THE IMPACT OF GROWTH ON URBAN FORM IN THE OSLO REGION

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This thesis investigates what the implications of growth are on the urban form in the Greater Oslo Region. It shows that significant strides are in the making to ensure a denser, public transit oriented development that preserves natural assets and facilitates for more town development at designated transportation nodes in the region. However, at this time execution does not follow intention. The Regional Plan remains a strategy not a legislative document, the investment into the public transit is not yet aligned with the new Plan and too much rule remains in the hands of the municipalities to foresee the successful implementation of a denser more efficient and sustainable urban form in the region around Norway’s capitol. For example, the region continues to see mostly single family home developments, new shopping centers, and an inadequate alternative transportation development — despite the level of awareness amongst most that change is necessary to become a more sustainable region.

Further, this thesis investigates the Fornebu development project as a high-profile project within the Greater Oslo Region, asking whether its development model is a good model for the region to develop by. The answer is complex with cons and pros, but in general this thesis argues that Fornebu does not live up to the role of being a pilot project for the region. Even at its proposed new form Fornebu is not ambitious enough in its sustainability, social, and urban form to be a viable pilot.
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INTRODUCTION

As more and more people in Norway are living and working in cities, the conversation about what makes a good living environment has become a significant topic in public debates. Pressure from population growth is imposing a more dense development in Norway, especially in the region around its capitol, Oslo. Oslo is currently growing faster than any other city in Europe. The Region’s municipalities are under pressures to develop sustainable strategies in response to this growth.

As such, established ideas of urban form in the Region are being challenged, and though most agree on the new strategies in principles, many are skeptical to what it means in reality. Public entities, companies and private residents agree that there is a need to build more dense, especially around public transportation nodes in the Oslo Region. The majority understand that not everyone can live in a single family house and that apartments structures are necessary. Most people agree that to protect the green and natural spaces compromises must be made. They agree that the city and other meeting points works best when they are vibrant, lively and have commercial services, and understand that that requires a critical mass of people (and built mass) to be sustainable. And, most agree that non-car transportation must be prioritized.

However, when these strategies are translated into plans for neighborhoods around the Oslo Region, residents object. When seeing taller buildings residents, and their elected officials, raise concerns about light, congestion, types of new residents, lack of livability for children and youth, impact on the natural environment, impact on capacity of services like schools and roads, and so forth. In general, many seems to support growth and development, as long as it does not happened to them (NIMBYism).

Of the opposite opinion of the debate are developers and companies. They are
seeing the trends as an opportunity to realize more economic potential in every lot, to position the Region competitively within Europe, and for their offices to become more attractive to employees by offering access to a vibrant experience outside its walls. Developers and companies are pressuring for more height and density, and for the municipalities to improve their public transportation systems.

In between, leaning in all directions, lies the urban professionals, architect, planners, and economists calling for stronger regulations, more sophisticated strategies and for the city and villages in the periphery to become denser, taller, mixed use developments with activated public spaces like plazas and pedestrian-friendly sidewalks. Herein is the public debate about urban form in the Oslo Region today.

One of the most prominent development projects in modern Oslo is the Fornebu redevelopment project. In 1998, the Oslo Airport at Fornebu closed after 60 years of operation and the 3.4 square km (840 acre) area began its redevelopment into a residential and commercial center 10 kilometer outside of Oslo on a peninsula in the Oslo Fjord. The year 2000 Master Plan for Fornebu included a large central park area, 6,300 residences and 20,000 workplaces.

Since development began at Fornebu the Oslo Region’s significant population growth has led people to ask where we need to build to accommodate for the growth and Fornebu is consistently a place people look to as an opportunity and a necessary destination for further growth. The current debate around the project therefore investigates how the urban form at Fornebu should be, and what opportunities there are to build denser, taller and to create a more city-feel at Fornebu, not without arguments from many of its residents.

This thesis investigates this debate further, asking what are the implications of population density on the urban form development around Oslo? And, (how) does the population density and growth play a role in the development of urban form at Fornebu? The purpose of this work is to identify opportunities for sustainable development in the Oslo Region in an urban
form that aligns as many aspirations as possible. By first developing an understanding of what urban form and sustainable urban form is and then mapping the debate concerning the Greater Oslo Region’s growth this project will try to identify the nexus between what is needed and what is wanted for a sustainable peri-urban future for the region.
THE IMPACT OF GROWTH ON URBAN FORM IN THE OSLO REGION

Illustration 1: Norway and the Oslo Region. Source: Oslo Region
BACKGROUND

In this section, this thesis will introduce you to the context of the investigation. Here, the regulatory and planning process framework of development in Norway is laid out, and the population growth trend is explored. Lastly, this section explores the history and unique conditions that apply to Fornebu.

Planning And Development In Norway

Norway does a lot of planning. There are five levels of regulations within planning in the country; national, regional, municipal, area (or neighborhood), and building specific, and these levels are hierarchical. The national framework is not so restrictive there is little room for autonomy, but it sets a national, high minimum level of quality. The national framework does not include any standards for urban form other than guidelines that encourage denser development around transportation nodes.

Planning and development in Norway is overseen by the Ministry of Local Government and Modernization and regulated through the Planning and Building Act, last modified in 2008. The Act is a “tool for safeguarding the public interest and managing land use,” it ensures sustainable development and opportunities for public participation (Ministry of Local Government and Modernization, 2013). The Act extends

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Illustration 2: The Norwegian system of planning
Source: Ministry of Local Government and Modernization
the entire country and one nautical mile beyond the baselines of the territorial sea, in other words, Norway’s planning also incorporates the sustainable development of its 25,150 km long coast line. Participation from government agencies, experts, organizations, business, industry and the public is expected and mandated in many planning activities.

Most planning efforts happen on the municipal and regional (counties or municipalities collaborating) levels. The Act is modeled to optimize local control in planning and development, municipal governments are therefore both empowered and required to lead the planning efforts in their municipality. This means, municipalities have to follow the national guides and strategies, but are otherwise free to execute their own strategies. All municipalities are required to have a master plan, updated every four years. The master plan provides the “framework for development of the municipal community and the management of the land use resources” (Ministry of Local Government and Modernisation, 2013). The municipal master plan includes a land use element, a social element, and the implementation document for them. The social elements include tools like regulations and strategies municipalities would adopt to protect the environment, the welfare of the community, and the organization of the municipality. Further the social elements should “describe the connection between long-term goals and strategies and their physical consequences” (Ministry of Local Government and Modernisation, 2013). The implementation of land use actions happens mostly through zoning, while the social elements through a variety of actions.

Between two and three thousand land use plans, zoning plans and municipal master plans are adopted every four years. The expected population growth in Norway’s municipalities 2014 - 2044 (medium assumption) is illustrated in Illustration 3: Population growth in Norway. Source: Statistics Norway 2015.
year (Ministry of Local Government and Modernisation, 2013). That is about one plan adopted for every 2,000 person in the country, every year. The efficiency and effect of each of these plans can perhaps be questioned. Few of the 428 Norwegian municipalities actually have substantial planning knowledge, and their plans are often a verification of the continuation of status quo.

Within the Greater Oslo Region the municipalities have a varying degree of planning proficiencies, the municipalities closer to Oslo with a higher population have a reputation for higher levels of planning knowledge, while the outer municipalities that are distinctly more rural do not have the experience of growth that has necessitated greater planning knowledge. There is a vast number of sophisticated plans developed in this region and many efforts across governing bodies, semi-governmental institutions and private entities to move the region forward.

The objective behind Norway’s planning efforts is a sustainable development that serves the population well. Housing is one of the pillars of the Norwegian welfare state and equal access to housing is integral to the nation (Bojer, 2011). As such, housing and living is an important primary focus of planning in Norway. The country’s policies are driven by the understanding that a residence is not just an individually consumed good, but is affected by and affected the environment around it. Therefore, access to decent housing is not just a political debate around just distribution within the welfare state, but also about how planning can achieve good living conditions in neighborhoods. Further planning policies are driven to ensure good and better health for the people. The municipalities and counties are responsible for safeguarding and prompting the health of their inhabitants through its land use and social elements. Bigger social inequalities in living conditions and lifestyles are leading to greater differences in the Norwegian people’s health and they can increasingly be measured geographically.

The access to outdoor recreational area is very important in planning and land use designation in Norway, with the understanding that access creates more opportunities for activity. Further, a focus on community development is stressed to ensure a good childhood environment. In
Norway, children and young adults are entitled to consideration and participation in the planning process. The country is also pursuing universal design standards to ensure the functionally impaired shall have the same opportunities and access everywhere.

There has been significant growth in most of Norway’s cities and their peri-urban communities. In recent years, the development has seen a growth in periphery shopping centers and housing development outside public transport accessibility, making more people dependent on cars. This has happened because areas have lacked rigorous planning and the right competency or foresight (regjeringen.no, Urban Development). In summary, planning in Norway is significantly focused on creating a good living environment for its population. Though there is an understanding for what a sustainable development is, there is a discrepancy between intention and execution.

**The Population Growth In Norway**

The Norwegian population has grown rapidly the last few years according to Statistics Norway, the national agency of numbers and statistics. The growth is largely a result of

![Projected Population Growth 1950 - 2060](image)

immigration, not births (birth rate 1.78). The population is seeing a trend towards a more even age
distribution, meaning a lot of older people will make up the overall. The Norwegian population,
at a current 5,168,000, is projected to grow to between 6 and 8 million in 2050 depending on what
prognosis for immigration is considered, that is a significant change and challenge to the urban
areas of Norway. The population growth in centered in the urban centers, and the Oslo Region is
growing the most in numbers and relative terms (Statistics Norway, 2015).

In Oslo, around 30% of inhabitants are immigrants or children of immigrants, and between Oslo and Akershus (the next-door county in which Fornebu resides) one finds 40% of Norway’s first and second generation immigrants. Most immigrants have arrived from within Europe in pursuit of employment (Statistics Norway, 2015).

A report by Statistics Norway shows that the Region can expect continued high population growth. In other words, the need for development of housing and accompanying infrastructure, jobs, services, etc., cannot be stressed enough, and it is a strongly debated subject in the public conversation in Norway.

**Development Trends In Norway And The Greater Oslo Region**

People in Norway choose where to settle based on access to jobs, good housing and services, proximity to family members, and local and environmental qualities. A lot of people are choosing the Greater Oslo Region to live because of these factors.

About 80% of the Norwegian population live in urban or peri-urban areas. This puts increasing pressures on urban regions to accommodate the population growth. Norway has a large single household population, which puts further pressures on the real estate market for number of units needed. Most single occupancy dwellings are found in city centers (Statistics Norway Report, 2015: 10).

In the report *Population Trends and Housing Needs in Norway 2011 - 2030* the author identifies the market need for new housing in Norway over the next two decades through the
use of data from the Survey of Living Conditions and populations projections from Statistics Norway. The Survey of Living Conditions tells the research how many individuals are likely to live alone, in pairs, etc., and Statistics Norway have three running projects, low, medium and high population growth. In the medium alternative used in this study, the population will grow 20% between 2011 and 2031. According to the paper, annual housing units needed to be developed in the middle population projection is about 30,000 annually between 2011 and 2031 (Barlindhaug, 2011; 9). The report identifies that the number of units needed far surpasses the number of apartments actually being built (Barlindhaug, 2011; 9). This report is important because it shows the discrepancy between need and actual development in Norway, and therefore in the Greater Oslo Region. Though many municipalities in Norway are growing rapidly, they often fail to meet the needed housing development numbers. A 2014 study showed that 30% of all municipality in Norway are not building enough to meet demand (Barlindhaug, 2014; 18).

In June 2015 the Norwegian Government put forward a strategy document

**Illustration 5: Expected future housing demand in Norway. Source: Statistics Norway and Barlindhaug**
outlining its goals for housing development in the country. The government wants to facilitate for increased residential ownership opportunities because they argue ownership is both good for mental and economics stability, as well as in securing one’s identity and connectivity to Norwegian ideals (Ministry of Local Government and Modernisation, et.al., 2015; 2). Whether the traditional ‘Norwegian ideal’ remains current in development strategies today, is a debate beyond this paper. The document argues that because of recent population growth and increased demand and increased home prices, on top of a more insecure state of the Norwegian economy, the government should proactively secure the residential market from a crash while placing long-term strategies in place (Ministry of Local Government and Modernisation, et.al., 2015; 2). Proposed actions by the government include changes in the application process to make it quicker and to provide local governments with more decision autonomy, changes in regulations on both developer/builder and homeowner sides, making more information easily accessible to (potential) homeowners to help them make responsible decisions, changes in taxes and more. As of now, this document is a strategic outline to guide incentives and regulation decisions like a changes in tax structures.

Beyond this, the Norwegian Government highlights strategies that it is implementing under the “Planning Efforts Towards Major Cities,” to facilitate for increased growth in and around Norway’s largest cities. These cities are where the growth is strongest and where the demand and prices for housing is rapidly increasing. The strategy document describes the need to facilitate for more development in these areas. The Government describes the need to improve the public transportation systems to make larger and more residential areas accessible by public transportation to jobs, the need to strengthen and increased development by transportation hubs and stations in peri-urban areas. Through guidelines they have issued, the Government is asking municipalities to ensure the fulfillment of these goals, and calling for increased collaboration between municipalities and counties to improve the public transportation network. The commitment to improving the public transportation system is also a conscious environmental decision.
In Norway the most common dwelling form is a freestanding house, and only 23% of the population live in blocks of flats or tenements (Statistics Norway Report, 2015: 18). Home ownership is very high, with 78% of the adult population owning their home, but the share of renters has drastically increased, especially in cities (Statistics Norway Report, 2015: 18). More than 80% of the population have a private garden or accessible outdoor area attached to their building (Statistics Norway Report, 2015: 18). This is the typology most of Norwegians are used to, and therefore what is presumed by many to be most in demand and in need housing typology. The discrepancy between intentions and actual actions continue to show foreboding signs for the Greater Oslo Region in terms of a stable and accommodating housing market and development pattern.

The size of new homes being built is decreasing, this is largely because Norway is building more apartment structures and less freestanding homes (Statistics Norway Report, 2015: 18). As more development is happening in city areas, the apartment typology makes more sense. Even so, the relative size of dwellings has increased as Norwegians now live in smaller households to each unit (Statistics Norway Report, 2015: 18). In summary, most of Norway is consuming more space per person, but in a denser setting.

