiority is a dangerous path that urban theory has arguably fallen into for many actors. Instead of focusing on quantity (scale), urban goals should be assigned by achieving ideal urban qualities – addressing problems and needs of urban phenomena and functions. One of the worst effects of this discombobulation is the devaluing of the other scales, not only by external actors, but by those actors internal to these other contexts as seen throughout the analysis. Their collective magnitude is removed completely, as their individual settlements are viewed solely as small in magnitude. This is not only a mischaracterization that urban theory needs to correct – as well as many other fields that resort to hegemonic dualisms or categorizations for otherwise spectral phenomena – but also critical to addressing the underlying problems and goals of urban theories, such as compact urbanism.

Even if the 22.2% of global settlements over 1 million people are perfectly compact, it is dangerous to assume that this will sufficiently address global issues of land use and mobility that underlie global environmental problems and compact urban solutions if the remaining 77.8% of global settlements continue a path of business as usual. A comprehensive urban knowledge and a comprehensive urban policy is not limited to any particular scale but includes every scale; independent of individual magnitude, no context is irrelevant or insignificant. Urban theory must be decoupled from scale.

10.3 Recommendations for Further Research

The aim of this thesis was to establish a theory of compact urbanism for small, remote settlements, and through the process argue for the decoupling of urban theory and exclusively larger-scale contexts, so that attempts at compact transformations do not fail due to either

misunderstanding of smaller-scale contexts or excluding smaller-scale contexts altogether. While such a theory has begun to take shape and this decoupling process has been further supported, achieving these aims does not end here. Further research can contribute to achieving these aims.

On the development of compact urban theory for small, remote settlements, further research could supplement the findings of this thesis in many ways. Whereas this thesis focuses on laypeople and perceptions of desirability, supplementary research is particularly needed regarding feasibility – one of the other three tests (Breheny, 1997) that is heavily influenced by the experts, professionals, and stakeholders that fall outside of lay circles. Building on top of desirability perspectives found in this thesis and the veracity already known about the goals of compact urbanism, an exploration of the specialized and privileged actors behind compact urban knowledge and policy will create greater understanding of the ways in which they may influence the feasibility of desired and veritable compact urbanism in small, remote settlements. Further, whereas this thesis examines several settlements of a similar scalar context, cross-scalar analysis that directly study compact urbanism across different scales would add great value to developing knowledge and policy tools that accurately account for both local specificity and global interconnectedness (McCann, 2011; Peck and Tickell, 2002).

Just as compact urbanism is a single theory within the wider theoretical landscape of urban theory, and small, remote settlements represent only one type of small-scale context in a heterogenous global settlement pattern, further research should continue to examine knowledge and policy mobilities of other urban theories in other scalar contexts that result in a similar topological mismatch found with compact urbanism in small, remote settlements. Similar recommendations have been reached by Jennifer Robinson (2011) on the comparative gesture and decolonizing urban theory, Neil Brenner and Christian Schmid (2014) on "boundary-exploding methodological strategies" (p. 163), David Bell and Mark Jayne's (2009) call for a small city research agenda, and Colin McFarlane (2016) on topological thinking and intensive heterogeneities, among others. Consistent across these recommendations is stress that research is failing to keep up with the variations left behind by urbanization. The urban is everchanging. When the island settlement morphs into a network of unequal parts, knowledge and policy must evolve as well. Research must keep up with and, preferably, stay ahead of this process.

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Appendix A: Documents Collected and Reviewed Prior to Fieldwork

Scotland		
The Scottish Government	2010	Designing Streets
The Scottish Government	2011	Land Use Strategy
The Scottish Government	2013	Creating Places
The Scottish Government	2014	Planning Policy
The Scottish Government	2014	Third Natonal Planning Framework
Kirkwall and Orkney Islands		
North Link Ferries	2018	The Orkney Islander: Magazine for visitors to Orkney
Orkney Islands Council	2009	Kirkwall Urban Design Framework
Orkney Islands Council	2010	Development Brief: Corse West, Kirkwall
Orkney Islands Council	2011	Development Brief: Central West, Kirkwall
Orkney Islands Council	2011	Development Brief: Grainbank, Kirkwall
Orkney Islands Council	2011	Development Brief: Watersfield, Kirkwall
Orkney Islands Council	2012	Development Brief: Crowness Business Park
Orkney Islands Council	2013	Urban Conservation Areas Management Plan
Orkney Islands Council	2013	Development Brief: Papdale, Kirkwall
Orkney Islands Council	2014	Kirkwall Townscape Heritage Initiative
Orkney Islands Council	2014	Kirkwall Placemaking Proposals
Orkney Islands Council	2014	Development Brief: Weyland, Kirkwall
Orkney Islands Council	2016	Development Brief: Kirkwall South, Kirkwall
Orkney Islands Council	2017	Orkney Local Development Plan
Orkney Islands Council	2018	Your Kirkwall Urban Design Framework: A Place Plan for Kirkwall
The Orcadian	2017	Article: How would you improve Kirkwall's places and spaces?
The Orcadian	2017	Article: What do you want Kirkwall to be like in 20 years?
The Orcadian	2018	Article: Kirkwall BID arrangements renewed
The Orcadian	2018	Article: Contract awarded for Orkney research and innovation campus
The Orcadian	2018	Article: Orkeny named best rural place to live for second year running
The Orcadian	2018	Article: Your Kirkwall - OIC asking for your views
Stornoway and the Western Isles		
Cohairle nan Eilean Siar	2010	Outer Hebrides Design Guide: Planning and designing your house
Cohairle nan Eilean Siar	2012	Outer Hebrides Local Development Plan
Cohairle nan Eilean Siar	2017	Outer Hebrides Local Development Plan
Cohairle nan Eilean Siar	2017	Outer Hebrides Local Housing Strategy
Cohairle nan Eilean Siar	2017	Planning Performance Framework
Outer Hebrides Community Planning Partnership	2017	How Good is Out Place? Results from the Place Standard Survey for The Outer Hebrides
Outer Hebrides Community Planning Partnership	2017	Outer Hebrides Local Outcome Improvement Plan
Stornoway Port Authority	2017	Stornoway Port Master Plan
Norway		
Ministry of Local Government & Modernisation	2008	Planning and Building Act
Ministry of Local Government & Modernisation	2015	National Expectations Regarding Regional and Municipal Planning
Ministry of Local Government & Modernisation	2017	Urban sustainability and rural strength - in brief
Ministry of Local Government & Modernisation	2017	Plan for localization of government workplaces

Hammerfest and Finnmark

Arkhaus	2016	Hammerfest Sentrum Vision
Den store norsk leksikon	2018	Hammerfest
Hammerfest Historielag	2018	A History of Hammerfest
Hammerfest Municipality	2002	Project Plan: Nedre Molla
Hammerfest Municipality	2003	Project Plan: Salsiden
Hammerfest Municipality	2003	Project Plan: Sentrum
Hammerfest Municipality	2004	Project Plan: Salsiden
Hammerfest Municipality	2005	Project Plan: Strandgata
Hammerfest Municipality	2007	Project Plan: Parkeringsareal Batteriet
Hammerfest Municipality	2007	History of the Hammerfest Coat of Arms
Hammerfest Municipality	2008	Hammerfest Sentrum Lighting Plan
Hammerfest Municipality	2009	Development Guidelines
Hammerfest Municipality	2009	Project Plan: Strandparken
Hammerfest Municipality	2009	Hammerfest Sentrum Promenade Street Plan
Hammerfest Municipality	2010	Municipal Area Plan for Hammerfest 2010-2022
Hammerfest Municipality	2011	Hammerfest Sentrum Bike Path Plan
Hammerfest Municipality	2012	Hammerfest Sentrum Parking Strategy
Hammerfest Municipality	2013	Project Plan: Kirkeparken
Hammerfest Municipality	2014	Culture Plan 2014-2019
Hammerfest Municipality	2014	Municipal Plan for Hammerfest and Rypefjord 2014-2025
Hammerfest Municipality	2015	Municipal Social Plan 2015-2027
Hammerfest Municipality	2016	Municipal Plan Strategy 2016-2019
Hammerfest Municipality	2016	Project Plan: Rådusplassen
Hammerfest Municipality	2018	Hammerfest City Center Plan (DRAFT)
Northern Research Institute	2014	Population Projections in Hammerfest and Neighboring Municipalities