“Increased densification and transformation, a more efficient and attractive public transport and facilities for cycling and walking” are central efforts Norway is undertaking to ensure future development is more sustainable (Ministry of Local Government and Modernisation, Urban Development, 2013).

There is a significant densification potential in Norway’s urban and peri-urban areas, but plans are met with skepticism and NIMBYism. In Norway, a consensus on how cities must develop to meet sustainability goals is emerging, centered in the ideas of the Compact City theory. “It encompasses the idea that cities should be concentrated on smaller land areas to minimize the energy consumption that goes into transport and energy use. Densification also supports
walking, cycling and public transport, which are all environmentally friendly forms of transport” (Hemmersam, 2011: 4) However, though the Compact City strategy is easy to agree with, public protests tend to follow any proposals for taller buildings in the Oslo Region (Hemmersam, 2011: 4).

Oslo is more compact than many European cities, but there is still a real opportunity and need for densification considering available space and pace of growth (Hemmersam, 2011: 4). New, compact, taller forms of urban environments can already be seen in the Oslo Region, but they are perhaps too far and few in between.

In the Greater Oslo Region, the rate of development has been significant. Infrastructure is the raison d’être for this area. As development accelerates, so does the pressure to build new and better infrastructure, which results in negative environmental impact on surrounding districts. “Private individuals build their houses, developers and corporations build housing enclaves, industrial and commercial structures, and public bodies of various kinds build public institutions and shared amenities like public urban spaces and recreational areas. Other agencies, often operating at different levels of government construct roads, flight patterns overhead, nature reserves, or heritage preservation zones. Bodies, belonging to different sectors all operate from different rationales, [without alignment]” (Hemmersam, 2011: 7).

The environment and climate change are the big drivers of change in planning actions in Norway today, especially the coastline is under threat. A 2014 report by NIBR showed that most municipalities continue to build traditionally, suburban development encroaching on green fields in the last seven years — this despite significant efforts by central government for targeted densification, development close to transit and protection of open space (Barlindhaug 2014; 18).

In summary, a need for more and denser development exists, but fails to be executed. As the pressures grows stronger, the Oslo Region must create a true understanding of what the implications must be on the urban form it develops.
Population Density per 250m² in The Oslo Region

Illustration 7: Population density in the Oslo Region. Source: Statistics Norway

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Population Density per 250m² in The Oslo Region

Illustration 7: Population density in the Oslo Region. Source: Statistics Norway
Fornebu is a highly recognized peri-urban development project. Its redevelopment began when the area closed as a national airport. This section will briefly tell the story of Fornebu, before discussing some of the issues surrounding its redevelopment. Fornebu was chosen as a case study for this project because it is the biggest area of development in the larger Oslo Region (and across the Nordic Countries) and it was strategically planned as a new community in response to Norway’s growth, both in terms of population and in terms of industry development. In October 1998 Fornebu Airport closed as Oslo’s main airport after 59 years. The airport was at capacity and the Oslo Region needed more space to grow. The air traffic moved to Gardermoen International Airport while Fornebu begun to be prepared as a new neighborhood in Bærum that would provide housing, a new IT and knowledge based industry center and all their supporting services. At the time of change the Fornebu area was a mix of fragile nature reserves, shoreline, developed areas and highly attractive, undeveloped land (Folkestad, 2013).

The planning process for Fornebu was initiated by sustainability studies, while a competition was released for a master plan that incorporated land uses for protected open space, open recreational space, residences, offices, commercial use and a public transportation system (Folkestad, Haast, & Rødningen, 2013). The planning process was lead by Bærum Municipality in close collaboration with the city of Oslo and the Norwegian State through Statsbygg (the Norwegian Directorate of Public Construction and Property), as these two entities together owned more than 99% of the land. There was a lot of focus on sustainability, in terms of preservation of...
natural resources, remediation of the land, building sustainably, and providing for public transportation. The project is recognized as very ambitious in its

The 340 hectare development site that is Fornebu, is situated 10 kilometers from Oslo City. The Master Plan was presented by Bærum Municipality and approved with minor edits by the Norwegian Government in 2000. These edits included a slight increased in dwelling units and jobs the area should build to. Usually a master plan is executed and adopted at the municipal level, but because of the impact of Fornebu, the required national resources, landowners and other issues, the master plan for Fornebu needed a national seal of approval.

The plan, known as Kommunedelplan II for Fornebu-området, or Comprehensive Plan II for Fornebu, manifested that over 1/3 of the area be left as open space, (Bærum Kommune, Kommunedelplan 2, 1999). The central park, Nansenparken, that was build accordingly sit like an octopus in the middle of the development and gives almost all the residential areas direct access to it. The park area is the heart of the development. Larger parts of open area has also been reserved as bird habitats and wetlands, and as waterfront part and beck area. Some of the key considerations outlined in the master plan ensuring adequate outdoor area for recreation, accessible waterfront areas, the development of residences with efficient use of space (to not accommodate for single family sprawling development), and to limit commercial areas to where there is already structures today (meaning along the Eastern road on the site). The plan was executed with a lot of community participation and input from business interests and professionals. The site plan was the result of a competition and won by the Finish studio Helin & Siitonen. Though, the final site plan deviates
from the winning proposal, especially in the location of residential and commercial areas along the Eastern waterfront which has been switched from the original proposal.

In conversation with Ødegaard and Nilsen at Statsbygg, the semi-public agency responsible for much of the initial environmental clean-up, the sale of the public property on the private market and the construction and reconstruction of the natural areas at Fornebu, express how Fornebu is a success story from a sustainability perspective. The sale of the land funded the remediation, which was done almost completely on site (Ødegaard, & Nilsen, interview, 2016). Due to economic circumstances with the developer and the market some of the infrastructure was developed far ahead of time, like the central park, which was in hindsight very good for placemaking and as an amenity for early home owners (Ødegaard, & Nilsen, interview, 2016).

In 1993 the potential redevelopment of the airport was first identified, the initial Comprehensive Plan for Fornebu developed by Bærum Municipality builds on strategic decisions from the early 1990s. Already in 1993 the need for ‘efficient’ residential development was identified, meaning denser smaller dwelling units (Comprehensive Plan, 1999; 4). In the Comprehensive Plan from 1999, the goals for redevelopment stated its core objectives as:

“The Human in Center — developing for human enjoyment and safety through the living environment, attractive recreational space and sustainable business activities; A Good Living Environment — through development and conservation Fornebu shall become a pilot for modern sustainable shaping of denser developments, in harmony with nature; Strengthened Industry and Employment — develop Fornebu to become internationally more competitive in the IT sector; Housing Development — provided diverse housing opportunities that reflects the interested of several types of people, that solves for development pressure on open recreation space and farm land in the area (Comprehensive Plan, 1999; 8).”

The approved number of residential units by the National Government in 2000 was 6,300 and space for 20,000 workers, built over two phases. Some 15 years later, the area has become an attractive residential and commercial hub. The development of Fornebu has been
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<th><strong>HISTORY</strong></th>
<th><strong>PLANS</strong></th>
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<tr>
<td>1939</td>
<td>Fornebu opens as Oslo’s international airport</td>
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<td>1938-1945</td>
<td>WWII. Norway occupied, Fornebu used as an air base by Nazi Germany</td>
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<td>1990</td>
<td>In a municipal master plan for Bærum Municipality, the area of Fornebu is first identified as an area for “future urban development”</td>
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<td>1993</td>
<td>The National Government decides to move the National Airport from Fornebu to Gardermoen and to invest in the expansion of Gardermoen</td>
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<td>1995</td>
<td>Statsbygg (a publicly owned administrations company overseeing urban development projects) is given responsibility for the planning and development of the Nationally owned interests at Fornebu.</td>
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<td>1996</td>
<td>The first Master Plan for Fornebu, Kommunedelplan 1 for Fornebu-Området, was developed by Bærum municipality</td>
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<td>1997</td>
<td>Statsbygg sells a part of Fornebu to Telenor, the Norwegian telecommunications company</td>
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<td>1998</td>
<td>Master Plan 1 for the Fornebu Area adopted</td>
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<td>1999</td>
<td>Oct 07: Fornebu closes as an airport. All plane traffic gets rerouted to the new airport Gardermoen</td>
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<td>2000</td>
<td>The further detailing of a master plan for Fornebu was presented by Bærum municipality in Kommunedelplan 2</td>
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<td>2001</td>
<td>The clearing of the Telenor property for development begins</td>
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<td>2002</td>
<td>Statsbygg sells a part of Fornebu to Telenor, the Norwegian telecommunications company</td>
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<td>2004</td>
<td>The National Government chooses IT Fornebu Technoport as the state collaborator for a national IT center at Fornebu</td>
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<td>2005</td>
<td>The clearing of the Telenor property for development begins</td>
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<td>2006</td>
<td>Residential Phase 1 initiated, 2500 units, expected completion 2018</td>
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<td>2007</td>
<td>The State sells the development area Storeøya to a private developer</td>
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<td>2008</td>
<td>Nansenparken, the central park opens to the public</td>
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<td>2014</td>
<td>Several proposal for a higher development at Fornebu was released</td>
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<tr>
<td>2016</td>
<td>Expected Residential Phase 2 initiation: at least 2680 units</td>
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</tbody>
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targeted around specific industries, especially telecommunications, sub-sea technology and other technology development. Fornebu is the location of some major corporate campuses, including some of Norway’s largest companies like Statoil, Telenor and Aker Solution, and international giants like Huawei, Accenture, HP, Subsea 7, and Technopolis a large technology campus for a diversity of tech companies. In other words, Fornebu has developed a center for a niche of technology that has added to the strength of Fornebu’s commercial market and the diversification of the Oslo Region.

Since 2000 small adjustments and additions to the Municipality’s Master Plan for
Fornebu have been proposed, and sometimes adopted. These proposals never deviated much from the original plan. Through the years several attempts to build a light rail, tram line or subway through the neighborhood, as identified in the Comprehensive Plan, has failed and the project remains in regulatory hold-up and partly unfunded.

Today, Fornebu is at a cross road. Many question whether the plan approved in the year 2000 is sufficient for the regional demands today and into the future. A lot of efforts and conversations are underway to revisit the 2000 Comprehensive Plan II for the area. The Municipality has enlisted a group of external experts, in a Planrådsgruppe, Plan Advising Group, to head up the reevaluation of the area. As the conclusion of this thesis the future of Fornebu remains a debate without final decisions.

Fornebu is a regionally recognized development project in both positive and negative associations. According to its municipality Fornebu is the “engine of regional and national economic development” (Bærum Municipality, 2015). Currently developers are pressuring for increased allowances for growth in the master plan, the municipality is investigating the capacity for growth, while many residents are yelling in protest.

In the beginning months of 2016, Bærum Municipality opened up the public debate for the future of Fornebu with the goal of either evolving the current master plan or creating a completely new master plan. The master plan currently limits development to 6,300 housing units (calculated at 12-20,000 habitant), and 20,000 jobs. The jobs have already been met. These parameters, as well as the urban form of the development are currently being challenged. Key themes that are evaluate as part of this process are the ‘life between the buildings’, a green urbanization, traffic challenges (car and public), considerations for increased densification of the area, the municipality’s development of soft infrastructure, and other living conditions at Fornebu.

In the last week of April 2016 Bærum Municipality decided to revise the current Fornebu master plan to increase the allowable residential and commercial development, with a
final decision expected next year after a process of public input. The numbers in increases debated will be discussed in the Findings section.
LITERATURE REVIEW

Objective

The objective of this literature review is to map what theories have been written about urban form, exploring how urban form is important and affect the people that exists within it in a social and sustainable manner. Further this literature review identifies how the topic of urban form is specific to Norway, identifying theories and elements of urban form unique to the country. As Norway, its largest metropolitan regions specifically, is experiencing significant population growth understanding how the parameters of urban form are specific to Norway allows this project to identify what the future challenges in urban form are. From research it is clear that urban form in Norway reflects a tension between the influences of international theories and sustainability theories that call for a more dense urban form, the specific nordic conditions that dictate many development patterns in Norway, and the lingering demand of individuals in Norway for a homes that associates with solitude and being surrounded by nature.

What Is Urban Form

Depending on the source, urban form is defined very differently, specifically when it comes to what is encompassed within its definition. In research reports about the urban environment, form is often described very simply, as “can be generally defined as the entire built environment including buildings and networks in both urban and rural areas” like it was in the research report Urban Form, Transportation and Greenhouse Gas Emissions by Harmaajärvi et. al. (Harmaajärvi 2004; 5).When exploring more theoretical texts, as was done by Fran Tonkiss in Cities by Design, the social and physical conditions are what shape the urban form.

In her book, Fran Tonkiss explores aspects of contemporary urbanizations
through “growth density, sustainability, inequality, segregation, and diversity; informality, urban environments and infrastructure,” as elements of urban form that influence the physical, spacial, social and economic conditions of an area (Tonkiss 2014: 2). In other words, Tonkiss is very inclusive in her definition of urban form. The basics elements of urban form are size, scale and mix, but these elements shape “cities in social, economic and environmental terms” (Tonkiss 2014: 26). Tonkiss collects and analyzes the thoughts on many prominent individuals in planning, including Jane Jacobs and Kevin Lynch, she summarizes and reflects their theories when writing urban form is as much about the social, economic, legal, and political, as it is about the physical and spacial solutions.

When Portland was evaluating their Comprehensive Plan in 2008, they also asked the question of what is urban form, and defined it as “the physical shape and structure of a city. […] Urban form is made up of density, building heights, the balance of natural to constructed elements, open spaces, distances between elements, the integration of public transportation systems, and the vertical land uses in buildings (Technical Working Group, 2008; 3). This plan evaluation is a useful resource because its translates urban form into practical information for planners who are seeking to keep Portland vibrant, or others who wish to learn from the staple American city. The way cities develops its form reflects its social values as more inclusive and equitable cities are walkable, have more public space, efficient public transportation and services. Urban form is affected by a layer of elements. The natural landscape and its restraints (like rivers and flood lines), larger communication networks - freeways and railways, the street and lot layout of a city, the public spaces and parks, the shared public room, the form and aesthetics of buildings” (Technical Working Group, 2008; 3-5).

**Urban Form Affects the Social, Environment, and More**

Urban form conversations matter because form is a planner’s tool to create the social, economic and environmental conditions we aspire for for a community. In her groundbreaking book *Death and Life of Great American Cities*, Jane Jacobs suggests that the measure of a good urban
density is when an area has the ability to support a diversity of uses and users, being a spacial strategy to a social and economic end (Jacobs, 1961).

How a neighborhood, or area, changes its urban form over time — how the community develops — is a question that has received significant consideration. Through a review of different schools of thought, Bill Pitkin concludes that the political economy theories accounts that argue social, political and economic conditions impact neighborhoods seem to both be true and have popular support (Pitkin, 2000: 23). Political economists argue that neighborhood change is a results of social, economic, and political conflict (Pitkin 2000: 9). Here we can see that the built and the human experience in a city affect each other, urban form effects the political economy, and in return it effects future urban form. Similarly Jan Gehl argues people affect cities and cities affect people (Gehl, 2013). The notion that society influences urban form, and urban form influences society is widely accepted. As planners we have the opportunity to effect positive changes in this interconnected system. We must be concerned about urban form, because when built right urban forms contributes positively to the lives and processes —within that area. Kevin Lynch’s criteria for assessing good urban form – accessibility, adequacy, diversity, adaptability, comfort – are not simply about the arrangements of spaces, but precisely about the pattern and integration of activities across them (Tonkiss 2014: 27).

How we design cities is important to how they influence people’s behavior, a large part of urban form is its density. Density is not about size, but about how the urban form is experienced by the users. Density matters — at the point where the social and the spatial come together, social life of urban form is created. Today we recognize that “higher urban densities in post-industrial cities are conducive to environmental sustainability, economic innovation, cultural vitality, social diversity and public safety” (Tonkiss 2014: 37).

Urban densities are positive for cities. Glaeser writes in Demand for Density? That density is important for efficient and sustainable production and consumption — especially as it
lowers transportation costs, create solid labor markets that offer opportunities for employers and employees, become a way for the transfer and development of ideas and innovation, and result in more sustainable processes (Glaeser, 2000). There is a strong correlation between the urban form and emissions. Environmentally, sustainability is also linked to an integrated mix of land uses.

In summary, one's understanding of urban form becomes more complicated as one explores it. But, the complexity also does a lot to emphasize the importance of the social aspects of urban form — the way we build cities and they cities are physically and specially affect our behavior and interactions. It can therefore not be stressed enough how important it is to consider urban form as we plan cities and neighborhoods. An integrated approach to urbanism is important to ensure the social, economic, and spatial aspirations are met. All things remain contextual, and the success of a city’s urban form is not an international standard, but unique to that area, as Tonkiss writes as well

“The benefits of compactness are taken to lie not only in land use, efficiency, energy and emissions, but also in the density of social interaction. For all of these claims, however, context is all. As in respect of city size, the sheer fact of higher density or greater compaction is not in itself a guarantor of any particular benefits. Whatever benefits might derive from urban density will depend both on its spatial organization — patterns of land use and location, the design and integration of built form, networks of transport access — and on the ways in which density is lived socially — the patterns of behaviour that operate in more or less dense urban contexts, whether environmental (transport behaviour and resource use), economic (employment activity and enterprise development) or more strictly ‘social’ (levels of interaction, attitudes to others, the management of urban proximity)” (Tonkiss, 2014: 40).

**Urban Form In Norway Adheres To A Local Context**

In Norway a significant voice to development of the urban form, either deliberately or subconsciously, is the architect and urban planner Jan Gehl. The recognized urbanist has been promoting the development of a human scaled form for decades. In one of his works, Cities for People, Gehl elaborates on what human scale translates to in urban form (without using this
specific definition). An ideal urban form does not rise above six stories because then the connection between the street and the top floor is lost, a plaza does not exceed 10,000 square meters because that is how far a human can comprehend what it sees, and streets should prioritize pedestrian and bike access (Gehl, 2010; 40). There are many who question the sustainability of Gehl’s ideology in a world with seven billion people and argue that a sustainable density levels equals 30+ stories. In Norway, development efforts are generally somewhat in line with Gehl’s principles, though in the Greater Oslo Region there seems to be a general reluctance against building over five stories outside the city, based in historic precedence and a perception of ‘too tall.’

In the Nordic countries, urban form strategies are driven by developing an enjoyable and sustainable quality of life (Harmaajärvi 2004; 5). Instruments concerning urban development, supporting residential activities in city centers, control of location of shopping malls, preventing long commuting trips, reduction of transportation need and car dependency, promotion of walking, cycling and public transport and eco-managed telework, are strategies implemented by all the Nordic countries in an effort to be more sustainable (Harmaajärvi 2004; 5). Like many other countries, Norway suffers from urban sprawl. The country recognizes that strategies must be implemented to spur sprawl and develop in ways that are more sustainable and efficient. There is a general awareness that a denser urban form promotes economically, ecologically and socially sustainable development by reducing demand for transportation and energy consumption that are harmful to the environment and to people’s health (Harmaajärvi, 2004; 15).

Some theorists argue that urban form, especially in the global cities of the world, is becoming more homogeneous. “Spacial distinction — to embed and reproduce power in space, to secure and mobilize various forms of capital — are frequently expressed through the creation of indistinct spaces: new financial centers and waterfront developments; post-industrial arts quarters or high-rise apartments for identikit urban lifestyles; gated residential developments or mall-ed shopping experiences” (Tonkiss 2014: 11). The Oslo Region’s development trends are clearly seeing
international influences. Though certain aspects of that are true, urban form still maintains some distinctiveness in Norway, as explained by Harmaajärvi.

In Norway, a consensus on how cities must develop to meet sustainability goals is emerging, centered around the idea of Compact City development. Compact Cities is an urban planning theory, popular in England, the Netherlands and Scandinavia that focuses on higher density residential development and mix of land uses. The theory focuses on efficient public transportation system and has an urban layout to encourage walking and cycling (Dempsey, 2010, 1). Compact Cities, have many opportunities for social interactions, have a feeling of safety from ‘eyes on the street’ (after Jacobs), are more sustainable from reduced car use, and require less (and cheaper per capita) infrastructure provision (Dempsey, 2010, 1). In other words, “it encompasses the idea that cities should be concentrated on smaller land areas to minimize the energy consumption that goes into transport and heating. Densification also supports walking, cycling and public transport, which are all environmentally friendly forms of transport” (Hemmersam, 2011: 4).

However, though the compact city strategy is easy to agree with, public protests tend to follow any proposals for densification in the Oslo Region (Hemmersam, 2011: 4). The Compact City theory is also criticizes for lacking a definition of what “high density” residential mean in actual numbers, and for failing to address the less glorious aspects of cities — land uses like landfills and airports (Dempsey, 2010, 2).

Between all the studies that have been done, the conversation in the Oslo Region seems to be going in the same loop for many years now. Many conversations are ongoing about the growth rates, trends and consequences, but few comprehensive studies on the field exists. Focusing specifically on the fastest growing European urban area, this thesis will look more deeply than most texts have done so far. In addition, Fornebu, which is increasingly looked at as a model for development in Norway, Scandinavia and Europe, lacks a broader contextual evaluation.
METHODOLOGY

Introduction

Through a case study approach this thesis investigates how development patterns are changing around Oslo and uses the Fornebu development project as its area of focus to illustrate these changes. The research methods include literature review, archival research, expert interviews, and observations. Because this thesis is asking an analytical and qualitative question, the qualitative approach of a case study is the appropriate research method.

This thesis asks how increasing development pressures affect the urban form of development in the Greater Oslo Region, and how Fornebu is a model for a sustainable (or not) approach to address the need for more development and complimentary urban form. Urban form, understood as the physical shape of the built environment including densities, heights, architectural expression and internal location of uses within an urban setting. This research is mapping how the development community (politicians, developers, architects, the public, etc.) are adapting to increased development pressures and sustainability pressures in the Greater Oslo Region. Fornebu was chosen because it is the largest and most iconic development project in this area and a leader in modeling the new peri-urban form in Greater Oslo.

The approach and research tools has been successful in creating a sound understanding of the unique development conditions in the Greater Oslo Region and stakeholder aspirations within this context. Further, the research has been useful in analyzing Fornebu as a pilot project for development in the Greater Oslo Region and beyond. The goal of this thesis is to contribute to the conversation of how the Greater Oslo Region should develop smartly and sustainably.
The Case Study Approach

Robert Yin argues in Case Study Research: Design and Methods (Applied Social Research Methods) that case studies are a valuable research method because they make complex social, economic or other issues more comprehensible. Case studies are a good way to study the real world and interconnectedness of issues. The case study approach is valuable for learning qualitative data, and reasons behind decision making. The approach will enable this research to answer questions of why - why opinions, actions, and intentions surrounding urban form in Greater Oslo are as they are.

Case studies are a recognized valuable resource in the urban planning industry. As each urban condition is unique each project is unique. It is valuable to understand how location specific conditions affect an outcome and people’s response, so learnings can inspire urban action adapted to other locations. Urban planning deals with people, and to effectively plan requires a deep understanding of human desires, behaviors and aspirations. To strengthen this understanding case studies are a helpful tool because they deal with real conditions and outcomes. Case studies are further a good resource to urban planning because they recognize shortcomings in projects and therefore give both caution and inspiration to others.

However, Yin also acknowledges that case studies are often questioned as a research tool (Yin, 2014). Critics argue a case study is too narrow, offer no quantitative data, and can therefore not be reliable or generalizable. They further argue case studies are inherently biased. These arguments are not wrong, but enough experience in the urban planning industry has show how case studies of great projects inspire great projects elsewhere. It is important to recognize that case studies do not offer a copy-paste solution, but good ideas that must be adapted to a new condition.
Case Selection

The Greater Oslo Region was chosen as a study area because it is experiencing unprecedented (by modern Norwegian standard) growth and development pressures. Further, the Fornebu redevelopment project was chose for in-depth analysis because it is widely recognized, and considered by some a pilot model for urban form and development in the region. As one of the largest new developments in the Nordic Region Fornebu’s progress, model and success garners international attention. It therefore warrants a considered evaluation. In addition, the Fornebu...
area includes, or intends to include, all the elements that are identified as significant to good urban form and a Compact City model, as identified in the literature and it is therefore valuable and important to evaluate the project. The topic of urban form was chosen because it is at the heart of the current debate concerning development in the region — and it is through the urban form that changing strategies and decisions become reality.

For this thesis one case was chosen to give it an appropriate level of consideration. Fornebu was chosen because it represents many of the same constraints and conditions evident across the Greater Oslo region and it is therefore representative as a case study. Like other areas and municipalities the Fornebu project is struggling with how to adapt to increasing growth pressures and sustainability expectations as it develops. Balancing current resident interests and past experience with the regional expectations of growth and sustainable development.

The observations in this thesis are validated through a variety of research efforts that resulted in similar findings, like expert interviews and archival research. The methods and questions asked in this case study are easily replicable, but should be adapted to their unique urban setting. Pressures from increased growth is an issue in many locations where new development is demanding a reinvestigation of the cities’ urban form and sustainability issues challenge further development — just as in Greater Oslo. The results are replicable as they are based on publicly available facts, on professional and identified opinions, and observations of mostly permanent conditions.
Data Collection

The research methods include literature review, archival research, expert interviews, and observations.

Archival Research

The archival research included searches in search engines, scholarly databases, consultancy and organizational databases, and other webpages for a diversity of research reports that pertain to the topics investigated in this thesis. The research also looked at Norwegian municipal websites, news outlets, organization and corporate websites, and social media to glean an understanding of broader opinions concerning the research topic.

The archival data sought to identify public opinion on Fornebu and development in the Greater Oslo Region through news, blogs and social media. The Norwegian news media, largely centered on Oslo is highly active in the topic and offers a large platform for debating the development of the Region. The archival data helped create an understanding of the context and trends that are influencing urban form, development and the Fornebu project.

In addition, research reports from a variety of sources were leveraged in this research. The reports are more researched and academic contributions to the public debates. They are freer of subjectivity. Political documents and plans were studied in depth. Specific research sources in Norway that were used as resources include, but are not limited to, political documents — including the master plan and other planning documents for Fornebu, the overarching new transportation plan and the Planning and Building Act for Norway, the Norwegian Institute for Urban and Regional Research at the Oslo and Akershus University College of Applied Sciences, Statistics Norway, Osloregionen’s website and documents, reports and proposals from architecture and planning offices for Fornebu, and documents from developers proposing developments at Fornebu.
Interviews

Thirteen expert interviews were conducted across nine different organizations, political entities and businesses. Each of the interviewees had experience and interests in the development conditions in the Greater Oslo Region and most of them have worked directly on a part of the Fornebu development project. A description of each interview can be found in the appendix. The interviews discussed development in the Oslo Region, restrictions and opportunities, considerations about development trends and urban form. In addition the interview questions asked about Fornebu specifically, about the project, its potential and importance to development in the region.
No one was electively excluded from this research, the participants were chosen as representatives of the roles they hold, be it developer, architect, politician or other. The people where contacted through email outreach either to that person specifically or to the company/organization they work for. The people or organizations were identified through initial archival research about the topic and Fornebu.

The interviews asked a set list of questions to all participants to gather opinions on the same topic across stakeholders. In addition each expert was asked questions related to their field of expertise and to their role in the development of the Region. The interviewees were asked questions based on their professional observations, experience and knowledge. The prepared questions can be found in the appendix. The format of each interview was a conversation and the prepared questions were used as a guide only. The learnings from the interviews were categorized and analyzed, they form the basis for the Findings in this thesis.

Missing from this research is firsthand interviews with stakeholders who live and work at Fornebu. Recruitment efforts through contact through their social media and webpages were unsuccessful. However, opinions from this stakeholder group can be extrapolated through their websites, social media, public debate contributions, responses to municipal documents and through the responses from the interviews conducted in this thesis research as the interviewees know these groups and their interests very well.

**Observations**

In the three weeks spent in Oslo, Fornebu was visited several times for observations. The full description of each visits can be found in the appendix. Observations, site visits, to Fornebu were done at different days and times consuming a diversity of activities offered. The observations consisted of passive observations of the area and its amenities, and walking the neighborhoods, park and waterfront. Time was spend at the coffee spots talking to the staff, at the cafeteria of one of the large office campuses and at the Fornebu mall. The observations were passive observations of
the life at Fornebu. The observations confirmed and discredited previous assumptions, elaborated on in the findings.