Svolvær and Nordland

Dagbladet	2018	Article: Ringnes Has Big Hotel Plans in Svolvær
Den store norsk leksikon	2018	Svolvær
Lofotposten	2009	Article: New Vågan Plans
Lofotposten	2009	Article: Continuing with Hotels
Lofotposten	2010	Article: Developing Lofoten Harbor
Lofotposten	2013	Article: New, Big Development in Svolvær
Lofotposten	2013	Article: Tall Housing in the Harbor
Lofotposten	2014	Article: 20 Apartments on the Plaza
Lofotposten	2014	Article: The Apartment Quarter
Lofotposten	2014	Article: Svolvær's City Plan is Being Reconsidered
Lofotposten	2014	Article: Constructing a New District as a Green Oasis it Southern Svolvær
Lofotposten	2015	Article: We are Far From Excited
Lofotposten	2015	Article: This Might Become the New Pearl in Svolvær Harbor
Lofotposten	2016	Article: Project Leader Employed to Take On Parking in Sentrum
Lofotposten	2017	Article: New Hotel Building Planned in Bekkholmen
Lofotposten	2017	Article: Is it Time for a City Architect?
Lofotposten	2018	Article: How Many Signature Buildings Does One City Need?
Lofotposten	2018	Article: This City in Lofoten is Competing to Become Norway's Most Attractive
Lofotposten	2018	Article: City Plan for Svolvær, Input and Applications
Svolvær Historielag	2008	A History of Svolvær
Vågan Municipality	1993	Municipal Area Plan for Svolvær Sentrum
Vågan Municipality	2012	City Plan for Svolvær 2012-2030
Vågan Municipality	2017	Plan Strategy for Vågan
Vågan Municipality	2018	Open Meeting Invitation: Where will people live?

Appendix B: Walking Interview Guide

Personal History

- What is your personal history with (*INSERT SETTLEMENT NAME HERE*)?
- Why do you live/work/etc. in (*INSERT SETTLEMENT NAME HERE*)?
- What do you like about (*INSERT SETTLEMENT NAME HERE*)? Dislike?
- Describe a typical day. Where do you go, what do you do, and how do you get around?

Settlement Description

- How would you describe (*INSERT SETTLEMENT NAME HERE*)?
- How would you describe it socially or culturally?
- How would you describe it physically?

Settlement Categorization

- What is (*INSERT SETTLEMENT NAME HERE*) on a scale of urban to rural? Why?
- Is (*INSERT SETTLEMENT NAME HERE*) a city, a town, a village or something else?
- Is (*INSERT SETTLEMENT NAME HERE*) a peripheral settlement? Why and how so?

Density

- What does a dense settlement mean to you?
- Is (*INSERT SETTLEMENT NAME HERE*) dense?
- Why is (*INSERT SETTLEMENT NAME HERE*) not more or less dense?
- Should (*INSERT SETTLEMENT NAME HERE*) be more or less dense? Why or why not?

Mixed-Use

- What does a mixed-use settlement mean to you?
- Is (*INSERT SETTLEMENT NAME HERE*) mixed use?
- Why is (*INSERT SETTLEMENT NAME HERE*) not more or less mixed-use?
- Should (*INSERT SETTLEMENT NAME HERE*) be more or less mixed-use?

Car Dependent

- What does a car dependent settlement mean to you?
- Is (*INSERT SETTLEMENT NAME HERE*) car dependent?
- Why is (*INSERT SETTLEMENT NAME HERE*) not more or less car dependent?
- Should (*INSERT SETTLEMENT NAME HERE*) be more or less car dependent? Why or why not?

Compact Description

- What does compact mean to you?
- Is (*INSERT SETTLEMENT NAME HERE*) compact? Why or why not?
- Why is (*INSERT SETTLEMENT NAME HERE*) not more or less compact?
- Should (*INSERT SETTLEMENT NAME HERE*) be more or less compact? Why or why not?