The observations are limited by seasonality. Some days the weather and temperature strongly discouraged outdoor consumption of amenities, snow limited visibility, especially in the semi-private areas around housing structures. A more comprehensive study should investigate Fornebu at different times of the years, especially as the summer months would reveal more how successful the development is in creating life in the public space. Observations are a challenged research tools because a lot of random variables determine the observations and if one is unfamiliar with the area the researcher does not know for sure if the conditions observed are unique or everyday life. Though observations were taken on different times and days, in different areas and covering different activities, they were all still taken during winter and close to Christmas break — which might skew the results.

The map above highlight key areas observed. In addition, a list summarizing discoveries from different field observations can be found in the appendix, along with a description for the letters in the illustration below.

**Strategy**

The data collection started with identifying specific topics and questions the thesis wanted to explore and searching for specific answers, and a waterfall discovery process of valuable resources would lead to a new information. The combination of targeted and free-flow approaches allow the opportunity to answer specific questions and discover something new. This process is necessary to not skew a case study research based on assumptions the research has at the beginning.

Often news articles would mention or summarize a research report that could then be found in full form for more information. Often reports have been prepared by private research companies on behalf of governmental agencies. The challenge was not finding enough data and reports but understanding which ones would significantly benefit this investigation.
Evaluating the data

In evaluating the data, the data was first categorized. The interview data was separated into specific themes and categorized based on responses and stakeholders. Similar and differing opinions on topics were identified. In general most of the opinions were homogenous and the difference lied more in a rational versus more aspirational opinion about the future of development in the Greater Oslo Region.

The observations were summarized in notes, sketches and photos. A list of places to visit was made from initial research about Fornebu, then time and day were chosen as it seemed appropriate. For example the mall was visited on a weekday and a weekend. The weather determined which days allowed for walking tours, and the other days cafes and restaurants were visited. The observations are too narrow in scope to establish a full picture of Fornebu, but did establish some clear findings.

Limitations

In evaluating the results from the archival research, interviews and field observations, it is important to note that none of these methods are free from subjectivity or professional bias. For example several of the organizations, governments and businesses interviewed in this thesis are interconnected and as this thesis will become a public document answers might be skewed accordingly. Even when asked professional opinions for many of the interviewees the border between professional and personal opinions does not necessarily exist. The research has in no was asked any subjects to reveal any confidential or in any way damaging information. To avoid the potential bias of a case study, this research is designed to collect professional over personal opinions and uses a variety of sources to gain a more holistic image of development and conditions in the region. As mentioned, the interviews are limited to professional opinions and do not include residents or workers at Fornebu. This limits the findings. The number of interviewees was limited by availability and willingness to participate. With more interviews perhaps a broader perspective
Photos of Fornebu From Observation Trips

View from the park to residential
View of the Nansen park
Future development fields between built area and the park
Walkway between residential developments

View of the 'courtyard' of a housing complex
4-story residences
Townhouses
Waterfront residential development

Residential development
Corporate development
Outside the Fornebu S mall
Bus station outside the corporate campuses

Architecture from one of the corporate campuses (Statoil)
Waterfront park
Intersection in front of Fornebu S mall
View of the water from Telenor corporate campus

Illustration 13: Thesis field research photos
or more disparate opinions would have been identified. Given more time this thesis would of course have tried to collect more interviews.

In addition, the observations are limited to a narrow time of the year, that is inadequate to fully understand Fornebu as a place to live, work and visit. The holiday season and winter weather have likely skewed the observations collected in this work.

**Conclusion of Methodology**

Through the use of archival research, interviews and field observations this thesis has collected a substantial and considered collection of data from which to draw its analysis. The research method is an appropriate approach to a case study analysis. The research was limited by time and available research subjects, but has nonetheless collect significant amounts of data from which to draw its findings. The analysis has been further substantiated by a very qualified interviewee line-up that have lengthy experience in development in the researched area and represent a variety of stakeholders.
FINDINGS

Introduction

This section is a summary and analysis of the discoveries from interviews, field observations and archival research. As mentioned in the methodology, thirteen interviews across nine entities, eleven field observations events and extensive archival research was executed to form these findings.

The Oslo Region Is Growing Rapidly And Distinctly

As was reflected in the Background section, the Oslo Region’s population is growing at unprecedented rates and this is requiring the region to respond in development of housing, jobs, hard and soft infrastructure and their interconnectivity. To sustainably address the growth requires a change from previous development patterns and historic urban form of the Oslo Region. These changes are met with support and challenges from a variety of stakeholders representing the governments, the private sector, the public, and professional sphere of urbanism. As elaborated on in this section, the trends are of significant interest to the interviewees in this project, as they directly affects their work. None of the interviewees disagree with the growth projections and that changes in how the growth is handled are needed. There is however differences of opinions in how severe the changes should be on urban form

Regional Plan for Oslo and Akershus

Plan Goals
1. Further develop Oslo City as the nation’s capital
2. Strengthen regional cities and workplace concentrations in Akershus
3. Develop central urbanized area with better connections in the urban structure and high utilization of public transport
4. Prioritize development of some local towns and urban settlements in Akershus
5. Maintain good and stable living environment outside the prioritized growth areas

Source: Plansamarbeidet
and development pattern in the region.

In December 2015 Anette Solli, the County Mayor of Akershus County and her team under the banner Plansamarbeided (the Planning Cooperation, a working group of representatives from Oslo City Council and Akershus County) announced their recently proposed strategy document, Regional Plan for Land Use and Transportation in Oslo and Akershus, had been adopted by Akershus County Council and Oslo City Council. The planning document outlines how land use and transportation will be coordinated in all future development for the region. The document itself is not a legally binding document, but the direction-giving document that all future land use and transportation plans and actions shall be based on (Solli, interview, 2016). The document is significant because of the coordination between land use and transportation that has historically been separated in most planning efforts in Norway.

In conversation with County Mayor Solli she stressed the importance of the regional strategy because it ensures greater collaboration and streamlining across municipalities within Oslo and Akershus and it is a plan that can effectively direct transportation and other infrastructure investments (Solli, interview, 2016). Aligning land use and transportation decisions ensures a more sustainable development pattern that is more economically efficient and guarantees a level of predictability to development in the region, explains Mayor Solli.

The support of the strategy document from the county Mayor is reflected across many stakeholders in the region. For example, Osloregionen (The Oslo Region Alliance), an alliance of four counties (including Oslo and Akershus) and 78 municipalities (including Bærum) around Oslo, has been a strong advocate for similar strategies to the ones in the regional strategic plan. Osloregionen has developed its own response to the Regional Plan for Land Use and Transportation, named the Integrated Land Use and Transportation Strategy for the Oslo

“Norway is no longer only towns and houses and farms, but we still act, or think, like we are.”

-Mayor Anette Solli
Region (Samordnet areal- og transportstrategi for Osloregionen). This plans, a strategic document developed by the Alliance, is not too different from the Regional Plan but goes beyond it in that it covers a larger geographic area, encompasses more details on topics like climate change, industries like goods transportation and the Region’s international business competitiveness.

Mayor Solli recognizes that the plan has received criticism for applying rules to generally, setting the same expectations to rural municipalities, suburban municipalities closer to Oslo, and Oslo City (Solli, interview, 2016). This was also observed by Arthur Wøhni, the Municipal Director of Community in Bærum, who supports the plan but relayed the opinions that many more rural municipalities in the Region are skeptical to the new plan as it might overrule home rule.

In their evaluation of the *Regional Land Use and Transportation Plan* the consultancy Norconsult, engaged by Akershus County, warn that not all the intentions of the plan will come to life. Firstly, they underscore that the Plan is a great commitment to a more efficient and sustainable development pattern for the Greater Oslo Region, but by their analysis foresee more private car uses as opposed to the desired less use as a result of the plan’s strategies. The consultancy note that the densification strategies around transportation nodes are not enough to defer growth in auto usage and other measures must be instituted. The areas with the highest growth will also need a redistribution of funds as their projected earnings will in no way cover the necessary hard and soft infrastructure investments needed. Further, some areas targeted for growth are also vulnerable to flood and landslides which has not been addressed in the Plan. Norconsult identified conflicts pertaining to loss of open space and pressures on cultural sites to become a result of the plan. In addition, there is nothing that indicated the Plan will make Oslo a more competitive business

“Municipalities are still introverted, focused on their own actions, and stick with their own plans over regional goals.”

-Mayor Anette Solli
Regional Land Use and Transportation Plan

Prioritized areas for growth
- Oslo city
- Regional towns
- Regional areas for jobs intensive activities
- Specific areas of investment for increased town and commercial development
- City area
- Prioritized local villages and nodes
- Sized according to priority

Principles for development of the public transportation system:
- Tie Oslo and regional towns closer together
- Regional transportation nodes
- Tie regional towns and work centers to transportation nodes
- Tie prioritized local towns and villages to regional towns

Airports
Transportation infrastructure
- Train lines and roads
- Roads
- Plan area

Illustration 14: Regional land use and transportation plan. Source: The Oslo Region Alliance
region in the Nordic market (Norconsult, 2015).

The map on the previous page shows the overview map for the new Regional Plan for Land Use and Transportation, Fornebu can be found to the left of Oslo City.

Grethe Salvesvold, the Chief Adviser at Secretariat of Osloregionen, expressed the coalitions concern that without significant urban action the Oslo Region will remain less competitive to its Nordic and European competitors (Salvesvold, interview, 2016). The purpose of the Osloregionen coalition is partly to create political will and collaboration across small municipalities to attract more investment to the region as a whole, Salvesvold explains. Further she expresses an opinion reflected throughout the research, that the development in the region is not fast, ambitious, sustainable or efficient enough. This observation is a reflection of 10 years of research, documentation and observations by the Osloregion alliances and elaborated on in their reports (Salvesvold, interview, 2016).

In summary, the Greater Oslo Region is seeing significant pressures to change because of its growth. These pressures are met with the new regional plan for integrated land use and transportation planning and other efforts to concentrate development at transportation nodes and increase densities. These efforts are receiving support and challenge. In this research the support was evident across interviewees, but several questioned whether current efforts are sufficient in addressing the regional growth.

The Form Of Development In The Oslo Region — Single Entities And Sprawling Development

Norway does not have an urban tradition. Several of the interviewees expressed that the region’s development towards the vision described in the Regional Plan is being held back by an outdated electorate and industry that is skeptical to denser developments because of remaining traditional Norwegian ideas about how one should live.

Even if climate change and sustainability has had wide awareness and acceptance in Norway since the Brundtland Commission (Our Common Future was published in 1987), the
development in the Region since has not reflect this awareness. Norway, and the Oslo Region is still developing in a sprawling pattern, developing malls and other car-reliant uses away from public transportation networks and city cores.

The typical denser form of residential development in the region of the last three decades is a 3-5 story small apartment building set into a green landscape. In Norway this form of typical modern development is called *building in landscape*. Had the building been taller it would better fit the description tower in the park. The images below are from OBOS’s sales website for residences at Fornebu, and exemplifies the form prevalent in the peri-urban Oslo region.

*Above: Image 1. Screenshot from fornebulandet.no, OBOS’s sales website for the Fornebu development To the right: Image 2. Screenshot from fornebulandet.no, OBOS’s sales website for the Fornebu development. Both show the typical Norwegian urban form for residential developments in a peri-urban setting, know as buildings in landscape. These are renderings of developments yet to be built.*
Jørn Narud, the Architectural Director and Partner at Narud Stokke Wiig architectural firm, explains that this form is a remnant of the 60s and 70s development in Norway. An observation is supported by Professor Oddrun Kristine Sæter, Professor at the Urban Research Program at Oslo and Akershus University College, who explains that the modernist blocks are “associated with a disconnect from society and a marginalized population,” yet on a smaller scale they are the compromise of single family and multifamily residential development in mostly upscale neighborhoods around Oslo (Sæter, interview, 2015).

Sæter and Narud both explains that develop patterns that began in the 1930s in Norway, known as drabantbyer (bedroom communities) today bring the association of taller apartment structures with no amenities, no life and an exclusively lower-income population that will destroy a neighborhood (Sæter, interview, 2015. Narud, interview, 2016). The negative association around taller apartment complexes is one of many reasons that both the general public and the observing public remains skeptical to an increased densification in the Oslo Region.

The skepticism and lack of support for denser forms is also rooted in NIMBYism, as mentioned by several of the interviewees. Fear of the impact on the quality of living, fear of loss of light and sun, fear of increased wind conditions, loss of views, strain on resources (infrastructure and open spaces), destruction of character, and non-contextual development is what many associate with denser development or apartment developments in the suburban Greater Oslo Region (Narud, interview, 2016). Further supporting this observation, the architects at White Architects notes that “Norway lacks the urban culture seen in most of Europe, making some associations hard to break, like the Norwegian’s love for solitude, single family living and cars” (Mäki, Bakke Kvinlog, Hörдин, interview, 2016). In further support Mayor Solli explains “where there is less guidance or control we see more single unit housing developments,” also

“In order to protect the open areas we must develop more and denser around transportation nodes.”

-Mayor Anette Solli
in areas that need denser forms because they need to support a public transportation node, which is a significant challenge (Solli, interview, 2016).

Further the County Mayor does explains that efforts of densification can be seen, but in the same areas over and over again and not strategically across the region (Solli, interview, 2016).

The market for densification in Norway is further limited by taste. OBOS, who is one of Norway’s largest residential developers, explains that many people in the Norwegian market are not willing to move into too large towers that would seem to oppose the lifestyle they are demanding (Schøning & Gregersen, interview, 2015). The negative associations is making tougher to sell an urban lifestyle to a larger market. The skepticism towards larger, taller, denser (residential) development is further supported by the poor quality of what was built in drabantbyen’s heyday as well as recently, Sæter argues. Many of the recently built taller developments in the Oslo Region are quick responses to the increasing growth that are unimaginative boxes without light or interest and depressing to lower floor dwellers (Sæter, interview, 2016).

"People are scared that heights will destroy the community around it."

-Jørn Narud

The Urban Form Is Slowly Changing With Recognized Need

At the same time as skepticism to a denser urban form in residential neighborhoods lingers, the recognition that change must happen to the way the Oslo Region is developing emerges. An opinion supported by all interviewed here. Municipalities and city neighborhoods are exploring what is their tolerance for heights and how one manages a denser development project to ensure its quality. As County Mayor Solli emphasizes, Akershus County does not have a say in heigh restrictions, that remains a municipal decision. The new Regional Plan does not dictate heights, floors or urban form, but set standards for how many people are needed within a set distance of a
transit hub to support public transportation and local commercial activities, directly and indirectly dictating a denser form (Solli, interview, 2016).

Developers are maximizing their potential at every opportunity and are calling for higher allowances to meet demand.

The Shortcomings And Opportunities For Change

Across interviewees, from the Parliament to architects, it was agreed that the Greater Oslo Region has much of the structure in place for a denser development to happen. There is an extensive train system and expanding subway system in place, several smaller regional dwelling nodes exists along bus and train routes, and few developments are on highly fragile environmental land — and, most importantly, popular opinion on a denser dwelling lifestyle is changing (more rapidly with younger generations). As the population of Oslo becomes more cosmopolitan and well-traveled, and as a taller infill development has become more prevalent in Oslo City the “interest from different entities has increased, people and businesses, and they are now driving demand for more urban experiences” (Mäki, Bakke Kvinlog, Hördin, interview, 2016).

Another observed challenge to developing a more sustainable urban form in the Oslo Region is guts. Salvesvold of Osloregionen, White Architects, OBOS, with wide support across industries, call for more ambitious measures to allow for the development needed. White suggests pilot projects and trials in urban form, more networks of alternative transportation and architecture (Mäki, Bakke Kvinlog, Hördin, interview, 2016), while Salvesvold argues the process of change is “too slow”

“Norwegians are insular and homely which reflects in the style of development. But, there is a change happening, slowly, as we are learn from elsewhere - we are becoming more urban and we might see a generational shift in 20 years where people will want an urban settings, smaller living units and a more shared way of living.”

-Anders Gregersen, OBOS
compared even to the goals set at different municipal levels and in response to growth trends, “Oslo looks the same today as it did 10 years ago. We need more results and projects we can use to model and promote change on” (Salvesvold, interview, 2016). Narud agrees, and explains that development is “random” and not contextual, which damages the space between the buildings since it does not get the right design to become more mainstream (Narud, interview, 2016).

There is currently a lot of skepticism towards the political and municipal system that controls development in the Oslo Region. As elaborated upon in the Background, municipal governments are largely responsible for the land use regulations and thereby urban form of their municipality. Competencies vary across municipalities limiting successful and quality of new developments. Further, fragmentation across municipalities with introverted interests limit regional strategies. As Solli explained the Regional Plan is only a proposal and it depends on the municipalities to create enforceable regulations (Solli, interview, 2016). Further supported by Salvesvold, “fragmentation causes conflicts where unnecessary, entitlements and ‘equal distribution’ arguments that limit the region as a whole (Salvesvold, interview, 2016).

All the architects spoken to, call for more appropriate regulations that puts higher sustainability expectations on development. “At the moment regulations are not bold enough and it gives developers too much freedom. Those who end up paying for a poorly built home is the resident” explains Mäki and her team at White.

Currently developers with traditional market ideals are leading in the production, which can compromise the urban form, sustainability and design as they chase efficiency, old ideals and compromise on the public experience, explains Narud, a sentiment shared by many interviewed.
“What is being built is still too sparse. The building in landscape model remains and it occupies land without giving it function, and life disappears when the spaces become too big” explains Narud (interview, 2016).

Both municipal entities and architects recognize the increased importance of architecture and urban design as the region builds a denser form. With a more town-like urban form, the qualities between the buildings become a more important challenge to solve for designers. “The role of the architect is becoming more important as we build denser. [Architects] have to consider the context they build in and the impact of the design more” because it matters to more people explains Mäki, Bakke Kvinlog, and Hördin (interview, 2016). White Architects have been prominent in several urban projects in the Oslo Region that push the Norwegian tolerance for dense urban living including a proposal for the next phase of Fornebu for OBOS that will be discussed later. In agreement, Professor Sæter demands “more transformative projects” (interview, 2015).

In conversation with Line Henriette Hjemdal, Fifth Vice President of Parliament and a member of the Standing Committee on Business and Industry, the development agenda of Norway’s Government was discussed. The Parliament make laws, but its aims is to not overrule local government that are developing correctly. The Parliament has a broader perspective and tries to encourage sustainable action in every region in Norway. “We are trying to discourage shopping malls, create job opportunities outside large cities, protect farmland, cluster industries for efficiency and job creation, balance centralization against complete loss of jobs in outer regions, diversify jobs in larger cities to ensure opportunities for a wider range of the population, improve regional and intercity transportation networks, and so forth. What we truly want is to encourage and facilitate for more sustainable practices” Hjemdal explains (interview, 2016). The Parliament matters because

“We cannot trust architecture to get us where we want to. This is an interdisciplinary challenge.”

-Jørn Narud
they control the national budget — a powerful tool in financing social infrastructure development and they have the ability to change the Planning and Building Act. It is especially in the financing and accommodation for public transportation investment that the Parliament is crucial to success for the Oslo region. This thesis found a general consensus in what needs to be achieved across political entities in the Greater Oslo Region, from the national to the local level. The Parliament must consider its appropriate role, the aim is to encourage sustainability and integrated land use and transportation planning, but not regulated away creativity, explains Hjemdal (interview, 2016).

The growth in the region is placing pressure on valuable assets, including farmlands, cultural landscapes and open nature. Art and culture is often the last to be considered the development debate, expresses Sæter, a situation that is further challenged when we consider natural vistas and viewscapes as part of the Norwegian cultural heritage (Sæter, interview, 2015).

The recognition of the importance of the environment is evident across stakeholders, and all interviewees recognize its significance in their own work and the greater public conversation in the Oslo Region. The new Regional Plan facilitates for public transportation network expansion, building of walkable urban areas, towns and neighborhoods along the transportation path and bike lanes for commuting (Solli, interview, 2016). However many question whether the Plan goes far enough. Sæter, in capturing broader public sentiment, explains “we are not thinking enough about the environment; we need to depend less on cars and become a better biking culture. Oslo is depended on a strongly connected region where distances are short in time, it is good for quality of life, efficiency and the environment” (Sæter, interview, 2015). “It’s not like things are worse in Norway than elsewhere, but we do seem slower to change,” Sæter continues.

Salvesvold does warn that the Regional plan faces yet another challenge in that areas targeted for development and increased densification are also areas where the Plan faces high levels of skepticism and community push-back. Especially in the outer areas of the Region that will be significantly changed if the Regional Plan is put into execution are concerned as the relative
change in their communities will be much larger than closer to the capitol.

Further, the Plan is not rooted in government budgets, spending and regulations, which will have to change to enforce the Regional Plan argues Salvesvold (interview, 2016). In other words, Osloregionen is in full support of the plan, but remains hesitant of its ability to become a reality because it’s not tied to resources, regulations or incentives.

Further, several of those interviewed are asking for an increased professionalism in the planning process by leveraging planning and architecture professionals more in the master planning within municipalities. Municipal governments cannot be expected to know what makes a successful urban development, and should therefore also not be responsible for defining the plans for their municipality without a wider conversation with their region and experts in the field.

**Culture For Change**

As noted before, all the interviewees stressed a cultural challenge to developing a more dense urban form in the Oslo region. “We do not have an urban culture - this makes it more difficult to develop a larger city feel in new places,” explains Professor Sæter who has studied placemaking in Norway and elsewhere extensively (Sæter, interview, 2016). The urban tolerance drops quickly as you exit the city center of Oslo, Sæter continues. Further she argues that denser development continues to be challenged by the archaic Norwegian idea that children do not belong in cities (interview, 2015).

The architects interviewed recognize a slow cultural shift towards a more urban living lifestyle, driven by a cosmopolitan, frequently traveling, younger generation. “We must create architecture that is attractive to live in, an urban form that is attractive, active and for a diversity of people who recognize the pleasure of living in an urban setting,” says Narud (interview, 2016). The

“*Norwegians have preferred the solitariness and by themselves experience a house set into a landscape provide. Things are slow to change.*”

- Oddrun Sæter
interviewees recognize that the main challenges to facilitating for this shift is in how the public spaces are designed. The space between the buildings, the shared, public experience is often compromised and that is often because funds and regulations don’t allow the opportunity to create better shared spaces in urban settings (Mäki, Bakke Kvinlog, Hördin, interview, 2016). It is also because we lack the experience of accommodating for public spaces in design schemes (Narud, interview, 2016).

As architecture is a reflection of society, there is a strong wish from White Architects to push the standard design into the future. They argue, with support from the general public, that the market wants to see a more sustainable urban form, with public plazas, activated public spaces and a more vertical mix of uses (Mäki, Bakke Kvinlog, Hördin, interview, 2016).

How Does Fornebu Fit Into The Developments Of The Oslo Region?

Fornebu, as the largest development project in the Oslo Region and in the Nordic Region is at the forefront of the changes currently happening. In the Regional Plan Fornebu is identified as one of the core nodes for increased development, which sets expectations to how Fornebu shapes itself in the future. This responsibility has been clear for a long time, and stakeholders have already prepared plans that align with the overarching Regional Plan. The plans at Fornebu are far along compared to other peri-urban centers identified in the Regional Plan, which is why it is identified in populous conversation as the model for future development in the Greater Oslo Region.

The Current Urban Form Of Fornebu

The urban form at Fornebu is characterized by the buildings in landscape residential form, large corporate campuses, parkland and vast areas cleared for future development. The modernist urban form prevalent at Fornebu is similar to the rest

“Fornebu’s architecture is not up to par - the expression is boring and it lack quality. The architecture and design needs more variety to save itself from failure.”

-Jørn Narud
FORNEBU DEVELOPMENT STATUS 2016

1,800 RESIDENTIAL UNITS BUILT
300 UNDER CONSTRUCTION
600 AWAITING APPROVAL

6,300 PLANNED FOR IN THE MASTER PLAN, 2,500 IN PHASE ONE WHICH WILL NEED TO BE COMPLETE AHAD OF PHASE 2.

HOUSING BREAKDOWN FORNEBU TODAY

- 13% 1 BEDROOM
- 19% 2 BEDROOM
- 37% 3/4 BEDROOM
- 30% SINGLE FAMILY HOUSE (TOWNHOUSE)

20,000 JOBS
5,000 ABOVE MASTER PLAN REGUALTIONS

6+ FEW, BUT LARGE EMPLOYERS
- STATOIL, TELNOR, AKER KVÆRNER, HUAWEI, FORNEBU S, TELNOR ARENA, and OTHERS

Illustration 15: Overview of the Fornebu development. Sources: Bærum Municipality, OBOS

Sources:
OBOS, Fonebulandet presentation to Bærum Municipality
of the Region (described in The Form of Development in the Oslo Region) with small apartment building developments, separate uses and sprawling patterns. It is clear that the distribution of the residential buildings provides a convenient access to nature, light and air. An observation supported by Narud (interview, 2016). However, the form is disconnected from the street, results in a lot of unused spaces between the functional spaces and appears to be an inefficient use of space and utility services. The distances from residences to services and commercial offerings must amplify the use of cars in these kinds of neighborhoods, especially during the winter season (see Observations Chart in the appendix). The form seems outdated and inefficient. The residential development is made up of row houses and small apartment block, entire neighborhoods are created in one architectural expression. The buildings as set away from the streets and angular to each other as they form internal court spaces that are landscaped and often have a play area for children. In all, each neighborhood becomes a bit monotone, with little variety in the architecture. There are few cars to be seen as many are parked below ground, pedestrian pathways lead from residential developments toward the central park. Each area is walkable within itself, but as you walk onto the road the distance to other uses is far.

There is a definite variety in the architectural expression of the residential development at Fornebu in total, some is more interesting than other. For example, the waterfront residential development appears to be of a higher quality in materials and layout. The waterfront apartments are more expensive and have marketed themselves to an elder, no-children buyer. There are no commercial uses within the complex but within 10/15 minutes is a grocery store and two cafes. As other neighborhoods, the waterfront complex is nice within itself, but disconnected from the larger area.

The apartments overlook the park and the fjord, but they are set back from the street environment. The lack of aspiration in the architecture of the residential structures is reflected in the interviewees as well. OBOS, the current developer of most of the residences at Fornebu,
inherited many of the structures after completion or in construction. They argue there is a lack of ambition in what currently exists and are looking to a more interesting future (Schøning, & Gregersen, interview, 2015). That being said, what is currently planned and sold by spec by OBOS uses different, more interesting materials, but is of the same inefficient set back form as the previous developments.

With the exception of the Fornebu Mall, that has several stories of apartments above it, there is no integration of uses at Fornebu. The exterior of the mall does not have an engaging facade. There is almost no street level retail access across Fornebu. A couple of grocery stores tucked away, a couple of freestanding cafe/restaurants in older structures and some services by the Telenor arena. In all there are almost no commercial reasons to make Fornebu a destination or a local hang out, and the commercial functions are far from each other. It is further a curiosity how a mall came to be at Fornebu when popular awareness amongst urban planners, municipalities and architects know that malls are a poor planning and placemaking idea. As Sæter wonders, “who made a mall possible at Fornebu?” as it must take away from the area’s chances of becoming a strong community (Sæter, interview, 2015).

The areas reserved for future development are open and not landscaped. This is good for indicating that development will occur here in the future but also creates a vast disconnect between the built area and amenities like the central park.

The corporate campuses are set back from the street as architectural statues to corporate innovation and do little to engage with the street or people. The grand architecture is lifted away from the street and their internal services ensures workers do not have a need to exit the buildings. The corporate campus structures further disconnects many of the residential areas from the waterfront park and beaches.

“The park [at Fornebu] is fantastic and can become a destination. But, for Fornebu to survive its streets must be its destination.”

-Jenny Mäki
Both the park areas, Nansen Park and the waterfront, boost a high level of execution and have a landscape attractive to pedestrians. The parks seem to be designed for more passive recreation and sports activities are direct to dedicated sports fields elsewhere at Fornebu. The views from the Nansen park are residential and commercial developments in the distance and they feel disconnected from the park. The Nansen park is complimented by many as an achievement, a sentiment reflected in the interviews as well. The park, offering easy access to nature is an ideal Norwegian setting according to OBOS (Schöning, & Gregersen, interview, 2015). The waterfront park is smaller and accommodating to pedestrians, but tucked behind the commercial development from the residential areas at Fornebu. That the parks were in place as residents began to move into Fornebu is significant to its initial establishment argues Ødegaard and Nilsen with Statsbygg Corporation, who built the park (Ødegaard, & Nilsen, interview, 2016). That the parkland was created first is a very strong reason why Fornebu experienced its initial successes, a sentiment supported by architects and planners explains Narud (interview, 2016).