Compact Familiarity

- Have you heard the term 'compact' used in (*INSERT SETTLEMENT NAME HERE*)?
- In what contexts did you hear it? Where? When? Who? How? Why?
- What are your reactions to the use of this term locally?

Compact Preferences and Ideals

- Do you personally prefer compact settlements or not? Why or why not?
- What do you like about compact settlements? What do you dislike about them?
- Should settlements strive to be compact? Why or why not?
- What types of settlements should strive to be compact? Why or why not?

Smallness and Compact

- How does the size, scale, or population of (*INSERT SETTLEMNET NAME HERE*) change the opportunities for compact urbanism?
- Does the relevance of compact urbanism change in differently sized, scaled, or populated settlements? If so, how?
- Should compact urbanism be treated differently in smaller sized, scaled, or populated settlements? If so, how?

Historicalness and Compact

- How does the age and history of (*INSERT SETTLEMNET NAME HERE*) change the opportunities for compact urbanism?
- Does the relevance of compact urbanism change in older settlements? If so, how?
- Should compact urbanism be treated differently in older settlements? If so, how?

Isolation and Compact

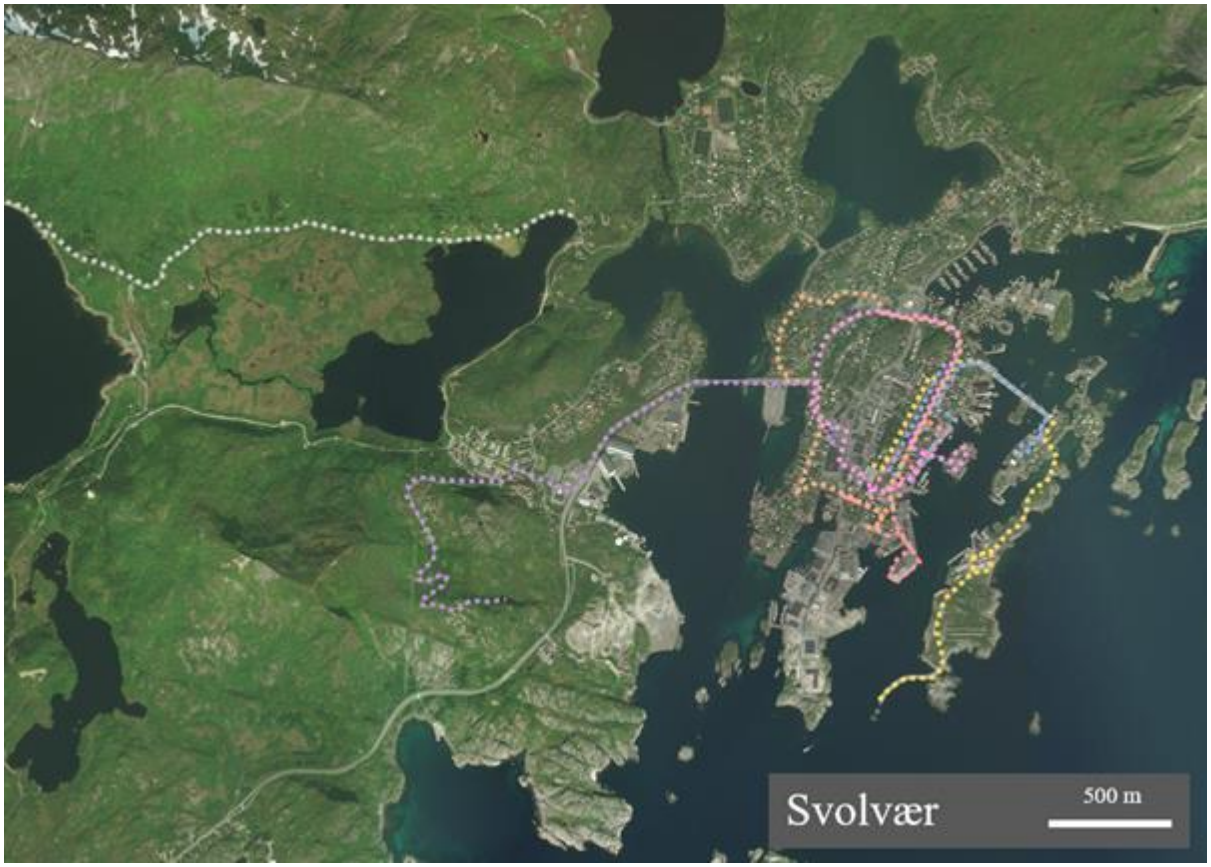
- How does the degree of isolation or distance from other settlements of (*INSERT SETTLEMNET NAME HERE*) change the opportunities for compact urbanism?
- Does the relevance of compact urbanism change in isolated settlements? If so, how?
- Should compact urbanism be treated differently in isolated settlements? If so, how?