Looking broadly at the development there seems to not be any community at Fornebu, any local feel or destination makers. Anecdotally we know a community exists within apartment complexes, in office complexes and around kid activities like school and sport. But, to the external eyes the area seems disconnected, indistinct and desolate.

Across Fornebu, some residential buildings reach 6 stories heigh, and some of the corporate structures reach about 8-10 stories into the air. So the imposed height restriction from the master plan of maximum five stories has already been breach by several developments. A point argued by the several observers pushing for a higher density at Fornebu.

In summary the urban form is characterized by a sprawling development pattern, set back from the street, in anywhere from 3-10 stories, with an often bland residential architectural expression and a bit more aspirational corporate expression. There is very little surface parking at the entire area which does help its walkability. The entire area has a sense of unfinished-ness, that
is enforced by development sites and a street network that sometimes goes to nothing.

The Plans, Aspiration And Future Of Fornebu Is Pushing For A Denser Urban Form

Fornebu is one of the locations selected by the Regional Plan as a point of focus for targeted growth, development and investment (Plansamarbeidet, 2015). This makes the area that much more important in the regional development conversation.

Bærum Municipality is in the process of reconsidering their master plan for Fornebu. In the last week of April 2016 they decided to move forward to revise the existing master plan to allow for a yet to be set higher number of jobs and residences. The process for decision making, which will include significant public input, is expected to conclude in about a year with new, expanded development allowances. Already some restrictions have been set; the impact and consequences of further development must be clearly identified first, areas set aside to open public space and parkland must remain, new development shall mostly happen within undeveloped areas and be concentrated around the future subway line, and development must happened concurrently with soft and transportation infrastructure development. The final outcome of this revision process decision matter greatly to its future.

The current conversation concerns how more development will be allowed as counted in residential units, jobs and degrees of development (total built area and land coverage). In conversation with Wohni for Bærum Municipality, its clear that though the municipality is feeling the pressures from the other stakeholders, they remain steadfast in developing Fornebu at their terms — “this is not a neighborhood within Oslo, and we must consider the context, a village is not a city” argues Wohni as he explains Bærum’s desire to figure things out on their own terms for development at Fornebu (interview, 2016). The municipality envisions that they will set high sustainability

“We need to fully explore and consider the consequences of increased development at Fornebu”

-Arthur Wohni
requirements — to continue the legacy of Fornebu as an environmentally friendly development. They must also control the pace of development to ensure the soft infrastructure like schools and kindergartens (the municipality’s responsibly) keeps pace with the development of new residences (Wohni, interview, 2016). There is an understanding from the municipality that more density is needed and feasible at Fornebu, but the question up for public review currently is just how much that increase will be. Revisiting the master plan has received some negative reviews from many of the residents who have moved into Fornebu.

On the other side of the aisle, the fear and skepticism from residents towards heights and quantities of homes in residential neighborhoods remains. Similar to the rest of the Greater Oslo Region, residents at Fornebu stress that Fornebu is a suburb not a city and should be developed accordingly (Wohni, interview, 2016). Local skepticism towards development is a significant challenged to the sustainable growth of the region. At Fornebu, like most of the rest of the region, these issues concern loss of open space, inappropriate developments, NIMBYism, concern about resources and traffic congestion, and loss of character. Bærum municipality and its population is further concerned it is taking on more than its fair share of the region’s development at the convenience of other municipalities (Wohni, interview, 2016). The local community is organizing itself in several local resident alliances to influence the municipality to vote against further densification, leveraging media and social media in addition to the political process to get their arguments heard in the public debate and by decision makers.

The Case for Increased Density at Fornebu

According to its municipality Fornebu is the “engine of regional and national economic development” (Bærum Municipality, Fornebu). In

“Something needs to change at Fornebu to prevent it from becoming a modernist development complex disassociated from its context and adverse to a good quality of living.”

-Oddrun Sæter
the spring of 2016, Bærum Municipality opened the debate for the future of Fornebu with the goal of evolving the current master plan.

The landowners at Fornebu, the companies OBOS, Aker, KLP og Koksa Eiendom, are in support of an increased density at Fornebu have been pushing their own proposals for consideration to Bærum Municipality. These proposals are receiving wide support, including support from many interviewed for this thesis. But, their proposals of up to 70% increase in residence at Fornebu are also receiving a lot of push back from the local residences and some elected officials. A news report from a recent community meeting at Fornebu expressed the sentiment that none of the residents in the neighborhood want more or denser development and were angry towards proposed policies that only benefited the developers and large corporations (Armann, T., 2016). However, from conversations with Bærum municipality and during visits to Fornebu it is evident that not all residents are opposed to more development, several welcome a more urban development form as it will make their neighborhood more serviced and convenient (Wøhni, interview, 2016).

OBOS argues that an updated master plan that allows for denser development with a more urban form, meaning mixed use buildings along the streets with activated ground floors and city block architecture is necessary to prevent Fornebu from remaining and further becoming a bedroom community (Schøning, & Gregersen, interview, 2015). OBOS leverages market research to rightly argue that a critical mass is necessary to make a commercial market at Fornebu. In Norway experience and research has shown that at least 10,000 consuming residents (excluding children) are necessary to sustain a local commercial market (Schøning, & Gregersen, interview, 2015). By increasing the number of units allowed at Fornebu they can ensure that critical mass, and to build those units without compromising parkland requires a denser form. The city block form is also more sustainable through efficient use of space, resources, services and materials.

OBOS, the land owner and developer who owns about 80% of the developable land at Fornebu, is pressing for increased development opportunities, with support from all the
commercial land owners and operators at Fornebu who see increased development as a necessity to sustain local markets in the area. The developers are anxiously awaiting the outcome of Bærum’s decisions. OBOS, who engaged White Architects to develop an analysis and proposal, envision a more urban expression in their future development with a central commercial corridor for walking and shopping surrounded by mid-rise apartment buildings, increasing the number of residential units from today’s 6,300 to 10,000 (Schøning, & Gregersen, interview, 2015). Further, OBOS recognizes the economic value in a neighborhood approach to development that ensures good public spaces and outdoor rooms, as a holistic urban strategy translates into value for their properties (Schøning, & Gregersen, interview, 2016).

**Connectivity To Public Transportation**

The Fornebu area is served by a frequent buss services that primarily take users to and from Oslo City and to Sandvika the largest transit hub in Bærum. A ferry that would take people directly into Oslo City center was closed in April 2016 due to lack of ridership. One of the most contentious debates around Fornebu at the moment is the planned subway that would connect Fornebu directly into Oslo’s subway system. The system, delayed without a definite construction start date is highlighted by all interviewees as the necessary pieces to success for Fornebu. There is a lack of clarity from all stakeholders what is causing all the delays but they include regulatory hold-ups and disagreements between municipalities concerning ownership and responsibilities. The system is not completely funded, but Akershus County, Bærum Municipality, and the National Government has committed significant sums towards its development. Further, all the developers at Fornebu has expressed willingness to contribute towards the subway system because they see it as a necessity to their own success (Schøning, & Gregersen, interview, 2015).

Norway has restrictions on private contribution to public infrastructure, that was recently made even more restrictive. At a time when the Greater Oslo Region is under pressure to develop at a rapid pace, it is limited by the capacity of local and regional governments to develop
the hard and soft infrastructure needed to accommodate that growth. According to Mayor Solli, the initial plans for Fornebu included a simultaneous development of the subway, other infrastructure and private development, but it failed due to political will, changing governments and budgets (Solli, interview, 2016). The Mayor stresses that the simultaneous development strategy is key to good regional development, suggesting that it is the method to follow in the future. Further, Solli stresses that the subway should be solved and begun before any other changes to plans are made, to ensure concurrent development (interview, 2016).

Several people interviewed highlighted that developing a denser form in a municipality outside of Oslo is an added challenge. Bærum municipality is mostly characterized by suburban single family neighborhoods, open land, and large scale transportation passing through it. The municipality lacks the experience in developing town centers and city form, and the electorate is hesitant to take on disproportionate growth. This is a large part ruled NIMBYism, but also a rational approach to what knowledge the municipality has at developing towns from scratch. The argument from the private entities interviewed in this thesis is that the process is too slow, the demand is too heigh and the proposals are rational and thought-through. The counter argument from the municipality is that planning requires careful consideration and public input and its development must be tided to its transportation infrastructure.

When considering increased development at Fornebu the municipality, after recommendation from its advisory group is considering more studies and a deeper understanding of resources and consequences before any decisions are made (Wøhni, interview, 2016). The residents who oppose further densification are concerned specifically with capacity; that traffic is already congested, schools kindergartens and other services are at capacity, current plans for

“Fornebu in the next 20 years will become bigger than most towns in Norway - we just want to make sure it’s done right.”

-Arthur Wøhni
further soft infrastructure development are not even enough to meet current demand, and an increase in population will over-crowed amenities like the park and sports fields.

Wøhni presents some of the key concerns Bærum Municipality has about the future development at Fornebu, including social issues, design and appropriate-ness. In the existing master plan social housing units, and units that are more affordable in price were going to be built, few have at this time been built (Wøhni, interview, 2016). With about 80% of all the properties being controlled and developed by one entity there is a concern about uniformity in the design as uniformity is cheaper for the developers that creating the variety needed to develop an urban experience people want to visit. A continued concern for what is the appropriate urban form to allow at Fornebu is a significant worry for Bærum Municipality (Wøhni, interview, 2016).

However, from conversations it is clear that the municipality, developers and designers at Fornebu are in agreement on some ways in which Fornebu must develop. These include a focus on how to create quality of life in the built environment, preserving the natural features, creating a more village feel with well-functioning public meeting spaces, a subway is necessary to the success of the area, etc. Wøhni explains “we are responsible for the quality of the living experience within our municipality, even if we do not physically construct it ourselves, therefore we must work closely with private stakeholders to ensure this quality” (interview, 2016).

In a challenge to increasing the density at Fornebu, several of the interviewees raise questions about what the intention of Fornebu are. Narud questions why so much development is focused outside Oslo City, when so much potential remains in the city (Narud, interview, 2016).

Salvesvold also question the approach to development at Fornebu. “Fornebu is far away from our regional transportation system,” it would perhaps make more sense to place commercial development closer to more connected nodes and

“In its current form and location, Fornebu does not help the international profile of the Greater Oslo Region.”

-Grethe Salvesvold
leave the rest of the area for residential development. She argues that there is an opportunity in focusing development more in areas with more direct access to international transportation lines, like the trains to Sweden and the airport (Salvesvold, interview, 2016).

The Development Proposals

Being largely an open undeveloped area still, Fornebu has the opportunity to be shaped into a truly ambitious hub for live/work/play in the Greater Oslo Region. As the conversations about the potential at Fornebu has garnered traction, Bærum municipality has opened up the possibility of revisiting the master plan for the area. Bærum municipality formed an interdisciplinary independent advisory group that was tasked with evaluating whether increased development at Fornebu is feasible. The developers formed their own responses hiring firms like White to reevaluate and propose an adjustment to the master plan. At the same time Fornebu became a more frequent topic in public debate, and neighbors began to organize to fight any changes to the current master plan and the industry at large begun to envision the area’s potential.

The report from the Advisory Group and the proposal by White for OBOS are the most comprehensive and have been evaluate in detail in this thesis. They are more similar than different. Their main difference is where at Fornebu they identify the opportunity for a core commercial street, or spine, of the future development to be, with two streets available for consideration. Secondly, they disagree on where in the process Fornebu is, the Advisory Group argues that more studies and impact evaluation is necessary, while OBOS and White are confident their proposal is an appropriate proposal to the site and are more ready to go ahead.

What the proposals agree on are the main strategist for a more aspirational, sustainable and urban urban form in a village expression is the right development direction for Fornebu. In broad strokes, their recommendations are as follow.

An increased focus on public spaces between buildings, including streets and plazas. The spaces must be are proportionate, activated and well designed. More city-like development
with commercial streets needed for placemaking. An increase in number of residential units is feasible for Fornebu. The Advisory Group does not set a recommended number like White does. The Advisory Group also writes that the way the units are developed needs further investigation, as more smaller size units for a lower income threshold or senior populations is a way of creating a larger number of units without increasing the built area by much. The subway is a necessity and must get online asap, preferably started before the next phase of development. Preserving public open green space is important to the living quality at Fornebu.

As Mäki, Bakke Kvinlog and Hördin explains, and as applies to both proposals, this new thinking has a great economic upside — by improving the urban qualities a market will develop that makes Fornebu a larger attractor of residents, stores, offices and visitors (interview, 2016). The proposals evolve the current master plan with a more holistic approach that has the promise of a village feel that the current master plan, with its separation of uses and field by field mentality, does not. The integration of uses encouraged by most of the stakeholders around Fornebu allows for a more walkable urban form that will create a sense of place.

On the next page is a selection of renderings by White Architects for OBOS, envisioning the future of Fornebu as denser town-like development with a commercial mixed-use corridor, denser forms and integrated subway stops.
Illustration 16: Renderings envisioning the future of Fornebu. Source: White Architects
DISCUSSION

Introduction

This thesis investigates what the implication of growth are on the urban form in the Greater Oslo Region. It shows that significant strides are in the making to ensure a denser, public transit oriented development that preserves natural assets and facilitates for more centralized and village developments at designated transportation nodes in the region. However, at this time execution does not follow intention. The Regional Plan outlining these development goals is just a strategy not a legislative document, the investment into the public transit is not yet aligned with the new Plan and too much rule remains distributed across entities and municipalities to foresee the successful implementation of a denser more efficient and sustainable urban form in the region around Norway’s capitol. For example, the region continues to see mostly single family home developments, new shopping centers, and an inadequate alternative transportation development—despite the level of awareness amongst most that change is necessary to become a more sustainable region accommodating for the expected population growth.

Further, this thesis investigates the Fornebu development project as a high-profile project within the Oslo Region, asking whether its development model is a good model for the region to develop by. The answer is complex with cons and pros, but in general this thesis argues that Fornebu does not live up to the role of being a pilot project for the region. Even at its proposed new form Fornebu is not ambitious enough in its sustainability, social, and urban form to be a viable pilot. Following are some arguments explaining why.
Learnings for the Fornebu Redevelopment Project and Proposals

**Environmental Sustainability**

Fornebu was at its conception a significantly sustainable project that went far beyond the norm of the day. The development has received several recognitions for its remediation efforts, how the area provides heating and cooling and processes waster (locally and using ground heat/cooling systems, low energy consumption per built area). Fornebu began as a model for pushing the possibilities of the standard of sustainability. But its more recent development fall within industry standards and the standard-breaking strategies have not lived on. The new proposals for Fornebu are decent, lives up to today’s standards, but fail to push the envelope. At a project of this scale, with access to significant resources, ambitious and innovative solutions that go far beyond the standard should be the goal. Higher expectations of building performances should be set at Fornebu continues to develop, including standards for the urban form and public spaces.

**Nature**

The remediation of natural landscapes, rebuilding of preservable lands and sanctuaries at Fornebu have be celebrated by several entities and received several awards. The design of the park space has further received recognition. The parkland is excellent for passive recreation, but some people are concerned that it is overbalanced to active recreational space, especially as the population grows. The high quality of the design and the timely completion dates are valuable lesson to bring to other projects in the Region.

**Transportation**

A 2014 study showed that 9 of 10 of the commuting employees at Fornebu experience rush traffic and congestion to and from work. About 40% travel by car, and 35% by bus, but they end up in the same congestion regardless. This increases the CO2 pollution significantly, and further stresses the need to improve the public transportation services. The survey was done
for SmartCity Bærum by Accenture Consultancy (Gisle Johnsen, 2014). To reiterate, traffic is a challenge. Fornebu should in no way be a model for transport development. As has be iterated many times, that the subway was not developed concurrently with the other areas of Phase One is a significant shortcoming that should preclude Fornebu from being a pilot for peri-urban development in the Greater Oslo Region. In the new Regional Plan concurrency between land use and transportation development is stressed as absolute.

From interviews and archival research most expect the construction of the subway to Fornebu to begin after the new National Transportation plan (read budget) is adopted in 2018. There is a lack of clarity amongst agencies where and why the process is held up. Whether the subway must wait is a question asked by this thesis as it already has more than half of the funding committed from various public entities and the rest will come? It would seem reasonable to demand progress on the subway system before more development is allowed at Fornebu. To further balance transportation to and from, more efforts must be made to promote the ferry between here and Oslo City center as another alternative.

**Land Use and Master Planning**

Looking at the Master Plan from 1999, Fornebu was planned with its residential development encircling a grand park away from the waterfront with a buffer of commercial development blocking many of the residences from connecting with the sea. This seems completely counter to the Norwegian dream of living close to the water and having landscape views. Further, uses are separated, the residential areas is distributed inefficiently away from the streets, and the streets are large discouraging pedestrian use. That space is not used more efficiently 10 minutes from the nation’s capitol seems like an irrational decision. This plan should in no way inform future development in the Oslo region.

Looking at the proposed change from White Architects, echoed in other proposals, a more efficient use of space in the residential areas is proposed, integration of uses, more public
shared spaces and plazas and walkable elements. Though these elements are great, the plan does not solve for the entire Fornebu area or fully address the large corporate campuses that line the waterfront. This design is a good inspiration, but does not encompass enough area or is just a proposal and can therefore not be used as a pilot. If this proposal is developed and proves itself successful the model could be reevaluated as a pilot for success on the Greater Oslo Region.

**Urban Design and Form**

Currently the development lacks variety in the residential architecture and the corporate campuses are designed in a way that disconnects them from the rest of the area. The interconnection between developed areas is mostly uninviting to pedestrians as the most finished streets are wide, highly trafficked and not engaging experiences. What exists in terms of public plazas or open spaces, including the plaza at the mall is well designed with a children’s area and outdoor seating, does not connect well to the pedestrian network. Several public spaces connected to commercial activities are sections of parking lots allocated to outdoor seating with parking next to them and uninviting.

The corporate campuses are ambitious in their architecture, but disconnected from the community. The public spaces at these areas offer nice views and are enjoyable in the summer time, but they feel exclusive to the workers and not a part of the greater Fornebu. In other words, the public spaces not in the parks should in no way be a model for the larger region.

The current form of Fornebu of low density residential buildings and larger corporate campuses should in not direct future development in the Greater Oslo Region. Whereas the proposal for urban blocks, with heights considerate of light and air, easy access to nature, vertical mix of uses and activated ground floors if built could function as a pilot for regional development. In the proposal being pushed by OBOS, significant consideration to streetscapes, public spaces, and architecture is incorporated. If this proposal is further developed into reality, it could very well function as a design pilot for development of villages in the region.
There are further themes that can be evaluated in regard to Fornebu, but the above issues are the ones sufficiently investigated in this thesis. In a future study, this thesis recommends a deeper study of the social issues pertaining to the Greater Oslo Region and housing. In conclusion of the evaluation of Fornebu as a pilot, this thesis argues that Fornebu is currently a poor model for further development and a new evaluation should be made at a later stage in its new development depending on how efficient and sustainable its model becomes. However, by the time Fornebu is perhaps ready to function as a pilot for development, it might be too late for the project to work as a model.
RECOMMENDATION AND CONCLUSION

Going beyond the scope of Fornebu, we have observed the challenges and opportunities to sustainable growth, efficient urban form and planning in the Region. It is not unreasonable to assume that the decision for Fornebu’s future will set a precedent for urban form development in the Greater Oslo Region, as it has been suggested in media and in this thesis’ findings. Because of Fornebu’s scale and peri-urban position the project has received a lot of attention, and is likely used as a case study for other developments, even beyond Norwegian borders. It is therefore important that Fornebu sets standards for density and form that are efficient and sustainable. These standards must sustain commerce and job creation locally, create a sufficient population densities for local markets and to supply soft infrastructure and public transportation, in addition to creating a good design and livable urban form that people enjoin living within. Though County Mayor Solli highlighted that efforts towards more sustainable development patterns that counter sprawl exists in the Greater Oslo Region, the prominent form in existence and in development in Norway is still suburban. It is evident from this research that there is a significant shortcoming between intention and execution of development in the region.

The Compact City approach encourages urban development to be lead by sustainability decisions that will then determine its form, land uses and plan. If we define the future Fornebu firstly by its sustainability objectives — what are the economic, social and environmental goals — then let that inform the urban form requirements, you ought to succeed in developing a more ambitious and sustainably driven project worthy of regional standard-setting. Further, Fornebu can be an opportunity to test new development strategies and denser forms before they become prevalent elsewhere. Leverage Fornebu not as a built out model, but as a testing ground for the peri-urban town development.
Below follows some further recommendations to ensure a more efficient development of the region. As is clear from the Background section, the rate of development is not sufficient to accommodate growth, and strategies must be pursued that timely and sustainably accommodates growth. These recommendations include measures to ensure an efficient and rational urban form in the Greater Oslo Region.

**Less Fragmented Government To Make Regional Development More Efficient**

Today Norway average 12,000 people per its 428 municipalities, but Oslo’s population is 650,000 and the surrounding municipalities ranges in population from 120,000 (Bærum) to about 5,000 (Statistics Norway, 2015). The Greater Oslo Region is made up of municipalities that control an uneven amount of land, resources and tax revenues, and each is autonomous in many planning actions. This stagnates regional efficiencies, as was shown in the Background and in the Findings. It would seem more reasonable to consolidate more of the planning efforts on the regional level to avoid fragmentation, unnecessary duplication of resources and a true consolidation between land use and transportation planning. A consolidation of planning efforts would ensure more and concentrated planning knowledge that could then be deployed to local areas and projects. Municipalities would become consultants and clients, as opposed to be tasked with making correct planning decisions.

Norway is currently on the path to combine municipalities from the existing 428 that exists. As of today, 270 of the municipalities are in the process of merging with their neighbors (Salvesen, 2016). Though this creates opportunities for more centralized and sustainable development across Norway, it does not solve for the separation of transportation and land use control that remains the challenge between municipalities and counties today. Nor does it ensure more knowledge of planning best practices, which remains a questioned knowledge outside of larger urban areas in the vast country. A need for political consolidation and willingness on behalf of public agencies to do so was reflected by most stakeholders interviewed for this thesis. The
subjects also illustrate that this opinion is evident in the public and development industry at large.

**Increase Awareness Of Planning And Sustainable Practice**

Related to the point above, the Background and Findings show that outside of the municipalities that do planning well, many municipalities lack the expertise to facilitate larger development projects. Through consolidation and leveraging real expertise within the public or a private capacity, projects can ensure higher levels of efficiency and sustainability. Experts need to become integrated into planning and development, and their responsibilities should include private and public interests.

Adjust regulations to ensure sustainability and accommodate for innovative design

As expressed by Hjemdal in her interview and by others, the process for planning and development is good and generally works in Norway. It is the regulations that are not up to date and therefore can be obstacles to more innovative development (Hjemdal, interview, 2016). The solution must be to find a balance in regulations that ensures sustainable practices while providing the freedom that allows for innovation in the market and design. In agreement, Mäki, Bakke Kvinlog, Hördin suggests a more dynamic regulatory systems is needed, that is more accommodating to the new form of development (interview, 2016). For example, more regulations are needed to ensure the quality of public and shared spaces as these become more important in the new form the region is developing, as argued by Mäki, Bakke Kvinlog, Hördin as well (interview, 2016). Regulations should be outcome, process and performance (e.g. energy consumption) focused and allow for architects and designers to be creative in how to get there.

**Invest More In Public Transportation And Built It In Pace With Development**

According to the Findings in this thesis, the Greater Oslo Region is investing in and planning to invest significantly in public transportation infrastructure. But, several also questioned whether the plans are aggressive enough to really prevent growth in private car use. In order to
truly ensure the success of the region public transportation must be developed concurrently with new development, and design of villages must strongly discourage car use through proximity, traffic design and lack of parking.

In the 2015 report *KVU Oslo-Navet*, three transportation agencies in Norway concluded that an investment into public transportation expansion in the Greater Oslo Region would result in up to a 260% return on investment measured in efficiencies, health improvements and other social goods in its most ambitious scenario (Jernbaneverket, Ruter, and Statens Vegvesen, 2015). Especially subways, as is in the plans for Fornebu, is considered the highest return on investment. The report outline the necessary and ideal investments in public transportation needed toward 2030 and 2060. The report aligns with strategies and locations outlined in the *Regional Land Use and Transportation Plan* adopted a few weeks after its release, in an attempt at vertical and horizontal integration across agencies. In other words, public transportation investment is justified on a variety of scales, including social economics.

Still, a level of population density is necessary to justify a public transportation network (Solli, interview, 2016). The region cannot afford to drive empty busses around, which is why it makes sense to plan transportation, land development and village developments (density points) concurrently. That the development must happen concurrently, as opposed to how it happened at Fornebu, is underscored by all interviewed as important.

**Allow More Developer Contribution Towards Infrastructure**

Limiting private developers from building public infrastructure on behalf of the municipality or restricting public private partnerships is a severe deficit the Greater Oslo development industry. Allowing for increased contribution can fasten the pace of development to respond to the growth in demand, can benefit from economics of scale in larger development and leverage the expertise of the developer team. Current regulations should be exchange for guidelines for public-private partnerships between developers and the county government as it
has both a local and regional responsibility. At Fornebu there is a lot of interest from developers to contribute to infrastructure development to move development along, and as they see hard and soft infrastructure as key to the success of their own developments. This would remove pressure from municipalities to develop infrastructure without the necessary funds or to be criticized for disproportionately investing on one area. In its decision in April to revise the current master plan, Bærum also decided to collaborate with private developers on the development of the subway and soft infrastructure like schools and kindergartens. There is an aspiration from many that this could set a new precedent for public private partnerships in development in the Oslo Region.

**Update Regulations On Public And Shared Space To Accommodate Denser Urban Forms**

As the Greater Oslo Region, and the rest of Norway, develop in a denser pattern the public and shared spaces become ever more important. Notoriously destined to be cut from overrunning budgets, guidelines must be put in place to ensure an appropriate and good design of all new public spaces.

White Architects identified the opportunity to use the proposed Fornebu development as a strategy for national guidelines on public spaces in a more denser urban future (Mäki, Bakke Kvinlog, Höradin, interview, 2016). To base design guidelines and regulations on a piloted project is arguably a good idea as the outcomes of the regulations are tested before adopted. However it also sets a further expectation as to who participates in the development of the design.

The strategy to create public plazas and activated meeting points with variety of offerings, as proposed by White for Fornebu, is a great evolution of the urban form for the Region and beyond. However more development of the design guidelines is needed, including proportional sizes, material standards, pervious surfaces, storm water treatment, adaptability of the space, disability accessibility, natural features and other sustainability and social features, etc.

Too little awareness exists on the importance of the public realm in creating a livable, thriving environment that stimulates social and economic sustainability. Until the awareness
is universal and ingrained, education and guidelines are needed to ensure public space is designed and developed appropriately, and regulations might be needed to save the public space in the development budget.

**Leverage The Knowledge Of Architects And Planners More Effectively**

Because planning is the responsibility of municipalities, they sometimes make decisions without bringing in expert views. When Norway has an entire industry educated to know best practices and see new opportunities in the built environment, not taking advantage of this knowledge is a lost opportunity. Increased synergy between public planning entities and the industry ought to result in more creative projects. From the Findings, it is suggested that the more sophisticated the political entity is in planning, the more they rely on expert advice. The more complex our cities, the more we must rely on people capable of seeing the complexities and systems, which is often easier from an objective, knowledgable and larger-scale perspective.

The extended benefit of this collaboration is that it will continue to manifest Oslo as the architectural design destination is become from an international business and travel perspective.

**Change Attitudes And Perceptions**

Though a lot is changing in the Greater Oslo Region, there remains a significant challenge in people’s perception of a peri-urban life that must change to ensure a sustainable future for the region. As was mentioned by several, the Oslo population is still expecting to find solitude, single family homes with large yards within a short distance from Oslo city center, a prospect that is increasingly unrealistic.

As well, perceptions of what an urban lifestyle means must change at an increasing rate. Today, people are growing more accustomed and fond of urban living but remaining attitudes are slow to change, one specifically is that children do not belong in urban settings. Older attitudes seem to be guiding municipalities more than modern perceptions, further challenging a more densi
urban growth. The simplest way to change perceptions is by building successful developments and using them as a way to show the peri-urban village life and allowing adopters to follow. Making the village form, as proposed at Fornebu, more prevalent will also make it more acceptable and appreciated.