Questions or Other Feedback

- Do you have anything else you want to add?
- Do you have any questions about this thesis or for me (the researcher)?

Appendix C: Walking Interview Route Maps


Hammerfest
500 m


Svolvær
500 m

Appendix D: Walking Interview Participant Demographics

	Case Settlement(s)	Kirkwall	Stornoway	Hammerfest	Svolvær	Total	Scotland	Norway
	(# of informants)	(8)	(8)	(8)	(8)	(32)	(16)	(16)
Gender	Male	3	5	4	5	17	8	9
	Female	5	3	4	3	15	8	7
	Other	0	0	0	0	0	0	0
Age Group	20-29	1	0	0	2	3	1	2
	30-39	1	2	3	0	6	3	3
	40-49	1	0	3	3	7	1	6
	50-59	3	3	2	3	11	6	5
	60-69	2	3	0	0	5	5	0
Profession/Education	Arts/Creative Industry	0	3	1	0	4	3	1
	Construction/Trades	1	0	0	1	2	1	1
	Education	1	0	0	1	2	1	1
	Fossil Fuels/Energy	0	0	2	0	2	0	2
	Health and Wellness	1	0	0	1	2	1	1
	Maritime/Fishing	1	0	0	0	1	1	0
	Marketing/Graphic Design	0	0	2	2	4	0	4
	Media/Journalism	1	1	0	0	2	2	0
	Natural & Cultural Heritage	1	2	0	0	3	3	0
	Other	1	0	0	2	3	1	2
	Retail/Food & Beverage	0	2	1	0	3	2	1
	Tourism/Hospitality	1	0	1	1	3	1	2
	Transport/Logistics	0	0	1	0	1	0	1
Residential Location	Center	1	0	2	1	4	1	3
	Immediate Proximity	7	2	5	3	17	9	8
	Near Settlements	0	2	1	2	5	2	3
	Outlying Settlements	0	4	0	2	6	4	2
Housing Type	Single-family	4	5	5	7	21	9	12
	Semi-detached	3	1	1	1	6	4	2
	Rowhome/terraced	1	2	0	0	3	3	0
	Apartment/Multi-family	0	0	2	0	2	0	2
Birthplace (relative to settlement)	Local	2	4	4	0	10	6	4
	Regional	2	1	0	3	6	3	3
	National	3	0	1	4	8	3	5
	International	1	3	3	1	8	4	4

Appendix E: Data Codes and Categories

Assumptions
Car ownership
Center is not for living
Change requires gowth
Compact is for the single and elderly
Decision making is made far from here
Family and child-raising needs
Just develop outward
Land availability limited (inner)
Land availability not limited (outer)
Matter of policy and higher intervention
Mix land use by bringing center uses to outer areas
Others are responsible, not me
Periphery close to the center regardless
Physiotechnical not sociocultural change
Process is inevitable
Settlement classifications by function
Settlement classifications by scale
Small and rural is bleak
Small can't be urban
Small requires cars
Sprawl is better than abandonment
Status symbol of the car and home
Streets will always be congested by cars
Too small for collective transportation
Too small to matter
Traditions and repeating prior generation
Transport before shorter distances
Urban investment results in rural harm

Behaviors
Alternative settlement classifications
Compact discourses
Global connections and connectivity
Mobility decisions (inner areas/trips)
Mobility decisions (outer areas/trips)
NIMBYism
Parking
Political participation
Recreation
Regional migration
Residential preference
Retail, food, and cultural amenities
Scale of community and identity
Slow speed of change
Social gathering
Wealth accumulation

Conceptual Blurring and Overlap
Archiecture/aethetics & form/function/use
City & urban
Compaction & centralization
Density & crowding
Horizontal extension & vertical intensification

Compact Urbanism Benefits
Access and proximity
Attractive built environments
Car-free areas
Economic and financial
Environment and sustainability
Equity
Health (physical and mental)
Near to nature and preserving nature
Self-containment (everything in one place)
Social vibrancy
Time
Transit alternatives and lower car reliance

Compact Urbanism Concerns
Built height and intensity
Congestion of vehicles
Distance to nature
Economics and financial
Independence from car-ownership forfeited
Lack of nature
Lack of space
Noise
Privacy
Residential preferences incompatible
Safety

Compact-Sprawling Descriptions
As concrete
As theoretical construct
As process
As static typology
As co-existing
As mutually exclusive

Urban-Rural Descriptions
As concrete
As theoretical construct
As process
As static typology
As co-existing
As mutually exclusive

Appendix F: Request for Participation and Consent Agreement

Background and Purpose
The compact city has been a commonly cited form of urbanism in recent years. However, it is primarily discussed in the context of large cities and metropolitan areas. The purpose of this project is to explored understanding, meaning, and implications of compact urbanism in peripheral settlements that are less frequently studied in urban research.

The project is a master's thesis at the Department of Sociology and Human Geography in the Faculty of Social Sciences at the University of Oslo in Oslo, Norway.

Data will be collected from four settlements across Norway and Scotland. Research subjects have been identified based on prior residence and/or employment in one of the settlements.

What does participation in the project imply?
Participation in the project implies participation in a loosely structured, walking interview. The data collected will be spoken/oral data that will be recorded (audio only).

What will happen to the information about you?
All personal data will be treated confidentially. The only individuals that will have access to the data is the researcher and research supervisor. The data will be stored privately.

Data collected will only be indirect and include information voluntarily provided by the participant. Such indirect information such as place of residence, workplace, and other demographic characteristics will only be referenced with consent of the participant and through categorical and generalizable terms, instead of specifically identifiable information.

The project is scheduled for completion by June 2019. Data and recordings will be made anonymous upon completion of the project.

Voluntary participation
It is voluntary to participate in the project, and you can at any time choose to withdraw your consent without reason. If you withdraw, your personal data will be destroyed.

If you have any questions concerning the project, please contact the researcher, Ryan Gever, via email at ryange@student.sv.uio.no or via phone at +47 401 44 121. The research supervisor, Dr. Michael Gentile, can be reached via email at michael.gentile@sosgeo.uio.no or via phone at +47 228 55 150.

The study has been approved by the Data Protection Official for Research, NSD - Norwegian Centre for Research Data (project #60723).

Consent for participation in the study
I have received information about the project and am willing to participate:

(Signed by participant, date)

Appendix G: Settlement Pictures from Fieldwork

Kirkwall

(Arrows pointing in the direction that the picture was taken.)

1. Kirkwall Harbor
2. St. Magnus Cathedral
3. Albert Street
4. Victoria Street
5. Kings Street
6. Quoybanks Crescent
7. East Road
8. Bignold Park Road
9. Kirkwall from Scapa Flow
10. Scapa Flow
11. Peedie Sea
12. Kirkwall Bay, Kirkwall, and Scapa Flow from Wideford Hill


1


2


Gifts
Little Island
Gifts
Sinclair's
ICE CREAM
3


SJ53 UKU
4


5


6


7


8


9


10


11


12

Stornoway

(Arrows pointing in the direction that the picture was taken.)

1. Stornoway Harbor from Lews Castle
2. Stornoway South Beach
3. Cromwell Street
4. Point Street
5. Keith Street
6. Lews Castle
7. Stornoway Harbor from Bayhead Bridge
8. Newton Street
9. Goathill Road
10. Perceval Road
11. Stornoway and Laxdale from Isle of Lewis 1st World War Memorial
12. Stornoway from Lews Castle Grounds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Hammerfest

(Arrows pointing in the direction that the picture was taken.)