Relevance Of This Work

This thesis is proposing strategies to the development industry that increases opportunities for both the public and private entities. It argues that a way forward that closes the gap between intention and execution requires more ambitious actions, decisions and regulations. To ensure the right development requires a more streamlined process and rigorous control system. Further this work challenges the idea that Fornebu at its current or even proposed stage is a sufficient precedence for development in the Region.

Further Research

There remains many unanswered and unasked questions in regard to the current development patterns in the Oslo Region. More information is needed concerning the growth itself. As the population becomes more diverse and ages, across the region how does development and urban strategies respond? Further investigation should include a deeper understand understanding of the impact of how the built forms impacts the social and outdoors public spaces as densities and heights increase. There is a balance between efficient form and a form appropriate to the Norwegian conditions that are very unforgiving in regard to sunshine and weather. As well, a more contemporary planning process and regulatory work could be investigates to define how we create the right framework for more sustainable development patterns and forms.

Summary

In summary, this thesis has argued that efforts on both the public, private and design side in the Greater Oslo Region are making significant efforts to make the future development
of the Region more efficient and sustainable through a denser urban form connected to current and future transportation networks to meet the demand caused by growth. The urban form in the area surrounding Oslo is becoming more urban in its form, with a commercial core, transit connection and a sloping residential density around it. This thesis has challenged that development, questioning whether the ambitions are grand enough considering efficiency and sustainability. Using the Fornebu development, the largest development in the region as a case study, this thesis has argued that Fornebu is not adequate in its current or proposed form to be a pilot for the further development of the Greater Oslo Region. The goal of this thesis has become to challenge the public, private design entities, and the public at large, to ask whether the Oslo Region is developing smartly enough concerning efficiency and sustainability.
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Illustration 1: Norway and the Oslo Region. Source: Oslo Region
Illustration 2: The Norwegian system of planning. Source: Ministry of Local Government and Modernization
Illustration 5: Expected future housing demand in Norway. Source: Statistics Norway and Barlindhaug
Illustration 7: Population density in the Oslo Region. Source: Statistics Norway
Illustration 8: The land use map of Fornebu area. Yellow is residential, red is social infrastructure (like schools), light purple is commercial, bright green is activated recreational spaces, hatched pink conservation land. Source: Bærum Municipality
Illustration 10: Fornebu development status. Source: OBOS
Illustration 11: Thesis field research schedule
Illustration 12: Thesis field research map
Illustration 13: Thesis field research photos
Illustration 14: Regional land use and transportation plan. Source: The Oslo Region Alliance
Illustration 15: Overview of the Fornebu development. Sources: Bærum Municipality, OBOS
Illustration 16: Renderings envisioning the future of Fornebu. Source: White Architects
APPENDIX
APPENDIX_RESEARCH INTERVIEW QUESTIONS

Standard Questions
1. Please introduce yourself, your company and what is your job specifically.
2. Please describe how your job and company affects the urban form in the Oslo Region? Or, reversely, how the urban form of Oslo affects what you do.
3. The Oslo Region is seeing a lot of larger developments these days what are the elements that make a successful project? What are some of the challenges to success in a project?
4. Why should the Oslo Region become more dense? What would the benefits be?
5. What themes specific to development in the Oslo Region are most under debate and scrutiny today? How does the population growth influence the conversation?
6. Fornebu is one on the largest development projects in the Nordic Countries - how is Fornebu significant to development in Oslo?
7. What are the elements of Fornebu that makes it a special, or successful project?
8. Can you please describe the urban form at Fornebu as though you are talking to someone who's never been there. What are some of the key built conditions of the site.
9. There is a lot of debate going on about Fornebu and its development. In your professional opinion - what is important for the future of Fornebu and why? How would these changes make Fornebu into a successful development?
10. From your professional perspective, which city regions would you recommend that the Oslo Region looks to as it develops? Please explain why (what is it about that city region we should adopt here?)
11. From your professional perspective, which development project in the Oslo Region would you say is the most successful, that we should use as a standard for other developments? Please explain why?
Specific Questions

Interview Subject: Urban Planning (or related) Professionals
1. How would you describe the debate around urban form that is taking part in the public in Oslo today? (what are the opinions, who has the strongest opinions)
2. How is the pressures of population growth changing the conversation about urban form?
3. What, if anything, do you think needs to change about development in the Oslo Region to accommodate for the rapid growth of people?
4. What are sustainable development strategies to accommodate population growth? Is height and density the only solution?
5. What are some of the key reasons the Oslo Region has developed in the pattern it has?
6. What are the most important factors of peri-urban development in Norway?

Interview Subject: Urban Planning & Economy
1. Urban form - meaning the density, height, design - of how we build is argued as important in its effect on the economy, what are some ways you’ve seen this true in your work?
2. What are some significant ways urban form effects the economy in the Oslo Region?
3. In observing the regional development in the Oslo Region - what are some of the special economic opportunities and challenges faced?
4. How has the economic development at Fornebu had an effect on its local environment and the larger region?
5. How would increased development and variety in development impact the economic development at Fornebu?

Interview Subject: Resident or Workers at Fornebu
1. What makes Fornebu a great place to live? / work? Please name a few examples. What made you decided to move here?
2. Can you please walk me through a day at Fornebu, where you would go? A weekend day in the neighborhood / A day you decided to leave the office or stick around after office hours
3. What are your biggest concerns about living / working at Fornebu?
4. How included do you feel in the decision making process about the future of Fornebu?
5. There are several proposals circulating currently about the future of Fornebu. The most ambitious one is proposing 10,000 residences and 40,000 work places. What are your thoughts on the development direction Fornebu is taking?
6. If you were working as a politician, or someone else working in development of the Oslo Region, how do you think your answer would be different?

Interview Subject: Developers
1. In your sales pitch to private or company residents, how do you present Fornebu?
2. What made you decided to invest in the Fornebu area?
3. While [insert company] has been working on the Fornebu development, what changes have you seen
in conversations about the development? In what people are saying for our against your work at […]
4. In what ways has Fornebu been important to how we develop in the Oslo Region today?
5. You develop different housing typologies. What goes into your decision making process when shaping a project (in terms of units, density, heights, design)?
6. Urban form - meaning the density, height, design - of how we build is argued as important in effecting social conditions. How does [company] think about the social effects and the quality of life in the projects they build?

Interview Subject: Politicians
1. You’ve proposed several regulations for the Norwegian Parliament regarding more sustainable building practices - could you please walk me through where your motivation comes from?
2. What are some of the challenges in trying to pass sustainable sustainable development regulations?
3. In terms of the built environment - what are considered the more important strategies in Norway to make our homes, neighborhood and regions more sustainable in the long term? Are we doing enough currently?
4. If you look specifically at Fornebu, what are some of the ways that project is successful in sustainable development?
5. How is sustainable development and urban form linked in Norway?
6. How is urban form considered in the conversations about sustainable development?
7. How is density considered as part of a more sustainable development?
8. What are the obstacles to moving in a denser direction?

Interview Subject: Development Organizations
1. What are the key strategies pushed by your organization to promote a more sustainable peri-urban development around Oslo?
2. How does considerations for urban form - height, density and physical form - affect your work and recommendations?
3. How is sustainable development and urban form linked in Norway?
4. How is urban form considered in the conversations about sustainable development?
5. How is the Greater Oslo Region collaborations a benefit to urban development?
6. How could it be perceived as a hinderance?
7. Interview Subject: Architects
8. How is sustainable development and urban form linked in Norway?
9. How is urban form considered in the conversations about sustainable development?
10. How is the urban form of the Greater Oslo Region architecturally distinct?
11. Is there anything distinctly Norwegian in how we develop our peri-urban areas, in their urban form?
12. What are the elements that undermine the design of urban clusters in the peri-urban region?
13. How would you like to see the development market and public opinion change concerning design and urban form in the Greater Oslo Region?
Key takeaway from the interview - OBOS has high aspirations for Fornebu, they stress the need to get transportation and soft infrastructure developed for placemaking and community development.

Key takeaway from the interview - urban planning and development in Oslo are similar to and part of a broader concern in urban planning.

Key takeaway from the interview - the Parliament is consistently considering its role in urban development, exploring the right balance of laws and freedom to encourage and enforce sustainable practices.

Key takeaway from the interview - OBOS has high aspirations for Fornebu, they stress the need to get transportation and soft infrastructure developed for placemaking and community development.

Key takeaway from the interview - OBOS has high aspirations for Fornebu, they stress the need to get transportation and soft infrastructure developed for placemaking and community development.

Key takeaway from the interview - the Greater Oslo Region collaboration is a political entities stakeholder puzzle that needs to be solved in order for growth and densification and is developing several plans for managing that growth.

Key takeaway from the interview - OBOS has high aspirations for Fornebu, they stress the need to get transportation and soft infrastructure developed for placemaking and community development.

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### appendix_table2_observations

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<tr>
<th>On Map</th>
<th>Time and Day</th>
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<th>Description</th>
<th>Observed</th>
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</table>
| A      | 2015.1 2.16  Wednesday 2pm | Fornebu S
The mall at Fornebu | Duration: 1.5 hours
Walked around and had coffee at the Fornebu S mall. Talked with the barista. | Weather outside is conducive to indoor activities.
Few people. People there: shopping bags.
Comment from barista “It’s always slow during the week day here. I am not really sure how the center keeps open....” | ![Image](image1.jpg) |
| B      | 2015.1 2.26  Saturday 1pm-ish | Fornebu Development
Preserved Fornebu, Waterfront residences at Fornebu | Duration: 1 hour
Drove the main roads of Fornebu, into future development sites, to the waterfront, into some residential areas / parking lots. Stopped at one development for a walking tour of the residential development. | Variety in architectural expressions across Fornebu - but large fields in the same expression. Vast distances. Undeveloped land is kept bare to hint about future development. In the preserved development there is some emptiness and cultural uses - these sites feel disconnect from the rest of Fornebu.
The waterfront development a more high-end execution, walkable densities, but no commercial services. It seems disconnected from other developments.
Observed zero people outside. | ![Image](image2.jpg) |
| C      | 2015.1 2.31  Thursday noon-ish | Nannsen Park
The central park at Fornebu | Duration: 1 hour
A walk through some of the park area. The weather was cold, too cold for enjoyment. | The park is well built, even in snow enjoyable landscape. There are vast areas between development and park that are open - where future development will appear.
Three single groups of people observed, all with dogs. It was cold and a holiday. | ![Image](image3.jpg) |
| D      | 2015.0 1.02  Saturday noon-ish | Park on the Water
The area between the beach and office development is park area | Duration: 0.75 hour
A walk through some of the park area on the water. The weather was cold, too cold for a stroll. | The park is well built, conducive to walking. The view back is only office buildings and the human and neighborhood connection is missing. Unless one knows where the beach is, could be difficult to find.
No people observed. | ![Image](image4.jpg) |
| E      | 2015.0 1.06  Wednesday 4pm-ish | Residential area
One of the residential areas at Fornebu | Duration: 1 hour
Walked a residential neighborhoods, in the dark (it’s winter). Medium density: mix of apartments and attached houses. | The neighborhood is quaint, but the white architecture in the white snow makes for a bland expression. There is a lot of extra space that seems unused between buildings, streets and programmed areas - makes you question if the layout is the optimal use of space.
The interiors of the building structures have public gathering spaces with play areas for kids. | ![Image](image5.jpg) |
### appendix_table2_observations

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<th>On Map</th>
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<tr>
<td>F</td>
<td>2015.01.07 12pmish</td>
<td>Residential area</td>
<td>One of the residential areas at Fornebu</td>
<td>The neighborhood is quaint, but sameness in architecture makes for a sometimes bland expression. Similar to the sites walked yesterday. Along the road there is a lot of space between the buildings and the park - this is where new development is coming, but right now looks bare and walking experience not very exciting. Met one person walking a dog, got talking; “This place is great, we enjoy our home and there is a lot of space for my dog. The only thing that is unfortunate is the rules for dogs is getting stricter.”</td>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
<tr>
<td>G</td>
<td>2015.01.08 3pmish</td>
<td>The Hotel</td>
<td>There is a hotel at Fornebu servicing mainly business guests with meetings at Fornebu</td>
<td>The hotel had little traffic (but it’s off season for business). In conversation was ascertained that some residents are for, and some against more development. “I would like to see a more town-y development, maybe with a movie theater. We all knew more development was going to come when we moved in here.” “Living in an apartment complex, your neighbors become your community and social setting, but I rarely interact with any of the other services in the area - I get in my car when I need something or want to do something.”</td>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
<tr>
<td>H</td>
<td>2015.01.08 3pmish</td>
<td>The Commercial Area</td>
<td>The areas around the office campuses</td>
<td>Little traffic. Few cars to be seen and no pedestrians. The office campuses have parking in the basement, people come and leave without necessarily stepping foot ‘in Fornebu.’ The pedestrian experience is limited.</td>
<td><img src="image3.jpg" alt="Image" /></td>
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<tr>
<td>I</td>
<td>2015.01.09 noonish</td>
<td>Fornebu S</td>
<td>The mall at Fornebu</td>
<td>The center was very active, with a decent amount of traffic. Many families sat down with grand parents and its seemed like a routine weekend get-together (not necessarily the location, but the activity). All the stores seemed well visited and the services seemed busy. The activities seemed leisurely.</td>
<td><img src="image4.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
### appendix_table2_observations

<table>
<thead>
<tr>
<th>On Map</th>
<th>Time and Day</th>
<th>Location</th>
<th>Description</th>
<th>Observed</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>2015.01.12 Tuesday 11am-ish</td>
<td>Commercial Campus</td>
<td>The campus covers a large area, is set back from the street has good views over the water. There is no buildings, just a park between the campus and the beach and water. The building is 4-6 stories, a sprawling setting. The plaza in the center seems activated during the summer, but very vast in the winter setting. In conversation with an employee: many international employees here, they use Fornebu for live, work, play. Most Norwegian employees live further away and commute. “I have barely consumed any activities or services at Fornebu, ever. I come in my cat, leave in my car and eat at campus.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>2015.01.13 Wednesday noon-ish</td>
<td>Nannsen Park</td>
<td>Met no people. There is a vastness and the emptiness to the Fornebu area. Perhaps this condition will go away as more development happens. The weather was cold, too cold.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
THE IMPACT OF GROWTH ON URBAN FORM IN THE OSLO REGION