1. Salen Viewpoint (Sentrum, Fuglenes, and Melkøya from nearest to farthest)
2. Salen Viewpoint (Sentrum and Molla from left to right)
3. Promenade
4. Plaza from Kirkegata
5. Strandgata
6. Molla
7. Fuglenes
8. Fuglenes School
9. Forsølveien
10. Gávpotjávri
11. Baksalen
12. Hammerfest from Gammelveien


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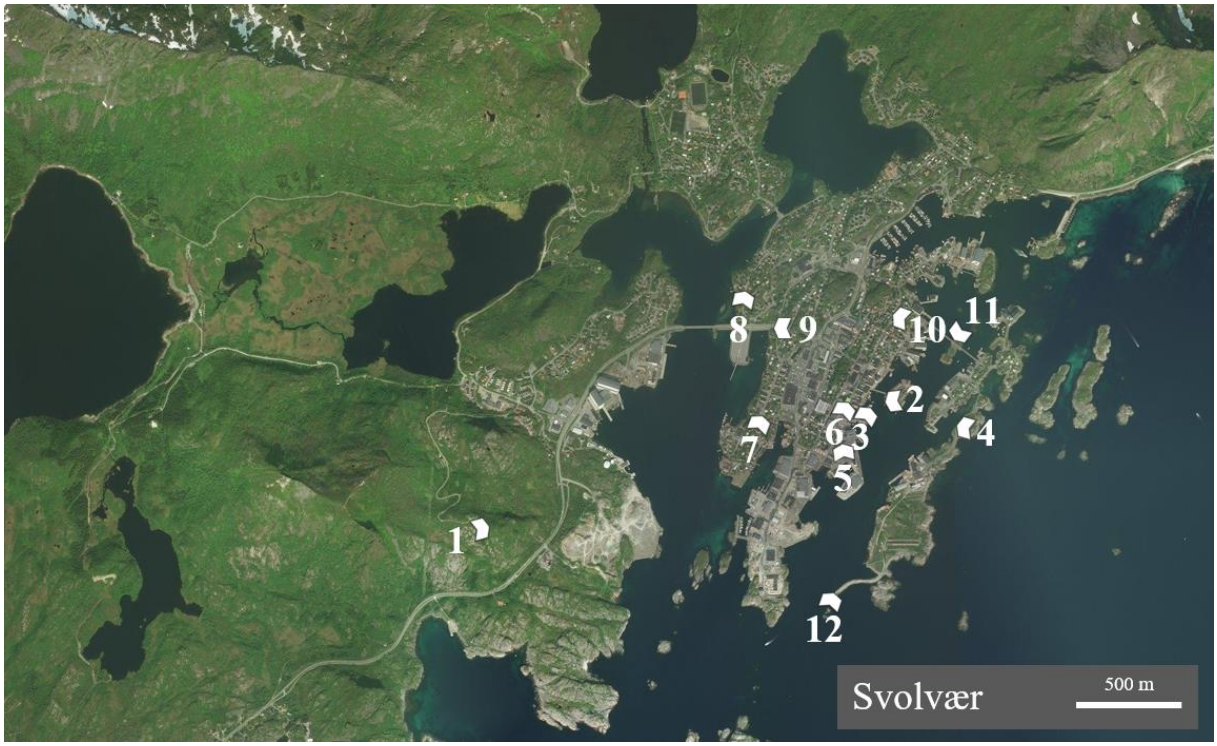
Svolvær



(Arrows pointing in the direction that the picture was taken.)

1. Svolvær from the trail to Tjeldbergtind
2. Svolvær Waterfront
3. Svolvær Harbor
4. Svolvær from Kjeøya
5. Fiskergata
6. Vestfjordgata
7. Storøya
8. Solheimveien
9. E10 from Svolvær towards Osan and Kabelvåg
10. Austnesfjordgata
11. Bukkedauen
12. Svolvær from Fiskerkona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